Discursive Designing Theory

- Towards a Theory of Designing Design -

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Copyright Statement

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in partial fulfilment for the degree
of Doctor of Philosophy

This work is dedicated to my commitment to increase design knowledge and to all students who study design, to all friends and professionals who have challenged me in the past and it is dedicated to my loved ones, who gave me the support needed to do such a work.

Abstract

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Motivated by the immature theoretical framework of design, this thesis employs transdisciplinary discourse to provide a contemporary and forward-looking model of design and design theory, as well as the linkages between the two, along with the necessary methodology. The discourse involves research into the current understanding of design, its principles, its practice and conceptual framework.
The methodology developed and employed in this thesis can be outlined in five steps:

0. Design briefing
1. Developing a conceptual model based on the writings of Michel Foucault and Helmut Krippendorff.
2. Presenting the model in a written form.
3. Using accounts of conferences as tools for Designing Design and building monuments.
4. Interrogating the theory through an expert system.
5. Summarising and evaluating the findings.

Design Briefing
The present study delves into design, and into the design of theory. In Chapter A.1.6, a summary of Chapter A.0–A.1.5 is given, highlighting the underlying discourse. As shown, the theory behind this work is based on a hypothesis, which cannot be proved experimentally, or deduced from experimental data, at least at the time of its construction.
Therefore, it needs to be understood that the case studies (A.3.2–A.3.5) in this thesis are not intended to serve as experiments that were conducted in order to prove the theory; rather, these case studies are design cases—products and artefacts—and should be viewed as discourse frameworks that can be adopted to design design. As described in Chapter 3.1, these are elements of monuments—in reference to Raichman (1988)—that have

resulted from the discursive strategies and were designed within a community of designers, allowing the design understanding to be shaped. Methodologically, the theory is created through an indication of differences.
These differences were elaborated on in the literature review, and can be explained using either logic-based or hermeneutical metaphors. As the latter approach is more flexible, it might be more applicable to the design environment.

The generated knowledge can be located in three areas—design knowledge, epistemology, methodology (the process to get there), and phenomenology (the composition of the artefacts). While the main focus of this thesis has been on theory design, it was also important to delineate how to get there, as well as analyse the questionable differences between theory and practice, since they are ideal types that mark the extreme ends of a continuum (Jonsen and Toulmin 1988, p.36).

The work presented in this thesis was conducted in a **circular manner**, like a design process, in order to encapsulate the instance. Therefore, essential topics reappear, allowing them to be reframed and newly contextualised.

Chapter 0.0 to 0.7 reperesent the introductory part of this work. Thus, the content presented could be referred to as 'the briefing'—as a parallel to a design case—to provide the background. It shows the motivation, a first hypothesis, some methodological considerations, and the research design and decisions. The aim is to provide insight into the phenomenon of interest and discuss some preconceptions. Thus, these introductory chapters provide orientation through locating some statements of the provided (design) discourse.

Developing a conceptual model based on the writings of Michel Foucault and Helmut Krippendorff.
As a follow up, Section A consists of several key components, and encompasses the research methodology specificity, its theoretical underpinning, and its connection to design, a reframing and contextualisation. This section also provides the means to overcome the discrepancy between researching and designing.

Therefore, in Chapter A1–A1.6, a more substantial discourse of design is provided, along with the theory and the essential knowledge. Here, we can see the method in operation, as a patching of discursive statements—akin to an additive process of designing.

Clearly, the attempt made here belongs to the constructivist epistemology, as the idea of design is a mental construct. Nonetheless, the aim is to provide a broad perspective of what can be presently observed in the design field.

The employed methodology strategically aims to overcome the divide between designing and researching—between acting and reflecting—in order to provide a conceptual model. Still, it also makes the designing practice a conscious process, whereby theory is designed through discourse.
Such discourse is revealed within the discovery of textual statements based on an extensive literature review, as well as through the discovery of textual statements from organised interactive conferences.
The theory developed here is, in fact, a theory derived from theory, and is shaped through finding patterns and the simplification of the overall structure they form.
In A.2, the concept of discourse and its designing quality is revealed. It shows how discourse, as the guiding method, is 'excavated' from the writings of Michel Foucault and Helmut Krippendorff.
Methodologically, Michel Foucault's 'Archeology of Knowledge' was analysed against and parallel to Helmut Krippendorff's 'Semantic Turn', as these sources are complementary to each other. The goal of this process is a comparison of statements, yielding reasoning towards discourse and design discourse. In sum, this analysis helped reveal that it is a matter of design how the discourse is provided.
The outcome of the aforementioned comparison is very interesting and satisfying. The findings revealed a difference in discourse, because engineering and design discourses are informed by rhetoric of design, rhetoric of deliberation, in opposite to humanistic discourse, which consumes textual objects (Perelman 1999).
The discursive designing process within these chapters reveals some important elements, such as the conceptual frame of politics, referred to in

Foucault's discourse explorations. According to the author, power is a generating force in shaping discourse (Faucault 1980, p.119).
In contrast, Krippendorff (1995b) sees power as emanating from language, which can be overcome through avoiding the construction of certain language.

In the research presented, the designing practice that took place during the conferences, as well as the aforementioned notions, play a role, as was shown in Chapter 3. Power, as it was experienced, is unavoidable. Yet, rather than seeing it as a problem, it should be viewed as a generating force.
A second more substantial question arises around the notion of discontinuity (A.2.3), which is essential in Foucault's concept.
According to Krippendorff, knowledge is not partitioned; it rather provides continuity through the various disciplines.
As this research shows, this view should not be seen as an opposite to Foucault's concept of discontinuity, because statements can refer to the same object, but coming from a discontinuous field, from various disciplines. In other words, as design discourse can be viewed as a discourse hosted by various disciplines, it is discontinuous!
With respect to Foucault's concern of grasping of statements, the main goal of this thesis is to provide support for this perspective. As the author noted, the grasping of the statements needs to follow the exact specificity of their occurrence (Foucault 1972).
The prudence and success of dissociating statements from their original context to place them in a new context is questionable, since no discontinuity can be ignored (Foucault 1972). Often, rather than paraphrasing the text so that it reflects one's own understanding of it, the result is a mere citation of the original texts and con-texts.
The awareness of discontinuity does not allow for this thesis to be presented according to the positivistic paradigm. Thus, rather than stitching the chapters together, as if they would naturally support each other, there might be some discontinuity 'logic'.

Presenting the model in a written form.

In Chapter A.2.5 to A.2.7, further perspectives on the various elements of this thesis are revealed, in reference to the discussions presented in the preceding chapters.

Scientific discourse, in Krippendorff's (2006) view, is misleading, since the design activities are different from those involved in science, which focus on search for patterns, and are thus always driven by the past.
However, designers are not motivated by the quest for knowledge (patterns), by the challenges, or conflicts that need to be resolved. Rather, they are motivated by opportunities for creating something better (patterns), or by the potential for introducing variations. In sum, designers generate various versions of the future, as they are always interested in the possibilities (variables) and realistic paths (Krippendorff 2006, p.28).
Discursive designing of design theory is seen in this way. It is an overcoming of the divide between the past and the process of generating the future, since statements are driven by the past. The monument that emerges as a result, as well as the resulting theory, is thus the future generated by patterning past statements into something new—something we can call future.
Generating future in discourse is common for designers, as shown in A.2.6. Designers live in discourse, as sketching is a kind of dialogue (Cross 2007). If not working on design theories, designers produce discourse in conveyance matter, but do not necessary generate knowledge.
Drawings and texts serve as evidence of a discourse held, rather than being the discourse itself. Design discourse can be conveyed in various textual forms. Designers turn documents into monuments (Rajchman 1988) when creating objects based on documents.
Such dialogues, such discourse, and specifically the design discourse, follow 'rules'. These 'rules' lie in connections with textual matter, with constructed artefacts, with the community of its practitioners, its recurrent practices, and boundaries that justify its identities to outsiders (Krippendorff 2006).
In Chapter A2.7, the difference among discourse, discourse analysis and discourse practice is clarified. Discourse practice is not limited by language, as it relies on textual matter. On the other hand, discursive analysis involves search for discourses, discourse formations and rules. It has transformed into the analysis of media texts and talks, the relation between discourse and pictures, photographs or film and many other fields, including therapeutic discourse (van Dijk 1989). While the aforementioned process yields valid results, research that produces explicit knowledge is more desirable. Communication through images is often not accessible for

individuals outside the design community (Robbins 1997). Still, practice-based research is what designers do (Dorst 2008a).
The differentiation between reflective practice and research should remain (Hart 2006), since the latter is the methodical search for knowledge, while the same is not always true for the former (Friedman 2003). Even though design knowledge arises from practice, not all (design) practice is systematic and methodological.

Accounts of conferences as tools for Designing Design and building monuments.

Several examples of a systematic design practice and methodology are provided in Chapter 3. While an overview of the setting and method is provided in Chapter 3.1, the conferences included in this study, and the discourse summaries they generated, are presented in Chapter 3.2–3.4. The process of designing these events and evaluating their respective outcomes was very informative for the search for theory. Moreover, the theory itself has led to the discourse of the presented designing design theory. On the other hand, not all conferences were relevant for this study, as not all design practice has been successful in providing knowledge. In three of the conferences held during the period of this study, the design practice was only partially successful. In one instance, the possible knowledge yielded was not sufficiently clear, since it was not documented in usable form.
The conference reflection yielded results similar to those arising from the discursive practice that took place when excavating texts. Discourse based on the previously generated textual matter shows clearer evidence of knowledge and influence of the understanding of design. This is to be expected, since the shaping and reshaping, the summarising and condensing has taken place over time.
Conference results and discourses are highly depended on the already available documentation. In this work, all other rules of discourse have been observed as well. Thus, it is evident that discourse design can be influenced through the speaker selection, their backgrounds and topics of presentations, as well as the time allocated to each. In this selection, the politics involved is always latent.
In Chapter A.3.5, the discourse of the conferences as discursive as cases is validated. The outcome is very interesting, as it reveals statements that have and might influence not only the concept of design, but also its understanding. For instance, design thinking is the foundation of the

discursive practice design. Such a design practice is marked by the shift towards a rhetoric and dialectic. Designers can solve design problems, such as creating a design theory, only through conversations. Designing design aimed at conceptualising the future of design is designing based on rhetoric and dialectic, because the base is text and conversation with the actors in the network—the community of individuals who come together in order to solve some design problems.

It is important to note that, designing in a conference setting, as presented in the three cases, is participatory. In such instances, design is a social process, as the design activity extends beyond one designer.

When engaged in a participatory design workshop, the attendees are an integral part of the social process of design. Moreover, they play an active role in the issue/problem raising, discussion and decision-making processes that are part of the early design stages of a project. When such an approach is adopted, the boundary between designers and users becomes blurred (Luck 2003, p.523).

Reflecting on what was previous stated in Chapter 3.7, various social practices are recognized, namely (1) the way we are doing a job—i.e., using language; (2) discourse serves as representation and re-contextualisation of other practices to incorporate them into their own; and (3) discourse helps in the constitution of identities (Fairclough 2000).

When discussing these events, it is possible to apply discourse analysis, adopting discursive methods to design theory. However, discourse should not be seen as the hammer that treats everything as a nail, since '…there exists no strictly Foucauldian method of analyzing discourse' (Hook 2001, p.521). In other words, when the aim of an event is generating a discursive designing process, it should not be governed by strict rules.

For instance, we can see the entire process of discursive designing from an action theory perspective, as was shown in Chapter 3.8.

All criteria can be applied, since action research is a group activity with an explicit critical value basis and is founded on a partnership between action researchers and participants, all of whom are involved in the change process.

The participatory process is educative and empowering, involving a dynamic approach in which problem identification, planning, action and evaluation are interlinked. When such approach is adopted, knowledge may be advanced through reflection and research, and qualitative and

quantitative research methods may be employed to collect the data. Different types of knowledge, including practical and prepositional, may be produced by action research. Theory may be generated and refined, and its general application explored through the cycles of the action research processes. Yet, it also highlights presence of differences, since not all participants have been invited to consciously design theory in an action research process. The action research frame also demonstrates the value of the process applied, allowing and framework of the designing design theory to be better understood.

The discursive design theory process—designing design—can also be framed as grounded theory (Chapter A.3.9). In social research, generating theory goes hand in hand with verifying it (Glaser and Strauss 1967, p.2). It is a systematic inquiry to construct theory (Bryant 2010).

This is succinctly explained by Hannafin (1997), who noted: 'theory-based approaches provide designers with powerful heuristics that guide design processes and procedures rather than provide explicit prescriptions' (p.102). Developing a theory that can be applied to elucidate the shaping of the understanding of the notion of design and applying this theory in order to reshape the understanding of design is a grounded theory process, whereby theory merges into practice. 'It assists designers in synthesizing across, as well as recognizing important distinctions among, various theoretical perspectives' (Ibid, p.102).

As Hannafin (1997) pointed out:

> Finally, grounded designs and their frameworks are validated iteratively through successive implementation. Methods are proven effective in ways that support the theoretical framework upon which they are based, and the framework itself is refined as implementation clarifies or extends the approach. The design processes and methods continuously inform, test, validate, or contradict the theoretical framework and assumptions upon which they were based, and vice-versa. (p.103)

Therefore, it can be said that discursive design theory in action—Designing Design—is a grounded design process. While all the conditions are met, Hannafin (1997) cautioned that we need to be aware that 'Clearly, not all design practice is grounded' (p.103). We should also be mindful that the discursive designing practice was not intended to be grounded.

Within the circular process of designing the research, discussed in Chapter A.4 to A.9, further defining and contextualising the process of designing design helps with generating and exploring the discourse and stating the theory.

In A.4, a history of designing design is presented, highlighting some rudimentary statements of relevance for this study (Jonas 1996) which puts it into the context of Universality. In the view of Giaccardi (2005), designing design as a meta design concept, as it is a design by anticipation. Glanville (1999) described a process of simplification and pattern finding to develop our understandings. Glanville argued that design is a process of continuous modification and unification—the inclusion of an increasing number of elements into a coherent whole. It may also involve an occasional re-start, extension, and revolution, as well as the increase in range and of simplification. When designing design, theory designing can be accomplished in different ways, as was shown in Chapter A.5. While it can be achieved through externalisation within a group process, it can also be an individual process (conferences and text-based individual patterning). However, while the designing of theory has to be based on some clear conditions, it can also be seen as a basic human activity (Chapter A.6.) Everybody designs; design is not a monopoly of designers (Rittel 1988). Each iterative process that changes existing situations can be referred to as design. Based on this premise, design is not an exclusive profession, since many professions include processes based on iterations and changes of existing situations.

Still, there is a difference between professional designers and non-designers because a 'reflective practice approach to design engages in knowing-in-action that serves as a substantial base of design skills' (Wakkary 2005, p.1). This definition leaves only the explicit knowledge in the realm of the design profession and indicates the need for a design theory designer, a design theory specialist.

As shown in Chapter A.7, Designing Design is driven by design thinking which should be viewed as an instance in a discursive practice reaching the goal. It is thus a technique, developed based on the understanding of what is needed for the production, as well as the consequences of such a theory and model. Design thinking is about the dependencies and the acceptance of such a theory within the community of professionals, within the design theory community.

Designing of design (theory) is also designing a system, since all systems comprise several components, which are interdependent and interact with each other to form an integrated whole within a specific context. This is exemplified in the design theory developed in this thesis. The interdependent group of statements is thus organised to form the systemic whole.

As the observer is the one that decides what belongs to the system, not only the system space, but also the designing design theory space and its boundaries, changes with the research process and statements produced within the discursive system. This is presented in Chapter A.6–A.9, which also define the system boundary, while also ensuring viability of this approach by limiting input to the discourse system.

In Chapter A.9 and A 9.1, the discursive theory design is put into an epistemological context. In this process, it is assumed that designing design does not solve finite problems, as it creates new problems—more problems appear concurrent with the theory. An object of design, and thus the process of designing design, cannot be observed; still, what will be said and written about design theory is observable. According to Simon (1969), this is the foundation of the science of the artificial.

Epistemological facts that constitute knowledge are discontinuous—a characteristic common to every discursive statement. There is no knowledge without a particular discursive practice. Knowledge is the space in which designers—if translated into the current frame—or scientists speak about the objects or processes of design that are relevant to the discourse. Design knowledge is the knowledge explicated and shared by the design community. Despite being relative, such knowledge is conveyed through the statements created in discourse . Moreover, the knowledge statements are inherent in and true within their contexts. Design knowledge can, therefore, be different. It thus follows from this premise that 'designerly knowledge' can be specific to the field of design and may not be perceived as scientific knowledge.

Interrogating the theory through an expert system.

Since the theory developed is known, the statements generated are sufficient for communication. Thus, in Part C of this thesis, the theory developed is tested through the semi-structured interviews with professionals. The information gathered is analysed in order to establish whether the designing design theory through discursive action is valuable.

All discourse documents utilised in this work were sourced in written form (extant literature and documents from the conferences). Yet, as they all belong to the world of theory, to scrutinise their thought content, verification was necessary. For this reason, seven interviews have been conducted with professionals, designers, scientists, managers and researchers. Still, the 'expert system' applied also required the expansion of the idea of an expert system (Feigenbaum 1993). Expert systems are designed to solve complex problems by reasoning about knowledge, as an expert does. In this context, the usage of the term could be seen as misleading, since one is not dealing with a system comparable to a computer system. Here, a group of experts (and their superior knowledge) help in answering questions pertaining to a social system, which is far less predictable.

The research methodology adopted here is qualitative, and is thus subject to some limitations. While interviewing is a standard data collection method employed in qualitative studies, other methods could have generated useful results. The interviews conducted as a part of this study can be called 'general interviews' (McNamara 2009). As they are semi-structured, they facilitated emergence of commonalities and forms that provided more focus than a purely conversational approach would yield (Ibid).

The questions that the interviewees had to answer have been designed and tested prior to the data collection process. Once completed, all interviews were transcribed, allowing the analysis that yielded common topics and codes. The statements that helped reveal these codes have been summarised in tables for subsequent analysis. Among the views the interviewees shared on the topic of designing theory, the following examples are particularly noteworthy. Design is not a discipline available only to designers. A difference between science and design remains—as the aim of the former is to arrive at the answers through investigation, while the latter focuses on production. Moreover, while scientific facts are immutable, design is a changing entity. It is fluid, since it is constructed over time, while science fixes terminologies. Strong individuals, through their language, shape the change in design, without being able to control the change. Instead, the community controls and shapes these changes.

Another distinction between design and science is that the former creates objects, while the latter generates knowledge and artefacts that help understand phenomena.

Therefore, Designing Design is a useful concept—as confirmed by the majority of the interviewed experts—because it is a model that captures changes. It is a process of designing change according to the circumstances in which it is being practiced. Moreover, designing will transform the theory into something tangible that can be tested today. On the other hand, thus far, discourse has failed to articulate what design is actually contributing. Therefore, not all discourse is as successful as design is. Design is very similar to management because, ultimately, it is not about understanding or explaining an outer truth to somebody; rather, it is like drawing a decision (as noted by one of the interviewees). We live with other people and, within this interaction, we construct the world around us. In response to this social aspect of our existence, design has shifted towards humanities, redesigning discourse and establishing meanings of artefacts as a second-order understanding. **Designing Design**, as proposed, is not claiming universality. It is a designing act, extending the field of design into a profession with the aim of taking responsibility for the meaning of design. As one interviewee stated: *'Designing is the doing of science,'* or as indicated from interviewee No 2: '*Scientific research is a sub category of design research.'* Nonetheless, this interviewee also pointed towards some limits of designing design, stating that, if we were to see design as capable of changing reality, this would be too big a loop. Some interviewees also indicated that designing must be conscious in order to confirm the hypothesis of designing design. They also posited that the most important opposition to the theory is the recognition of how to avoid the loss of meaning if design is defined in too broad terms as designing design through discursive action is.

Summarising and evaluating the findings.

Chapter D.0 summarised the main research findings and provided the conclusion in relation to the research questions guiding this study. It reiterated that the theory developed is a metaphor since it cannot be deduced. Theory is based on patterns that produce objects and allow discerning recognisable behaviours. Such a circular process of finding and

simplifying is valuable in science as well as in design. With respect to **design theory,** the research conducted has confirmed that theory construction needs to include purpose, scope, constructs, form and function, artefacts, testable propositions, justificatory knowledge, principles of implementation, and an expository instantiation.

The knowledge this thesis contributed to the field is provided as a methodology, referred to as designing design, whereby theory is designed through discursive practice. This discursive practice is presented in Part A, where the statements made by various authors are contrasted. Through this process of drawing and redrawing, positioning and repositioning, design and its understanding in the context of design theory lead to the theory of design. Discourse, as it is shown here, has the potential to design, but can also generate models and metaphors. This discursive designing is new within the context of design as well within the context of scientific research.
The second aspect of this methodology explored in this thesis is research into practice (Part A, Chapter 3.0–3.5) conducted through the design and the execution of the conferences, and aided by the documentation of the outcomes. These conferences have been designed to allow the participants to discursively discuss the given themes to expand or reframe design. This process can also be viewed as designing, since the boundaries between research and designing disappear within such an act.
Discursive designing, as it is presented here, has two specific frames—designing in positioning statement in texts to redesign design, and in recapturing the discourse held in conferences, presenting the statements held in the textual matter.
Design knowledge is discontinuous as it is found in many diverse disciplines. This makes dissociating statements from their original context difficult, as placing them in a new context would require ignoring discontinuity.
The result is mere citing of the original texts and con-texts, instead of paraphrasing the text as a reflection of one's own understanding. There is also the danger of positivistic stitching of various chapters and themes together, as if they would naturally support each other. While there are some notable differences between a scientific and a design discourse, these can merge into one stream, as we have seen within discursive designing theory.

Creating new knowledge requires overcoming of the divide between the past and generating the future, since statements are past-driven. Thus, the appearing monument, the theory, emerges as a generated future by patterning past statements into something new—the future.

Designers that produce discourse in conveyance matter are not necessary producing knowledge. Drawings and texts serve as evidence of a discourse held, rather than the discourse itself. As was recognised by various authors, design discourse can be conveyed in various textual forms. Thus, when creating objects based on documents, designers turn documents into monuments. Discourse practice relies on textual matter. Thus, discursive analysis involves search for discourses, discourse formations and rules and has shifted towards the analysis of media texts and talks, the relation between discourse and pictures, photographs or film and many other fields, including therapeutic discourse.

While the aforementioned process has its benefits, research that produces explicit knowledge is always more desirable. Thus, the differentiation between reflective practice and research should remain. Moreover, although design knowledge arises from practice, not all (design) practice is systematic and methodological.

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Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Graduate Committee.

Work submitted for this research degree at the Plymouth University has not formed part of any other degree either at Plymouth University or at another establishment.

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Relevant scientific seminars and conferences were regularly attended at which work was often presented; external institutions were visited for consultation purposes and several papers prepared for publication.

Publications:

Faust, Juergen. 2009. *'Positive Design.'* Journal of the American Society for Information Science and Technology 60 (9).

Faust, Juergen. 2010. *'Designing design and designing media.'* Technoetic Arts: A Journal of Speculative Research 8: 1, pp. 109–114, doi: 10.1386/tear.8.1.109/1

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0.0 Departures and Research Approach as Designing

This research has diverged from a straight trajectory, as design processes often does. It is a circling around a central topic, as well as moving forward and backward, reflecting the process Buchanan framed as *'the actual sequence of design thinking and decision making is not a simple linear process; and two, the problems addressed by designers do not, in actual practice, yield to any linear analysis and synthesis yet proposed'* (Buchanan 1992, p.15). Therefore, it should not be surprising that, as a result of the research conducted, the initial positions had changed and the framings of statements modified. Looking at the structure of the project, it is particularly important to state that the methodology applied (discourse) has influenced the conception and the structure of the thesis. For instance, the indexing of the work starts with 0, moving onto A and then C, omitting B, has been done on purpose to indicate what Foucault has described as discontinuity (Foucault 1972). In that sense, the research presented here is characterized by non-linearity, even if only at a symbolic level.

The entire Part 0, consisting of seven chapters, sets the stage and presents the basic considerations and the conditions. It thus reflects the initial phase of a design process, where the wickedness of the question does not permit constructing a simple storyline.
Some statements and framings in these chapters need to be accepted without offering profound explanations. This also applies to written text, since text requires the development in time and does not allow the writer to show the context immediately and instantaneously. However, this is sometimes necessary for a reader to fully comprehend the intended meaning.

In order to extend the limitations of written text, whenever it seemed appropriate, visualizations, charts, descriptions, and other visual aids were offered, since they allow presenting certain insights without having to follow the linear timeline of the written content. The images and charts used can be seen as a juxtaposition typically encountered in a classical document, which will hopefully aid the comprehension of the content presented within. Nonetheless, text is still the most accepted way to present knowledge and *'It is important to note that the majority of institutions still require a written component, though it is normal practice to reduce the length of the written component by about 50% when practical work forms a significant part of the submission'* (Newburry 1996, p.12-13).

The strategy included is also looking into what was already stated about the field. For instance, by looking into major statements in existing design literature. For instance Nadler speaks about the field of psychology, sociologyl education, economy organizational factors, and national resources. (Nadler 1967, p.642) Friedman (2003) instead sees natural sciences, humanities, liberal arts, social and behavioural sciences, human professions and services, creative and applied arts as well as technology and engineering very important. (p.40). *'Design may involve any or all of these domains, in differing aspects and proportions.'* (Ibid) As indicated by Friedman's statement, even the slightest attempt to present the departure point in a totality will result in an unfulfilled promise, since design may involve any or all of the domains Friedman presumes to be involved. Alternatively, it can be framed from a philosophical perspective: '*The Idea of truth, that is the Idea of philosophy or of science, is an infinite Idea, an Idea in the Kantian sense. Every totality, every finite structure is inadequate to it'* (Derrida 1978, p.160).

Taking in consideration the fact that the metaphor of a contextualized departure point is a spatial one also indicates that attempting to present even the smallest point in its totality would lead to an infinite trap. Therefore, as attempting to

describe the departure in its totality is not adequate, incompleteness is unavoidable.
Still, the incompleteness is not an argument for not presenting what is needed and what is common. Hence, the design of the research is presented later on in the thesis.
But the understanding of design in this research project has changed and it can be expected that it will change even further. The common understanding within the field has changed as well; it has diverged from understanding design as planning, sketching, making patterns and models, and as a decontextualized concept trapped into aesthetically inspired games, reiterating the shapes and forms. It slowly developed through the acceptance of further conditions that came into the picture - function, process, methods, sequence environments, systems, to mention a few.
Design, as it is represented in this thesis, involves dealing with problems - wicked problems - and even creating new ones, if necessary, to change and transform less desirable situations to preferred ones. It can be framed as: *'Design is the entire process across the full range of domains required for any given outcome. The field organized around design can be seen as a profession, a discipline, and a field. The profession of design involves the professional practice of design. The discipline of design involves inquiry into the plural domains of design. The field of design embraces the profession, the discipline, and a shifting and often ambiguous range of related cognate fields and areas of inquiry.'* (Friedman 2003, p.508)

The engineering or design approach, when made explicit, is almost identical:
'a. Identify the problem for which a single system, product, or piece of equipment is required;
b. Subdivide the problem into its component parts;
c. Analyse the components to uncover any new elements of the problem, which would change the design specifications;

d. Recombine the components into the desired system, product, or equipment.' (Nadler 1967, p.643)

However, in the research described here, there was no identifiable consistent problem, since the problem appeared during the research and has shifted; therefore, the engineering approach, as Nadler describes it, is rather an inadequate framing in this particular case. Here, the problem of a universal theory, for instance, changed to a general design theory. Similarly, the method of designing has merged into discourse, into discursive creation.

Thus, Glanville's description is more applicable in this case, as he states: *'I characterize design as a conversation, usually held via a medium such a paper and pencil, with another (either an 'actual' other or oneself acting as another) as the conversational partner'* (Glanville 1999, p.88).

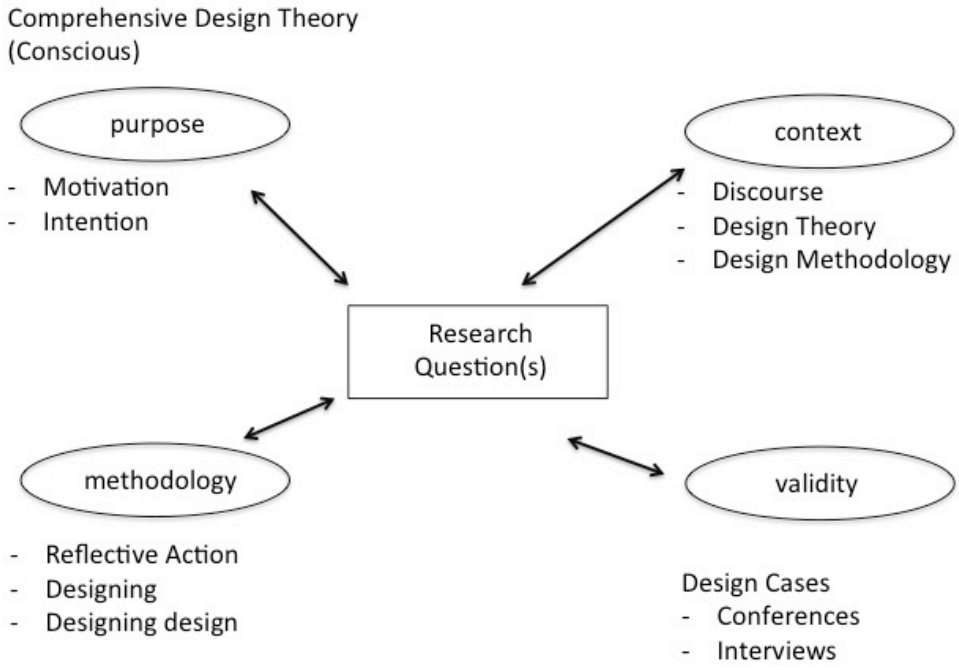
Research, as presented in this work, is a conversation held via text; it is searching for something and includes observation of processes, objects, and artefacts. Research requires library search, framing hypotheses, proposing, conducting experiments, as well as concluding, summarizing and making final statements and recommendations.

According to Glanville (1999), *'Research usually is understood to produce extendable and testable social knowledge. A characteristic is that we take our knowledge, extend and test it until it 'breaks,' and then rebuild it. Thus, we extend what we know. The circularity and failure (leading to 'rebirth') is central to the research undertaking'* (Ibid, p.81).

In a similar, yet different way, Friedman describes his understanding of research: *'Research asks questions in a systematic way. The systems vary by field and purpose. There are many kinds of research: hermeneutic, naturalistic inquiry, statistical, analytical, mathematical, physical, historical, sociological,*

ethnographic, ethnological, biological, medical, chemical and many more. They draw on many methods and traditions. Each has its own foundations and values. All involve some form of systematic inquiry, and all involve a formal level of theorizing and inquiry beyond the specific research at hand. Research is the methodical search for knowledge. Original research tackles new problems or checks previous findings. Rigorous research is the mark of science, technology, and the 'living' branches of the humanities.' (Friedman 2003, p.251)
Exploration, investigation, and inquiry are partial synonyms for research. Because design knowledge grows in part from practice, it overlaps with design research. The practice of design is one of the foundations of design knowledge. Even though design knowledge arises in part from practice, it is not practice, but rather systematic and methodical inquiry into practice - and other issues - that constitute design research, as distinct from practice itself. In other words, the elements of design knowledge begin in many sources, and practice is only one of them.

Researchers conduct experiments, observe, measure, qualify data and try to make sense of their findings. They also strive to ensure that the observer or other circumstances, which cannot be determined or measured, do not influence the experimental arrangement. While many design researchers do the same, there is a possibility that they might need to do something different. Creswell's model (2006) of research design is a very appropriate for describing the various parts of the research design applied within this project. Part 0 describes the study purpose, methodology and context are presented in Part A, and Part A.3 and D is entirely focused on framing the validity. This is achieved through the references to the practice of discourse within the context of several conferences - three of which have been presented and documented - and a set of professional interviews, conducted in order to explore the usefulness of the presented theory.



Model 0.0a Conceptual Outline of Research Project in Reference to Creswell (2006)

0.1 Intent of Research

Designing without intention is an impossible task. After exploring intention within design processes, Burnette (2002) noted, '…*there appears to be little theory-based research concerning how purposes and goals become established and operate in the minds of designers. The shifts in intention that redirect thoughts and actions to achieve a persistent but changing objective are not well understood'* (p.2). Burnette also states that intentions are directed, developed, and managed until the experience they relate to becomes represented in the 'meanings' that constitute the individual's knowledge and understandings. In the presented research, the intention is to identify the cause of the obtained result. Burnette further differentiates between various modes of thought, each requiring different cognitive skills, noting the following:

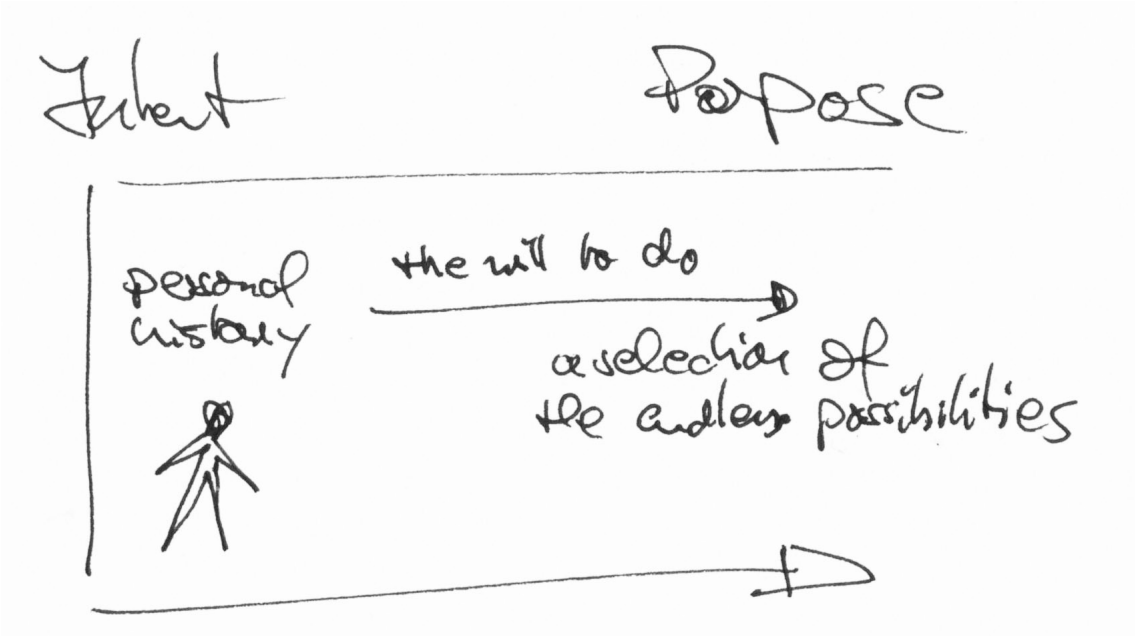
'For example, to address issues requires executive skills, the use of information requires lexical and linguistic skills, having ideas requires associative and analytic skills, generating and interpreting representations requires formative and explanatory skills, executing actions require procedural and operational skills, experiential assessment requires monitoring and evaluative skills and reflective assimilation involves the capacity to learn from and interpret experience.' (Burnette 2002, p.3)

However, intentional thought, he argues further, is a separate mode of thought that directs and manages subordinate intentions implementing the other modes of thought.

In referring to Denett (1996), Burnette argues that designing can be understood as the act of applying an intention to quickly identify an acceptable solution among many possible ones. Therefore, intention is already a selective act; it is acting, or directing, within the endless possibilities. Intentions are not rational,

but rather grounded in beliefs and desires. For instance, we might have a desire to create a more comprehensive theory of design and believe that we can contribute in the field to enhance the knowledge about design (Burnette 2002). *'Thus the source of an intention (what it is about) lies in the interaction between prior knowledge and incoming information'* (Ibid, p.7).

Even if the prior knowledge can never be clear, since the distinction between prior and current is permanently exchanging, it is evident that the design intention plays a role within the process of designing and cannot be ignored. Thus, it seems appropriate to present some intentional thoughts for this research before further background information is given.



Model 0.1a Intent and Purpose

The intention for this project is triggered by the desire to gain or produce more knowledge in the field of design. The intention also includes enhancing the methodological divide between design and science. A further intention is to create a distinctive position, based on the knowledge generated in order *'…to deviate from conventions, expectations, current senses of beauty and social norms, such deliberation serves a purpose'* (Krippendorff 2007, p.104).

0.2 Motivation

Although intention and motivation often lead to similar answers, making a clear distinction between the two might help to enhance our insight into the process of creation.
Intention within design is a selective act - an act of directing with the endless possibilities, grounded in beliefs and desires. It differs from motivation in the following sense: *'Motivations are justifications for actions, not to be confused with drives, values, or mental states, which invoke causal explanations devoid of human agency'* (Krippendorff 2006, p.136).
Motivation, therefore, also explains selectivity, just as intention does.
Nonetheless, the differentiation between intrinsic and extrinsic motivation is obvious.
'Extrinsic motivations justify actions be reference to goals to be reached, tasks to be completed, and rewards expected upon successful completion - Intrinsic motivation justify actions in their own terms. They refer to the sheer pleasure of being involved in a process' (Ibid).

In this research project, both motivations are active, triggered by many years of teaching design students, which can be seen as an extrinsic motivation, as well as the desire to present a body of work.
Still, the motivations are also coming from the pleasure of conducting the research and from the satisfaction in having developed new thoughts and statements, as well through mere enjoyment of the beauty of a thought. They are also derived from seeing the body of work grow and having it completed to a sufficient level, so that it is presentable. Krippendorff (2006a) too sees the joy of the pure play within such a body of work.
The motives can also be categorized as reactive, in a sense that we are reacting to certain experiences. As Ulrich (2007) stated: *'An appropriate*

conceptualization of social systems must start from the essential particularity of all social systems: internal motivation' (p.1101).

In other words, the focus is on the motivating aspect and the motif. Although it is not possible to identify etymologically a clear connection between motivation and motif, or motive and motif, constructing such a connection is an inner stimulus of motivation. In addition, *'the motif achieves its power by an appropriate regulation of that frequency and improbability, by its appearance in significant contexts, by the degree to which the individual instances work together toward a common end or ends and, when it is symbolic, by its appropriateness to the symbolic purpose or purposes it serves'* (Freedman 1971, p.123-131).

The experiences implied here include discussions and interactions with designers and other faculty at universities, or even at conferences, realizing that there are huge gaps within the field.
In the past, the motivation has also been triggered by the discrepancies within design and the changes observed in its development. Discrepancies arose from practices and statements that were at times extremely contradictory, such as the preconceived notion that design is merely concerned with aesthetics, with forms and beauty.

Working with students also generates the motivation, due to the lack of models that can explain what design entails, how it emerged, where it is going to be and how it relates to creativity and a pure artistic approach.
The last aspect in particular has indicated that there is a need to clarify that design is not an artistic endeavour focused on a functional and useful object. Design may have diverged there, but has far more roots now in scientific disciplines, which we will see over time and as the thesis develops.

Motivation is also triggered by the observation that many years of teaching and researching need to come systematically to a conclusion, even if this conclusion will be in a form of an interim statement. If teaching does not operate with a clear perspective, a model of the field, with adequate knowledge, even in flux, it cannot fulfil its premise.

There is a huge gap between what is known about design, and the impression one gains through observing designers at conferences and at different places.
It is even more triggered by the observation that design is marginalized in many universities and other higher education institutions, since design has not yet developed a body of knowledge that can be taken seriously by other faculty and researchers. That observation was made in Europe, as well as in North America.
According to some authors, such knowledge can still be generated. For instance Narvaez et al. speak about conceptual knowledge, which is combined in design. Knowledge which they call design's own knowledge, physically transferred to onjectual reality (noesis) and poiesis, the practical application of design.
(Narvaez 2000, p.40).
It is also motivated by a deeper insight - gained through experiencing - that design, if it is explicated, can disseminate its knowledge and provide many disciplines within universities a great source to professionally enhance theory building, generating successful solutions and even the problem setting.

Model 0.2a Motivation

Such a knowledge might be indicated by a paradigm shift, as Findeli stated. (2001, p.5).
As Findeli argues, the paradigm shift can be also seen in an out-dated implicit epistemology of design practice and intelligence from the nineteenth century, which had been overemphasizing the material products. This onus on aesthetics is focused on shapes and a code of ethics originating in a culture of business contracts and a cosmology. Both are, however, restricted to the market, a sense of history, which is limited by the concept of material progress and a sense of time driven by the cycles of fashion and technological innovation (Ibid).
In reference to this paradigm shift, it is also arguable that, in addition to a different frame used to model design and its practice, its implicit epistemology, different design intelligence is also needed. Such intelligence must be capable of shifting the focus towards interactions, services, and aesthetics that is not restricted to shapes, but rather includes values beyond form - values that enable us to design systems that comprehend the aesthetics of a sustainable cycle.
The motivation also came out of the experience gained through studying sciences as well as art, and through the experience of consciously bridging both culture and integrating attitudes towards the world as well as a professional environment.

Therefore, there is a motivation that connotes with the idea Cross described as: *'We are still building the appropriate paradigm for design research. My personal 'touch-stone' theory for this paradigm is that there are designerly ways of knowing'* (Cross 2007a, p.10). Such statement needs to be contextualized within the presented discussion to prove or to dispute them. It is also a statement towards sciences, whereby designers are inherently different, and their motivations must also be different.

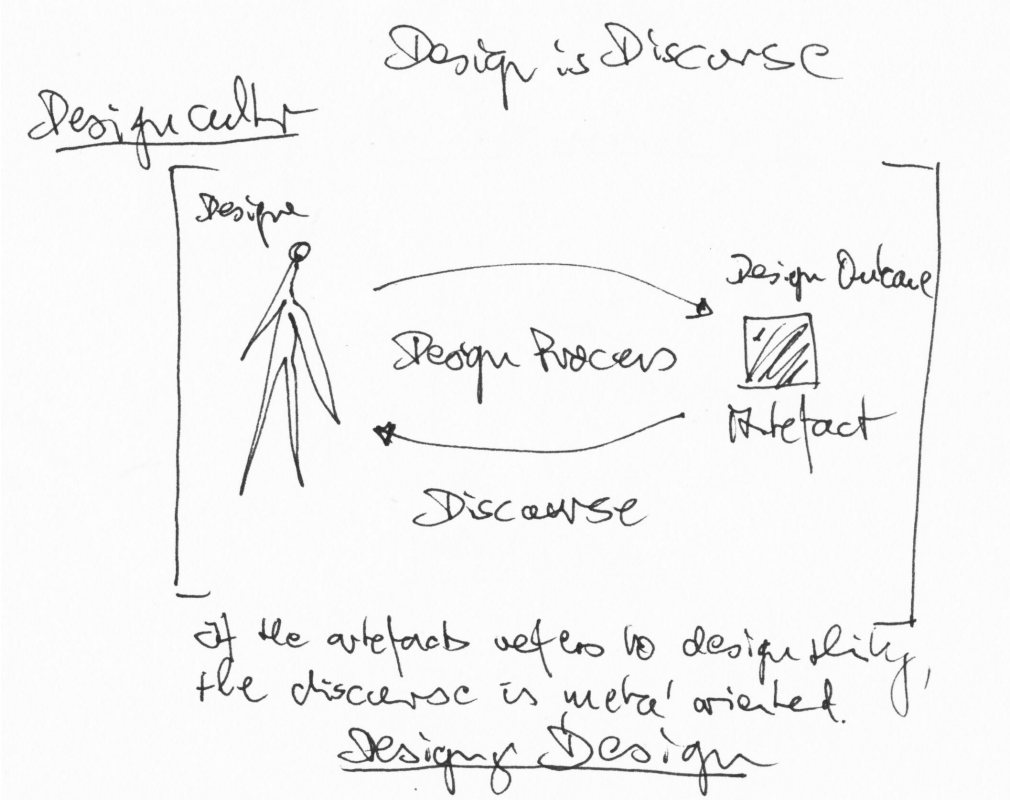
This goes hand in hand with the experiences from an former art practice, where a phenomenon is discussed and referred to as 'thinking with my knee', according to Joseph Beuys, and can be seen in accordance to a **'designerly way of knowing'** (Cross 2006).

The motivations, therefore, can be framed as experiences and values that bring together the scientific mind and the desire to change existing situations into those we favour - in short, with design.

0.3 Hypothesis

The hypothesis tested in this work comprehends that Design does not exist, but is rather designed and generated in discourse settings. These discourse setting might be such conferences or meetings, as well as journals which allows to present statements towards the theme.
Design is Designed - such a discourse can be seen as a new, as a reframed discourse a (conscious) design discourse, generating new meanings of design. Such **a discourse** becomes an integrated discourse, since it requires various textual components.

In such discourse, designers and design theorists are creating future models for design, founded on the science of design, design science, and science for design. They do so whenever necessary, in order to enhance design discourse, intending to derive a common language and meaning for the various communities participating in the design process and discourse.
Such a discourse, such a design discourse, would then be an integrated discourse - a discursive practice that draws upon all discourse matter (textual matter) or conveyance matter available for projecting and evaluating solutions.



Model 0.3a Hypothesis

Therefore, such a design discourse would be based on a design discourse culture, which is difficult to comprehend from outside. Hence, this culture could be called the 'designerly way of knowing' (Cross 2007a). Such a discourse culture would be differentiated by discourse media (textual matter). Moreover, this form of discursive thinking would rest on the manipulation of non-verbal codes in the material culture, as well as in signs and symbols. These codes would serve to translate messages among concrete objects, abstract requirements and language elements.

The hypothesis of this research also posits that design is turning documents into monuments (Rajchman 1988, p.90); thus, such a process can be seen as an explication of design knowledge.

Design by itself is discourse is another part within this hypothesis. Moreover, **Designing Design** can be seen as a meta-discourse - describing design thinking, the identity of designing. Therefore we can say that the knowledge and meaning

about design is generated from the interaction between the experience and the ideas we have about that experience.

Meta-discourse in design would then be **Designing Design** and needs to be seen as creating comprehensive models of design using various conveyance matter (textual matter) to generate theories, extending and reframing the understanding of design and the design activity by itself.

Framing **Designing Design** in that way moves it to action research, reflecting designing actions within the community of designing theorists. Hence, **Designing Design** includes co-designing and re-designing, since it would always act upon existing design theory.

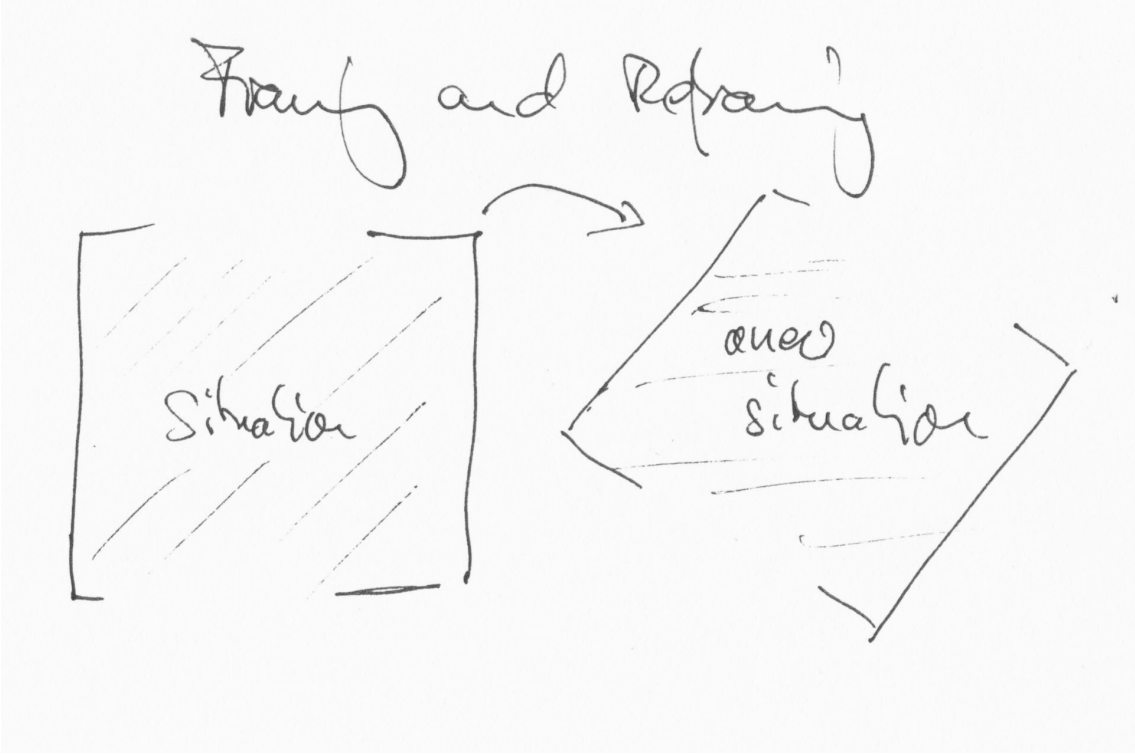
The hypothesis, as outlined above, will be tested in three ways:

- In contextualizing the hypothesis in design discourse
- By applying these ideas in the practical event of organizing conferences to generate design discourse and changing the existing design understanding into a preferred one
- In evaluating the design theory through several semi-structured interviews designed to evaluate the usefulness of the generated model.

0.4 (Re)-Framing the Research Question

Framing is an important concept. According to Barkow (1992):
'Our minds are always automatically applying a rich variety of frames to guide us through the world…A frame provides a 'world view': It carves the world into defined categories of entities and properties, defines how these categories are related to each other, suggests operations that might be performed, defines what goal is to be achieved, provides methods for interpreting observations in terms of the problem space and other knowledge, provides criteria to discriminate success from failure, suggests what information is lacking and how to get it, and so on….Because the world cannot supply to the system what the system needs first in order to learn about the world, the essential kernels of content specific framing must be supplied initially by the architecture' (p.107).

However, framing is always reframing, since there is nothing without a form or a shape.



Model 0.4a Framing and Reframing

Re-framing can even be seen as a design method that can be employed to solve problems. Schoen describes that as creative design, noting that *'hypothesis depends on a normative framing of the situation, a setting of some problems to be solved'* (Schoen 1983b, p.132-136). This normative framing is a perspective that highlights '*a few salient features and relations from what would otherwise be an overwhelmingly complex reality*' (Schoen 1994, p. 132).

According to that notion, this research draws from several transversal domains - transversal, since what is intended intersects with several fields. Therefore, this work explicitly looks for an overarching model and theory that can be utilized to comprehend design, whether design is focused on real objects, services, virtual objects, or even theories. It thus requires a design model that transcends individual disciplines. However, developing such a model is an important and difficult task.

One strategy that might lead to the desired outcome relies on exploring existing design theories, i.e., existing framings. Still, the issue of how such knowledge can be created, how design knowledge is developed, and how it can be produced, requires the frame of epistemology. Then, the question becomes, is such knowledge production comparable with science, the science system? Moreover, how can such systems be designed, since systems might be left and boundaries be crossed?

Discourse is one way to frame design. Such a **Design discourse** must be comprehensive, since the requirement is transversal.
Therefore, the method of designing, designing theory, and designing in general, is central and needs to be elaborated, framed and reframed to fully appreciate whether design discourse is indeed different from a science discourse. Expanding on that, the question of whether discourse is generating knowledge must be

addressed as well. It is at this point that the framing touches the methodological base of this research.
As an important outcome of the analytical work performed within the discursive and methodological exploration, another the question arises - do designers mainly deal with the same **discourse matter**, as for instance do historians, scientists or linguists? Or does the conveyance matter of the discourse change depend on the stage of the design process, on the designer's favourite media used to explore possibilities, etc.? Discourse matter is another important theoretical aspect that is explored transversally using the work of authors from different fields, especially within the discourse of visual language.
This might culminate in the argument that design by itself is a form of discourse, or can be discourse, following the various elements of logic, given by the discourse of conveyance matter, following Foucault (1972) and others.
In that case, the frame of theory needs to be explored. However, this raises a new set of questions to be answered. What is theory? What does it consist of? How is it different from design theory? Can a design theory be developed or constructed? What does it mean to be designing theory?

Theory design will thus be another theoretical keystone for this work. Last but not least, the question of **meta-theory,** of the meta-design-sphere is in focus when **Designing Design** is framed.

Finally, there is the culmination of the theory as a practice. Theory, as it is framed here, is a design discipline that allows reframing and redrawing the lines between the meaning of design and the accompanying technology.
A meta-theory could be seen as a set of interlocking rules and principles that both describe and prescribe what is acceptable and unacceptable as a theory.

Design and Science

The process of deriving the hypothesis guiding this study started as research connected to a scientific approach, since it included literature review and observation, which helped frame the research question or the hypothesis. As Nadler points out, comparing this approach with the design process, with the analysis at its core, is questionable when we are designing. Whether scientific reasoning or designing, or both, drives the creation of a hypothesis is presently unclear and should be discussed (Nadler 1967). He adds: *'Research has a well-founded approach or methodology. This is not the case for engineering and design. When a step-by-step approach for design is taught, the research methodology is generally given. This, in effect, assumes that the same approach is desirable for both purposes. In the briefest format, the research approach has the steps of observation and/or library search, hypothesis, experimentation (or more observation), and conclusion. This plan of attack has analysis as its hallmark. As valuable and necessary as initial analysis is for research, its place and emphasis in design should be questioned'* (p.643).

The same applies to systematization, which is another assumption within a research approach adopted in this study. Systematization is needed to order and understand the organization, which - according to Snodgrass (1995a) - is not a product of rationalism. Similarly, spatial ordering - driven by spatial metaphors, listing, making charts, creating tables and diagrams - helps solve problems, because it aids to memory (Snodgrass 1995a).

The conflict between science and design might be resolved by looking into action research as an established methodology in creating knowledge.

'When someone reflects-in-action, he becomes a researcher in the practice context. He is not depending on the categories of established theory and techniques, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means, which depends on a prior agreement about ends. He does not separate thinking from doing, ratiocinating his way to a decision which he must later convert to action' (Schoen 1983, p.68).

Therefore, within Part D of this thesis, where the cases are presented, the need for model of action research and its theoretical framing is elaborated upon, noting that it allows us to establish whether the dualism of design and science is still accountable.
Action research, as we understand it here, is the production of knowledge in action. Knowledge can be created through action, both situated and partial. In an action research process, the researchers are actors immersed into the research cycle. By changing situation, action research therefore challenges traditional sciences (Reason 2001, 2001a).

Science of Design

Simon (1999) differentiates between the natural sciences, which are concerned with how things are, and design that focuses on how things ought to be, through devising artefacts to attain goals. He goes on to explain the difference between the two types of logic. Ordinary logic systems serve the sciences well, as they are based on the standard propositional and predicate calculi. Consequently, these logic systems can be represented in declarative statements.

On the other hand, design needs a different logic, since it is devising artefacts. Archer triggers the idea of a third area, alongside science and humanities, since design is modelling, rather than a notation (Archer 1979).
As imperative logic might produce paradoxes, the logic of optimisation methods can be applied instead (Ibid). Simon (1999) calls it *'Finding Alternatives',* referring to the logic of design. He also raises an important question: '*Does the alternative satisfy all the design criteria?'* (p.121)

Nonetheless, in general, what the frame allows here is the systematic collection of accounts of successful methods and theories that can be applied to articulate and evaluate what might be a comprehensive theory of design - a

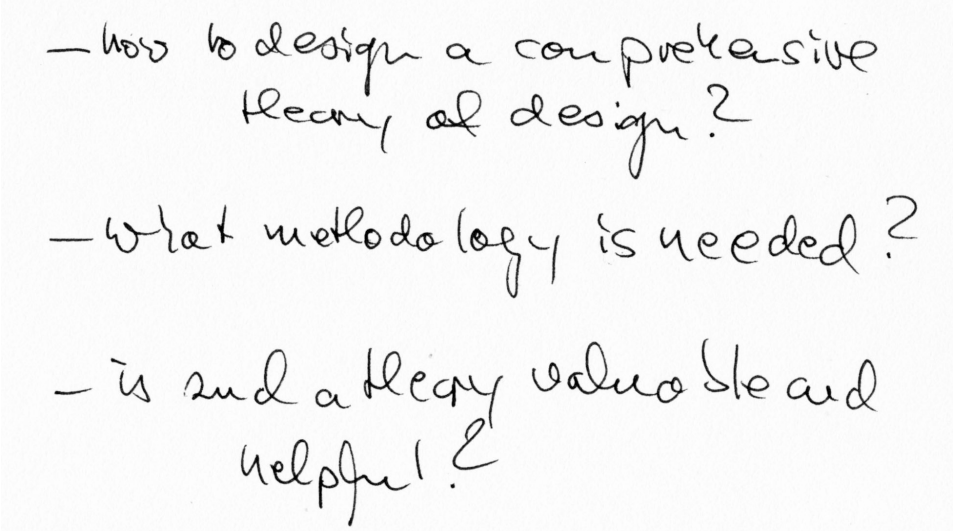
comprehensive model. It will not be limited to what exists, but rather be a frame for what is needed to create change when needed.

The research questions are:

How to design a comprehensive theory of design?

What methodology is needed?

Is such a theory valuable and helpful?



Model 0.4b Research Questions

0.5 Methodological Considerations

The methodology used here can be summarized as research and inquiry based on a discursive designing practice, developing a comprehensive and justifying a design theory. The various frameworks utilized to qualify the approach are presented in Part A of this thesis. While part A.3 of this research can be seen as action research, as a participatory design process, it can also be framed through grounded theory.

The core of the methodology is discourse practice, which is, as outlined here, mostly based on text, textual matter. However, as it also relies on some images drawings, it will thus be referred to later on as conveyance matter (Faust 2009). The discourse practice is driven by the objective to develop design theory, excavating texts and statements.

Discourse practice is presented in within the various chapters comprising Part A, which describe evaluation of different models and theories, putting Krippendorff's and Foucault's understanding of discourse in close proximity. While discourse practice is also described here, is the findings are documented in Part A.3, reflecting on the results of the conferences.

In sum, theory development, in discursive action, focusing on **Designing Design,** is developed within this thesis.

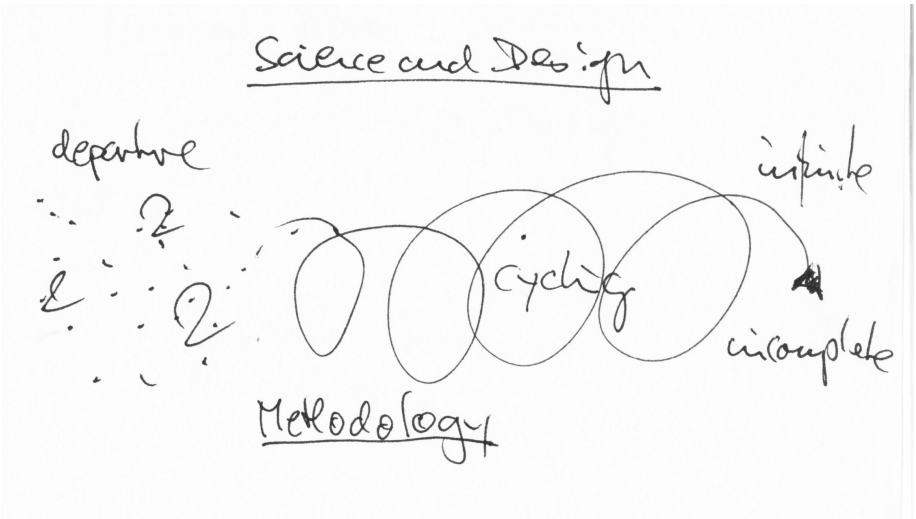
In other words, in this work, theory and practice are merging into one discipline, one stream of **reflective action, indistinguishable from theorizing and designing**. It can also be seen as an action-shaping event - as shaping something that ought to be (Simon 1999) a model of design, a design theory. This process takes place

at the meta-theory level, where design discourse and discourse design is one entity, as the two cannot be distinguished from each other.

This methodology is used in Part A to generate a **Designing Design** theory by reviewing and analyzing models and statements, in order to explore what is possible to **design design**. This process starts with a comprehensive research and search for written texts, design theories, methods and frameworks to understand the process developed, i.e., literature review. It is a method generated to frame and reframe the topics that emerged within the research process, requiring further attention. Statements have been often used without interpretation and restating, since the meaning of expressions depends on the conditions in which they emerge. Statements constitute a network of rules establishing which expressions are discursively meaningful. Statements are also 'events', because, like other rules, they appear (or disappear) at some time.
It is accompanied through the practice of generating events. Through the interview process, the key experts in the field of design theory contributed to the generation of design knowledge. Their contribution is documented in Part A.3 and, in a more detail, in Appendix E.1, E.2, and E.3. These conferences and the discourse generated by their participants had been the design practice accompanying the practice of theorizing through textual excavations of existing design theories. There had been two streams of practices, two streams of discourse actions, which is obvious.

Still, these conferences cannot be seen as a confirmation of the value of the theory, as they did not verify it. Thus, the question about value remains. The conferences/workshops nonetheless revealed the usefulness of the **Designing Design theory**, as their participants provided a practical confirmation of an advancement of what was implicitly understood. This was particularly true for the understanding of the design cases and how to put them into perspective of the whole. This prompted a further research question, the answer to which was

sought by exploring many disciplines, since design and its theories did not reveal many attempts to generate answers.



Model 0.5a Designing, Science and Design

According to Yin (2009), there are only two identifiable types of researches - qualitative and quantitative research. Quantitative research relies on extensive use of statistical data and tools, while qualitative studies rely more on narrative exploration and understanding the phenomenon under study from the perspective of those who experienced it. All research methods used here are qualitative in nature, as this approach is recommended when examining a previously unexplored area of study (Ibid).

Empirical research, in this context, is limited to the inquiry of statements only, namely theoretical statements about design and design methodology and research. Thus, the strategy for theory building in the presented research can be understood as a step-wise approach, moving from theory to research in order to the design the theory strategy.

The part C presents an attempt to frame the value of the theory developed. Some semi-structured professional interviews have been designed and executed to generate data for an expert system to see whether the theory is valuable and can

be confirmed through qualitative data. The methodology applied in that part is qualitative, as it relies on the feedback the experts provided during the interviews, using their statements in building a structured question in order to evaluate the theory developed.

0.6 Research Decisions

A decision can be defined as a selection between possible actions. However, in research, in order to make an informed decision, there needs to be an explanation pertaining to the manner in which a research decision is derived, since a decision can only be made if two or more alternatives are available. In other words, in any study, several research designs are possible, and an informed decision must be made as to which one is most appropriate. Moreover, a decision is also based on a judgment that, in turn, requires criteria, if concepts such as intuition or wisdom are not desired.

Judgment, with respect to the presented research, does not pertain to a decision between true and false. Here, it is used to frame a more appropriate research process - a more adequate construction and presentation - as it explores alternative strategies in order to identify one that might be more successful in answering the research question.

Design decision is the more relevant frame, since there is a clear framing to understand the presented research process as a design case.
Theories on decision-making are mainly found in philosophy, psychology, economics and mathematics. They are far less frequent in design, where the focus in typically on problem solving, since most decisions require problems to be solved.

Such theories can be qualified as normative and prescriptive or positive. The prescriptive theories brought decision analysis into the scientific arena, as those aimed to find tools, methodologies, strategies and software to help to make decisions. Such systems are then called decision support systems. Normative decisions are very closely linked, since their goal is testing of optimized

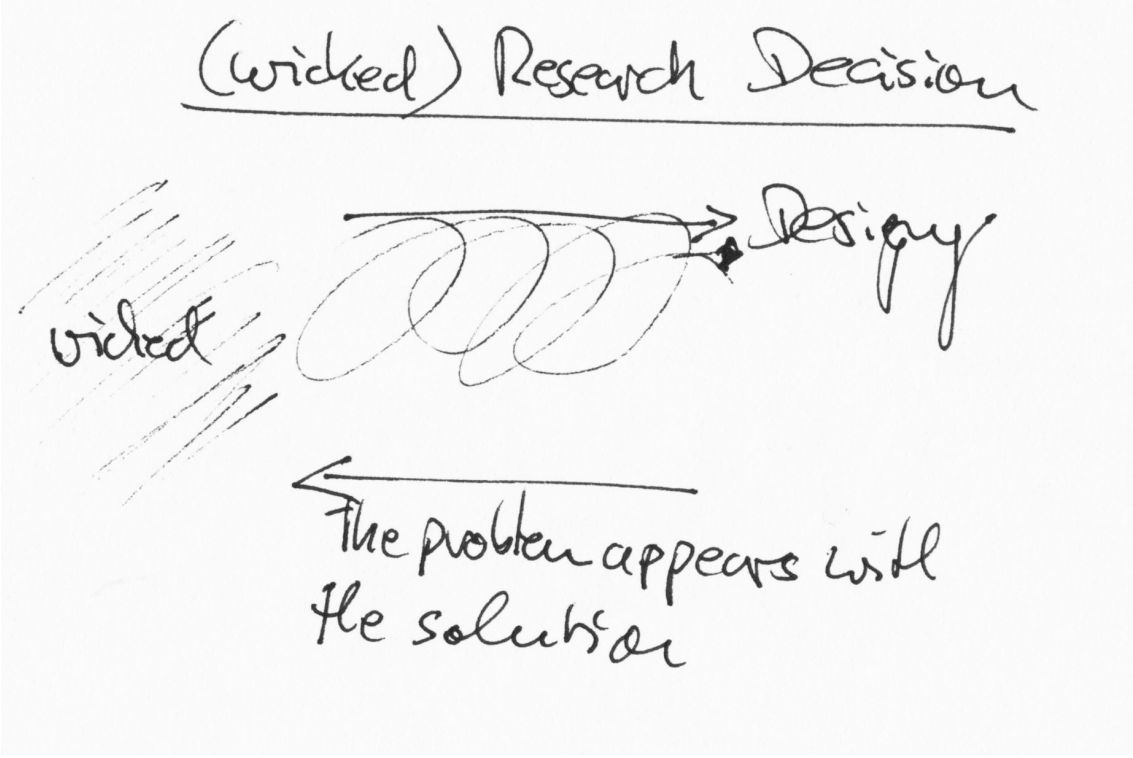
decisions against actual inconsistent behaviours in order to make further decisions (McGrew 1982).
A decision can be understood as a 'real choice', whereby it is a choice about ends, as well as a choice about means to arrive at those ends, whether at individual or collective levels. In addition, a decision is a cumulative sequence of stages of choices (MacKenzie 1982).
Positive analysis, too, may start from a rational viewpoint. In other words, it may be assumed that actors in a decision all work according to normatively rational rules, to the best of their abilities. The problem here stems from the fact that some actor behaviours cannot be explained in this way, because there is no perfect information available. For instance, optimal assessment of objective probabilities of any outcome would be reached if all decision-makers are asked for their subjective assessment (Hall 1982).

In the presented research, these categories hardly fit. Therefore, Simon's view on design decisions seems more appropriate:
'Thus problem solving requires continual translation between the state and process description of the same complex reality' (Simon 1969, p.210).
Using that frame the presented decision situation, the process here points toward the translation between the initial state and the process description. Or, as Simon puts it: *'Our dual relation to the world is the source and solution for the paradox. We pose a problem by giving the state description of the solution. The task is to discover a sequence of processes that will produce the goal state from an initial state'* (Ibid, p.211).

The process described above is very close to a wicked situation lacking sufficient information to provide a judgment in terms of a research decision that might be the most optimal. Rittel explains wicked problems have no clarifying traits and for any given problem an exhaustive formulation can be stated. But in order to

describe a wicked-problem we need to develop an *exhaustive inventory of all conceivable solutions*. (Rittel 1973, p.160ff).

Therefore the decision in the presented research can be framed as a design decision as well as a wicked problem decision. That is a positivistic statement to judge the decision frame.
Thus, presenting a clear decision it is nothing more than dealing with the paradox. In other words, and in reference to wicked problems as defined before, within the presented research, there is a posing of a problem by giving the description of the solution. The design decision is a problem concerning the extrinsic character of how it is described ex re (Biggs 2002). It can be called a 'wicked research decision', which is designing.



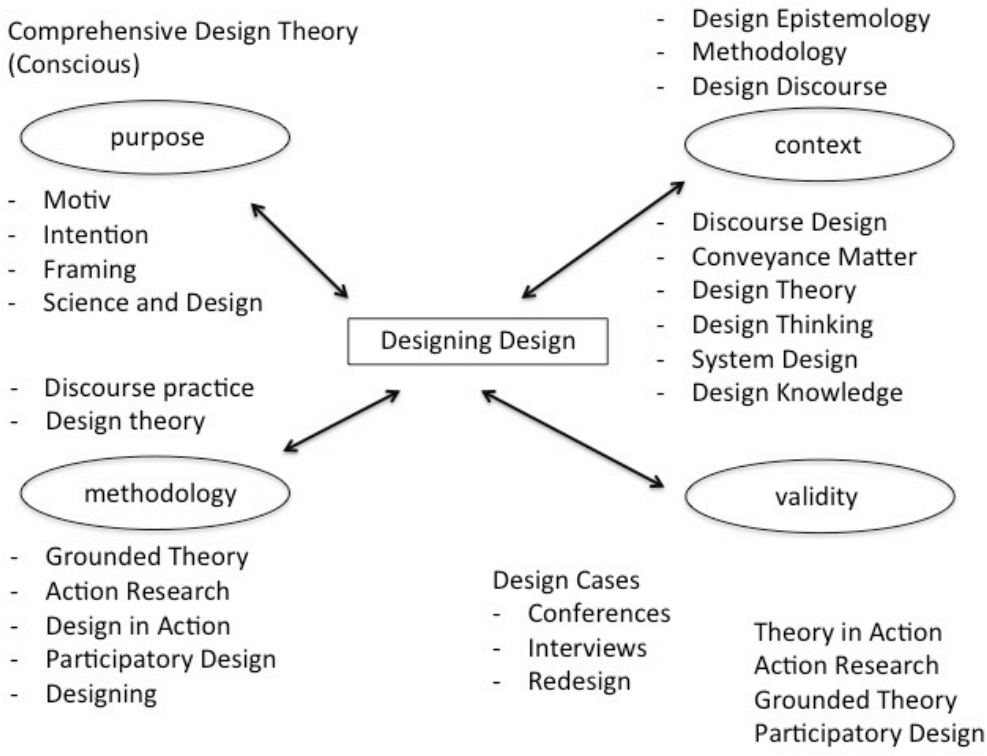
Model 0.6a Research Decision

0.7 Research Design

The research design adopted in this study is based on the premises of the presented frame.
Part 0 describes the purpose of the research, the intention, the motivation, the framing, and the research design and decision. It reveals the complexity of the phenomenon under investigation and the efforts required to set the stage for presenting the research, as well as the outcome, in an appropriate way.
It also describes some key aspects addressed in this work, such as wickedness, and presents some preliminary understandings of design, as well as the methodologies applied.
This is followed by a more detailed and discursive presentation of the methodological context. Contextualization and methodology is intertwined, because of the nature of the research.
The methodological aspects of the study are further explored in parts A.3.6 to A.3.8, from grounded theory to participatory design, since the question of methodology also requires the various framings to evaluate what has been achieved in practice, in these design conferences in particular.
Part A contains the core aspects of the thesis, presenting the question of discourse and design discourse, as well as the model and method of **Designing Design and its Theoretical Strata**.

According to Glanville (1999), '*My intention has been to show that (scientific) research, as it is and must be practiced, is properly considered a branch of design: (scientific) research is a subset of design, not the other way around*' (p.89). The author takes this view, since scientists came to realise their creative involvement in their processes. *'Design is the key to research. Research has to be designed'* (Ibid).
Therefore, in many instances, there will be the impression that there is **no difference between design and scientific research. It might also appear that**

there is no question to be answered, as there is no problem that needs addressing. In many instances, the two intertwine and fit together well.
Part A.3 of the thesis thus comprises of cases and interviews in part C that allow us to justify the appropriateness of the model. The case studies presented in this thesis are design cases, indicating that the theory is useful in that the cases presented are designs and attempts to change the existing situation into preferred ones. Similarly, the interviews are an extension of the critique, since theories must be subjected to criticism in order to improve or to challenge them. In addition, these examples could also be helpful in understanding how to approach designing within a discursive context. These cases are also framed and contextualized through different scientific models (A.6-A.9) and are therefore explored to realize the inherent value.



Model 0.7a Conceptual Map of Research

The presented conceptual map shows the areas and topics researched and evaluated during the research.

A.0. Designing Design and its Theoretical Strata

Design and design research are intertwined, interwoven and connected, as indicated by the statements of many renowned authors:

'One immediate subject of design research, therefore, is the investigation of this human ability-of how people design' (Cross 1999, p.6).

'Because design knowledge grows in part from practice, design knowledge and design research overlap' (Friedman 2003, p.512)

'Design research is tied to practice and is driven by its needs' (Roth 1999, p. 20)

This interwoven nature is an interesting subject to deliberate in this work as well.

The analyses presented here are influenced by design and design research, as well as different concepts, images, thoughts, experiences, education, scientific and theoretical knowledge, and philosophical perspectives on those topics. These influences can become apparent through the discussions about design and design research. As Biggs (2002) stated: '*The way in which we employ language in our discussions affects the connotative meanings of the words. This applies not only to the meanings of terms such as "research", "practice" and "work", but also to their grammatical construal in phrases such as "research into practice", "practice-based research" and "a work of art"* (p.112).

Biggs, referring to Hall, further argues that the selected language constructs the concept of research, rather than describing it (Ibid). Even using existing constructions and combining them with their defined meanings/connotations may still leave complimentary or dissonant creations of commonalities and discrepancies.

The design theory will be a metaphor, a model, as explored in Chapter A.1.1. The patterns, which are important for a theory, will make its certain aspects visible and therefore predictable. The process between the theory and the experiments is circular in nature. Thus, these metaphors belong to Popper's World 3 - the objective world of theories, knowledge and problems. In his view,

such a theory based on theory, can only be verified through theory (Popper 2002).

The methods that lead to a theory will be important as well as some specifications, irrespective of presence of different ways to get there and different types of metaphors that might be valuable.

How design theory relates to knowledge and knowledge relates to practice, as well as how the overlaps between the two occur, might be interesting and is thus a part of the theoretical strata. Can design knowledge be categorized and qualified? How does design knowledge differentiate itself from scientific knowledge? The connected methodologies will indicate the differences and the identities, calling for the focus on the difference between design practice and design research practice. Is the dichotomy between theory and practice a valuable frame? Moreover, if this can be overcome, what do the theoretical frames and models look like?

Research of design must include an analysis of how communities maintain their discourse, including categorical engineers, scientists, theorists, and historians. Parallel discussion of these distinct, yet related, perspectives will be a helpful focus in exploring the subject.

As theory and method might be inseparable, the methodology and the metaphors serving as their foundations need to be at the core of the research.

Engaging in a discourse about general design theory will help to develop a theory that could have value beyond the various individual disciplines.

Meta-theory of design is an issue here, as well as research into practice, as it allows understanding design and design actions across various disciplines and domains.

The research presented here will help determine whether generalized theory of design is possible, and if so, it will help determine its value, limitations, and utility. It is expected that a general theory of design will facilitate the modelling of responsible actions prior to generating results, while simultaneously precluding potential disasters.

The trans-disciplinary frame requires that design models beyond disciplines need to be explored.

Looking at the theoretical background, **design discourse** needs to be addressed, whether it is a sustainable frame or not.

Second, the **discursive analytical** work addressing the discourse matter must be dealt with by designers. For instance, as historians, scientists or linguists, do their work, the conveyance matter of the discourse changes throughout the stages of the design process and depending on the designer's favourite media. In other words, it would appear that designers speak 'other languages.'

Hence, discourse matter, or the presence of 'the other languages', is an important theoretical field to explore transversally, using the work of authors from different fields, such as those involving visual language. Following this work, we will consider the argument that design itself can be a form of discourse, if we understand the logic of Foucault and others in their discussions of conveyance matter (Foucault 1972).

A third key aspect to be explored will be the theoretical consideration of **what comprises a theory.** Questions to be asked include: **What does it mean to design a theory? Does it have similar methodological components** to real object design to draw from? Are there **other similarities that can be constructed** and what impact will they have?

Design methodology is another point of discussion, specifically because it does not match scientific method. Science necessarily involves a strategy distinct from design, primarily because the scientific method does not intend to change existing situations; rather, it aims to identify and describe them.

'The scientific method is a pattern of problem-solving behaviour employed in finding out the nature of what exists, whereas the design method is a pattern of behaviour employed in inventing things...which do not yet exist. Science is analytic; design is constructive' (Gregory 1966, p.6).

Kroes (2002) makes the case that there are two striking differences in orientation between methodological studies of technical design and of scientific research. '*Design methodology takes a normative stance towards design and is very much process oriented, whereas research methodology is descriptive and strongly product oriented'* (p.288). Both scientific research and design theory can be viewed under this dichotomy. In some ways, we can see research as designing act, as it creates something that does not yet exist. However, designing theory is an exception, since science is mainly a descriptive activity.

According to Kroes (2002): *'Admittedly, there has been an empirical turn in the philosophy of science since the work of Kuhn, but although this turn has led to more interest in actual research processes, particularly in experiments, the underlying issues remain, as before, issues about the interpretation and justification of scientific knowledge claims. Moreover, mainstream methodology of science is not driven by the aim to improve the practice of scientific research. It is mainly a descriptive activity'* (p.299).

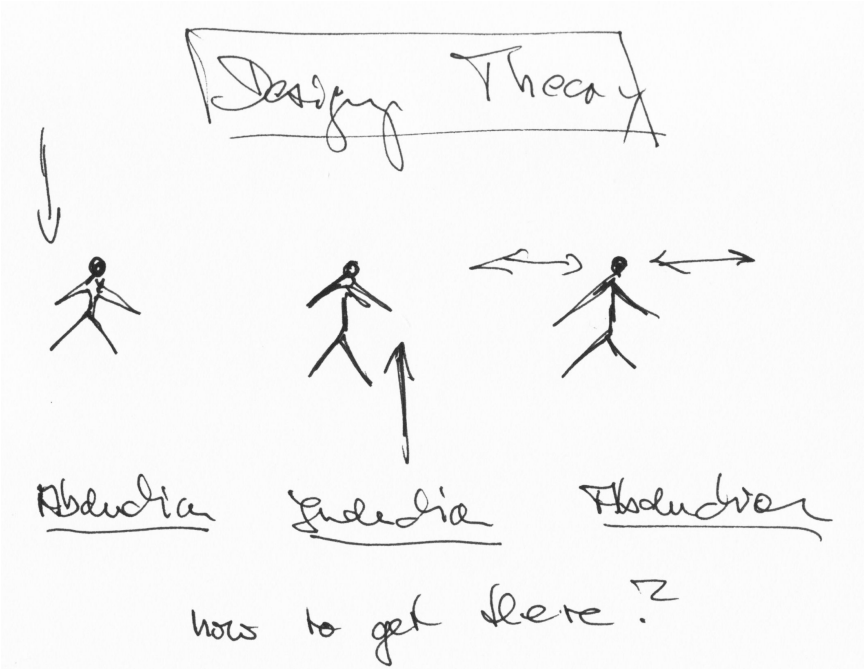
In contrast to the mainstream activity in science, Edelson (2002) sees a design methodology as an act of designing. In his view, *'A design methodology is a general design procedure. Like a design framework, it is prescriptive. However, a design methodology provides guidelines for the process rather than the product'* (p.115). He goes on to state that a methodology is a structured and systematic approach: *'A design methodology typically lays out a sequence of tasks, describing the objectives, processes, and participants for each step*' (p.115).

Insofar as design methodology is also a designing act, it is a description of a designing approach systematically outlined for others to apply. This is congruent with the practice of scientific research, as it is mainly a description of invented methods.

'Yet when we look at the design methods and tools that are being developed within the design research community, we see that three of these four 'aspects of design activity' are often ignored within the descriptive framework that implicitly underlies our thinking on design. The overwhelming majority of descriptive and prescriptive work in design research focuses on the design process, to the exclusion of everything else. Therefore the design methods and tools that are being developed inevitably focus on enhancing the efficiency and effectiveness of design processes' (Dorst 2008, p.5).

Dorst objects to the practice whereby designers almost exclusively focus on the design process and its efficacy and efficiency, as in doing so, they tend to neglect the design content (Ibid). He posits that the reason for such narrow focus is that the models have historically been a great success. He makes the case that, although it only takes half a day to train students in the key aspects of design methods, this does not make them great designers. Therefore, conducting design process research has become synonymous with doing design research (Ibid).

According to Dorst, the focus should shift back to the research of the 'design object', the designer and the design context (Ibid). This suggests that, as design researchers, *'we need to re-engage with practitioners, and get involved in experiments within the rapidly changing design arena. Design researchers should join design practitioners in co-creating the design expertise and design practices of the future'* (Dorst 2008, p.11). Such explorations belong to the theoretical strata framing the work and providing the background of this research. It is thus important to allow the research process in this thesis to move both forward and backward, because such a recursive process adds to the quality regarding the structure and the presentation of its content.



Model A.0a Design Theory and How to Get There

A.1 Theory, Design, Knowledge and Method

As noted earlier, as there is no model of design, theory and research are intertwined. Such model has not yet been created, and for that to occur, the process of creation must be in focus. In design, creation is called 'designing', and its meaning depends on methodology. Designing is always connected to a specific method, which allows arriving at a solution - a model.

In this context, methodology, as defined by Merriam Webster, is *'a body of methods, rules, and postulates employed by a discipline: a particular procedure or set of procedures and the analysis of the principles or procedures of inquiry in a particular field'* (Online Merriam Webster 2012).

Accordingly, the methodology of design comprises the body of methods and rules used in the design process, including all practical rules designers apply; all methods used to create ideas or solve problems; all methods applied to change existing situations into preferred ones; all methods of working in teams; and all rules to achieve outcomes, produce documentation, briefings and anything else that is developed in the design discipline.

In addition, the methodology includes the procedure, or a set of procedures, that can be applied to query, analyse and learn about design and its discipline. Thus, it follows that research of the design field, is also part of the methodology. Further, the result of such an inquiry in design theory is a theory, a model, or a metaphor, which describe actions in the field of design.

The question in the next paragraphs, therefore, is whether we ought to develop a procedure of describing the desired context from a more general – deductive - perspective (starting with a general theory and methodology and migrating towards the specific), or analysing specific design procedures before generalizing the results of the inquiry with a summary (which is an inductive process). A third option could dispense with these traditional procedural aspects and instead focus on an abductive approach (i.e., as an inference from a body of statements to an explaining hypothesis). In reference to Peirce, Burks (1946) states that

'Abduction invents or proposes hypotheses; it is the initial proposal of a hypothesis because it accounts for the facts' (p.303).

This abductive approach may be useful in that it may help avoid the methodological conflict of where to start. It can assist in selecting and presenting the appropriate statements before we state the hypothesis. Therefore, the approach will involve a great deal of moving forwarding and backward, a finding and re-finding, as well as a patching and reworking of various documents and statements from texts and literature across various disciplines involving theory, methods, design theory and design methods. This will be true for most of the chapters in this thesis. It also relates to discontinuity, which is presented in Foucault's (1972) work.

As Gregory suggests, some aspects related to science, and others related to design, will be utilised in this work. In fact, this was already indicated in the preceding chapter, when searching for what exists or constructing something new (Gregory 1966). Alexander (1964), points in the same direction, stating: *'Scientists try to identify the components of existing structures, designers try to shape the components of new structures'* (p.130). However, the question this study aims to answer is what exists, in a sense of being real, whether materially or spiritually, in the same manner that we expect a galaxy to exist, as we infer its presence through the indications we observe. Such an existence is probably the most appropriate indicator for design. With this in mind, the following chapters and the discussions presented in A.1 **are patching discursive statements together**. In doing so, they focus on the process of designing and redesigning in order to see whether the methodology adopted with the aim of theory and knowledge creation appears to be valuable.

Consequently, the attempt made here can also be viewed as belonging to the constructivist epistemology, as the idea of design is a mental construct, with the aim of explaining what we can observe in the design field.

A.1.1 (Design) Theory

As this thesis focuses on designing a design theory, the key question is what it is that we are designing. What is a theory? What is it made of? How can we create it and what kind of design theories already exist? This chapter is exploring these issues by excavating statements from extant literature in order to provide an overview of design theories.

Many authors make statements in an effort to define theories or, more specifically, design theories. The accessible knowledge on theory in general is obviously much greater and more comprehensive. Many design theorists have also contributed to general theory knowledge, as did Friedman (2003), for example. He is defining a theory in general in order to approach design theory in particular. In his view, a theory is:

'*in its most basic form a model. It is an illustration describing how something works…*'*…by showing its elements in relationship to one another. Some models show the elements in a dynamic relationship by describing process or action. Others, such as taxonomy, describe relationships without describing process or action. The dynamic demonstration of working elements in action as part of a structure or the demonstration of relationship is what distinguishes a model from a simple catalogue.'* (Friedman 2003, p.513).

A theory is a model used to describe something, and to illustrate how it works, by showing its elements in relationship to one another. Loker, referring mainly to physics and psychology, sees a theory as constructed through a hypothesis based on known facts. However, this hypothesis cannot be proved experimentally, i.e., by using empirical data, prior to the time of construction (Loker 2007). This is congruent with Friedman's perspective of a constructed model, which suggests that a constructed model cannot be deduced; rather, it is generated like a metaphor.

A metaphor can be seen as an expression that describes a person or an object in a literary way by referring to something that is considered to have similar characteristics to the person or object you are trying to describe. In the same vein, a constructed model generated through illustrative references can be viewed as a metaphor.

'When we approach metaphor in this way, we see that our simple premise, that all theory is metaphor, has far-reaching consequences'. (Morgan 2006, p.5)

The logical extension of Morgan's statement is that any theory is incomplete, biased and potentially misleading. Metaphor is paradoxical; it can create powerful insights as easily as distortions. *'We can see through metaphor, but it becomes as well a way of not seeing'* (Morgan 2006, p.5).

Often, the metaphor - the model in our mind - can replace the attention we give to the environment, distorting our observations.

A similar framework for theories is considered from a systems perspective. As Buchanan (2001) puts it:

'I believe that one of the most significant developments in systems thinking is the recognition that human beings can never see or experience a system, yet we know that our lives are strongly influenced by systems and environments of our own making and by those that nature provides. By definition, a system is the totality of all that is contained, has been contained, and may yet be contained within it. We can never see or experience this totality. We can only experience our personal pathway through a system' (p.12).

Continuing with the idea of a metaphor, the example of driving a car using a map for direction can be helpful. A map helps us find the way from point A to point B, but it can also be confusing, if studying the map takes the attention away from the driving.

Further, the map is always a simplified version of the real world. It is neither practical nor feasible to account for all possible routes; hence, the map is only a metaphor for what actually is. *'Metaphors and metonyms probably are the most important conceptual models for understanding what artefacts come to mean to their users'*

Glanville's approach similar to Friedman's, in that he believes that *'Theory formalizes the significance and necessity of pattern. Pattern gives us objects and recognizable behaviours, allowing us to predict, and risk living by our predictions'* (Glanville 1999, p.86).

Glanville focuses on the explanation of theory, defining it as what turns the observation into science. He suggests that theory is necessary in research, as it fulfils two roles:

'*First, to combine, coordinate, and simplify the findings of experiments by developing generalizing concepts; and, second, to examine these concepts in order to further clarify and develop them, reflecting back extended understandings into theory: and, by suggesting experiments that might be performed, into experiments for verification. The relationship between theory and experiment essentially is circular. They might be thought of as partners in a very slow conversation carried out over a very long time. And the role of theory is to simplify, to generalize'* (Ibid).

However, of even greater importance is his recognition of the process of deriving a theory from experimentation. That is, Glanville is concerned with finding discernible and generalizable patterns, since humans look for such patterns (Ibid). Theory formalizes the significance and necessity of patterns. Patterns give us objects and recognizable behaviours, allowing us to predict, and risk living by our predictions (Ibid). Glanville also focuses on Theory from Theory, as the second type of theory coming out of the examination of concepts deeded to clarify concepts further. He makes the case that something like that always existed, even if science claims itself to be essentially empirical (Glanville 1999).

McNeil proposes eleven characteristics of any general theory. From our perspective, though, he references logic-based metaphors. His elements of a theory are constitutive core of concepts mutually interrelated with one another, ,mutually productive, generative connection between central concepts and the peripheral concepts; the core concepts are stated in algorithmic compression and the phenomena in the theory can be reproduced; a set of concepts in which no central concept can be removed and two or more of the core concepts in a theory must be complementary to each other; the central concepts must be well defined and must harmonize and must be expressed at a uniform level of discourse; the general theories must relate to less general theories explicitly or implicitly, a theory describes dynamic flows with contours that trace relatively closed loops as well as relatively open links and a theory states invariant entities in its assumptions (McNeil 1993, p.8).

Johnson (2001) sees theory as another practice, a practice that guides decision-making.

'Theory is thus not a guide to practice, a practice that guides decision-making, but another practice, a practice that mediates and resolves conflicts by allowing

certain priorities to prevail by filtering them through a variety of personal constructs, ways and means, ideas, views, positions, attitudes, and so forth. And theory does so on a moment-to-moment basis, while the architect or designer is designing - indeed it is arguably impossible to separate out the moments of theorizing from the moments of decision-making, since they are concomitant aspects of designing. Whether an architect or designer admits to having 'a theory' is irrelevant to this view of theory because theory is always already 'at work,' no matter what the inclination of the architect or designer might be to give voice to it' (p.111).

In his view, theory also works as a kind of conversation, a tracking of thoughts and determining how decisions are made.

'It is put forward here that theory works as a kind of conversation, a dialogue between the architect or designer and their task, sometimes conscious, most times not. It is frequently assisted by drawing as an aide-memoire, a way of keeping track of thoughts had and decisions made - but a detailed exposition of that must await another paper. For the moment I wish to focus more closely on designing as a discursive practice, and attempt to get closer to the successive moments that make up the process of designing. I will approach this via the so-called 'action' of theory as a dialogue' (Ibid, p.211).

Lynham (2002) differentiates between two general methods employed to create theories. The first theory-building strategy, as termed by Francis Bacon, involves quantitative interpretations of nature. As the approach presented here is markedly different, it is interesting to follow Lynham's second theory-building strategy more closely. *'The second strategy for building theory is that of theory to research, or what Reynolds (1971) called the 'theory-then-research strategy'* (Ibid, p.144). *In this approach to theory building, theory is made explicit through the continuous, reiterative interaction between theory construction and empirical inquiry'* (Kaplan 1964; Reynolds 1971, p.144).

Reynolds (1971) highlighted the essences of a theory-building strategy as follows:

'1. Develop an explicit theory in either axiomatic or process description form

2. Select a statement generated by the theory for comparison with the results of empirical research;

3. Design a research project to 'test' the chosen statement's correspondence with empirical research;

4. If the statement derived from the theory does not correspond with the research results, make appropriate changes in the theory or the research design and continue with the research; and

5. If the statement from the theory corresponds with the results of the research, select further statements for testing or attempt to determine the limitations of the theory' (p.144).

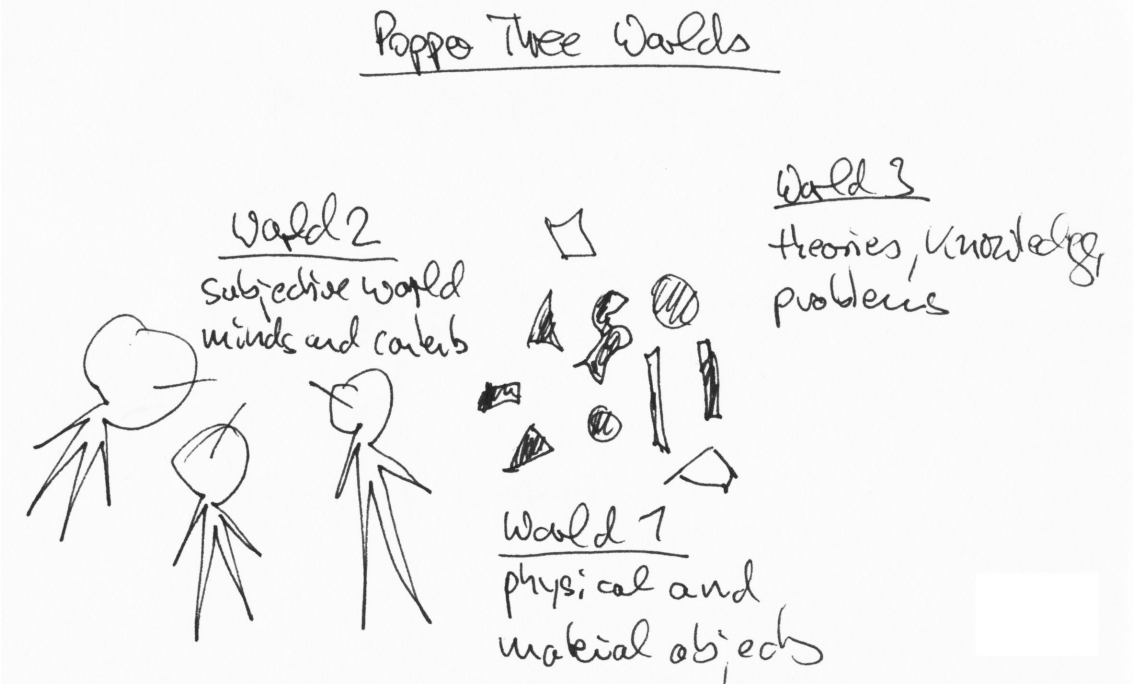
He indicates that the theory-to-research strategy can be traced back to Popper and his idea of conjectures and refutations. *'This theory-to-research strategy was made popular by Karl Popper, in which 'he suggests that scientific knowledge would advance most rapidly through the development of new ideas [conjectures] and attempts to falsify them with empirical research [refutations].'* (Reynolds 1971, p.144)

In addition, Popper addressed the problem of theoretical confusion and validation in his analysis of the relationships among the following three worlds:

World 1 - Physical and material objects

World 2 - The subjective world containing minds and their contents

World 3 - The objective world of theories, knowledge and problems



Model A.1.1a Popper's Three Worlds

He argued that confusion arises when concepts from different worlds are conflated, and that it is better to regard the analyses of each world as incommensurate (Popper 2002). Although the practice of studying, generating, using and criticizing such abstractions is not commonplace in the contemporary disciplines of science and technology, such epistemological and ontological analysis is widely used in other disciplines, and dates back to the earliest Greek philosophers. Whilst not at the forefront of academic consciousness, the structuring of abstractions is a basic tool utilised in most disciplines. It can be seen, perhaps, in Mathematics, where theorems depend on axioms (both abstractions), and in Philosophy, especially in the field of Logic, which is concerned with the manipulation of abstract entities and the verification of logical relationships between them.

'Theory's object is the conditions of knowledge as first posed by Kant and then taken up in other disciplines, while the language of theory is that of post-Kantian critical philosophy' (Pippin 2004, p.424).

Design Theory as a Specialised Theory

Is there a difference between scientific theories and design theories, or models, even though both are theories, as well as models and metaphors? The distinction lies in the fact that design methodologies are based on problem solving, analysis, synthesis, and evaluation. Snodgrass (1992) declares that metaphors and models convey their meaning by referencing hermetical criteria, such as the accuracy with which the model translates the design process as experienced in everyday usage, and the degree to which the model conceals or discloses aspects of designing. In this respect, Snodgrass sees the category of metaphor or model as the key issue that needs to be addressed. The criteria for assessing a model that can be applied to the design process need to focus on how accurately the model portrays that process. Another criterion for the hermeneutical assessment of the validity of a design model is the degree to which it reveals or conceals aspects of its referent.

Snodgrass also differentiates between logic-based metaphors and hermeneutical ones, noting, *'Logic-based metaphors are scientific models, such as the atomic language model, which describe the design process in terms of a logically consistent and coherent set of relationships drawn from a scientific or mathematical theory'* (Snodgrass 1992, p.71).

He further states: *'A hermeneutical metaphor, by contrast, is one which is broad and flexible enough to give an account of the design process both as a whole and as a complex of interacting parts.'* (Ibid, p.71).

Referencing Schoen, he demonstrates that he favours the hermeneutical models, dispensing with the logic-based models that have driven design research over the last fifty years. Since these models are based on the hermeneutical circle of understanding, the dialogical exchange of questions and answers, the metaphor of play, and the metaphor of metaphor itself, they can appropriately fill the gap vacated by the problem-solving metaphor - the analysis/synthesis/evaluation metaphor, the atomic language metaphor, and the various other metaphors design science has adopted from the natural sciences (Snodgrass 1992). Gregor and Jones (2007) also propose a genealogy of design theory for Information Systems. They posit that eight components must be achieved: *'(1) the purpose and scope, (2) constructs, (3) principles of form and function, (4) artefact, (5)*

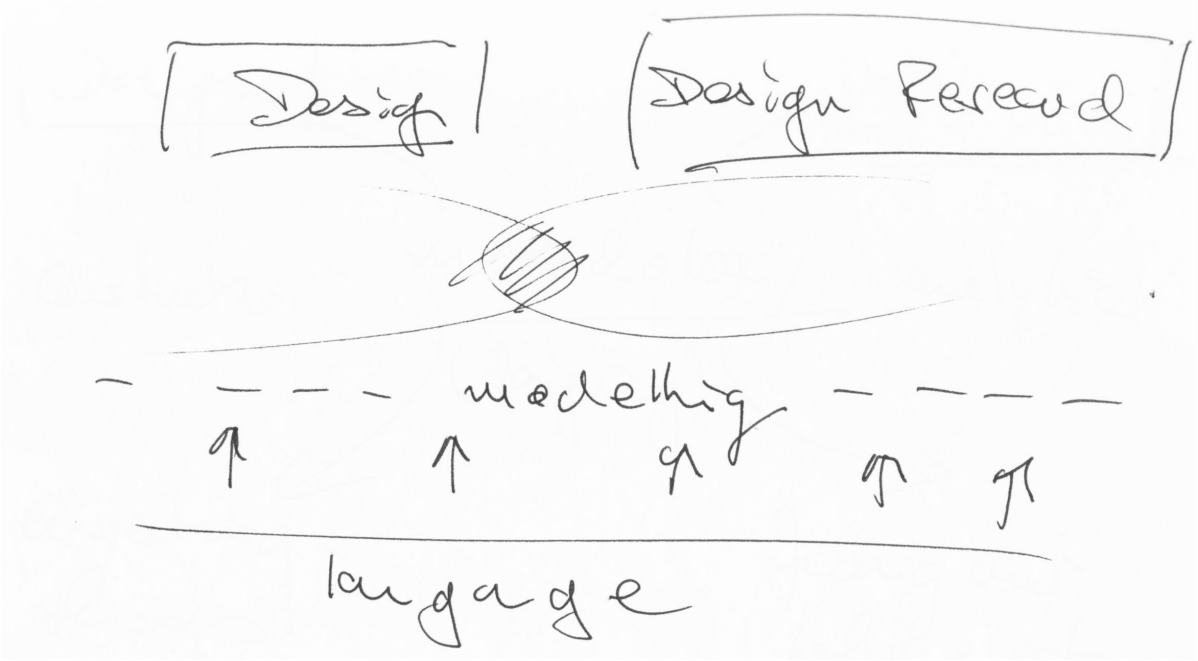
testable propositions, (6) justificatory knowledge, (7) principles of implementation, and (8) an expository instantiation' (p.329).

While Friedman differentiates design theory into basic, applied and clinical research, he also sees that most design theories involve clinical or micro-level grounded theories. These theories are generated through induction, but not of grounded theory of practice, which Friedman sees as a problem (Friedman 2003). He also recognises that designers perceive practice as research and believe that practice-based research is, in itself, a form of theory construction. He argues that design theory is not identical to the tacit knowledge of design practice. Explicit and articulate statements need to be made of all theoretical activities, and therefore, for theory construction as well (Ibid).

In contrast, Popov (2011) reduces design theory to a methodology, or a theory of an activity:

'Actually, a real design theory is a methodology. Theory of an activity (design is an activity, research too) is a methodology(19. Feb, 2011).

In his view, as theory describes a process or action, it is intrinsically becoming a theory of reflective practice, or, how professionals think in action (Schoen 1983). This would serve to exclude taxonomy of design activities, taxonomy of a design professions, and further needed taxonomies in design.



Model A1.1b Design and Design Research

'Clearly, any theories about designing must comport well with our material and subjective worlds, but the real test of theories lies in their validation and coherency with respect to other well supported theories that are drawn, not only from the field of design, but from the widest range of relevant theoretical constructs across all disciplines' (Love 2000, p.301).

Weick (1989) takes a specific perspective that can be helpful in design, when he defines a theory as a disciplined imagination that proceeds in the same manner as artificial selection, where the researcher *'defines, conducts, and interprets imaginary experiments'* (p.516). Weick's constructs map well to the natural process of sketching and prototyping in design, where sketches evolve from a grounded understanding of the problematic situation and systematically explore framings.

Summary

A theory is a model that can be applied to describe something, and to illustrate how it works, by showing its elements in relationship to one another. This cannot be deduced; it is a more or less a metaphor. While it is possible to make certain things visible through a metaphor, it is also a way to hide certain things. This is akin to a system, as we can never see or experience its totality. A theory is based on patterns that produce objects and allow us to discern recognizable behaviours, so that our world is more predictable. Such a theory can be applied to science, if the findings of experiments are combined, coordinated and simplified into general concepts. That is a circular process. However, this circular process is also valuable in creating theory based in theory examination of concepts. Such a metaphor, or theory, belongs to Popper's World 3 - it is the objective world of theories, knowledge and problems. In that respect, taking objects from another world cannot prove a theory. Theory based on theory can only be verified through theory. Looking at the relationship between theory and concepts, it is evident that the concepts must interrelate, and must be productive between centre and periphery. No concept can be reduced without altering the productivity or destroying it. Moreover, the central concepts must be well defined and harmonized, and different levels of discourse must be distinguished. More general aspects must relate to less general and to special cases.

Two methods can be applied to arrive at a theory - namely those based on quantitative interpretations of nature and those utilising theory-then-research

strategy, which is nothing else then a circle between theory construction and empirical inquiry. This, however, requires changes in the statements that do not correspond to the research results.

The specification for design theory, while less obvious, is still identifiable. For instance, hermeneutical metaphors might be more applicable than the logical ones. Nonetheless, design theory specification should include purpose and scope, constructs, form and function, artefact, testable propositions, justificatory knowledge, principles of implementation, and an expository instantiation.

A.1.2 Design Knowledge

The chapter about design theory summarizes the requirements that must be met in order to present a design theory, while this chapter will clarify how a theory relates to what is called knowledge. In design, here knowledge can be gained in several different ways. The traditional approach takes many years and requires practice and critical feedback until the criteria are well understood. That is the way it is traditionally taught in design and art schools. In contrast, there is the possibility to study the foundation of design through broad research tradition, which gives the practitioner access to the cumulative results of the findings many other minds had produced, allowing the learner to appreciate the overall experience of a far broader and more complex field. Unfortunately, this approach is still the rare exception, as by rule, design schools follow the traditional approach to instruction. One explanation for this disconnect is that many design schools are independent from universities and other traditional knowledge-production environments.

'Because design knowledge grows in part from practice, design knowledge and design research overlap. The practice of design is one foundation of design knowledge. Even though design knowledge arises in part from practice, however, it is not practice but systematic and methodical inquiry into practice - and other issues - that constitute design research, as distinct from practice itself. The elements of design knowledge begin in many sources, and practice is only one of them' (Friedman 2003, p.512).

As Friedman observed, while practice generates specific and incomplete knowledge, But knowledge overlaps with research, and research is equally important for knowledge generation.

Others, like Snodgrass (1995), take a basic approach and collect what can be considered design knowledge:

'It is commonly taken for granted that knowledge is contained in text, tables, lists, rules, codes, diagrams, books, guides, manuals, catalogs, libraries and now computer databases, on-line catalogues, multimedia systems, and expert systems. It is considered within the rationalistic tradition that we need to explicate design knowledge as completely as possible. The problem is, therefore,

to spell out the knowledge and to disseminate it. It also is considered that knowledge is growing. More is now known about design, individual design domains and their contexts. The rationalistic epistemology also emphasizes precision and completeness. Knowledge is also individual, so certain styles of pedagogy follow: an emphasis on individual achievement; even rote learning of facts. Knowledge can be classified and, in the tradition of the Enlightenment, deposited in encyclopedias. It is thought that we have captured knowledge when it is contained in such media. In the case of the individual design task, there also is an emphasis on 'explicit knowledge'; as though in creating a flow diagram or table, or list of criteria or comprehensive brief; we actually have explicated our knowledge on the subject. The knowledge can then be retrieved' (p.57).

He demonstrates that design knowledge is contained in traditional, rationalistic formats, as well as in discreet formats across various media. The number of these modes is growing and they are becoming increasingly individualistic, while still fitting all known traditional categories.

Love (2009) proposes that we adopt a radical perspective in exploring knowledge and theory:

'Epistemology of Design Theory and the Theories of Objects - This is the level that contains those analyses and discussions about the critical study of the nature, grounds, limits and criteria or validity of design knowledge. "What is a theory of design?" "What does it include and exclude?" "On what assumptions is this theory based?"' (p.306)

Clearly, for Love, epistemology of design theory is the analysis and discussion of the validity of design knowledge.

Cross (2001) presents design knowledge from the design practice perspective: *'What designers especially know about is the 'artificial world of the human-made world of artefacts. What they especially know how to do is the proposing of additions to and changes to the artificial world. Their knowledge, skills, and values lie in the techniques of the artificial. (Not "the sciences of the artificial.") So, design knowledge is of and about the artificial world and how to contribute to the creation and maintenance of that world. Some of it is knowledge inherent in the activity of designing, gained through engaging in and reflecting on that activity. Some of it is knowledge inherent in the artefacts of the artificial world*

(e.g., in their forms and configurations-knowledge that is used in copying from, reusing or varying aspects of existing artefacts), gained through using and reflecting upon the use of those artefacts. Some of it is knowledge inherent in the processes of manufacturing the artefacts, gained through making and reflecting upon the making of those artefacts. And some of each of these forms of knowledge also can be gained through instruction in them' (p.54).

Design knowledge, as understood by Cross, is seen in the changing of artefacts, in the techniques of the artificial. He sees the knowledge in the act of designing, as well as in the artefacts of the artificial world. Looking at the introductory definition provided by Friedman, Cross describes a part of the design knowledge.

Instead, Buchanan believes that design knowledge is in our grasp of the principles and methods, which allow us to create effective products:

'Design knowledge, it seems to me, lies in our grasp of the principles and methods of design that allow this activity to take place and lead to effective products. The alternative, common among some design theorists and researchers, is to believe that design must ultimately be reduced to one or another of the other disciplines - i.e., cognitive science, engineering, fine art, anthropology, marketing, and so forth' (Buchanan 2001, p.17).

Design knowledge is something that connects past situations with new design problems. Summers (2003) elaborates on this, stating:

'The design process may require more information than what is initially provided in the design problem. Finding the appropriate relations, variables, and methods for determining this information may be specified as a new sub-problem. The results, or solutions, of these sub-problems may be cycled back into the original design problem, expanding the clarity of the definition. The design knowledge may be used to match design variables and design relations from past situations to the new design problem. In this manner, the design problem evolves with the design artefact dependent upon the design process. Further, as a design artefact is proposed as a solution, it must be examined against the original problem and the domain design knowledge. The following sections discuss variable types found in engineering design, the design problem, design process, and design artefact in greater detail' (p.3).

Narvaez (2000) has conducted a study on design's own knowledge, as they call it, and has arrived at the following conclusion:

'Material production and its interference with society thus are the foundations for design knowledge. Unlike other fields of knowledge, design retrieves' while creating, acts while it reflects. The constituent elements of this foundation include society with its cultural and material exchange; industry as the infrastructure currently in charge of material production; and human beings, particularly those who undertake activities and need this material production to achieve them' (p.45).

Similar to Cross, Narvaez appreciates the specificity and uniqueness of design and its own knowledge within the reflective action.

'Design knowledge resides secondly in its processes: in the tactics and strategies of designing. A major area of design research is methodology: the study of the processes of design, and the development and application of techniques, which aid the designer. Much of this research revolves around the study of modelling for design purposes. Traditional models are the sketches and drawings of proposed design solutions, which in contemporary terms now extend to 'virtual reality' models. The use of computers has stimulated a wealth of research into design processes; so has the development of new practices in industry such as concurrent engineering.

Thirdly, we cannot forget that design knowledge resides in products themselves: in the forms and materials and finishes, which embody design attributes' (Cross 2001, p.54).

Narvaez (2000) sees the knowledge within the strategies and approaches applied, as well as in the processes, but also in the objects and those perceiving them. This applies to the knowledge of the natural and physical sciences as well. This leads to the project knowledge, the socio-historical object, which depends directly on the experience of the individual and has poetic character.

The third knowledge arena is the conceptual Meta-structure of Design, which includes the studies of design objects and projects encompassing the social and institutional role of design, the social changes produced by design, as well as the reliance of design on technical thought and ethical problems (Ibid). This view differentiates the categories of scientific research and goes hand-in-hand with the model proposed by Habermas: '*the empirical-analytical sciences, the hermeneutical-historical sciences, and the sociocritical sciences'* (Ibid, p.42).

With respect to the idea of **Designing Design**, the core statement of the developed design theory, knowledge created would fit the third category proposed by Narvaez.

Lynham (2002) also makes a statement about the nature of scientific knowledge. She asserts that there is no real world and one truth and that science is a process of inventing descriptions of phenomena. Similarly, Reynolds (1971) notes:

'Often more inclusive of qualitative research, this strategy is informed by corresponding assumptions about the nature of scientific knowledge, for example, that there is no 'real world' or 'one truth' but rather that knowledge about human behaviour is created in the minds of individuals, 'that science is a process of inventing descriptions of phenomena' (p. 145).

Summary:

Although design knowledge is generated in practice, it overlaps with research and is contained in traditional, rationalistic formats as well as in discreet formats across various media. Design theory is the analysis and discussion of the validity of design knowledge, which connects past situations with new design problems. However, it is also present in the changing of artefacts, in the techniques of the artificial. Design knowledge is the grasp of the principles and methods that allow us to create effective products, as well as in the strategies and tactics - in the processes that include the natural and physical sciences as well. The knowledge provided in this thesis would thus belong to the arena of the conceptual Meta-structure of Design, which includes the studies of design objects and projects encompassing the social and institutional role of design and the social changes produced by design, as well as the reliance of design on technical thought and ethical problems.

A.1.3 (Design) Methodology

Methodology can be viewed as the analysis of the principles of methods, rules, and postulates employed, or as a systematic study of methods that are, can be, or have been applied within a discipline.

However, which aspects of these definitions are specific to design methodologies? When summarizing design methodologies, Coyne et al. (1994) speak about methodologies including problems analysis, synthesis and evaluation. This statement describes a general process that, while cyclical, is moving towards synthesis and evaluation (Faust 2009a).

For this research project, design methodology and design research methodology, are seen as the core elements. They help address the questions, such as: How can we arrive at a theory? How can a theory be designed? They also help identify the coherences and differences between design and scientific methodology.

Starting with the latter issues as partial questions, there are many statements to discursively put into context: *'The research or scientific methodology-with analysis as its hallmark-is shown to restrict the effectiveness of a design solution. To achieve an effective design solution, a methodology distinctly different from the research methodology is required'* (Nadler 1967, p.642).

Nadler not only states, but even proposes as an imperative, that, in order to be optimal, design practice (especially engineering design) requires a methodology that is significantly different from the research approach aimed at developing knowledge and establishing verifiable general laws (Ibid).

He sees the problem of research approaches in design mainly within their analyses, which may restrict the vision of the designer, since the designer seeks purposeful and functional action through new and different combinations. In addition, the analytical approach focuses on components, rather than on wholeness. Nadler also holds that focusing on components is essential research. Additionally, he suggests that the analysis leads to an overemphasis on techniques in order to parse the whole into constituent elements. The analytical tools, in his view, undermine teamwork, which is essential for a designer, because they create a gulf between people in an organization who possess the

technical expertise (Ibid). Nadler summarizes his views with the statement that design is deductively oriented and research is inductively oriented, as research attempts to derive generalizations or hypotheses from many instances and specifics. Of course, Nadler recognizes the limits of such a dichotomy, and refers to some changes that can allow science to adjust the methodology to be closer to design (Ibid).

In referring to Archer, Cross (1999) states, *'Our concern in design research has to be the development, articulation and communication of design knowledge*' (p.5). Further, he indicates three forms of knowledge. First, does people hold the knowledge. Second are the process, tactics and strategies for designing. The third aspect is the knowledge, which resides in products themselves.

Next, Cross reveals his taxonomy of design research:

'*- Design epistemology - Study of designerly ways of knowing*

- Design praxiology - Study of the practises and processes of design

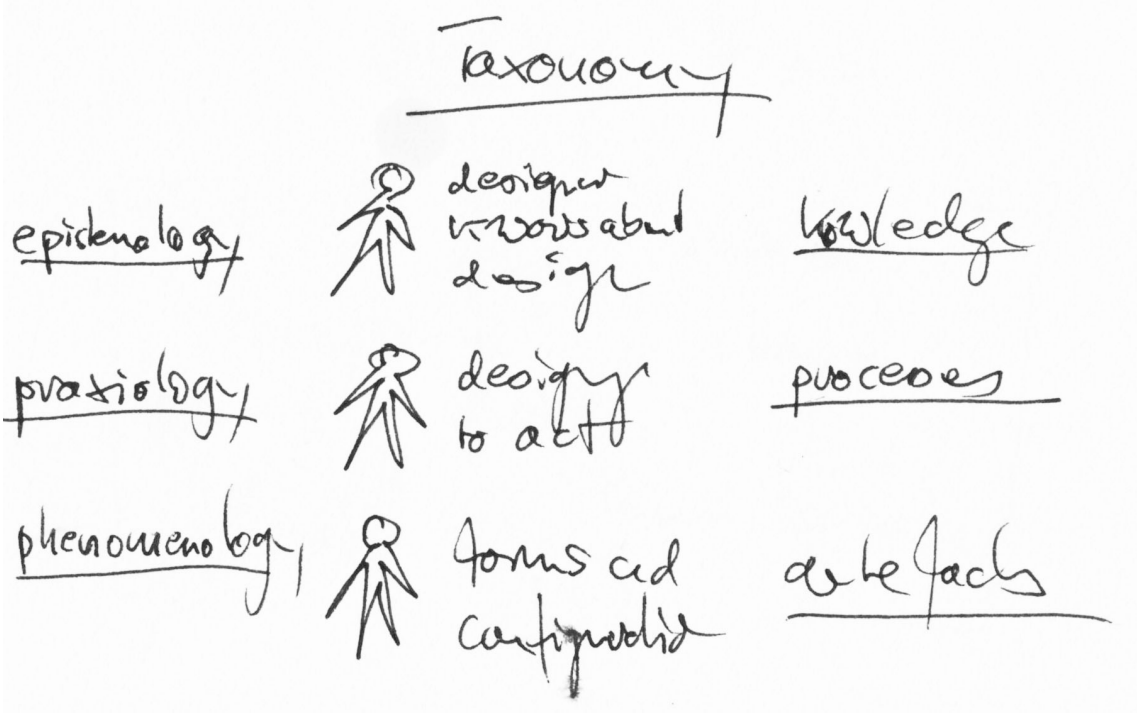
- Design phenomenology - Study of the form and configuration of artefacts.' (p.6)

Cross highlights the distinction between science and design when he says:

'We have come to realize that we do not have to turn design into an imitation of science, nor do we have to treat design as a mysterious, ineffable art. We recognize that design has its own distinct intellectual culture; its own 'designerly' things to know, ways of knowing them, and ways of finding out about them' (Ibid).

However, Cross criticizes design, noting that its history of inquiry, scholarship, and research must be improved in order to catch up with science. He summarizes his thinking with the following statement:

We are still building the appropriate paradigm for design research. My personal 'touch-stone' theory for this paradigm is that there are 'designerly ways of knowing'; many of the examples of design research I have referred to are contributions to building our understanding of this concept of particular, designerly ability. I believe that building such a paradigm will be helpful, in the long run, to design practice and design education. We still know relatively little about the mystery of design ability, and that limits our 'proper study of mankind.' This is the goal for design research' (p.10).



Model A1.3a (Design) Taxonomy

According to Roth (1999), there is a difference between design studies and research. She posits that design studies are a basic inquiry in design, distinct from design methods or project-oriented research (referring to Margolin). Based on this reasoning, design studies would essentially be an interpretive practice, rooted in the techniques of the humanities and social sciences, instead of natural sciences (Roth 1999). She also calls it 'research into practice', but makes a clear call for design research to be improved: *'A broader view of design research would acknowledge a source of information outside the designer's experience, and require a more collaborative approach to design. The growing employment of participatory design methods (involving users in early stages of the design process) indicates a positive change in this respect'* (Ibid, p.21).

Roth (2009) differentiates between three categories of inquiry, beginning with the concrete and specific, for instance, which are the visual attributes of typefaces to communicate effectively. The next step is the conceptual inquiry, the example of which is a user's conceptual map of an interactive program, which might affect its navigation. The third category of Roth's inquiries is that of the theoretical/philosophical. For example, is cross-cultural design possible, or is good design in general possible?

Roth makes a further distinction between qualitative and quantitative research, suggesting that design is related to qualitative methods.

'Quantitative research attempts to remain objective and neutral through the use of standardized, experimental methods and a reliance on mathematical and statistical models. Qualitative research employs multiple methods, many of which rely on the complex context in which events take place and a more intimate or engaged involvement with the subject/participant' (Roth 1999, p.23).

Importantly, Roth notes that the time has come for non-designers and designers to exchange methods and findings, and to develop a research agenda while establishing objectives to support design practiced in the twenty-first century (Ibid).

Fallman (2003) proposes a basic triangular model from the perspective of interaction design, which comprises of 'design study,' 'design practice,' and 'design exploration.'

He explains these three components:

'Design practice denotes the kinds of activities that interaction design researchers perform that are very close, and sometimes identical, to the kinds of activities they would undertake when practicing interaction design outside of academia, such as working for a commercial interaction design organization, a consultancy company working with client commissions, or an inhouse design department' (p.7).

'*Interaction design is also synthetic and proactive in that the researcher is involved in bringing forth a product or service.*' (Ibid, p.7).

'*Design Studies is the third activity area of interaction design research, and that which most closely resembles traditional academic disciplines. The overall goal is to build an intellectual tradition within the discipline, and to contribute to an accumulated body of knowledge. This typically involves the design researcher in analytical work, and in taking part in and contributing to on-going discussions about design theory, design methodology, design history, and design philosophy.'* (Ibid, p.10).

Zimmerman et al. (2008) are also focused on interaction between design and research, and note that it requires broadening the scope of design research. Moreover, many designers in the HCI (Human Computer Interaction) research

community have expressed interest in research through design - a research approach that employs methods and processes from design practice (p.4). By practicing research through design, researchers can explore new materials and actively construct the future with disciplined imagination, instead of limiting their research to an analysis of the present and the past (Ibid).

Biggs (2004) sees the difference between science research and the arts, since the former deals with paradigms (i.e., a coherent set of concepts and methods that pervade the scientific approach at any particular time). Additionally, he holds that methods can be validated in terms of coherence, rather than in terms of absolute validity (Biggs 2004). In contrast, in the arts, we are operating within an episteme, which ensures that nothing will ever be incoherent. There is no preference for one set of methods, since finding multiple solutions is an asset, not a weakness (Ibid). Biggs makes the case that the question is not 'which method should be used?' Rather, it is 'how shall we determine which method is appropriate?' The appropriateness of a method can be tested within the relationship of context, question, answer, and audience. This is the task of methodology, the study of methods (Ibid).

Walters (1986), when considering design inquiry as an active research method, argues that design must be seen as a form of inquiry itself. This involves a process, rather than structural planning. However, Walters considers science an inappropriate model for planning and design, since rationality is not sufficient. There needs to be space for intuition, tacit knowledge and the social construction of norms and values (Ibid).

Finally, Galle (2000) makes the case, in reference to Kroes, that design methodology is normative and process-oriented, while the methodology of science is descriptive and product-oriented.

This discursive exploration demonstrates that design methodology is tightly connected with general research methodology. Further, we see that it is closely related to how we view design and differentiate design from art and science and differentiate design practice from exploration study.

Summary:

According to Cross (1999), methods belong to three different knowledge areas - praxeology, phenomenology, and epistemology - where knowledge can be found. A further classification, based on Fallmann's (2003) reasoning, would

distinguish between ‘design study,’ ‘design practice,’ and ‘design exploration.’ Design study is an interpretive practice, rooted in the techniques of the humanities and social sciences, instead of natural sciences; it is ‘research into practice’ (Roth 1999). Still, it is different from science, since scientific methodologies are descriptive, product-oriented, whereas design methodologies are normative and process-oriented. Three categories of inquiry can be differentiated - the concrete, the specific, the conceptual inquiry and theoretical/philosophical (Roth 2009). In addition, while design is mostly related to qualitative methods, science requires both quantitative and qualitative methods. There is yet another difference between science and design research, since in design (arts), there is the operation within an episteme, which does not allow for incoherent. When exploring different methods, we are not concerned with which is the right one. As there are many methods that can lead to answers, the question is which one is more appropriate, and that is the task of methodology. A research method is a research through design that employs methods and processes from design practice, which construct the future with disciplined imagination, instead of limiting their research to an analysis of the present and the past (Zimmermann 2008). A major difference is seen by Nadler (1967), who makes the case that design is deductively and research is inductively oriented, since research attempts to derive generalizations or hypotheses from many instances and specifics, while design proposes solutions.

A.1.4 Research, Practice and Design Knowledge

The connection seen in theory, research and design knowledge is one of the core elements of this research and methodologically very important.

According to Schoen (1983):

'If we separate thinking from doing, seeing thought only as a preparation for action and action only as an implementation of thought, then it is easy to believe that when we step into the separate domain of thought we will become lost in an infinite regress of thinking about thinking' (p.280).

Cross (1999) made the distinction between epistemology, praxeology and phenomenology, as presented in the preceding chapter, leaving the dichotomy between designing and theorizing. Research can be conducted in various ways - as a working method, by drawing upon the distinctions among cultural knowledge, common knowledge, theory and practice. Or, as Glanville (1999) suggests, knowledge can be derived from extending our beliefs, which leads to a science of conjectures. The fact that we are willing (in theory, at least) to test these conjectures to destruction leads to a science of refutations, in Popper's (1963) opinion. Popper originally stated:

'(1) It is easy to obtain confirmations, or verifications, for nearly every theory, if we look for confirmations.

(2) Confirmations should count only, if they are the result of risky predictions; that is to say, if, unenlightened by the theory in question, we should have expected an event which was incompatible with the theory - an event which would have refuted the theory.

(3) Every 'good' scientific theory is a prohibition: it forbids certain things to happen. The more a theory forbids, the better it is.

(4) A theory which is not refutable by any conceivable event is nonscientific. Irrefutability is not a virtue of theory (as people often think) but a vice.

(5) Every genuine test of a theory is an attempt to falsify it, or to refute it. Testability is falsifiability; but there are degrees of testability; some theories are more testable, more exposed to refutation, than others; they take, as it were, greater risks.

(6) Confirming evidence should not count except when it is the result of a genuine test of the theory; and this means that it can be presented as a serious but unsuccessful attempt to falsify the theory. I now speak in such cases of corroborating evidence.

(7) Some genuinely testable theories, when found to be false, are still upheld by their admirers-for example by introducing ad hoc some auxiliary assumption, or by re-interpreting theory ad hoc in such a way that it escapes refutation. Such a procedure is always possible, but it rescues the theory from refutation only at the price of destroying, or at least lowering, its scientific status. (I later described such a rescuing operation as a conventionalist twist or a conventionalist stratagem.

One can sum up all this by saying that the criterion of the scientific status of a theory is its falsifiability, or refutability, or testability' (p.47-48).

It thus follows that, whatever theory is developed through the screening of the existing theories of design, and whatever discourse is generated in the selected matter, the proposed design theory is a proposition that, though unproven, must be considered as true, as it has not been disproven in Popper's sense.

The research conducted here is qualitative, both in its literature review conducted to understand design and existing design theories, as well as in its evaluation of discourse models and the research into practice. This also includes the conferences, which are executed to generate and understand how knowledge is generated and how the frame of design can be extended. The research presented here becomes increasingly pragmatic, since it is not committed to one philosophical system, and especially since there is no strict dualism between the mind and the reality. It culminates in a situation where it is no longer concerned with the design reality, as it attempts to change the subject (Murphy 1990).

Friedman (2003) describes design practice, which changes existing situations, as *'One form of design practice is allied to art and craft. It is intuitive. It sometimes produces desired results'* (p.13). The focus here is on 'sometimes,' since practice sometimes produces failures. He adds, *'Another face of design practice involves efforts to render the outcomes of design predictable'* (p.514). With respect to research, Friedman sees design research mainly acting within clinical research, as was stated in other parts of this thesis (Ibid).

Swann (2002) makes the case that there is much to criticize about design practice and subsequently closes the gap between design practice and theory and knowledge through Schoen's epistemology of practice-based work, reflection in action and action research. He also suggests that action research and the action of designing are so close that it would require only a few words to be substituted within the theoretical frameworks of action research to be applicable to design (Ibid).

Model A1.4a Theory and Practice

Archer (1999) speaks about the practice-led research in design, which can be termed as research through design. Practice-led research is a mode of enquiry in which design practice is used to create an evidence base for something demonstrated or discovered. It involves a researcher undertaking a design project subservient to stated research aims and objectives. Further, *'…the main motivation of practice-led researchers is to elicit and communicate new*

knowledge and theory originating from their own design practices' (Pedgley 2007, p.463).

There are others, like Newbury (1996), who see that there is a difference. He elaborates on this:

'The answer to this dilemma lies, I believe, in making a distinction between academic research in art and design, and art and design practice. The means of the distinction is the obligation to methodological transparency that is an integral part of the academic. Whereas an artist or designer can simply present his or her end-product, and refuse further explanation, the academic art or design researcher is obliged also to map for his or her peers the route by which they arrived at that product' (p.15).

In other words, as long as we do not create a methodological transparency, there is a difference between research and design practice.

Design knowledge and practice are very much connected and perhaps identical for Cross, since he sees design knowledge residing in its processes (e.g., the tactics and strategies of designing), and therefore, in the methodology applied to the study of design processes. The design process, which has been so successfully elaborated over the past decades, is only a part of a bigger story to Dorst (2008). This larger model includes the design object, the designer, and the design context.

With regard to a theory developed by Latour, Ingram et al. (2007) speak of the challenge to think of products in terms of verbs, rather than nouns (e.g., referring to 'cellphoning' instead of 'cell phones') in order to call attention to the human and nonhuman actors. This also extends the focus towards the practice and processes of design. In his four orders of design, Buchanan (2001) develops a theory in which design moves from focusing on symbols, through things and action, to finally arrive at thoughts. This model supports the notion that, at a certain point in history, the connectedness of action, practice and knowledge became the focus of study, indicating that there is still an important and strong connection to be drawn. However, the dichotomy between practice and knowledge is difficult to sustain. Thus, the connection between acting and knowing must be elaborated, as it will reappear throughout subsequent chapters, particularly those discussing design epistemology and action research.

Summary:

While there is a difference between a design practice and a research practice and knowing, there is a way to view them together, especially if we extend designing into the realm of thoughts, as Buchanan (2001) does. If we achieve this, the dichotomy between practice and knowledge is no longer sustainable. However, without a methodological transparency, the difference between research and design practice will remain. The gap between design practice and theory and knowledge can be overcome through the framing as 'reflection in action' and 'action research' (Swann 2002). Action research and the action of designing are very closely linked, as it is explored in a later chapter presented in Part C, looking at the validation of the theory. A theoretical model is a proposition that, though unproven, is considered to be true, as it has not been disproven. Therefore, a validation offered in Part C is necessary. It is also a move towards a more pragmatic position, since the work is not committed to one philosophical system, and especially since there is no strict dualism between the mind and the reality. It culminates in a situation where we no longer seek the answer to the question of a design reality, as it rather becomes a question of changing the subject (Murphy 1990). In other words, we shift the focus on the subject of designing theory, through working with theory and through designing conferences, as well as through interviews, which are of equal importance here.

A.1.5 (Design) Meta Theories and Meta Discourse

'We make theory about theory just as we make theory: we find pattern of pattern' (Glanville 1999, p.87). The theory construction, as it is presented here, has two elements, as mentioned before. One element is based on the theoretical review of existing theories, presented in A2. This part can be called meta-theory, which allows us to subsume other theories. Therefore, the theory comprehends interlocking rules, describing and prescribing what is acceptable and unacceptable as theory. It is a theory built upon theories.

Love (2000) proposes a meta-theoretical structure to prevent the confusion and conflation, which he sees in theories and terminologies in design research. With a meta-theoretical taxonomy, he refers to an individual's direct, sensual interaction with the world at the lowest level of abstraction. The highest level is concerned with human values, assumptions about existence, and their implications. Thus, the taxonomy ranges from 'our perception of reality,' to our questioning of what that reality is (Ibid, p.305). Love's meta-theoretical structure for classifying abstractions of design theory consists of the following steps:

'*(1) Direct perception of realities*

(2) Description of Objects

(3) Behaviour of Elements

(4) Mechanisms of Choice

(5) Design Methods

(7) Theories about the Internal Processes of Designers and Collaboration

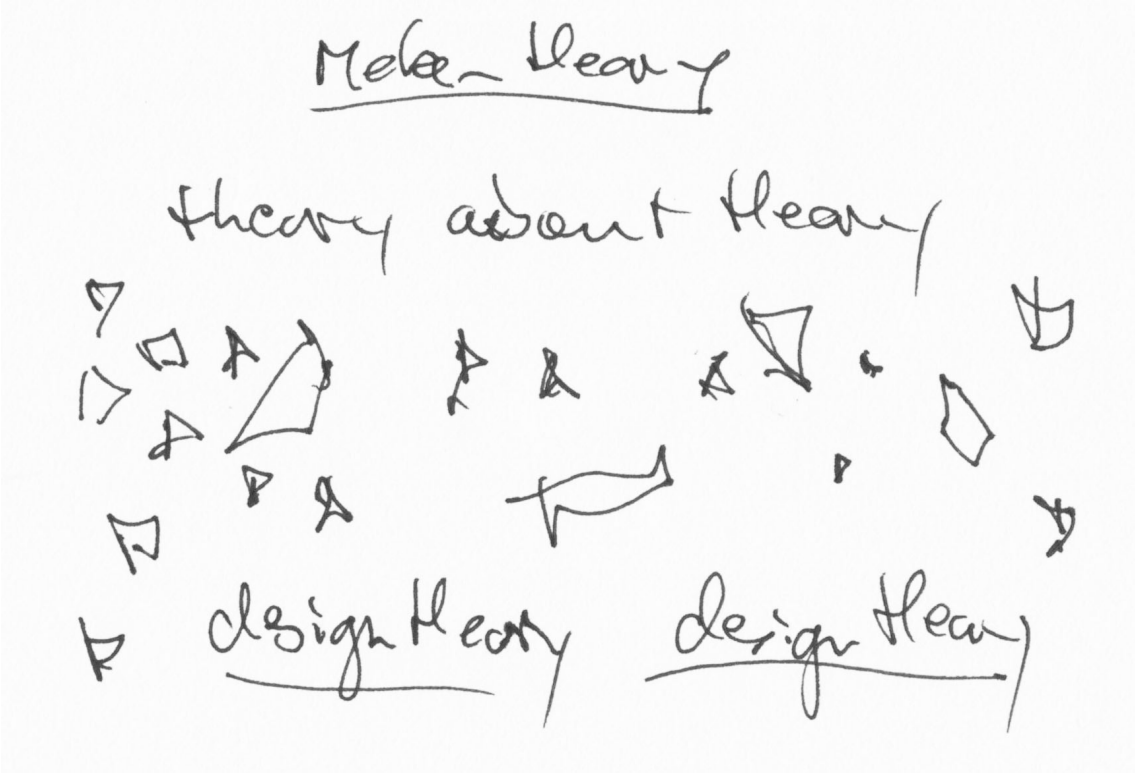
(8) General Design Theories

(9) Epistemology of Design Theory and the Theories of Objects'

(10) Ontology of Design.' (p.305)

He explains: *'Abstractions in levels 2–10 provide theories and patterns of concepts at lower levels. Abstractions in levels 1–9 of the taxonomy are based on assumptions drawn from following levels. Abstractions at higher levels provide assumptions for preceding levels'* (Ibid, p.306).

At first glance, Love is indicating that Levels 2 and 3 relate to objects, Levels 4–7 relate to the design process, and Levels 8–10 relate to philosophical matters. The intended theory, therefore, needs to be seen as a philosophical endeavour, if Love's framework is applied. It is also understood as a philosophy of design, which is different from design philosophy. It is the disciplinary equivalent of Philosophy of Science, or Philosophy of Technology, whereas design philosophy is associated more with the philosophical study of design methods (Love 2000).



Model A1.5a Meta-Theory

Referring to Love's (Love 2000), Buchanan's (Buchanan 1998, 2004) as well as Hubka and Eder's (Hubka and Eder 1996) theories of design, Galle (2008) states that a fully unified theory of design is neither attainable nor desirable, for there must be room for disagreement. Still, he notes that such disagreement implies contradiction, and contradiction creates disintegration (Galle 2008). Galle subsequently proposes a metaphysical awareness to reduce the problem of disintegration.

This thesis itself is meta-theory, within a meta-design sphere. It reveals that **Design can be Designed**, design can be invented, pre-existing design can be re-

designing. That is the culmination of the theory as a practice. Theory, as it is understood and presented, is a design discipline reframing what design is and defining the accompanying technology.

In Biggs' sense, the meta-theory is the set of criteria that allow the designing of design to be seen as the symptom to be treated, and the research as an attempt to negotiate within the community of practitioners (Biggs 2002). Therefore, the thesis is not solely based on theory developed through theory, as there is also a parallel attempt to research into practice - the practice of generating knowledge in a conference setting.

Narvaez (2000) proposed a meta-structure of design which refers to a domain that is a part of design knowledge. (p.49).

This view overlaps with the research presented here, as it is about attaining design knowledge. In both cases, the goal is a general design theory that describes how the field of design reshapes itself through models generated through discursive actions, dealing with theoretical models and staging a social activity that allows professionals to engage in discursive actions.

A.1.6 Summary: Theory, Design, Design Knowledge and Method

Here, it was asserted that a theory is a model about something - and depending how the model is created and relates to what it describes - that differentiates between theories that reveal the elements of the model in a dynamic relationship by describing process or action. These elements also simultaneously indicate a methodology underpinning those theories, which needs to be better understood.

A theory is always a hypothesis, and a hypothesis cannot be proved experimentally. More importantly, it cannot be deduced from experimental data, at least at the time of construction of the theory.

Instead, the theory is created through an indication of differences. Logic-based metaphors indicate scientific models and research. As the hermeneutical metaphors are more flexible, they might be more applicable to the design environment, due to their ability to provide the range and diversity of its possible interpretations at play, and thereby allowing the understanding, interpretation, and construction of the design process as it changes from one situation to another. Given that the aim of logic-based models is to get as close as possible to what exists, without matching it, such theories might be even more problematic, at least for design.

Theory related to research can be seen under the focus of basic, applied and clinical research as well. In such areas, design theory is still clinical and situated at micro-level, which can be problematic. Still, when evaluating theory in general, there must be constitutive core concepts that have generative connections with the more peripheral. These complementary and well-defined core concepts are essential and must be expressed at a uniform level of discourse. Differing levels of discourse must be distinguished and used consistently. Theories are systems in which general theories relate to specific theories, according to a principle of correspondence, and confirm the consistency. In addition, a theory explicitly or implicitly describes the dynamic flow within the environment and states invariant entities that enable measurement and evaluation.

In contrast, the methodology can be understood as the path we take towards this theory or metaphor, and the manner in which we generate the knowledge about design. Further, this knowledge can be located in three areas - design knowledge, epistemology (the process to get there), and phenomenology (the composition of the artefacts). Additionally, while there is a difference between theory and practice it can be minimised, as acknowledged, because theory and practice are ideal types that mark the extreme ends of a continuum (Jonsen and Toulmin 1988, p.36).

The thesis developed here is conducted in a circular manner, in order to surround this instance. **Designing Design** is a general design theory, generated through discursive practice. In generating design knowledge, it is reshaping design by itself.

It is a theory from theory, and it is a simplification through pattern findings and simplification, It is a circular process - a design process (Glanville 2009). It is followed by criticism, and is thus testing it through professional interviews presented in Part C.. Still, it is not only a theory used to derive another theory; it is also a research in practice, into design practice, looking at the conferences designed to understand the thesis matter presented in A.3.

A.2 Design within the Frame of Discourse

The entire Part A2 is dedicated to the concept of theory developed through theory. It positions two major theorists and their work, Michel Foucault's *The Archeology of Knowledge & the Discourse* (Foucault 1972) and Krippendorff's *'The Semantic Turn'* in proximity in order to see whether a reframing of design and method can happens. It excavates (to adopt the Foucault's term) the key statements of these theories and generates follow-up statements to frame design discourse.

When he speaks about the Unities of Discourse, Foucault (1972) notes that discontinuity is recurrent because merely framing a discourse within a field of research ensures that the pre-eminent gaps in analysis of the field - the opposite of continuity - will dominate the discussion.

Moreover, the development of some logic by analysing research and design projects, and connecting their isolated parts to weave a string over time, is a difficult and questionable task. *'…that beyond any apparent beginning, there is always a secret origin - so secret and so fundamental that it can never be quite grasped in itself'* (Foucault 1972, p.25).

Such a general theory of design is typically developed through deduction and induction, the former implying the shift from the simple towards the complex or generic, while the latter pertains to the simplification of the complex. However, neither concept is adequate if the aim is to demonstrate the development of the discourse presented. Within the frame of deduction and induction, discourse is not a logical sequential event. Only the concept of abductive reasoning permits a better framework, as indicated before, since the method of designing was selected. According to Peirce (1958):

'Abduction, on the other hand is merely preparatory. It is the first step of scientific reasoning, as induction is the concluding step. Nothing has so much contributed to present chaotic or erroneous ideas of the logic of science as failure to distinguish the essentially different character of different elements of scientific reasoning; and one of the worst of these confusions, as well as one of the commonest, consists in regarding abduction and induction taken together (often mixed also with deduction) as a simple argument' (p.136).

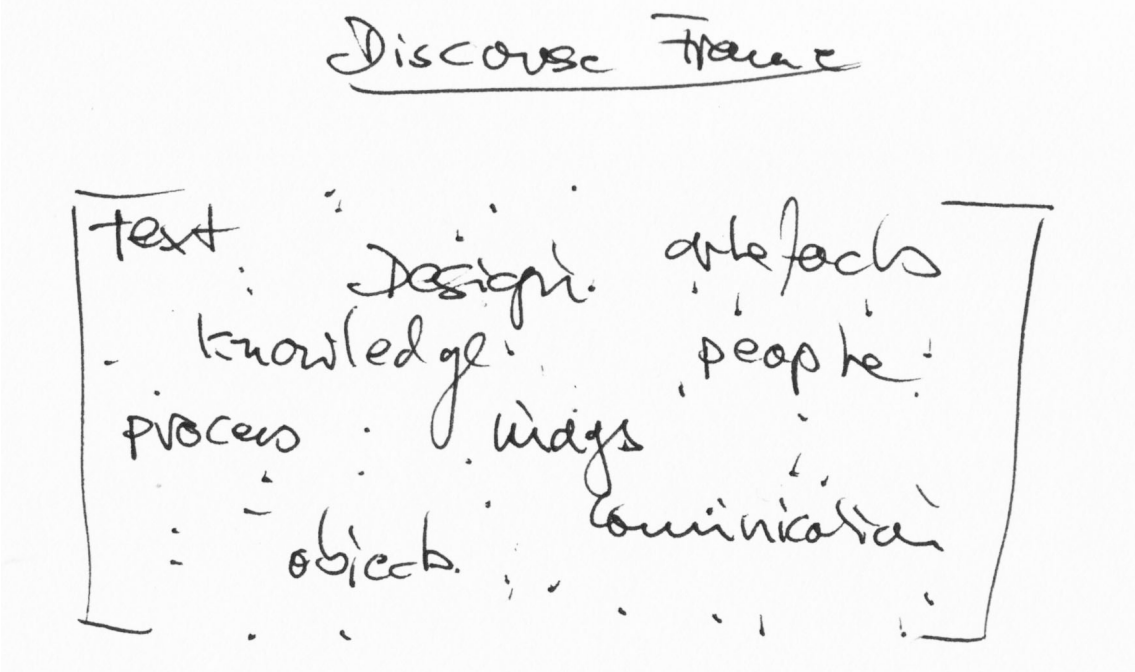
He further adds:

'Abduction makes its start from the facts, without, at the outset, having any particular theory in view, thought it, is motivated by the feeling that a theory is needed to explain the surprising facts.' and *‚Abduction seeks a theory'* (p.137).

Peirce's description of adaptive reasoning might be an adequate model for understanding the process, since this research project began with the idea that discourse could be an interesting frame through which to consider the concepts of design and designing.

Still, this decision was not based on logical reasoning; it was a preparatory stage, as Peirce proposed. As there was no supporting theory, the work presented here was driven by the desire to find a place where a theory might be possible.

The idea of discourse as a framework for a design theory started out as an investigation of what such a discourse might be and what its analysis might bring. Therefore, the following chapters are an introduction into the construction and reasoning behind this premise. As outlined in A.0 and A.1, design methodology is normative, rather than prescriptive. It defines a process of design, and it defines designing, which is the essence of this discourse.



Model A.2a Discourse Frame

A.2.0 Design and Design Discourse

To insert a general understanding of Design between the contexts presented is rather metaphorical, since logically it could have also been presented at the beginning. The decision to place it here is a reflection of the entire process and its outcome. It also indicates that there is no beginning or end, but rather a state of permanent questioning, which leads to answering and reframing of what design is and might be. This incessant inquiry is primarily generated by identifying and detailing the gaps.

Over the years, and during the last two decades in particular, many professionals tried to define design. In order to highlight a common understanding they reached, it is necessary to state some core concepts.

A very general, and oft cited, definition comes from Friedman, who posits that most definitions of design share three attributes.

'First, the word design refers to a process. Second, the process is goal-oriented. Third, the goal of design is solving problems, meeting needs, improving situations, or creating something new or useful. Herbert Simon (p.129), 2 (p.112) defines design as the process by which we '[devise] courses of action aimed at changing existing situations into preferred ones.' Since this definition covers most forms of design, it is a useful starting point' (Friedman 2003, p.508).

Since Friedman's definition includes Simon's generalized statement, it a very broad, comprehensive and useful theory. Simon (1996) went so far as to say that, *'The proper study of mankind is the science of design'* (p.83).

In his *Semantic Turn*, Krippendorff (2006) also proposes a basic and comprehensive definition of design with his reference to Latin:

'The etymology of ‚design' goes far back, of course, to the Latin de+signare, which means to mark out, set apart, give significance by assigning it to a use, a user, or an owner. Design has the same origin as ‚sign' and to ‚designate', calling attention to something other than its observer-independent existence: meaning. The sixteenth century English emphasized the purposiveness of design, and because design often involved drawing, or marking out', the seventeenth century

moved design closer to art. Based on these original meanings, one could say: Design is making sense of things.' (Introduction)

Within this definition, he already indicates a change - a paradigm shift in design - which he calls the '**semantic turn'** (Ibid).

Cross (2007a) has collected many quotes from designers and has interpreted these to reframe design, concluding:

'*In quoting these designers, and interpreting those quotations in terms of concept from design research, I have been trying to show two things. Firstly, that although designers themselves do not normally use the kinds of concepts that researchers use, we are talking about the same experiences and perceptions: we are talking about - hopefully, developing - highly-developed design ability. Secondly, I have wanted to show that this is a difficult conversation: we are not talking about simple activities that can be expressed in simple concepts. I do not want to imply that designing is mysterious and obscure; but I do want to show that it is complex. Although anyone can design, designing is one of the highest forms of human intelligence'* (p.54).

On the other hand, Buchanan (1996) develops a theory with which he defines design as the new liberal arts:

'*What design as a liberal art contributes to this situation is a new awareness of how argument is the central theme that cuts across the many technical methodologies employed in each design profession. The new liberal art of design thinking is turning to the modality of impossibility. It points, for example toward the impossibility of rigid boundaries between industrial design, engineering and marketing. It points towards the impossibilities of relying on any one of the sciences (natural, social, humanistic) for adequate solutions to what are the inherently wicked problems of design thinking. Finally it points toward something that is often forgotten, that what many people call "impossible", may actually only be a limitation that can be overcome by better design thinking'* (p.19).

Schoen (1987), however, defines design from an active process perspective: *'A designer makes things. Sometimes he makes the final product; more often he makes a representation - a plan, program, or image - of an artefact to be constructed by others. He shapes the situation, in accordance with his initial appreciation of it, the situation ‚talks back' and he responds to the situation's back talk. In a good process of design, this conversation with the situation is*

reflective. In answer to the situation's back talk, the designer reflects-in-action on the construction of the problem, the strategies of action, or the model of the phenomena, which have been implicit in his moves' (p.78-79).

If design is perceived merely as a problem-solving profession, it implies that everybody who changes an existing situation into a preferred one is a designer (as Simon defines). Thus, the question is - how do we change an existing situation into a preferred one?

The 'how', represents the process of changing that which exists. Further, 'process' in design is usually aligned with Cross's description:

'1.) exploring the problem and writing a performance specification;

2.) generating a range of concepts;

3.) evaluating and selecting the most promising concept;

4.) developing the concept into a detailed design; and

5.) communicating the final proposed design' (Cross 1997, p.311ff).

Now that some perspectives are established, it is possible to look to the histories, at the designer, the design profession, design as a basic human activity, and the goal of design—problem solving, for example. However, problems do not exist, they are constructed, and they are not independent from us as humans. Problems are invented and can thus change; therefore, there is no design without invention and, ultimately, design is an invention as well.

Archer is making a case that there needs to be a third area next to science and the humanities, since the essential of design is modelling, as it is a notation for science and a language for humanities. Therefore, in his view, the problem stems from the fact that we have not yet developed a strong case for such a 'designerly way of knowing' (Archer 1979).

Thus, asking 'what is design' would inevitably yield different answers, depending on the perspective from which the problem is stated. Is design a practice, a discipline? Is it a general human activity? Does it have its own knowledge? Is it discourse? Whenever a problem is invented, a different result is created. Therefore, what design is, depends on the framing of the problem 'design'. There is no all-inclusive answer. Defining design is a wicked problem that unveils the fluidity and constant transformation involved in the discursive construction and

the exploratory nature of trying to answer the question of what design truly is. Verganti (2008) states that design is fluid and slippery, which is likely a very adequate description.

Design Discourse

Margolin (1989), as the responsible editor of the book 'Design Discourse', has coined the term, and showed what a design discourse might be, by presenting the contributions of several designers and theorists, who argue and debate for design studies as a new discipline. Importantly, he started to frame the entire study with several definitions of design. He began with a definition from Buchanan, a contributor to this book, who said that design is what all forms of useful production have in common. According to Buchanan, design provides for intelligence, the thought or the idea. Of course, one of the meanings of the term 'design' is a thought or plan that organizes all levels of production, whether in graphic design, engineering, or industrial design, architecture, or the largest integrated systems found in urban planning.

Yet, arguing, even within definitions, which are very similar, gives us a sense of what design discourse may be. It might serve as the base - the underlying method to create design studies - because 'design study', as a field, does not exist. Design training is extremely fragmented, as we can appreciate by looking at the various departments at universities and art schools where design is being taught (Margolin 1989).

Margolin clearly indicates his intention when he says that design study needs debating arenas - a place where new ideas can be presented and questioned, and where issues of the discipline can be defined (Ibid, p.6). One of the outcomes, he argues, is the commitment to draw in researchers with backgrounds in history, sociology, literary criticism, psychology, engineering, philosophy, rhetoric, and design practice, among many. However, to this date, this issue remains unresolved for design entities, such as the *Journal of Design*.

Margolin further develops his idea of design discourse by discussing the difficulty of conveying a theory, which is not compromised by ideology and still able to produce natural models of either designing or society. *'Creating design*

theory then becomes a matter of argument, and part of a broader debate about social theory in general' (Ibid, p.7). That is the basis for why design discourse is so important to Margolin, for creating a theory of design, or for design.

Design discourse, in the best sense, would provide a non-ideological theory, or at least would make the ideological influences visible, thereby showing that there is no value-free discipline, and arguing with Dickson, Feyerabend and Stanley. Accepting this, any theory of design is, thus, also connected with any theory of society.

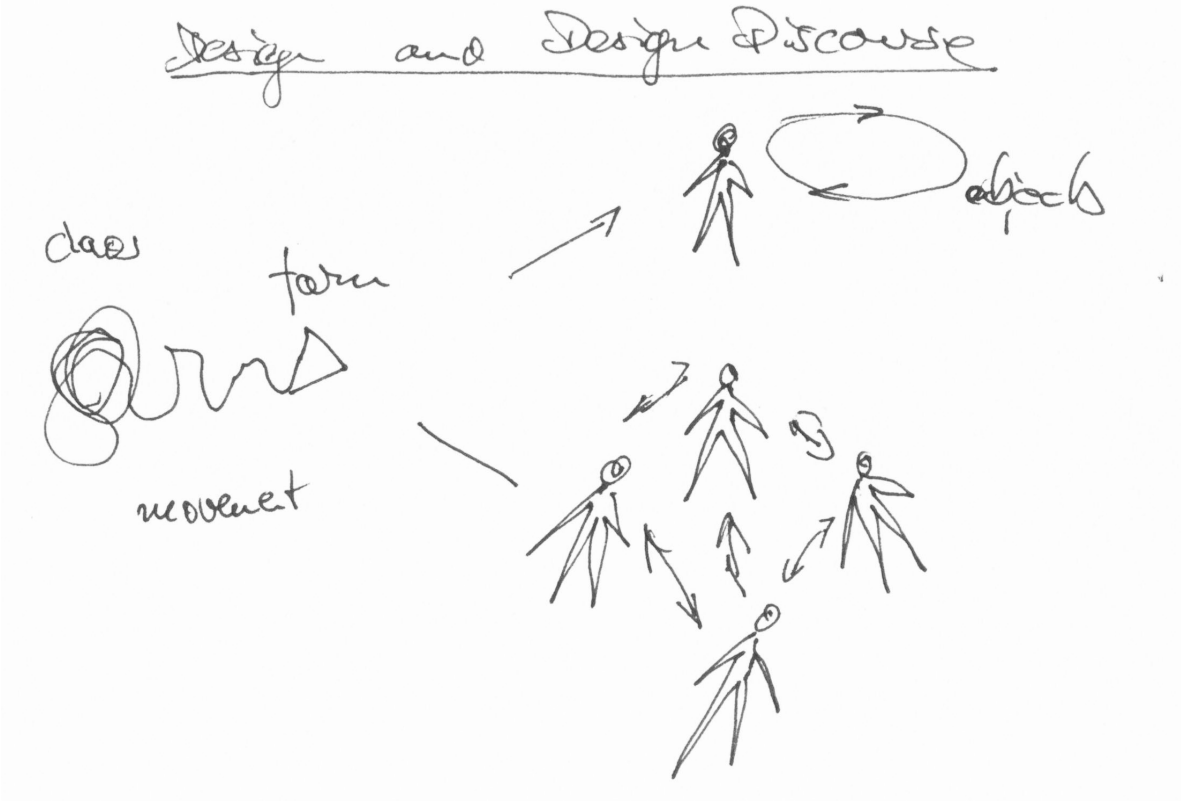
An equally interesting differentiation that can assist in understanding design discourse is pointed out by Perelman (1999), who makes a distinction between the engineering design discourses. Grounded in the production of artefacts, humanistic discourse is largely based on consumption, particularly of textual objects. Therefore the *'engineering discourse, then, is informed by a rhetoric of design, that is, a rhetoric of deliberation, while most humanistic discourses echo back to rhetoric of interpretation, judgment, and evaluation'* (p.66).

Still, there are others who see design discourse as weak, or even non-existent. For example, Poggenpohl (2004) claims that *'Design does not have a strong tradition of reflective or critical writing, perhaps because much design knowledge is tacit and formalizing this knowledge through language is difficult'* (p.588). In Perelman's (1999) view, this could be interpreted as suggesting that design does not have a strong rhetoric of interpretation, judgment, and evaluation. Poggenpohl adds: *'Different sub-disciplines in design have stronger, weaker, or virtually nonexistent discourse traditions'* (Ibid, p.588).

Hence, if design discourse is required, there needs to be a clarification what discourse means in order to understand what design discourse comprehends. And who better to put this into perspective than Foucault in his writing. However, the problem here is the language, because it is generative, rather than consumptive like humanistic discourse, as we saw in Perelman's excursion.

Focusing deeply on the understanding of discourse, language discourse in general, and using Foucault's *The Archeology of Knowledge*, we can attempt to evaluate contemporary design theory and see whether it is embedded in ideology, or whether the ideology is transparent, following selected discourse formations.

The methodology applied here is a form of cross-reading and cross-evaluating Foucault's exploration and a publication from Krippendorff's *The Semantic Turn*, where he sets a new foundation for design, and develops a design theory by describing the development he constructs. He is reviewing design in the 20 century, which he subsequently calls 'trajectory of artificiality' (Krippendorff 2006). Foucault's writing is used in this thesis as a backdrop to look into the base of Krippendorff's description of design discourse.



Model A.2.0a Design and Design Discourse

Summary:

The purpose of this chapter was to show how design and discourse can relate and how design in such a context has to be thought of.

Design refers to a process, which is goal-oriented approach to solving problems. Its aim is to meet needs, improve situations, or create something new or useful (Simon 1986). Simon's definition is the broadest and most inclusive, as he makes

the case that design is the process by which we '[devise] courses of action aimed at changing existing situations into preferred ones (Friedman 2003, p.508),

Krippendorff (1989), on the other hand, indicates a 'semantic turn' when he states that the assignment of designers is 'Design is making sense of things'. (p.9)

Cross (2007a) summarized his research, stating that anyone can design, designing is one of the highest forms of human intelligence.

Buchanan (1996) instead defines design as the new liberal arts.

Schoen (1987) describes the active process implicit in design and makes the case that, in a good design process, the conversation with the situation is reflective and the situation talks back. His statement culminates in his concept of reflecting in action, which gives designers a new frame to do research.

In general, an all-embracing definition of design generates a wicked situation, which reveals that there is no all-inclusive answer; it shows the fluidity and the constant transformation of a young discipline that can be best described as fluid and slippery (Verganti 2008).

Design Discourse as a concept was coined by Margolin (1989), who demonstrated the fluidity when collecting a set of essays around design understanding in order to define what design might be. The key to this approach is the set of statements, instead of a definition. Still, he also argues for research into various fields, which can benefit the design discourse. He summarizes his understanding of design discourse with the notion that design theory becomes a matter of argument and is a part of a debate in social theory in general (Ibid).

The distinction between humanistic discourse, which consumes textual objects, and engineering discourse is interesting, since engineering discourse is informed by rhetoric of design, rhetoric of deliberation. (Perelman 1999) In contrast, Poggenpohl (2004) sees various design sub-disciplines having virtually no discourse tradition. Despite their different perspectives, in general, all aforementioned theorists make the case that design discourse is needed. Therefore, Krippendorff's design discourse framework is used in the next chapters, to discuss it on the backdrop of Foucault's groundwork, with the aim of providing a better understanding of the design discourse.

A.2.1 Foucault's Discourse and Krippendorff's Design Discourse

Discourse is primary achieved through language. In this work, instead of following and drawing upon an evaluation and contextualizing Foucault's discourse, his statements will serve as a base for understanding contemporary design theory - Krippendorff's theory of design. The texts will be juxtaposed to better understand the value of the statements therein. The questions driving this approach is: Can Foucault's work be better understood by applying contemporary design theory, or does Foucault's excursion question existing design theories based on the presumptions of continuity within them? Does this methodology guide us to an outcome or insights, which are useful?

Foucault's Discourse

Foucault structured his exploration of a theory of history into five steps:

1) 'Introduction'

In *The Archaeology of Knowledge* (L'Archéologie du Savoir 1969), Foucault presents an approach to the exploration of language and description of culture that differs from structuralist methods of inquiry. Instead of trying to integrate concepts of unity into a structural description of the history of ideas, Foucault explains that discontinuity is characteristic of every discursive statement. He further asserts that systems of dispersion are the reality underlying all discursive statements, rather than trying to construct chains of inference in order to unify the history of ideas, as is done in the history of science and philosophy, and instead of trying to formulate tables of differences, as is done in linguistics.

2) 'The Discursive Regularities'

Foucault defines a 'discourse' as any group of statements belonging to a single system of formation, which are different from other groups of statements, and for which conditions of existence are definable. In order to properly describe the relations between various discursive statements, we must not ignore any kind of discontinuity. We must not ignore any discursive break, threshold, or limit. The conditions for the unity of discursive statements (such as similarity of objects, modes of expression, concepts, or themes) may also be conditions for disunity.

Discursive formations, according to Foucault, are groups of statements, which may have any order, correlation, position, or function, as determined by this disunity.

3) ‘The Statement and the Archive’

A discourse, as described by Foucault, can be a historical event or an archive of historical statements. External conditions are necessary for the appearance of any objects, forms, concepts, or themes of discourse. External conditions, thus, govern the 'rules of formation' of discourse. These rules are the objects, forms, concepts, and themes of discourse; they constitute the ‘discursive regularities,’ and are the conditions of existence for any discursive formation. Discursive relations (i.e., relations between discursive statements) are not internal to a discursive formation. Instead, they explain its limits. The relations between discursive formations may include analogy, opposition, or complementation. Discursive formations may also determine each other's limits or boundaries.

4) ‘Archaeological Description’

While the archaeological description of a discursive formation is not necessarily an attempt to interpret its meaning, it is concerned with discovering the rules that define its specificity. Archaeological description does not attempt to describe the process by which an individual formulates an idea, nor does it explain the motives or intentions of a discursive subject. Instead, it is concerned with the rules and principles that may be specific to discursive formations as well as to discourse itself. According to Foucault, these enunciative modalities manifest dispersion of the speaking subject, instead of the unifying function. Thus, archaeological description has a diversifying, rather than unifying, effect on our understanding of discursive statements.

5) ‘Conclusion’

Foucault explains that, in trying to understand the formation and development of discourse, we must abandon our pre-existing notions of unity, if we want to discover the rules governing statements effective in their dispersion as discursive events. He also illustrates that the development of a workable philosophy of language an important task for philosophy (Foucault 1972).

Implications of Foucault's work for the new Sciences

The first implication is best summarised in Foucault's own words:

'The problem now is to constitute series: to define the elements proper to each series, to fix its boundaries, to reveal its own specific type of relations, to formulate its laws, and, beyond this, to describe the relations between different series, thus constituting series of series, or tables: hence the ever-increasing number of their time and chronologies; hence the need to distinguish not only important events at quite different levels...' (Foucault 1972, p.8).

The second implication, according to Foucault, is the notion of discontinuity, which exerts major influence in the historical disciplines. He notes, *'Discontinuity, which was originally the stigma of temporal dislocation, has now become one of the basis elements of historical analysis'* (Ibid, p.10).

Foucault identifies the third implication as the replacement of a total history with emergence of a general history.

'The problem now presents itself- and which defines the task of a general history - is to determine what form of relation may be legitimately described between these different series; what vertical system they are capable of forming; what interplay of correlation and dominance exists between them; what may be the effects of shifts, different temporalities, and various rehandlings; in short, not only what series, but also what 'series of series' - or in other words, what 'tables' it is possible to draw up' (Foucault 2006, p.10).

Foucault sums up: *'A total history would draw all phenomena around a single centre, a general, on the contrary, would deploy the space of dispersion'* (Ibid).

Methodologically, the problems that should be addressed next include the construction of coherent and homogeneous corpora of documents, the establishment of principle of choice, the definition of the analysis level and of the relevant elements, the specification of a method of analysis, the delineation of the material according to a number of assignable features whose correlations are subsequently studied, the determination of groups and sub-groups, and finally, the determination of relations that make it possible to characterize a group (Ibid). For Foucault, these problems become part of the field of history. Building upon history, it follows that these elements can also be considered while constructing a theory of design - a theory that would, while not complete,

still be a general theory of design. However, it would not be possible to arrive at an all-inclusive, universal theory, as this is an impossible undertaking. Nonetheless, history is a general concept, where the history of theory can be subsumed.

Accepting these bold and comprehensive statements, could a totality - the 'Foucault Totality' - be creeping in? Therefore, it is imperative to remember a statement Foucault made in his last introductory chapter: '[Foucault's excursion] *is not critical, most of the time; it is not a way of saying everyone else is wrong... I have tried to define this blank space from which I speak, and which is slowly taking shape in a discourse that I still feel to be so precarious and so unsure'* (Foucault 1972, p.17).

Within the search for a theory and theories of design, and while looking at Krippendorff's semantic turn as an existing design theory, the following realisation appears (Ibid): '*…is all of that, especially the method, the search for discontinuity realized, obvious or even stated, and if not, what would be the consequence?'* In a later section, it will be clear that Krippendorff's theory seems very homogeneous in front of this backdrop, especially when considering continuity. Can Krippendorff's trajectory of artificiality be seen as a series that manifests and competes with other series? Maybe it can, because it is also a constructed model, a metaphor.

Krippendorff's Design Discourse and his Trajectory of Artificiality

Krippendorff's semantic turn (Krippendorff 2006), a new foundation for design, begins with a statement from Archer, who is referring to Kuhn's notion of a paradigm shift in order to describe the periodic reconstruction of accepted ideas, roles and procedures in scientific inquiry. Archer outlines several phases in design history, which Krippendorff builds upon when developing his own semantic turn in design. With references to Kuhn and Archer, Krippendorff creates a philosophical context, which can be found in positivism and the Anglo-American philosophy of science (Krippendorff 2006).

Following this discussion, several authors suggest a great deal of similarity between Kuhn's paradigm and Foucault's use of episteme, while also pointing towards differences, since Foucault is not only focused on science, while Kuhn

is. Foucault, in general, is concerned with a wider societal discourse, which encompasses science.

Design, for Krippendorff, goes far back to the sixteenth century where English etymology emphasizes the utility of design, and the involvement of drawing, or 'marking out.' Krippendorff (2006) defines this as **'Design is making sense of things'**. He employs this phrase to assert that design is an elucidative activity. Further on, he recognizes a radical shift in design to find its place in a post-industrial society (Krippendorff 2006).

Krippendorff sees development - referring to it as the 'series' - in the following trajectory: from products, to goods and services and identities, then to interfaces, to multi-user systems and networks, to products and finally to projects. He constructs this development, according to the above series, which we need to examine, especially if designers are involved in discourses. *'Discourses reside in the communities of people who collaborate in enacting what constitutes their community, performing it, so to speak, and thereby creating everything that matters to the members of a community as members'* (Krippendorff 2006, p.11).

Ultimately, to Krippendorff, artefacts become increasingly embedded in language (Ibid). It is a human-centric move, the acknowledgement that meaning matters. As Krippendorff (1995) elaborates:

'I see discourse as a particular way of languaging, as a social phenomenon with a life of its own. In languaging, people talk and listen to each other's voices, acquire their identity, coordinate their behaviour relative to each other and produce or reproduce what matters to them, both individually and jointly. Writing is merely one way of languaging. Discourse is not coextensive with natural language' (p.1).

Krippendorff's Opposition to Power

It is not surprising that Krippendorff has also explicitly dealt with Foucault's discourse framework. In *Undoing Power*, Krippendorff (1995b) explores the ability to see differently, which creates an opening to enter into different universes of being. From these, there is a possibility to look back to traditional ways of writing about power (Ibid, p.2). According to Shotter (1993) we see at first the expected, the familiar, then we shift from one way of being to another,

and then thirdly we recognize that we live in a multi-verse construction and fourth we have the ability to shift from one universe to another (p.38ff).

According to Foucault (1980):

'*We (you and I) virtually (because we are not co-present) collaborate in creating these experiences through your reading of my writing, through languaging, albeit restricted here to writing*' (Krippendorff 1995b, p.4). Krippendorff summarizes his experiment with the notion of language and the social process in which we collectively construct realities for ourselves, to see and talk about the world, and therein create the world (Ibid). He states that Foucault dismissed the notion of power as a simple, isolatable relationship between master and slave or between oppressors and oppressed (Ibid). Several quotes from Foucault support this position:

'What makes power hold good, what makes it accepted, is simply the fact that it does not only weigh on us as a force that says 'no', but that it traverses and produces things, it induces pleasure, forms knowledge, produces discourse. It needs to be considered as a productive network which runs through the whole social body, much more than a negative instance whose function is repression' (p.119).

'*Power is everywhere; not because it embraces everything but because it comes from everywhere. ... Power comes from below. ... There is no binary and all-encompassing opposition between rules and ruled at the root of power relations, and serving as a general matrix'* (Ibid, p.92-94). *'... power is 'always already there,' ... one is never 'outside' it, ... there are no 'margins' for those who break with the system to gamble in'* (Ibid, p.141).

Krippendorff does not explore Foucault's notion of discourse and mainly sees their differences within power, thus choosing to focus on power as undoable. Krippendorff considers power as unnatural, yet unavoidable and omnipresent. Power affects everyone, albeit in unequal measures, regardless of how it occurs in language (Krippendorff 1995b, p.6). Krippendorff sees power as inseparable from observation and not outside of human agency. Therefore, for him, power is erasable, extinguishable, voidable, conquerable and impossible.

Krippendorff draws on Foucault's view, that power '*is exercised rather than possessed,*' (Foucault 1978, p.16), adding that, *'to which I insist on adding, by someone and in 'words.' This addition is important because, to me, power is*

most profitably seen as embodied in the lives of people with very real bodies saying things to each other, in their actual languaging, which includes uttering explanations, commands, dismissals, threats, promises as well as giving indications of acceptance, obeyance, compliance, submission or agreement' (Krippendorff 1995b, p.7).

Importantly, Krippendorff considers power to be more than a singular phenomenon - a position congruent with Foucault's assertion that, *'Power is not an entity, a thing or a resource'* (Foucault, 1978, p.16).

According to Krippendorff, power is emanating from languaging, which can be overcome. Therefore, '… *[power] can be contested in languaging, can be overcome in languaging and is, thus, embodied in the languaging among real people. Given this point of departure, most theories of power - from Max Weber to Talcott Parsons, Robert A. Dahl, Michel Foucault, and Roland Barthes, to name only a few - fail in two respects: One, is their disembodiment, and the other is their disabling formulation'* (Krippendorff 1995b, p.12).

In his concept of undoing power, Krippendorff strives to free himself from the dialogical entrapments, which must be left for individuals to create for themselves (Ibid, p.23). Therefore, he posits that the construction of certain language should be avoided. Krippendorff believes in the dialogical possibilities in creating another language as means to undo power. Still, only the opposite to Foucault's concept of power is obvious, which is not the opposite of discourse, and power is only a part of Foucault's discourse framework.

In the research presented here all the aforementioned notions play a role, especially with respect to the conferences - the design of the executed events. Power, as it was experienced there, is an unavoidable problem, questioning Krippendorff's position towards power. The descriptions presented in Part C reveal that power is unavoidable, even if it is eased out through adapting selective language.

Summary:

Foucault's concept of discourse is primarily focused on language and differs from structuralist methods of inquiry. According to Foucault, discontinuity is characteristic of every discursive statement and dispersion is the reality

underlying all discursive statements. He defines ‘discourse’ as any group of statements, which belong to a single system of formation. However, not all types of discontinuity can be ignored. Discursive formations, according to Foucault, are groups of statements, which may have any order, correlation, position, or function, as determined by this disunity. A discourse can thus be a historical event or an archive of historical statements. The relations between discursive formations may include analogy, opposition, or complementation. Discursive formations may also determine each other's limits or boundaries. Archaeological description is concerned with the rules and principles that may be specific to discursive formations and to discourse itself. Archaeological descriptions, thus, have a diversifying, rather than unifying, effect on our understanding of discursive statements. Hence, in trying to understand the formation and development of discourse, we must abandon our pre-existing notions of unity (Foucault 1972).

Foucault (1972) therefore sees the implications of discourse for the sciences, in that it affects the way in which we define the elements of a series, fix boundaries, and determine the laws governing the relationships between the series, as well as the time chronologies and the very important notion of discontinuity, which is the base of analysis. He also sees the shift from a total history to a general history. The construction of coherent and homogenous documents is therefore a problem (Foucault 1972).

Taking that as a backdrop to look at Krippendorff’s work on design discourse and his semantic turn, where he outlines a series he calls ‘Trajectory od Artificiality’, the issue of discontinuity appears as a key question. A second question is the philosophical base, since Krippendorff draws upon Kuhn’s paradigm shift, which limits discourse to science. In that respect, Foucault’s episteme has a much broader focus.

Krippendorff perceives his series, his trajectory, as moving from products, to goods, services and identities, then to interfaces, to multi-user systems and networks, to products and finally to projects. Therefore, artefacts become increasingly embedded in language and he sees discourse as a particular way of languaging, while acknowledging that language is a very broad and inclusive frame (Krippendorff 2006).

However, one obvious disagreement between Foucault and Krippendorff's understanding of discourse is located in the understanding of power, which is for Foucault unavoidable, since power is everywhere. For Krippendorff, on the other hand, power is erasable, extinguishable, voidable, conquerable and impossible (Krippendorff 1995b). This is an important difference, since within the research project described here, power was indeed observed, and was accepted as something which is there.

A.2.2 Foucault's Unities of Discourse and Krippendorff's Discourse as a Design Problem

Krippendorff sees design moving towards a culture of discourses, allowing designers to philosophize about their profession (Krippendorff 2006).

Foucault, on the other hand, notes that the main problem such discourse suffers is in the theme of continuity (Foucault 1972, p.21).

'The question posed by language analysis of some discourse fact or other is always: according to what rules has a particular statement been made, and consequently according to what rules could other similar statements be made? The description of the events of discourse poses a quite different question; how is it that one particular statement appeared rather than another?' (p.27)

This is an interesting metric for evaluating Krippendorff's thesis, since we have the same term 'discourse' applied in distinct texts and, therefore, contexts. The rules for the statement Krippendorff makes are obvious; he sees the historical facts surrounding a series of events as a foundation for his assumptions. He seems to look for continuity without acknowledging any discontinuities or rapture. From Foucault's perspective, this could resemble a structuralist approach, making these statements questionable. However, Krippendorff's thesis could also be seen as a series, as he notes '*…the semantic turn is correlated with several major intellectual, cultural, and philosophical shifts, some are woven into subsequent sections*' (Krippendorff 2006, p.13). Krippendorff sees this transition as a general shift in the linguistics of philosophy (Ibid, p.12). Language is a cultural artefact that enables humans to coordinate their conceptions, engage in joint action, and construct and reconstruct realities they see. *'Humans are beings who language each other into being'* (Krippendorff 2006, p.20).

Krippendorff follows on the above with a statement that prepares for a definition of a re-**Designing Design**, which he calls (discourse): *'The semantic turn needs to take the role of language in the use of technology seriously. It is the use of language that distinguishes forms, materials, functions, and problems, and direct designers' attention to what they are to do with them'* (Ibid, p.23).

Clearly, for Krippendorff, discourse is a design problem and its definition includes five features:

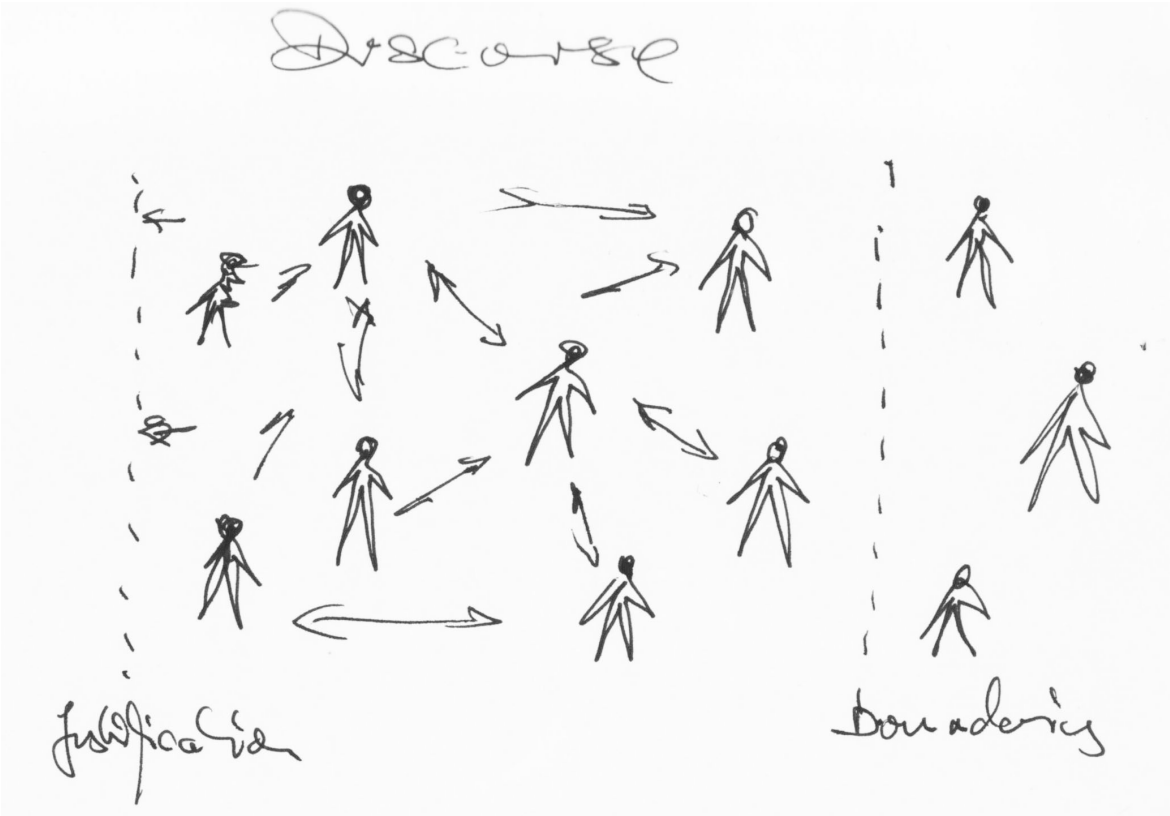
- A discourse surfaces in a body of textual matter, in the artefacts it constructs and leaves behind

- A discourse is kept alive within a community of its practitioners

- A discourse institutes its recurrent practices

- A discourse draws its own boundary

- A discourse justifies its identities to outsiders



Model A.2.2a Discourse and Boundaries

He concludes that discourses are not merely written or spoken; they are social systems with a life of their own. It would appear that, in general, Foucault's approach to discourse and Krippendorff's discourse about design support, rather

than contradict, each other. Foucault, in Krippendorff's eyes, would be a designer as well, since he was redesigning discourse.

However, for Foucault, there is an outstanding problem - the analysis of thought is always allegorical in relation to the discourses that it employs. He notes:

'To be sure of the author's intent - the form of his mind, the rigor of thought, the themes that obsess him - the project that traverses his existence and gives it meaning inherently influence the synthesizing operations. We must grasp the statements in the exact specificity of their occurrence, determine their conditions of existence, establish their limits, identify their correlations with other statements, and show what other forms of statements they exclude' (Foucault 1972, p.28).

In sum, Foucault's concern stems from his recognition that it is difficult to dissociate statements from their original context to place them in a new context created by the citing author - a practice driven by a pure psychological intention. Within this context, Foucault's thoughts about the relations between statements are useful in our efforts to describe the relations between his and Krippendorff's discourse.

'I have decided to ignore no form of discontinuity, break, threshold, or limit. I have decided to describe statements in the field of discourse and the relations of which they are capable' (Foucault 1972, p.31). Foucault holds that statements that refer to one and the same object but are dispersed in time form a group. (Foucault 1972, p.33ff.) The discourse in this thesis is based on two texts by different authors, whereby Foucault's statements are written in a different time. Although they form a group, they still differ in form. Secondly, Foucault and Krippendorff each have a different style and manner. The character of Foucault's texts is more obvious, as he does not only refer to a different field (e.g., medical examples), but is consistent in his search for discontinuity, which reflects his writing.

This poses an important question - can there be some groups of statements between Foucault's approach and Krippendorff's semantic turn, not solely consisting of those statements surrounding the discourse, which are more important for the research context presented?

Foucault's last statement includes the potential for regrouping the statements, describing their interconnection and accounting for the unitary forms under

which they are presented - the identity and persistence of themes (Foucault 1972, p.35).

'Would it be possible to make the interconnections and unify these texts? Would it be only the method, the way to verify a statement? Would it be the discursive formation, the number of statements, the system of dispersion, or the types of statements, concepts, and thematic choices? The conditions to which the elements of this division are subjected shall be called 'the rules of formation' (p.38).

Summary:

This chapter presented some overlapping elements between Foucault's and Krippendorff's conceptions of discourse. While the question of continuity in Krippendorff's series remains, he sees a general cultural shift where humans realize that they are capable of languaging each other into being (Krippendorff 2006). For him, the rules of discourse include five features, namely the body of textual matter, in the artefacts it constructs and leaves behind, its life within a community of its practitioners, the instituting of its recurrent practices, the drawing of its own boundary and the justification its identities to outsiders (Ibid).

Foucault's concern is far more radical, since he sees that the grasping of the statements needs to follow the exact specificity of their occurrence (Foucault 1972). Dissociating statements from their original context to place them in a new context is thus brought into question, since no discontinuity can be ignored (Foucault 1972). While such a radical statement even questions the methodological frame of this research, Foucault still leaves a possibility to do that if the identity and persistence of themes are secured (Foucault 1972).

A.2.3 The Design Discourse as a Discontinuity Field for Research

When Foucault asked about the discontinuity in his historical analysis method, he did not ask for an inter- or trans-disciplinary inquiry. Neither did Krippendorff, when speaking about a discourse, since *'in the process of a discourse, elaborating its textual matter, a discourse community recognizes itself and its members'* (Krippendorff 2006, p.24). Discourse draws its own boundaries to distinguish between what belongs and what does not. Krippendorff stated this clearly in the following:

'Designers use their discourse to intervene into what presently exist and create futures that is in some arguable way better than what exists and this must include the expectations of those who might come to live in that future. … The emphasis on design discourse does not need this territory (although some discourses may position themselves in such). It is just a way of being clear as to what designers do and what they as professional designers do not do, such as plumbing, automobile repair, surgery, and preaching the gospel' (Krippendorff, PhD listserv, August 07).

This is an interesting statement, as it implies that knowledge is not partitioned, since the emphasis on design discourse does not need such a territory. Moreover, it suggests an understanding of knowledge as something that does not need spatial metaphors or dynamic intensity. Is this 'a continuity' through various disciplines?

Still, as there are distinct discourses (design discourses as well) that do not need their own territory, this can be considered as a contradiction. If designers create their own discourse, objects, community, and practices with defined boundaries to identify themselves to outsiders, it seems clear that they operate within a predefined territory. In that case, is it possible to cross these territorial boundaries - these discourse formations - since this does not only occur in design discourses, but also in each discourse community?

Are terms, such as interdisciplinary or trans-disciplinary, helpful, or are new terms, like inter- discourse or trans-discourse formations, more appropriate? Yet, even more important question is that of the definitions of inter-, trans-, and the

term discipline itself. What is a discipline within the field of knowledge production?

The term, 'discipline' is adapted from the Latin word, *disciplina*, meaning 'a branch of instruction or education; a department of learning or knowledge' (Oxford English Dictionary 1989, p.734-735). What types of criteria define a 'discipline'? In the traditional sense, a discipline is defined as a training expected to produce a specific character or pattern of behaviour - especially training that produces moral or mental improvement; a controlled behaviour resulting from disciplinary training; self-control; a systematic method to obtain obedience; state of order based on submission to rules and authority; a field of study; a rule or system of rules governing conduct or activity (Merriam Webster online).

A scientific discipline, therefore, operates within a conceptual framework and holds discourse that represents a set of developed paradigmatic structures, which is commonly subscribed to by members of that discipline, even if we question them in the discourse. To an extent, this structured set is a shared philosophical or methodological set of approaches, which give validity to the work produced within that framework.

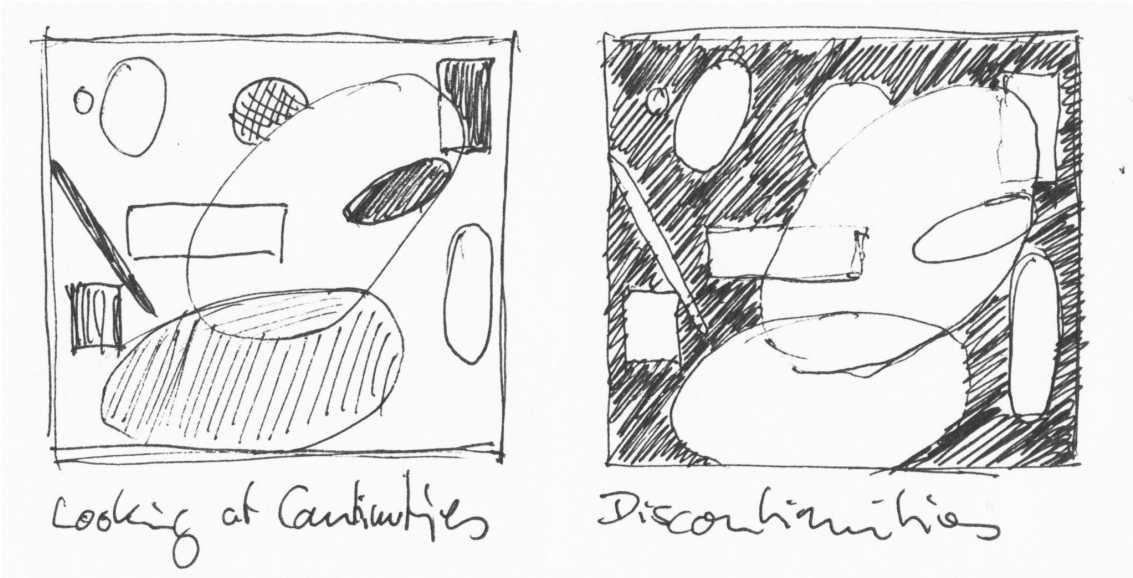
In discourses of Foucault and Krippendorff, a community of practitioners defines themselves as well as their proceedings and new paradigms through their discourse. (Kuhn 1970) That is also true for the legitimatization of a 'peer reviewed journal' or any 'reviewed' content. Within this field of activity, universities, as well as other institutions and organizations or associations of professionals, fulfil to some degree the assessment of 'legitimate academic knowledge', or the paradigms - the objects in discourse formations. These communities often take the role of maintaining and accrediting authority (knowledge capital). Therefore, they may also assume the evaluation of knowledge - the assessment that this knowledge is unique in its production and is of high value to the society, relative to other types of knowledge production.

Foucault, however, also speaks about the need for discontinuity. Thus, the question becomes - how does it relate to the fact that design draws from various disciplines, or is hosted by various disciplines? Foucault (1972) notes that *'statements different in form, and dispersed in time, form a group of statement if the refer to one and the same object'* (p.32). Based on this view, whether or not

the statements derive from the same discipline becomes less important, because they refer to the same object.

'Instead of reconstituting chains of inference (as often does in the history of sciences or of philosophy), instead of drawing up tables of differences (as the linguists do) it would describe the systems of dispersion' (Foucault 1972, p.37).

As design discourse, as a discontinuous field of research, crosses into other disciplines, it is equally important to describe the way the statements are dispersed across such various disciplines. This differs from a community of researchers that define their own discipline and defend their own discipline from intrusion. Designers, therefore, would need to be focused on the statements referencing the object and the dispersion of the statements in several disciplines. Thus, design discourse can be taken as a discourse, which is hosted by various disciplines.



Model A.2.3a Discontinuity Field

Summary:

Discourse draws its own boundaries to distinguish between what belongs and what does not (Krippendorff 2006). For Krippendorff, knowledge is not partitioned, but rather provides 'a continuity' through various disciplines. (Krippendorff, PhD listserv, August 07) Thus, he notes that interdisciplinary collaboration, or work between disciplines, is not needed. A discipline operates

within a conceptual framework and holds discourse that represents a set of developed paradigmatic structures. This structured set is, to an extent, shared philosophical or methodological set of approaches that validate the work produced within that framework. For Foucault and Krippendorff, practitioners belonging to a particular community define themselves as well as their proceedings and new paradigms through their discourse (Foucault 1972, Krippendorff 2006). While the question of power divides their view, their attitudes towards statement are comparable, since statement can refer to the same object, even if coming from different disciplines (Foucault 1972). Therefore, design discourse is a discontinuous field of research, crossing into other disciplines. In sum, design discourse can be taken as a discourse hosted by various disciplines.

A.2.4 Discourse Design

Discourse is created as well as sustained and developed by the community of its members and can be therefore be perceived as designed. Hence, there is a history, a track, which can be excavated. For instance, Krippendorff (2006) asks: What is design that a *discourse* could sustain and he refers to Simon, who suggested that 'everyone designs who devises courses of action aimed at changing situations into preferred ones?'

For him, while Simon's position is a good starting point, it still needs elaboration, because this statement implies that there would be no utility in designing courses of action unless design brings forth what would not come naturally. Krippendorff remarks that this has profound implications for distinguishing between science and design, as well as for imposing the limitations design proposes as realizable artefacts to others, without actually realising them. He refers to Simon, who states the difference between science and design in simple terms: *'The natural sciences are concerned with how things are,… design, on the other hand, is concerned with how things ought to be, with devising artefacts to attain goals'* (Simon in Krippendorff 2006, p.26). Therefore, the fundamental problem that designers need to solve is how to change an existing situation into preferred one. However, according to Krippendorff, that would reduce design to a problem-solving profession - a technical rationality that is home largely to engineering.

He summarizes the critique:

'Technical rationality emerged as the mode of operation in the industrial era, is typical of how engineering problems are solved, and is still practiced in tight organizations - in the military, for example, or in bureaucracies, where users can be trained, correct use can be enforced, and dissenting voices are unheard of. Technical rationality is at home in coherent social hierarchies. But it fails when applied to problems that involve people as informed agents, in heterarchical forms of organizations like markets' (Krippendorff 2006, p.26).

Within the designing of discourse, Rittel (1973) made the shift from top-down technical problem-solving to a conception of design that accommodates the participation of stakeholders. Rittel also called technical nature problems tame in contrast with what he identified as wicked problems. Therefore, in the social

realm, problems are never solved. They more likely involve conflicts that may be resolved by consensus, only to resurface later, as other kinds of conflicts would demand further resolutions, and so on (Rittel 1973).

In outlining what Foucault calls the formation of objects, Krippendorff sees four elements that need to be matched in order to ensure that the rules of formation have been met:

1. Several people are making statements about the subject - about the object of discourse.

2. Relations are established between institutions, economics and social processes, behavioural patterns, systems of norms, techniques, types of classification, and modes of characterization. These relations are not presented in the object; they are to be placed in the field of exteriority, as we see within the examples of urban planning or space administration, etc.

3. It must also be clear, that the discourse is not concerned with primary or secondary (i.e., dependency) relations.

4. Discursive relations characterize neither the language used by the discourse nor the circumstances in which it is deployed.

The formation of enunciative modalities becomes clear at this point, as Foucault (1972) asks the following questions pertaining to the aforementioned four elements:

a. Who is speaking? Who, among the totality of speaking individuals, has the right to use this sort of language? Who is qualified to do so?

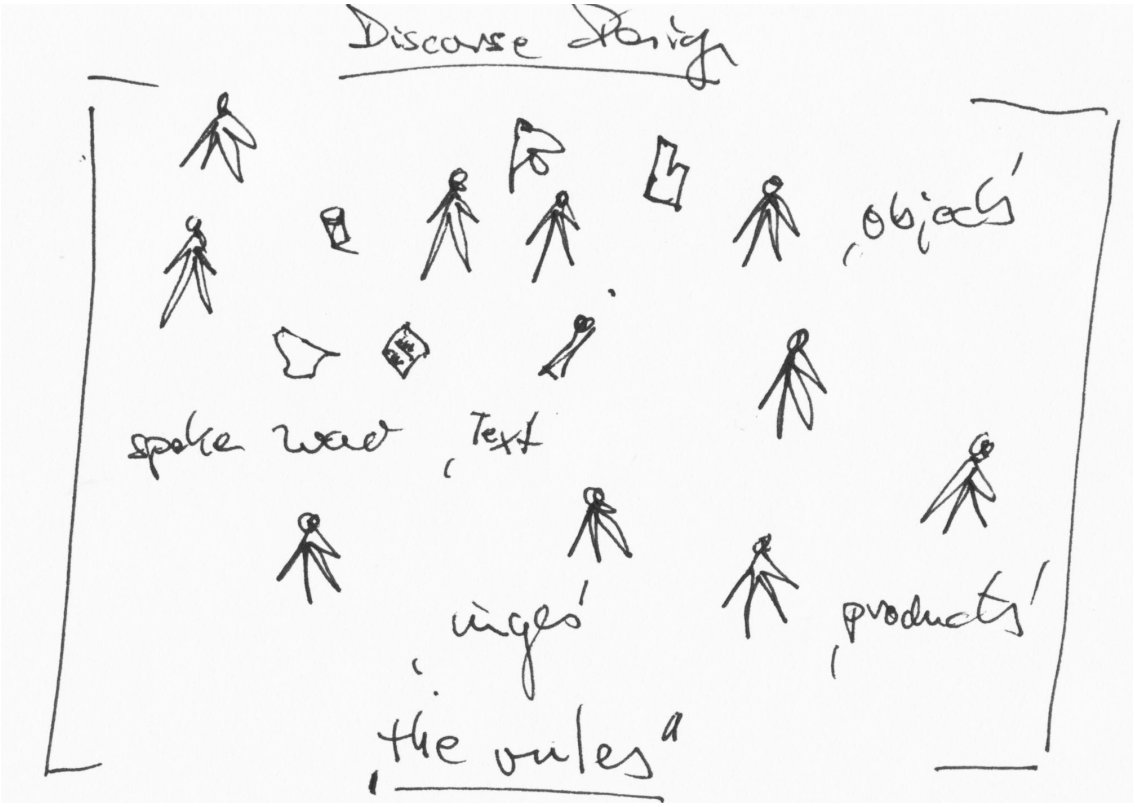
b. Following Foucault, we must also describe the institutional base from which the expert makes his discourse, and from which this discourse derives its legitimate source and point of application.

c. Does the position of the expert relative to the object of discussion, allow him/her to make such statements? Is the distance appropriate?

These are important questions that must be addressed in order to judge the credibility of the discourse presented.

Therefore, discourse design is judged by rules negotiated between the players within the community, as was observed through the conferences initiated. The issues that emerged can be reflected in the following questions: Who was

allowed to speak? Who has the floor for making statements? How have the statements been documented? All these belonged to the discourse design and its conditions.



Model 2.4a Discourse Design

Summary:

Discourse is designed, and there is a history track that can be excavated. The question thus becomes - what type of design can a discourse sustain? (Krippendorff 2006) Here, there are notable differences between natural sciences and design since, as the former are concerned with how things are and which rules they obey, while the latter focuses on how things ought to be (Ibid). In that respect, Krippendorff's view is in opposition to that offered by Simon, who focuses on design as an issue. He proposes a 're-design' of discourse and shift from Rittel's top-down technical problem-solving. He advocates for a conception of design that accommodates the participation of stakeholders, which then

differentiates between tame and wicked problems (Rittel 1973). Such a discourse shift is an example of how discourse can be designed by people who have been making statements on the subject. Moreover, he calls for establishment of relations among institutions, economics and social processes, behavioural patterns, systems of norms, techniques, types of classification, and modes of characterization. However, such a discourse is not concerned with primary or secondary relations. Instead, it demands that the question of who is speaking is considered and the institutional base from which the expert makes his discourse established. Does the position of the expert allow him/her to make such statements? Clearly, discourse design is governed by rules negotiated between the players within the community.

A.2.5 Design as Scientific Discourse

Within the framework of Foucault's evaluation of a new science, Krippendorff's semantic turn theory can be considered a valuable model.

Krippendorff's theory is based on a discourse documented as a chapter (Krippendorff 2006, p.11), as well as in his outline of a discourse as a design problem (Ibid, p.23). Krippendorff is also searching for discontinuities and the connections, which he believes can be seen as a series within a series of events. The result is not an all-encompassing theory, but rather a general theory of design. This is true, even though he starts to rethink design fundamentally, but only as a historical development. Answering why there is a need to discuss such a basic design conception, Krippendorff quotes Simon: *'In the past much, if not most, of what we knew about design and about artificial sciences was intellectually soft, intuitive, informal, and cook-booky'* (Ibid, p.27). Simon holds academia responsible for these conditions, or malaise, as he calls it. Still, Simon sees the changes in engineering and medicine as having paved the way out of this confinement. Krippendorff continues with a quote from Argyris et al., congruent with Simon's assessment, while placing the blame on the failure of scientific discourse on the sharp definition of science vs. non-science. As 'science' is overly broad, it is insufficient to encompass applied sciences as anything beyond an inferior subcategory. Thus, artists or practitioners can only cast themselves as outsiders to science. It is widely accepted that designers experience the same institutional dilemma.

Krippendorff evaluates the similarities and differences between Design and Science in a new discourse. To compare activities between a scientist and a designer, Krippendorff selects four elements:

'- Scientific research is, essentially, a repeated search for patterns within available data

- Data are always of past happenings, regardless whether they are found or generated for a purpose.

- Theories generalize an explanation for the data by identifying common properties, stable patterns, and underlying causalities.

- To preserve the idea of nature as an undisturbed object of study, scientific observers are not allowed to enter their domain of observation, are required to remain detached, spectators of happenings, and certainly must not affect the data they intend to analyse' (Ibid, p.27).

In comparison to scientists, according to Krippendorff, designers are motivated:

'- Not by a quest for knowledge for its own sake

- Not by challenges, troublesome conditions, problems, or conflicts that have escaped (re)solution.

- By opportunities to change something for the better

- By possibilities to introduce variations

- Designers consider possible futures - worlds that can be imagined and could be created in real time. To choose among them, designers evaluate the desirability of these futures.

- Designers search the present for the variables, things they are able to move, influence, alter, combine, take apart, reassemble, or change.

- Designers envision realistic paths from the present toward desirable futures and propose them to those who can bring a design to fruition' (Ibid, p.28).

As Krippendorff's listing shows, designers and scientists work within incommensurable paradigms. Thus, efforts to confound them or to search for commonalities might not serve either profession, considering that science produces generalizations from empirically testable positions to deduce laws of nature. Designers, instead, develop a vision that they must specify precisely in order to create working artefacts that are detailed and specific. Krippendorff follows: *'Scientific generalizations and detailed design specifications are located on opposite ends of a continuum'* (Ibid, p.29).

Krippendorff speaks about the Information Theory of Shannon and Weaver, which reveals the limitations of communication, as well as the other 'laws', such as gravity and thermodynamics. In his view, this is the valuable contribution of science to contemporary culture. Defining these limitations is the work of scientists, and designers obey these limits.

The strengths of the designers, in contrast, is to re-conceptualize, re-contextualize and question what was assumed to be fixed, and thereby determine these limits to be malleable and artificial as they are (Ibid, p.31).

Krippendorff concludes his contribution to a contemporary discourse by presenting Cross's (2000) three concepts of science as related to design: *'Science of Design is…that body of work which attempts to improve our understanding of design 'scientific' methods of investigation'* (p.53). Here, design is the object of research, undertaken by various academic disciplines, yielding knowledge about design, using the terminology and criteria of these disciplines, i.e., external to the design discourse. Cross (2001) explains:

'- *Design science is...an explicitly organized, rational and wholly systematic approach to design; not just the utilization of scientific knowledge of artefacts, but design is, in some sense, a scientific activity itself.*

- Science for design, a systematic collection of accounts of successful design practices, design methods, and their lessons, however abstract, codified, or theorized; whose communication and continuous evaluation within the design community accounts to the self-reflective reproduction of design practice. It also includes ways of consulting related knowledge bases in support of particular design decisions and project research. Its aim is to keep design discourse viable and productive' (p.35).

With his discourse of design, Krippendorff extends his design approach into a theoretical domain, and design thinking into a purely theoretical domain. In doing so, he is redrawing and redesigning the meaning of design as well as the meaning of a theoretical work. In light of this, Foucault's *The Archeology of Knowledge* can be recognized as a work of design, as it changes an existing situation - the structuralists' understanding of history - into a preferred one - an understanding of history where discontinuity and interruptions have their places.

In his recent paper, Krippendorff (2011) preconceives discourse: *'Whereas dictionary definitions of discourse tend to refer to a structured collection of meaningful texts larger than sentences, I conceive discourse as systematically constrained conversation. From conversation analysis I am acknowledging that discourses involve competent speakers, writers, and actors who communicate with one another within and across their respective discourse communities'* (p.3).

Krippendorff posits that textual matter is more limiting than artefacts produced in discourse. He also asserts that discourses, which are of particular interest to him, are - while not scientific discourses - equally culturally powerful (Ibid). He refers to these discourses as language games. *'Self-organizing systems cannot be described from their outside as experienced by their participants within them. This is a fundamental epistemological conundrum'* (Ibid, p.4).

For Foucault, a contemporary theoretical statement that can sustain future scientific evaluations needs to come out of a discourse encompassing the discontinuities within the series of statements and facts; therefore, opposing theories are a part of the context. Moreover, the rules of formation have to be matched and multiple statements must appear across different contexts. It must also be clear that there are no dependencies within any primary or secondary relations, or among institutions. Thus, if the formation of enunciative modalities is satisfied, a theory, such as Krippendorff's semantic turn, could be called a general theory of design, while recognizing that other theories exist and new ones need to be developed. These theories, as the authors understand them today, are discursive elements of the future design discipline.

In sum, in either case, a discourse - as outlined, as well as presented in the statements from Foucault and Krippendorff positioned in close proximity - could also be seen as a design process. This allows forming links to not only something from the past, but perhaps deriving new statements, and therein, new meaning and understanding. Here, science and design can overlap, giving them commonality. According to Krippendorff (2006), *'The semantic turn is introducing a new design discourse that lays the conceptual foundation of a science for design and identifies an area in which designers'* competence can excel (p.269). Such a design discourse is a method that can be applied to design new artefacts - a method that is also congruent with Simon's sense that, *'...design, on the other hand, is concerned with how things ought to be, with devising artefacts to attain goals'* (Simon 1996, p.114).

Foucault's 'Archeology' evaluated and inspired through Krippendorff's work about discourse, can be seen as design. While such discontinuity can bring new perspectives and objects, this is not always the case, since there is no guarantee that a design process will generate a good solution.

A design process must follow rules and the generated statements or objects need to systematically grouped by their relations, as well as alternative statements or objects.

Weighing alternatives with their possible connections, advantages, and disadvantages is a necessary design practice, recognizable when applied in brainstorming sessions, etc. Verifying a design result by testing resolutions that are coherent with the regrouping of statements - identifying themes and describing their interconnections - can also be understood as contextualizing.

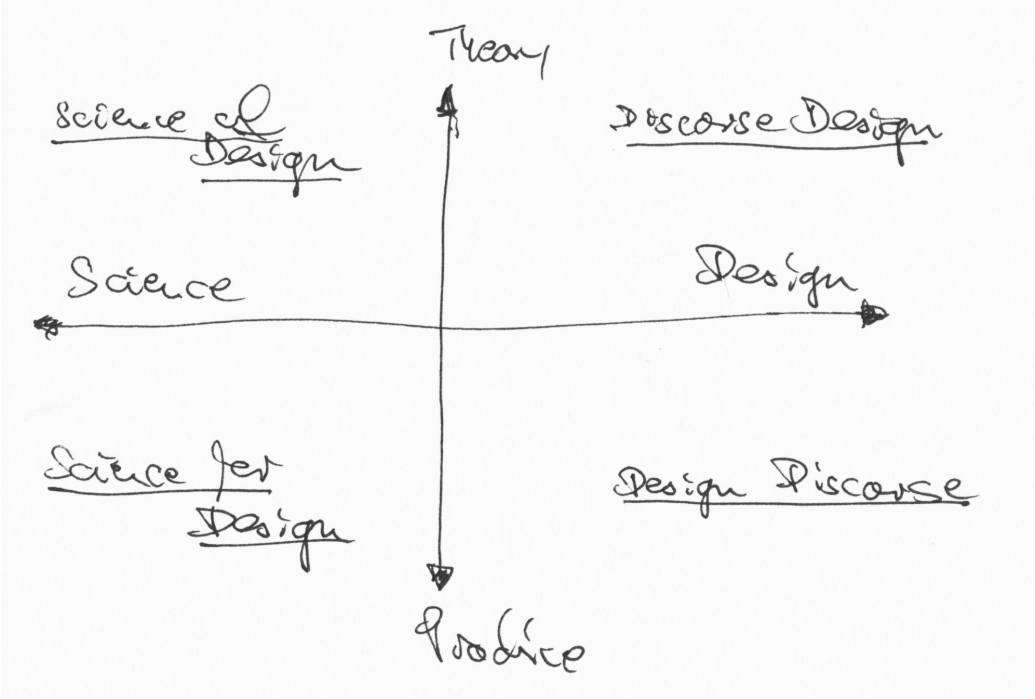
Within the semantic turn of design, there seems to be a common ground for design and science, which encompasses the space and dynamism of a discourse. Such a discourse is a method that guarantees the solidity of scientific statements as well as design results, which originate in language, in the redesign of meaning.

In this shared space, scientists and designers can talk to each other. This boon provides for a link or connection between opposing, yet complementary fields. Krippendorff acknowledges such communality in the presentation of his proposed axioms, which he aligns with a second-order science for design (Krippendorff 1995).

As Krippendorff made clear in his outline of re-**Designing Design**, one of the great aspects of a conscious discourse is that it draws its own boundaries by distinguishing what belongs and what does not (Ibid, p.24). In other words, a discourse reality knows its limitations, even if comprehensive and expansive.

As Krippendorff stated, as members of a discourse community know who they are and where they belong, this creates their identity, just as boundaries do. However, discourse boundaries are permeable, leaving discourses open to colonization by other discourses. According to Krippendorff (2006): *'Marketing, for example, having expanded the industrial era emphasis on products to goods, services, and identities, conceives of design as one of its departments, the sole purpose of which is to add value to products'* (p.25). Krippendorff calls external discourses, which colonize the discourses of the design community, intrusions. This seems to be possible, since the design community by itself is neither sufficiently active nor strong enough to maintain clear and comprehensible boundaries.

The intention of this research, of this design project, is to expand the discourse and extend its boundaries. Given the intimidating nature of such a complex task, there is a need to clarify and justify the value attributed to the acquired and translated objects and statements, as well as identify their limitations and positive contribution(s) to the outlined design discourse. Meeting a challenge of such magnitude requires many considerations, in particular those pertaining to the discourse as all-inclusive - including concepts of community, organization and discontinuity.



Model A.2.5a Science and Design

Foucault saw these systems of discourse formation in situations *'... when one speaks of a system of formation, one does not only mean the juxtaposition, coexistence, or interaction of heterogeneous elements (institutions, techniques, social groups, perceptual organizations, relations between various discourses), but also the relations that is established between them - and in a well determined form - by discursive practice'* (Foucault 1972, p.72). Simplifying Foucault's position, the relations between various discourse formations are possible because the systems of formation cannot be taken as immobile blocks or as

external static forms to be imposed on discourse in order to define its characteristics and possibilities, once and for all. Further on, Foucault expands on his view of these systems: *'I repeat- reside in discourse itself; or rather (since we are concerned with its interiority and what it may contain, but with its specific existence and with its conditions) on its frontiers, at their limit at which the specific rules that enable it to exist as such are defined'* (Ibid, p.72).

Essentially, the aforementioned intrusion is nothing other than discourse formation - a coexistent interaction and juxtaposition of heterogeneous elements. Krippendorff addressed this, noting that *'In sum, discourses, so conceived, are not merely spoken and written, they are social systems with a life of their own'* (Krippendorff 2006, p.25).

Intrusion - the crossing of the boundary - can be seen as an invigorating challenge, since it brings forth a lively discussion by forcing the community to reposition itself in order to defend and integrate the novel discourse elements. Conceptualizing and understanding discourse in this way forces us to address a new and interesting problem. However, considering discourse as a living entity implies that its life will ultimately end. Its community of members will diminish as they move out of the discussion, perhaps shifting to other discourse realities. Therefore, the presented discourse and its crossing boundary is methodologically important to realize. Without such crossing, there is no designing, since there is no change of an existing situation.

Summary:

While Krippendorff's (2006) series and his theory are based on a discourse, he is searching for discontinuities as well. In doing so, he proposes a general theory of design. He criticises scientific discourse, as design discourse has not developed. The activities of designers are different to those involved in science, which focus on search for patterns, and are thus always driven by the past. Theories are thus derived in order to explain the observed patterns, without allowing the observers to enter their domain of observation. However, designers are not motivated by the quest for knowledge, by the challenges, or conflicts that need to be resolved. They are motivated by opportunities for creating something better, or by potential for introducing variations; they generate futures, as they are always

interested in the possibilities (variables) and realistic paths (Krippendorff 2006, p.28).

Cross (2000) developed three concepts of science, in relation to design - namely Science of Design, Design Science, and Science for Design.

Krippendorff (2011) preconceives discourse as systematically constrained conversation. In his view, discourses involve competent speakers, writers, and actors, who communicate with one another within and across their respective discourse communities. To Krippendorff, textual matter is more limiting than artefacts produced in discourse. He also asserts that discourses are - while as culturally powerful as scientific discourse - not scientific discourses (Ibid).

Moreover, for Foucault, the rules of formation have to be matched. If the formation of enunciative modalities is satisfied, a theory - such as Krippendorff's semantic turn - could be called a general theory of design, while recognizing that other theories exist and new ones need to be developed.

Within the theory of semantic turn of design, there is a common place for design and science, which encompasses the space and dynamism of discourse. In this arena, scientists and designers can talk to each other, as it enables links or connections to be formed between opposing, yet complementary fields. As Krippendorff (2006) stated, as members of a discourse community know who they are and where they belong, they develop identities in the same sense as provided by the boundaries. Still, boundaries of discourses are permeable, and discourses are therefore always open to colonization by other discourses (Krippendorff 2006).

Foucault's position and the relations between various discourse formations are possible because the systems of formation cannot be taken as immobile blocks or as external static forms to be imposed on discourse in order to define its characteristics and possibilities, once and for all. (Foucault 1972) Intrusion - the crossing of the boundary - can thus be seen as an invigorating challenge, since it brings forth a lively discussion by forcing the community to reposition itself in order to defend and integrate the novel discourse elements. However, conceptualizing and understanding discourse in this manner - without such crossing - does not permit designing, since there is no change of an existing situation.

A.2.6 Discourse or Conveyance Matter

Researching discourse, design, design discourse and design research revealed another question - whether design discourse by itself uses more than simply text, as design draws upon many non-textual sources, such as drawing, imaging, verbal descriptions, discussion, etc. Therefore, it was necessary to look into the writing of several authors, including Foucault, to determine whether discourse matter was already a topic within the discourse research community.

In light of this, one might look to the project announced by Foucault in the last pages of the *Archeology of Knowledge* to study painting as a 'discursive practice' rather than as 'pure vision that must be inscribed into the materiality of space,' or as 'naked gesture,' or as 'always a way of saying' (Michel Foucault, *The Archeology of Knowledge*). Painting would be *'shot through with positivity'*; the self-evident character of its 'visuality' would derive from a materially rooted way of thinking. Thought would make one particular kind of visuality seem natural or essential to painting. According to Rajchman (1988), to 'see' is to open history to new domains and new questions, '*to do this history of the 'objectification' of those events historians take as objectively given'* (p.96). Rajchman casts a light onto this important fact by referring to the Deleuze's book on Foucault, in which Deleuze says that Foucault was a great seer, a voyant. Deleuze, and therefore Rajchman, make it clear that Foucault had, *'…no difficulties in dealing with 'the relations of science and literature, or the imaginary and the scientific, or the known and the lived'* (Ibid). The visual is also central to the way Foucault's thought developed; it is the other component, along with 'discourse' (p.91).

Looking at Foucault's exploration in *Archeology of Knowledge*, we can comprehend this view:

'In analyzing a painting, one can reconstitute the latent discourse of the painter; one can try to recapture the murmur of his intentions, which are not transcribed into words, but into lines, surfaces, and colors; one can try to uncover the implicit philosophy that is supposed to form his view of the world. It is also possible to question science, or at least the opinions of the period, and to try to recognize to what extent they appear in the painter's work' (Foucault 1972, p.193).

He elaborates on this further:

'Archeological analysis would have another aim: it would try to discover whether space, distance, depth, color, light, proportions, volumes, and contours were not, at the period in question, considered, named, enunciated, and conceptualized in a discourse practice; and whether the knowledge that this discourse practice gives rise to was not embodied perhaps in theories and speculations, in forms of teaching and codes of practice, but also in process, techniques, and even in the very gesture of the painter' (Ibid).

Elements, images and texts underpin discourse formations, for the painter as well as the historian. Foucault summarizes:

'It would not set out to show that the painting is a certain way of 'meaning' or 'saying' that is peculiar that it dispenses with words. It would try to show that, at least in one of its dimensions, it is discursive practice that is embodied in techniques and effects. In this sense, the painting is not a pure vision that must then be transcribed into the materiality of space; nor is it embodied in techniques and effects. In this sense, the painting is not a pure vision that must then be transcribed into the materiality of space; nor is it a naked gesture whose silent and eternally empty meanings must be freed from subsequent interpretations. It is shot through - and independently of scientific knowledge (connaissance) and philosophical themes - with the positivity of knowledge (savoir)' (Ibid).

By extension, if painters live within discourse, then designers must as well. The main difference between the two is the assignment, which the contemporary painters arrive at by themselves, whereas designers are given assignments by others. In a recent publication, Cross (2007) discussed the role of sketching in design, offering the view that designers think through sketching. Sketching is a kind of dialogue for the designer. We could thus suggest that a discourse is held between the designer and the image, with the drawing, which appears on the paper, as the outcome. It is a very effectual modelling tool, since within the discourse, the designers revise the projection, reshape and iterate in the most efficient manner possible.

The statement, '**Design is Discourse**,' is also central for the thesis because it reflects the shared, yet distinct, methodological aspects between design and science - between the discourse of design and the discourse of language and

science -, which is in line with the observations made by several authors (Sarkinnen 2008, Martin 1984, Ambasz 1969).

However, it remains unclear whether the latent discourse of a designer produces knowledge, and if so, of what kind. Clearly, when designers reflect on words and language about design, or the processes and methods employed in their theories and models, such designers are making statements about their observations. In that case, designers produce explicit knowledge and should be referred to as design theorists and scientists. But what about designers who maintain a discourse with images, maps, or even objects? Are they not producing knowledge as well, even if this knowledge is not explicated in words and text? Designers strive for solutions, rather than for knowledge and discourse; therefore, we need to determine what a designer is and what he/she does.

In his introduction, Foucault associates his work with Archeology, where an attempt is made to, *'turn documents into monuments'* (Rajchman 1988, p.90). Developing monuments from documents can also be seen as an important aspect of the process of designing, since documents, as phases within the process of designing, will eventually be cast into prototypes and objects; that is, documents will become visible results, which we can then call 'monuments'.

Who would argue that the process of design cannot be seen in this light? Who would argue that design objects, such as buildings of famous architects or designers, are not monuments as soon as they have been realized, as soon as they appear as visual facts? In his work on Foucault, Deleuze states that he sees both elements in each layer, strata: *'There is a way to say and there is a way to see, discourse and evidence; each layer is a combination of both, and from each layer to the other there is a combination of discourse and evidence'* (Deleuze 1986, p.71). The author would argue that the same can be said for design. Each design object combines both elements - the discourse and the evidence. While discourse is documented in drawings, sketches, and even texts, the ever-present evidence can be found in the monuments that are created and, thereafter, in the discourses about the monuments, which appear in design magazines, articles, and books. In addition, there is also the understanding and discourse found in design science, which we can refer to as the discourse about design. Thus, in design, there is a way to see and a way to speak.

The proposed differentiation might also help to distinguish between the design discourse and the design evidence. The drawings and texts are not the discourse itself; rather, these are the evidence of a discourse deciphered by reading the texts and considering the arguments presented within. We might find a similar situation when looking at drawings, objects, and prototypes created by a designer. These objects are nothing more than the evidence of a discourse the designer produces as part of a design team, or by himself, as the visuals he used to generate a statement.

An illiterate person would not be able to read and understand the knowledge cast into text for the evidence presenting the discourse. The same can be said for the drawings and mappings of a designer, as a person not familiar with the symbols used would not be able to read the visual or haptic material presented as the evidence of a designing process. Such a perspective aligns with Foucault's statement that, *'history is the determination of what can be said and seen in each epoch, the discourse formation and the non-discourse formation'* (Foucault 1972, p.71). Still, each layer is a combination of both, a way to say it and a way to see it, both discourse and evidence; from one layer to the next, there is a variation of both elements and their connection. Therefore, design and the history of design are dependent on what we can see - the monuments we have documented. However, they also represent what has been said and the relationship between the visual and the spoken - the evidence and the discourse.

What we see here, as well, is a discourse about design and design knowledge, although we have just revealed that objects and images, as well as texts, are essential aspects of designer discourse. In order to participate in such a discourse, all elements need to be understood. Objects, both virtual and physical, have meaning, as do images and texts. We can further expand this concept to note that the meaning of textual matter is an understanding of the first order.

A designer must also consider the second order of understanding, which holds that someone else's understanding of something is qualitatively different from one's own understanding of that same thing (Krippendorff 2006, p.67). We are immediately referred to hermeneutics and its circle.

As Perez-Gomez (1999) pointed out, in hermeneutics, truth lies in interpretation - always revealing and concealing - and can never be posited absolutely or

objectively. Yet, hermeneutics is able to account for change, growth, and perhaps even evolution. Designers must comprehend the discourse, since a stakeholder's understanding of an object can be different from, and even contradictory to, one's own understanding, or that of another stakeholder.

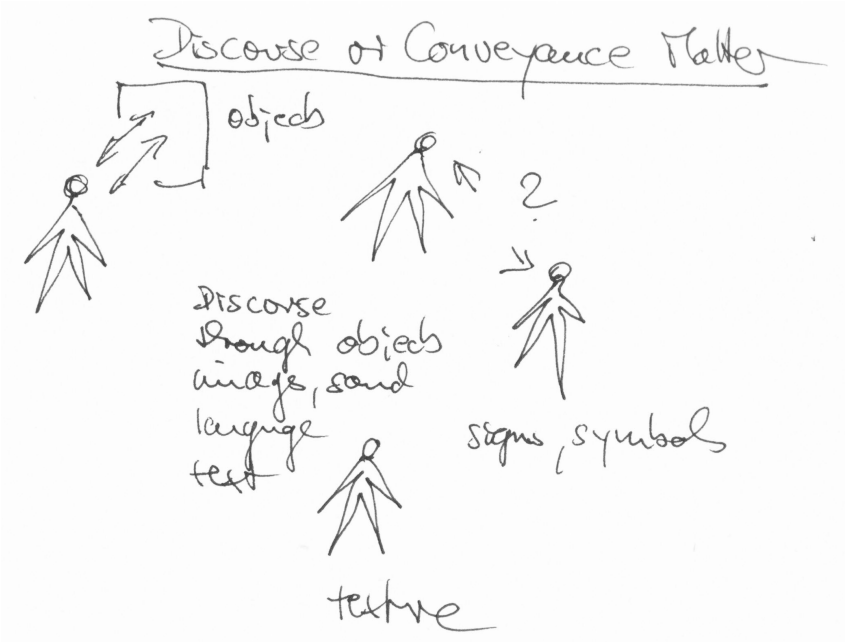
In the words of Ricoeur (1974), *'If there is, somewhere, a project and a projection, it is the reference of the work which is the project of a world; the reader is consequently enlarged in his capacity of self-projection by receiving a new mode of being from the text itself'*. (p.108) In light of the various theories underlying symbolic interactions, designers must comprehend several layers of discourse, as well as their meaning and their complex theoretical strata (Kuhn 1964). Viewpoints are vital for designers; they help designers gain an understanding of users when constructing products. If products are based not only on one (biased) viewpoint, but rather on multiple or even conflicting viewpoints, they are more likely to succeed. Yet, multiple viewpoints become visible only when they are interpreted and constructed. Moreover, this process becomes comprehensible only when embedded in an underlying social context. Design is discourse and, as Sarkinnen (2006) puts it, *'This implies a need for conceiving interaction as the object of attention and for contextualizing this interaction within an underlying organization. Representations can be examined both as classifiers bracketed from interaction and as instruments of change during the interaction'* (p.1).

In current discussions of design discourse, we find interesting examples of how designers and design scientists handle or cope with discourse in design. Design discourse must be dealt with in different stages of the design process, including well after the design objects have been completed - from signs and symbols to interactions, and from services to classical design objects, such as a pen, a chair, a car or even a building. The actors within any design discourse need to be conscious of the various arenas in which the discourse takes place, as well as how it takes place.

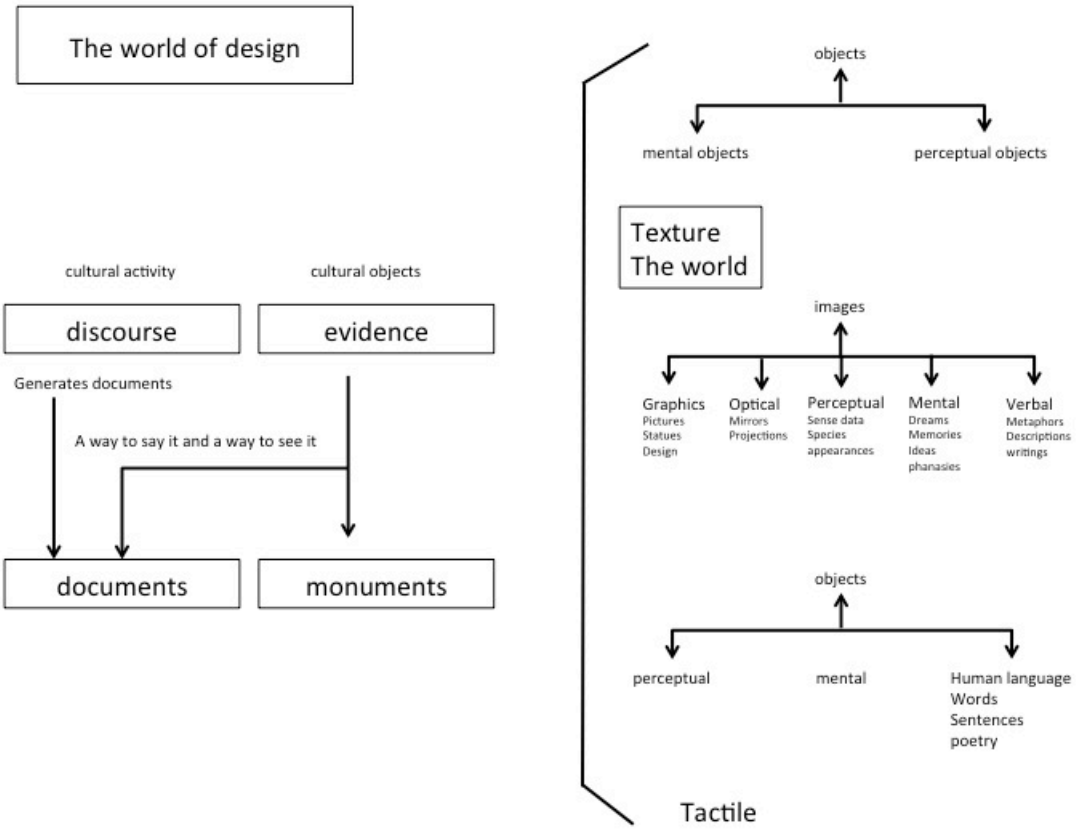
Sarkinnen (2006) explains that the type of interaction between the constituents is important, and he also extends visual representations and representational practices into verbal discourse practices. Such a practice is naturally found in nearly all design studios, where a design team gets together to study and discuss a design proposal, considering the advantages and disadvantages, the user-friendliness, the adequacy, etc., of the proposed solution. Therefore, it is

important to extend our concept of textual matter from the realm of images and objects into that of verbal matter.

The 'representational practice' dimension supplements this view. It presents the production of user viewpoints with respect to a set of different conceptual-interpretive and constructive-productive uses of both verbal and visual representations. Thus, both types of representation are examined as part of action, not as bracketed out of it. Both types can be interpreted and constructed. Hence, four representations can be recognized, namely the construction and interpretation of verbal representations, and the construction and interpretation of visual representations (Sarkinnen 2006, p.6).



Model A.2.6a Discourse or Conveyance Matter



Model A.2.6b The World of Design

Summary:

Foucault (1972) frames discourse as a process connected to visuality. In his view, to 'see' is to open history to new domains and new questions. Moreover, in his later work (Foucault 1988), he points out that the visual is also central to the way thought is developed. Hence, a painter is generating discourse when he interacts with his canvas as well. (Foucault 1972) A painting is independent of scientific knowledge, while retaining the positivity of knowledge (Ibid). Therefore, one can say that designer too lives in discourse. To Cross (2007), sketching is a kind of dialogue. Hence, designers produce discourse, but not necessary knowledge. When we look at their discourse act, we realise that designers turn documents into monuments (Rajchman 1988). Drawings in designing will eventually be cast into prototypes and objects - 'monuments'. Here, the visual aspect is important, since there is a way to say and a way to see it. (Deleuze 1986) Drawings and texts are evidence of a discourse held, rather

than discourse itself. In other words, what can be said and what can be seen is important, but not the same.

Designers must comprehend the discourse, since a stakeholder's understanding of an object can be different from, and even contradictory to, one's own understanding, or that of another stakeholder.

Design discourse is conveyed by media matter - by 'discourse matter' that does not only include images. Dialogues can be conveyed in various textual forms.

The design process is continuous, and it is difficult to put such a continuum into a discrete framework. Such an undertaking always provokes contradictions.

There is a way to say and a way to see something. Discourse and evidence - each layer is a combination of both, and from each layer to the next, there is a combination of discourse and evidence.

Key statements for design discourse are:

1. Design is practice and research.

2. Design is discourse.

3. Design is discourse about designing as well as design research discourse.

4. We are constructing design and design research as well as its discourse through the language we apply.

5. The discourse matter needs to be seen as comprehensively as possible, through verbal matter, images and objects, as well as text.

6. Theory, as it is understood here, is a design discipline, reframing and redrawing the lines of what design is and redefining the accompanying technology.

7. Designers produce discourse and evidence.

8. Design knowledge, as well as design discourse, is accessible and explicit if evidence is readable by the audience.

9. Design generates documents through discourse and transforms documents into monuments.

A.2.7 Designing as Discursive Practice and Discursive Research

Is there a difference between discourse, discourse analysis and discourse practice? The need to ask this question is already a confirmation that there is a difference. Foucault also recognized the fact, stating:

'Discursive relations are not as we can see, internal to discourse: they do not connect concepts or words with one another; they do not establish a deductive or rhetorical structure between propositions or sentences. Yet they are not relations exterior to discourse, relations that might limit it, or impose certain things. They are, in a sense, at the limit of discourse: they offer it objects of which it can speak, or rather (for this image of offering presupposes that objects are formed independently of discourse), they determine the group of relations that discourse must establish an order to speak of this or that object, in order to deal with them, name them, analyze them, classify them, explain them, etc. These relations characterize not the language (langue) used by discourse, nor the circumstances in which it is deployed, but discourse itself as a practice' (Foucault 1972, p.46).

Later, Foucault clarifies the above, adding, *'…a task that consists of not - of no longer - treating discourse as a groups of signs (signifying elements referring to content or representations) but as practices that systematically form the objects of which they speak'.* (Ibid, p.49) It seems clear that discourse practice is not limited by language; rather, language is what forms the objects of the discourse. Language can be composed of more than written text; it can be a written texture, made up of drawings and other signs outside of our normal spoken and written language system.

'Lastly, what we have called 'discursive practice' can now be defined more precisely. It must not be confused with the expressive operation by which an activity may operate in a system of inference; nor with the 'competence' of a speaker when he constructs grammatical sentences; it is a body of anonymous, historical rules, always determined in the time and space that have defined a given period, and also the conditions of operation of the enunciative function for a given social, economic, geographical, or linguistic area' (Ibid, p.117).

Foucault confirms the same impression that a discursive practice can be outside of the traditional language system, as long it has historical rules, determined in time and space and defined by a certain period.

Discursive analysis, to be pragmatic, is the search for discourses, discourse formations and rules. Literature on discourse analysis is abundant, including the *Handbook of Discourse Analysis* (van Dijk 1985) among many works of reputable authors. Moreover, there is already a history drawn about discourse analysis, which changes over time. There is a general impression that discourse analysis can be traced back to language analysis. According to van Dijk (1985a):

'Discourse analysis is both an old and a new discipline. Its origins can be traced back to the study of language, public speech, and literature more than 2000 years ago. One major historical source is undoubtedly classical rhetoric, the art of good speaking. Whereas the grammatica, the historical antecedent of linguistics, was concerned with the normative rules of correct language use, its sister discipline of rhetorica dealt with the precepts for the planning, organization, specific operations, and performance of public speech in political and legal settings. Its crucial concern, therefore, was persuasive effectiveness. In this sense, classical rhetoric both anticipates contemporary stylistics and structural analyses of discourse and contains intuitive cognitive and social psychological notions about memory organization and attitude change in communicative contexts' (p.1).

Here, van Dijk makes it clear that discourse analysis has moved into analysis of media texts and talks, the relation between discourse and pictures, photographs or film and many other fields, including therapeutic discourse, etc.

Van Dijk offers a general summary by describing discourse analysis as critical, when he states: *'Critical discourse analysis is difficult, theoretically, analytically and practically. At the same time, it is rich and challenging. It is real scholarship. It may make a difference'* (van Dijk 1991, p.5).

He even writes about a new discipline:

'*The interdisciplinary and critical analysis of the relationships between the structures and strategies of discourse, social cognition, interaction and societal relationships will be a major task for discourse analysis in the next decade. Only then will the new discipline, in [his] view, become a mature form of scholarly practice, that is, a practice that allows us to critically examine some of the social*

problems mentioned above, and to contribute to the development of alternative ideologies and practices that define effective resistance' (van Dijk 1989, p.142).

With that addressed, we will come back to discursive practice, which is more relevant to design and designing. For instance, Johnson (2001) describes design and architecture as *'…largely discursive practices in the sense that they comprise rhetorical components in their thinking, argumentation, delivery, propagation and reception'* (p.105). In considering design and architecture, he applies Mackin's requisite sense of modern rhetoric:

'…architecture and design are now almost unable to be separated from what is written, photographed and filmed about them, either in the professional 'vanity' press, the popular descriptive press, or the critical theoretical press, it is clear that design and architecture are beset by persuasive (i.e. rhetorical), or, more softly, 'discursive' practices' (Ibid, p.107).

Notably, Johnson's assessment that artefacts become increasingly embedded in language is congruent with the views of Krippendorff (2006), who notes: *'The trajectory shows the move from the production of functional mechanisms to the constructive use of language. In the course of trajectory, the causal models of a universe - a single version of what is - are replaced by linguistic models of how multi-verses come to be and are maintained'* (p.12).

Hence, design is what is written and stated by the public and by the designer. There is a discursive practice that the designer does not own, but where the designer takes part with many who claim to be able to speak about design.

Further, Johnson sees the processes of designing as: *'the alignments and disputes between philosophy and rhetoric, and the structures and tactics of rhetoric, have an affinity that become apparent in the language, argumentative style, notions and emphases adopted by architects and designers while they are designing and by critics and theorists in discussing their designs'* (Ibid, p.12).

Johnson also refers to the book *Why Architects Draw* (Robbins 1997), describing the communication between architects and the drawings as serving to direct and clarify ideas. Drawings are visual guidelines and serve as subjects of conversation, as well as the objects of endeavours. They provide a frame to structure the social interaction. (Ibid) Here, the transition between a public discourse about design and the designerly discursive practice becomes obvious.

To summarize, Johnson follows with another reference to Robbins, explicating that drawings, *'provide a common mode of discourse with which to deal with the many, varied and complex aspects brought to an architectural project by the many different actors…'* (Robbins 1997, p.29). Drawing is architectural discourse to Robbins, a view that is iterative of Nigel Cross' article, 'Designerly Ways of Knowing', and his statement that designers must concentrate on the 'designerly' ways of knowing, thinking and acting (Cross 2001).

Robbins describes such a way by which designers know, think, act and speak: *'Not only the dominant instrument of social and technical discourse within architectural production, drawing is also the primary rhetorical medium of that discourse. If rhetoric is the art of persuasive discourse, then the drawing is the form architects use to frame their rhetorical strategies. Drawing delineates a critical mode of architectural disputation and defines a crucial hierarchy of competence within it... The role of drawing as a form of rhetoric has provided a whole new set of possible social roles for architects as critics, as visionaries, and as artistic fantasists... In this new form of architectural practice based on drawing as rhetorical instrument, the drawing becomes an end in itself and is rewarded as such'* (Robbins 1997, p.41-42).

It seems that there are two descriptions of discourses of a discursive practice - the drawing discourse, and the discourse what is written photographed and filmed about the 'drawing'.

Hall (1997) goes even further, when he refers to Foucault and suggests that all social practices entail meaning and its shape and influence what we do. He concludes that all practices have a discursive aspect. In his view, it is about language and practice and it overcomes the traditional distinction between what one says and what one does. Meaningful practice is, therefore, constructed within discourse (Hall 1997).

Forester (1989) makes a similar point that design practice is a conversational process, though he adds a social dimension to design processes. He elaborates on this:

'By recognizing design practices as conversational processes of making sense together, designers can become alert to the social dimensions of design processes, including organizational, institutional, and political-economic

influences that they will face necessarily if also unhappily at times-in everyday practice' (p.125).

Interestingly, Biggs (2004), who primarily focuses on research, draws conclusions from practice, rather than theory, when identifying the limits of discourse practice:

'I am interested in investigations in which aesthetic judgments are made in relation to sensory objects and one might argue that this process as well as having an empirical basis that is could be examined through experimentation, actually arises through the experience of being confronted with these judgements and that therefore the identification of the initial problem, as well as its conduct through experimentation, arises in the realm of experience rather than in the realm of cognition' (p.2).

For Biggs, practice implies that the practitioner creates new experiences. Hence, he focuses on the content of experiences practitioners make, concluding that these actions are not cognitive reflections.

Biggs resumes that skills are created by experience, not by reflection. Skills are learned through experiencing practice, and Biggs analyses what exactly such experiences consist of:

'*We can translate the problem of experiential content into one of representation. Using the concepts above, we seem to consider feelings as representations of content. Experiential feelings do not have the same form as experiential content, i.e. experiences present themselves as experiential feelings whereas we reflect cognitively upon the content of those experiences, hence my claim that experiential feelings represent experiential content. With some experiential feelings the experiential content represented may be trivial, e.g. pain. However, other experiential feelings represent significant aspects of human experience, e.g. the aesthetic response. Thus there are both sensory and cognitive elements to experience, although I do not mean to imply that the cognitive element is necessarily synonymous with linguistic form'* (Biggs 2004, p.4).

He points at the difference between experiential feeling and experiential content, arguing that the former is a representation of the latter:

'The problem is that the experiential feelings that represent experiential content are private to the experiencing individual. Experiences must be expressed in the

first person; 'I feel...' While they remain private experiences, they cannot reasonably be regarded as research because they do not meet the criterion that research should be disseminated (assumption 2). But, the problems of identifying and communicating first-person experiences to second- and third-persons are notoriously difficult' (Ibid, p.4).

Based on his initial assumption, research that produces explicit knowledge is more desirable, as it generates more impact. Therefore, this assumption illustrates the main problem of designers' discursive practice and the communication of their results. Knowledge can be written in books, and is therefore easy to communicate. Communication relying on language, signs and symbols describing what designers actually do is often not accessible for people outside the design community (Robbins 1997).

Dorst (2008a) offers a similar position about practice-based research:

'The master designer is really a development of the Expert who may have taken their set of guiding principles to a level of innovation such that their own work is seen as representing new knowledge in the field. At this level of performance designers are producing design ideas that are innovative responses to situations that may have been previously well understood. Such work is published and becomes the new precedent for other designers to study. This could be deemed 'practice based research' (p.9).

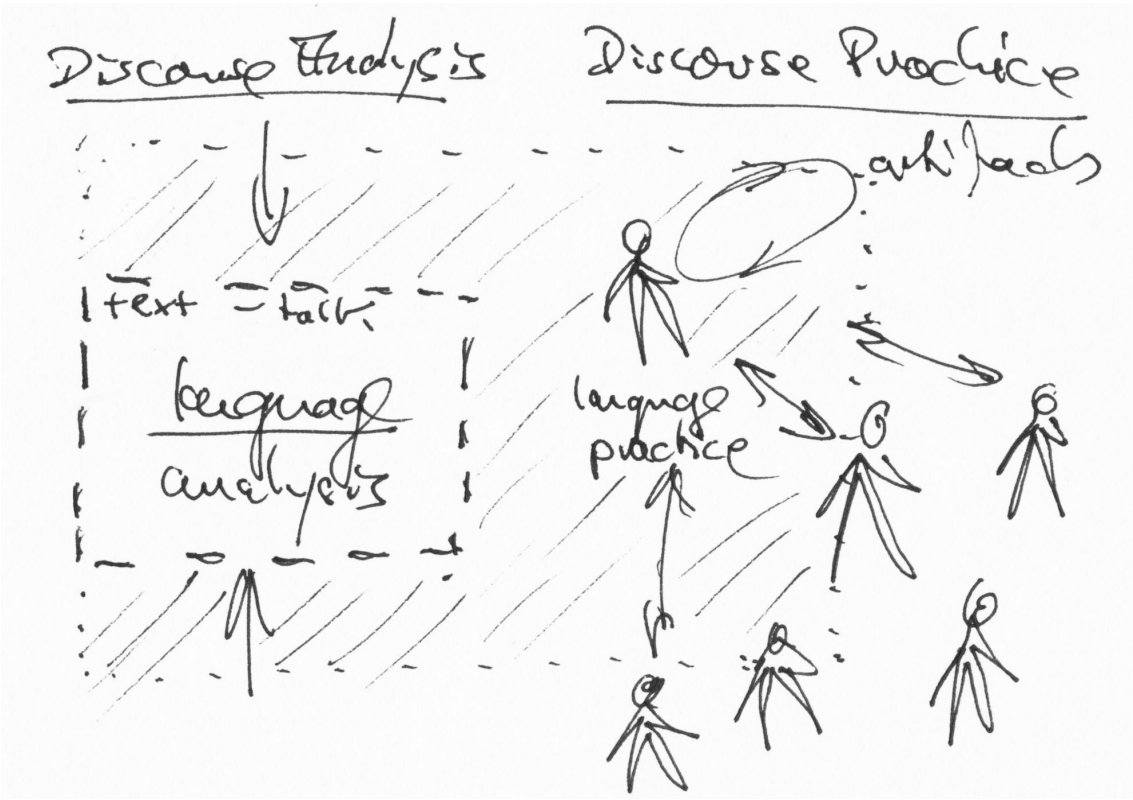
Similarly, Hart (2006) makes the following summary, providing differentiation between practice and research by looking at the practice of teachers: *'Though I have argued that there is no difference in kind between the interpretive processes of practice and research, I would nevertheless also maintain that we can and should continue to distinguish between reflective practice and research'* (p.203). She follows this up with a political framework:

'We need to be able to justify allocating research funding to teachers, to release them - as part of their normal professional responsibilities - to undertake research. The function of research should be two-fold: first, to create opportunities for individual practitioners to pursue, on their own behalf, questions arising in practice that cannot readily, or most effectively be pursued under the ordinary circumstances of practice; and secondly, to enable experienced practitioners, on our collective behalf, to generate resources which others can use in support of reflective practice' (Ibid, p.230).

That said, in his work that precedes that of Hart, Friedman (2003) provides an excellent summary of research practice: *'Research is the methodical search for knowledge. Original research tackles new problems or checks previous findings. Rigorous research is the mark of science, technology, and the "living" branches of the humanities'* (p.251). Exploration, investigation, and inquiry are thus partial synonyms for research.

Because design knowledge grows from practice, it partially overlaps with design research. The practice of design is one foundation of design knowledge. Even though design knowledge arises from practice, it is not practice, but rather systematic and methodical inquiry into practice and other issues that constitute design research. The elements of design knowledge begin in many sources, and practice is only one of them (Ibid).

The same could be said for discursive practice, since it overlaps with research. Knowledge is based on discursive practice; however, not all practice is systematic and methodological.



Model A.2.7a Discourse Analysis and Practice

Summary:

This chapter attempted to clarify the difference between discourse, discourse analysis and discourse practice.

Discourse practice is not limited by language, which is what forms the objects of the discourse. Language can be composed of more than written text; it can be texture, made up of drawings and other signs outside of our normal spoken and written language system.

Discursive analysis is the search for discourses, discourse formations and rules. Still, discourse analysis has moved into analysis of media texts and talks, the relation between discourse and pictures, photographs or film and many other fields, including therapeutic discourse, etc. (van Dijk 1989).

Artefacts become increasingly embedded in language (Krippendorff 2006). Drawings, for instance, in design are a mode of discourse (Robbins 1997). This view goes very much hand in hand with Cross's 'designerly way of thinking' (Cross 2001).

For Biggs (2004), practice implies that the practitioner creates new experiences and these actions are not cognitive reflections.

Nonetheless, research that produces explicit knowledge is more desirable. Communication through images is often not accessible for people outside the design community (Robbins 1997). Practice-based research is what designers do, according to Dorst (2008a).

While Hart (2006) argues that there is difference between the interpretive processes of practice and research, she nonetheless proposes to continue to differentiate between reflective practice and research, since research is the methodical search for knowledge (Friedman 2003).

The practice of design is one foundation of design knowledge. Even though design knowledge arises from practice, it is not practice, but rather systematic and methodical inquiry into practice and other issues that constitute design research. The elements of design knowledge begin in many sources, and practice is only one of them. (Ibid) The same could be said for discursive practice, since it overlaps with research. Finally, while knowledge is based on discursive practice, not all practice is systematic and methodological.

A.3. Designing Design Practice

Over the period of several years, this research project was supported by several design cases, three of which were in the form of conferences, which helped clarify and intensify the creation of knowledge that supports the theory discourse provided in Section A.1 and A.2.

Analysing this process from a macro-perspective, it could be stated that, initially, the conference held in 2002 helped the author utilise his intuition, which helped in the understanding that design is not a given and can thus be shaped. It also triggered an interest in understanding, in knowing, how the shaping of models, of theory of design, evolves. Therefore, the first conference, which was held in 2002, was the trigger for this research project, culminating in the present study that commenced in 2006. At this time, Krippendorff's semantic turn gave another important framing and led to the research goal—trying to understand the process of designing in conferences.

Looking from a macro-perspective, it could be stated, that initially, one of the conference, the early one in 2002 triggered was the place and time the author had an intuition: design can be shaped, it isn't a given. It also triggered as well an interest in understanding, in knowing how the shaping of models, of theory of design is happening. Therefore the first conference in 2002 was the initial trigger to start this research project, which then was guiding to the thesis project in 2006. And with the start of the research in 2006, Krippendorff's semantic turn gave another important framing and let to the search of trying to understand how designing in conferences and designing in stating is functioning.

In the same time, certain settings like the conference 'Positive Design' in Monterrey, Mexico (http://positivedesign.mty.itesm.mx/participants.html), had been testing and exploration platform to understand how designing, co-designing in social settings can be understood. Therefore it can't be as well a surprise that some of the experiments like the 'Positive Design' conference haven't been useful, but they have been useful to understand the importance of texts, of documents available after the conference.

The conference 'Positive Design' was already intended to influence the trajectory of design and had been focused on using a 'positive psychology'

approach in design. Although the conference has been perceived as a successful activity, it was unusable for the research project. The missing documents after the event are the main reason. There was no referencing material, no documents available. Documents are needed to reference the discourse of such an event. This was recognised as the result of the conference in Mexico and led to a deeper understanding and researching which then found an answer within Foucault's 'Archeology of Knowledge' (2006). It made very clear how documents and monuments are related and how important it is to have the possibility of excavating textual matter.

Insofar we could state, that the action of designing these events and evaluating the outcomes had been informing the search for theory and the theory itself and has let to the shaping of the designing design theory.

For instance a further test case, which was intended to use, was the planetary collegium conference in Munich in 2009, Experiencing Design, Behaving Media (http://planetary-collegium.macromedia-project.de/). But the tradition of the conference series, the behaviour of the people and their expectation prevented that the organiser could influence the format of the conference. The conference didn't have an interactive format, where participants could work towards a reframing of a certain theme and topic. Therefore active discourse wasn't perceived. Therefore this conference as well wasn't useful as a test for the theory and it showed as well that the interactive format, the conference setting by itself have been influencing the trajectory of the conference as well as the outcome.

As a result, the author revisited the conference held in Cleveland in 2002, which was entitled ***Managing as Designing***, and greatly benefitted from the direct participation in the conference and the focus groups, which triggered some thoughts and ideas of value for this study.

The second conference used, entitled ***Design for Social Business,*** was held in Milan in 2010, and followed the same format**.**

The third conference was held in Barcelona in 2011, with the title ***Designing Business*****.**

The author was the designer and the responsible initiator as well as chair of the last two conferences.

These conferences, while serving as excellent case studies and yielding valuable data for this thesis, cannot be seen as confirmation of its hypotheses in a positivistic scientific sense. The case studies presented are design cases, i.e., examples of practical research. Further, the cases are designs, in the sense that they exemplify changes of existing situations into preferred ones. The cases are not classical experiments that can prove or confirm the theory; as designs, they merely demonstrate that the theory is a useful design frame to expand the current understanding of what design is and can be.

The case studies explore design conferences. It is a research into practice, looking at documents written by members of communities actively involved in a process. These documents represent research data, as the statements are analysed for their meaning and emerging themes. This data can be analysed in terms of its ability to test the value of the theory. The following chapters present the background on the conferences and their respective outcomes. Finally, in the last chapters of Part A.3, various frames are provided, in order to validate the process executed.

A.3.1 Three Design Cases

The strategy employed in this work to develop theory is based on reflection in action, or research into practice, and it demonstrates how **redesigning design** can work.

These examples are designs that attempt to improve an existing situation; they are discursive events aiming to redesign design and improve or alter the understanding of design. These three conferences have initiated a discourse to reshape the understanding of design and its link to management. Most importantly, this discourse is documented, allowing further discussion and analysis of its most important aspects.

The second and the third conference were executed, based on the premise that design can be designed. Therefore, the conditions are not the same as those for the first conference, as in later two conferences the author's role changed from a participant to a designer with responsibility and a specific function to perform.

The Design Workshop Conferences in 2002, 2010 and 2011 (Cleveland, Milan, and Barcelona)

These conferences were structured as two-day events, where 60-80 designers, experts, and managers were invited to participate in a discourse. The conference initiators required the participants to submit short statements (1-3 pages in length) prior to the conference, in order to initiate and prepare the discussion and facilitate the brainstorming sessions during the event. The conferences were structured as design *'charrettes'*. The word *charrette* usually refers to a collaborative design session, in which a group of designers drafts a solution to a design problem. In an online dictionary, we can find that the term is described as *'a final, intensive effort to finish a project, esp. an architectural design project, before a deadline*' (Webster's Online Dictionary). Usually, in such a session, the main group divides into sub-groups, in order to facilitate discussions on specific topics, with each sub-group required to present its work to the full group as material for future dialogue. This arrangement was followed at each of the three

events, because it was proven to produce outcomes, while leaving room for creative interactions, collaboration and cultural exchanges through co-design.

The discourses held by the participants before, during and after the conferences had been reviewed and summarised, allowing these conferences to be viewed as design cases in effort to reframe and redesign design within a discursive act.

It is particularly important to draw attention on the influence of the design practice from one conference on the next, as this assisted in evaluating the experience and incorporating the preceding conference outcomes into the design of the subsequent event .

For instance, ensuring attendance of a few individuals that are widely known in the field made the conference much more attractive for famous designers and theorists.

At the same time, it was evident that some of the invitees based their decision to attend on the relationships they had with other potential participants. This is evident in the comments such as, 'if he will appear, I need to have a key note,' or even further, 'if he is invited, I will not be able to participate.'

As can be seen from the above, ensuring the participation of some individuals was a political struggle and required considerable amount of diplomacy.

Still, for most invitees, it was important to know that some key names in the field would attend the conference. Still, as noted above, as some key individuals had difficult relationships, it was difficult to design the invitation list. The process was made even more complex by the design of the conference workshop, which prohibited giving any individuals a greater significance, in order to facilitate discussions and problem-solving.

Another important design element was the composition of the conference workshops itself. The experience gained at the first conference held in Cleveland in 2002 revealed that workshops should be guided by the general statements of selected provocations to the plenary session, which would facilitate the open discussions in the plenary session. The process should continue in the breakout in workgroup sessions and lead into the discussion and presentations on special themes. Finally, the workshop should end in the presentation of these results in plenary sessions. In adopting this approach, the conference sessions could be viewed as a designing process.

One of the selection criteria for the speakers in the plenary sessions the conference chairs adopted had been the submission and the content of the so-called provocations (a short provocation paper to question the conference themes), which had been the basis for issuing the invitations to the potential participants. The conference chairs had the assignment to select the 'most interesting' provocation papers to be presented at the plenary session.

The remaining provocations that were submitted were included for presentation within the breakout sessions.

The third aspect to be considered had been the design of the workgroup sessions, as it was important to assign the workgroup moderator. In addition, forming the workgroups was also a challenge, and their composition proved very difficult to determine.

After the first draft of the conference design and the workgroups had been send out, some immediate feedback arrived, with some individuals requesting reassignment to different workgroup sessions. Some invitees went as far as to name the individuals they would not like to be in the same workgroup with, based on the experience from previous conferences they attended.

Therefore, the composition of the conferences held in Milan and Barcelona took some time to rearrange, as it was necessary to accommodate specific requirements of certain attendees. In two or three cases, the invitees cancelled their participation due to not being chosen as a presenter in the plenary session. It thus transpired that being given an opportunity to present within a plenary session was seen as some kind of a key note, even though all participants had been informed that the conference design did not allow for this distinction.

Since the conference was designed to be held as a two-day event, with an evening of networking, the workgroup sessions aimed to generate some dynamic. Therefore, the session participants were changed in order to promote more open discussions and prevent them from being dominated by only a few individuals. For the same purpose, individuals known to be good moderators where chosen as workgroup session moderators.

Despite the aforementioned measures, the process of scheduling sessions and assigning attendants was difficult. For example, some of the selected chairs struggled to maintain a discussion, allowing certain individuals to take over. In a

few instances, some of the participants even left the workgroup sessions, since the discussion did not go in the 'right' direction, as they argued and complained.

The criteria employed when composing the workgroups were:

a. Overlapping themes in the submitted provocations
b. Known contribution of discourse in the field
c. Background in different professions, allowing designers, managers and technologists to discuss the topics of interest from their perspectives
d. Positive opinion of the participant, based on previous conferences and workshops
e. Known political issues with other participants and former conflicts

Workgroup chairs were selected based on the following characteristics:

a. Known as excellent facilitators
b. Various professional backgrounds
c. Strong characters, capable of defending their views in case of political attacks
d. Known as a leader in the professional field

The following example shows a conference setup and the compositions of the workgroup sessions:

D4SB Conference 2010, Milano

Sunday 17th of October (Place: Via Bezecca 5, Milano)
19:30 p.m. Opening and network evening D4SB conference

Registration for D4SB conference participants

20:00 p.m. Welcome: Carlo Forcolini, CEO IED
Prof. Mohammed Yunus, Nobel Peace Prize recipient

Monday 18th of October

8:00 a.m.	Registration and coffee

8:30	Greetings Carlo Forcolini,
8:35	Presentation of Agenda, Carlo Valerio
8:45	What is Social Business: Prof. Mohammed Yunus
9:25	D4SB-Conference-Setting the stage: Prof. Jurgen Faust
9:45	Provocation statement: Prof. Richard Buchanan: *Design and Social Business*
10:05	Coffee break
10:20	Breakout session (8 groups) *Objectives: Design for SB/Designing Social Business, what needs to change?*
12:00	Coffee break
12:15	Plenum: report and presentations from the break-out sessions
13:15	Summary Prof. Michel Avital
13:30	Lunch break (delivered in plenum)
14:30	Coffee and networking
14:45	Provocations: Prof. Richard Boland and Prof. Jan Carel Diehl *Can Design enhance Social Business?*
15:15	Breakout sessions Objectives: Define core issues to be addressed and important topics to write an agenda: D4SB
16:45	Coffee break
17:00	Plenum report and presentations from the break-out session
18:00	Summary Dr. Lev Gonick
18:30	Plenum discussion, directed by Dr. Lev Gonick *What is obvious and what is needed?*
19:30	End
20:00	Networking dinner with participants

Tuesday 19th of October

9:00 a.m.	Transition: Prof. Jurgen Faust, Hans Reitz (D4SB case presentation)
9:15	Provocations: Prof. Dr. Ken Friedman and Dr. Sabine Junginger
	Design for social business (d4sb) - limitations and opportunities
9:45 a.m.	Coffee break
10:15 a.m.	Breakout session (8 groups) *Objectives: The next steps to bring the D4SB agenda alive?*
11:30 a.m.	Plenum: report and presentations from the breakout sessions
11:45 a.m.	Summary: Prof. Dr. Richard Boland and Prof. Dr. Ken Friedman
12:15	(Plenum discussion) Prof. Dr. Richard Boland and Prof. Jurgen Faust *The future?!*

13:15	Lunch and networking (delivered in plenum)

Day 1: Composition of workgroups:

Group 1 (8): **Dr. Lev Gonick,** Prof. Dr. Carlos Osorio, Prof. Dr. Remo Bodei, Prof. Dr. Barry Daved, Dr. Valentina Auricchio, Federico Bosisio, Dr. Simona Rocchi, Nima Leonhard

Group 2 (8): **Prof. Dr. Michel Avital**, Prof. Dr. Glanville, Prof. Dr. Kaja Tooming Buchanan, Prof. Nikolas Beucker, Prof. Dr. Tellefsen Brynjulf, Michele Capuani, Giovanni Cutolo, Hans Reitz

Group 3 (8): **Prof Dr. Richard Boland**, Prof. Dr. Jonas, Prof. Dr. Rik Maes, Prof. Simonetta Carbonaro, Massimo Siena, Ezechieli Eric, Judith Gregory, Mendoza César

Group 4 (8): **Prof. Dr. Richard Buchanan,** Prof. Dr. Teal Triggs, Prof. Dr.Dr. Castulus Kolo, Carlo Valerio, Alessandro Colombo, Annika Bruysten, Randone Massimo, Samantha Caccamo

Group 5 (9): **Prof. Dr. Diehl Jan Carel,** Dr. Terence Love, Prof. Lorraine Justice, Prof. Bill Amanda, Carlo Forcolini, Di Liberto Fabio, Daniela Berto

Group 6 (8) : **Dr. Sabine Junginger,** Prof. Ranjan M P, Prof. Jurgen Faust, Prof. Filippo Salustri, Corte-Real Eduardo, Alessandro Manetti, Massimo Cugusi, Borghi Nicolò,

Group 7(8) : **Prof Dr. Dong-sung Cho,** Prof. Jean Schneider, Prof. Tanja Katharina Schmitt-Fumian, Prof. Dr. Meisiek Stefan, Brugnoli Gianluca, Emanuele Soldini, Cugusi Massimo, Giuliano Molineri,

Group 8 (9) : **Prof. Dr. Ken Friedman,** Prof. Birgit Mager, Prof. Stephen Smith, Collina Luisa, Alberto Iacovoni, Ariel Mafai, Marco Lorenzi, De Kerchove Derrick, Prof. Collina Luisa, Furlan Silvestri Daniele

Day 2: Composition of workgroups:

Group 1 (8): Dr. Lev Gonick, **Prof. Birgit Mager,** Prof. Dr. Tellefsen Brynjulf, Prof. Dr. Barry Daved, Dr. Valentina Auricchio, Federico Bosisio, Prof. Kaja Tooming Buchanan

Group 2 (8): Prof Richard Boland, Prof. Jonas, Dr. Ranulph Glanville, **Prof. Carlos Osorio**, Prof. Nikolas Beucker, Giovanni Cutolo, Hans Reitz, Dr. Simona Rocchi

Group 3 (8): Prof. Dr. Michel Avital, **Prof. Lorraine Justice,** Prof. Rik Maes, Prof. Simonetta

Carbonaro, Massimo Siena, Ezechieli Eric, Mendoza César, Nima Leonhard

Group 4 (8): Prof. Ken Friedman, **Prof. Teal Triggs,** Carlo Forcolini, Prof. Castulus Kolo, Alessandro Colombo, Annika Bruysten, Randone Massimo, Samantha Caccamo

Group 5 (8): **Prof. Diehl Jan Carel**, Prof. Ranjan M, Dr. Terence Love, Prof. Bill Amanda, Giuliano Molineri, Di Liberto Fabio, Carlo Valerio

Group 6 (9): **Dr. Sabine Junginger,** Prof. Jurgen Faust, Prof. Filippo Salustri, Alessandro Manetti, Massimo Cugusi, Borghi Nicolò, Prof., Prof. Collina Luisa, Michele Capuani, Furlan Silvestri Daniele

Group 7(8): Prof Dong-sung Cho, Prof. Jean Schneider, **Prof.Judith Gregory,** Prof. Stephen Smith, Brugnoli Gianluca, Emanuele Soldini, Daniela Berto

Group 8 (8): Prof. Richard Buchanan, **Prof. Corte-Real Eduardo**, Prof. Dr. Remo Bodei, Prof. Meisiek Stefan, Alberto Iacovoni, Ariel Mafai, Marco Lorenzi

In addition, during the conference execution, there had been some changes even within the settings, as some individuals felt uncomfortable with some discussions in the workgroup sessions, over which the conference chairs had no influence.

To summarise and validate the design of the conference settings, it is evident that the political conditions were the main determinant of the discourse setting. They also influenced the enunciative modalities, as we have framed it in line with Foucault's discourse (page 97 in this thesis)

In the following chapters, the conferences are described in more detail, followed by the design outcome, which is indicated in the discursive summary. Such an approach is not objective; it is a projection, arising from studies of the conference material and participating in the discussions during the event. Nonetheless, it is a useful summary of what has been generated and observed within the conference discourses.

The first conference presented here took place in June 2002, in Cleveland, and was entitled *Managing as Designing*. The author was a conference participant, as well as a contributor to the conference proceedings and a subsequent publication of conference materials. The outcome is documented in a book entitled *Managing as Designing*. This conference was supported by Case University, Cleveland.

The second conference presented in this thesis was held in October 2010, in Milan, under the title *Design for Social Business*.

At this conference, the author was already functioning as a (co-)designer and as a responsible manager, and was in charge of chairing the conference. The outcome is documented on the internet and in a book entitled *Design for Social Business, Setting the Stage*. This conference was supported by Istituto Europeo de Design and Grameen Creative Lab.

The conference entitled *Designing Business*, and a final case study of this thesis, was held in 2011 in Barcelona, as a follow up to the conference held in 2010**.** Once again, the author was responsible for designing and chairing the conference. The resulting book and accompanying documentation is published through Amazon Publishing, whereas the conference summary will be published with Berg Publishing, co-authored by Junginger and Faust.

These three cases are examples of live communication events - design/science conferences - where a certain number of individuals came together, ready to contribute, share, develop, and expand their knowledge and their skills within the field of design. In none of the presented cases did the participants come together with the explicit agenda of **Designing Design**. In fact, this theory has not yet been discussed extensively within the professional design community.

All three 'design cases' are partially documented through existing statements and materials and through writings contributed by the participants. While many documents exist, it is clear that their contribution - relative to the actual scope of activities that took place at the conferences - is minimal, and can thus only serve as a limited information source. Thus, the cases will be used to discursively discuss whether **Designing Design** theory is a helpful model, and whether a community of practitioners is really able to improve the current state of the design field.

Case one was designed as a research conference to develop a substantial body of knowledge - which is, according to the author, the main purpose of any scientific conference.

Within cases two and three, the developed theory has been applied to try to actively design the events. However, these cases should not be seen as tests, i.e., as design cases used to confirm a theory, as the author's control was shared.

Thus, the ability to influence the conferences by applying the developed theory was limited to that of a co-designer.

Despite these limitations, the conferences allowed important questions to be tested. How does the discursive practice of the design community influence the use of the term design? What understanding of design is actually triggered by the designing of theory? What is the long-term influence? How sustainable is this theory/model and how much has it influenced the understanding of design in the long-term?

The organizers of these events, the author included, made proposals regarding the themes to be discussed. However, the conferences relied on the contributions of all participants and the documents submitted prior to the events. While this has afforded the author some influence over the topics discussed, the long-term impact is subject to the interpretation by the ever-changing wider community. Of course, by arranging for small groups of influential individuals to discuss provided statement, the likelihood of long-term influence is increased.

There had been some influence regarding the politics of the events as well. For example, the conference chair decided who spoke when and for how long, who follows whom and who is in charge of providing summaries. Together, these decisions influenced the outcome of each event. However, it is never possible to avoid political influences on the discourse, due to the difference in power afforded to, and exerted by participating individuals (Krippendorff 2006, Foucault 1972).

Archival records of the three cases can be studied to determine the impact they had on the present state of design. The Designing Design theory and its appropriateness can be assessed regarding these archived documents.

The three cases will be treated in this thesis very similarly, in that their contributions will be discussed on the basis of textual records, images and videos. Since the author participated in all three events, similar perspective is given, although the author's position changed over time, owing to increasing knowledge obtained through comprehensive investigation into theories and design over the past decade.

There are also monuments (provided as documents) in reference to Raichman (1988), which have resulted from the discursive strategies. These are actually

designs - products and artefacts - that were designed within a community of designers, and have resulted in the shaping of design understanding.

Considering all of the above, the type of research questions to ask in order to set the frame for the situation under investigation is important. Usually the research questions are worded to include who, what, where, when, how and why (Hedrick 1993).

In the present context, the questions 'how' and 'why' may be more helpful, since these tend to yield more explanatory responses. For example, a question could be phrased as 'How can the **Designing Design** theory be a helpful model to understand the shaping process within design and science conferences?' Another question could be, 'Why is the Designing Design theory a helpful model within the shaping of design and science conferences?' As an extension, 'Why are these events important for the community?' could also be asked.

In order to address the second aspect of this research, i.e., achieve case validation, the boundaries must be determined, as this will help identify the study propositions. The types of questions that would be helpful in this context include: Which elements indicate the **Designing Design** aspects? Which statements indicate an improved situation? Which statements indicate a different or extended use of the term 'design'?

The third aspect of using such cases pertains to the unit of analysis, which in the present study indicates the changes in design (Ibid). In the cases discussed here, statements created within a discursive event and subsequently documented serve as units of analysis. Once uttered, these statements take on lives of their own, through subsequent use, misuse or interpretation. Failing to document these statements would limit their lasting impact on the community, since the community can only refer to the monuments from memory and by telling stories.

Fortunately, all three events were documented in a multitude of ways - texts, videos, images - all of which were helpful. All the records pertaining to the three conferences can be retrieved from the Internet archive (http://archive.org/index.php).

The next step in the process will be to link the statements from each case to the **Designing Design** theory. This will help arrive at a decision whether these linked statements, when combined and summarized, indicate a different concept of

design. It will also be possible to determine if they identify patterns, logic, or models, which can subsequently be linked together.

However, this requires some caution. Summarizing the links can lead to conflicting findings, since one needs to be aware of discontinuity within discourses and sub-discourses. Similarly, elements that follow the same pattern can be indications of coherence. Therefore, the criteria for interpreting the findings must not conflict with the indicated discourse.

It is thus helpful that, within a design work case study, theory is essential (Ibid, p.35). The theory used in this thesis is a general theory about design and how we **design design**. Thus, the three cases (conferences) should be viewed as experimental findings, and the enclosed/related statements discursively analysed in terms of an extended or new design concept.

The next question, raised within the current context, is validity, since we are applying the criteria for judgment. Four tests are common in social science methods, namely constructed, internal, and external validity, as well as reliability tests. These should be put in this context to see whether they have some value (Ibid, p.41).

The **Constructed Validity** seems the most adequate for our situation as it is defined as, *'identifying correct operational measures for the concept studied'* (Ibid, p.41). Since three cases comprise the body of research data, there is also some connection to reliability, because the three cases may share some common aspects.

Thus, to validate the use of the cases, discursive statements based on statements serve as operational measures. The discursive aspect to the validity might be added and, as a result, it can be called '**Constructed Discursive Validity**' to most accurately describe the validation method.

Last, but not least, is the language utilised to indicate the changes. Discourse analysis takes discourse as its object of analysis. The data is speech, rather than what the speech indicates; the speech, itself, is analysed.

'…Foucault is interested in just those types of speech acts which are divorced from the local situation of assertion and from the shared everyday background so as to constitute a relatively autonomous realm… Such speech acts gain their autonomy by passing some sort of institutional text, such as the rules of

dialectical argument, institutional interrogation, or empirical confirmation...' (Dreyfus and Rabinow 1983, p.48).

These speech acts are not everyday conversation, but rather presentations and contributions by institutionally privileged speakers. In this sense, the discourses of these events - of these conferences - comprise serious speech acts that pertain to topics within a specific academic discipline. It is something of a dialect, and it is issued by specific institutions and by speakers, which are authorized to speak. The discourse generated is a growing body of data consisting of academic and professional talk, which can be analysed for changes and differences. These serious speech acts are managed by their institutional authority to create a relatively autonomous realm. Therefore, according to Dreyfus and Rabinow, there is no choice but to listen (Ibid).

Case Design

The case design follows the design outlined within the chart A.3. As can be seen, the process is initiated by theory development. Cases two and three, the conferences in Milan and Barcelona, were constructed with the intent to use them for further analysis of the usefulness of the theory.

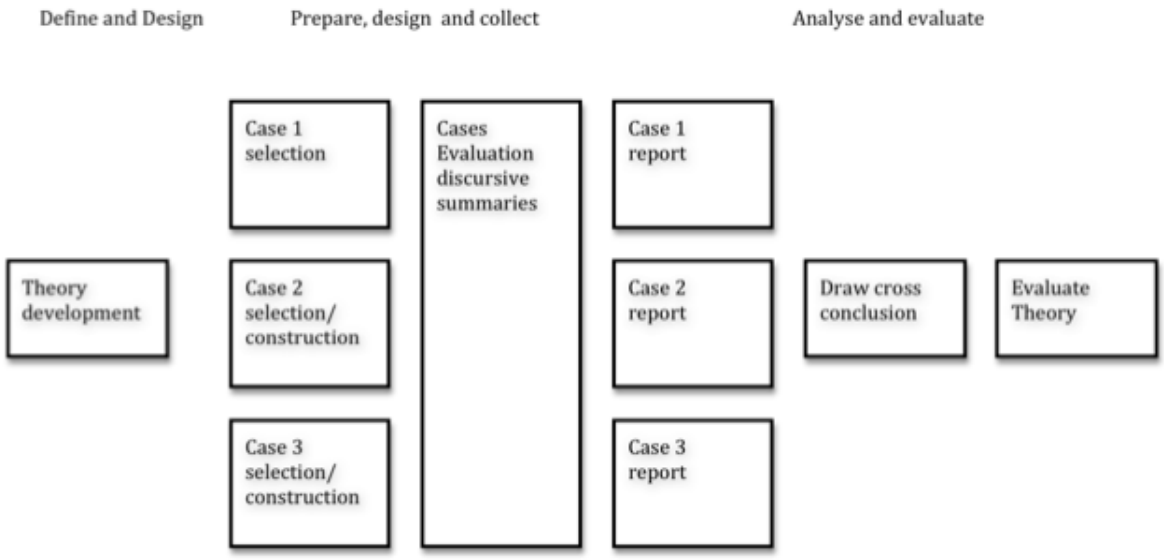


Chart A3.1a Case Design

After the reports and case summaries were completed, conclusions were drawn from each case and used to develop cross-conclusions with which to evaluate the theory. These are presented in A.3.4.

The Structure of the Three Cases Presented

Each case presentation begins with a short description of the conference and its guiding vision. This is followed by a section that gives all the basic facts about the conference, including location, time, sponsoring organization, responsible chairs and the members of the organizing committee. A full list of the participants and their functions is given next, along with an indication of whether they contributed a provocation or a paper after the conference. Next, the conference agenda and its composition are provided and the activities of each workgroup described in detail, which indicates the dynamics and interchange between specific participants.

What follows, here, is a discursive summary of the conference content and the discussions held, based on the subsequent presentations of the workgroup participants. Though the author participated in all conferences, he could only attend one of the breakout sessions at any given time; thus, it is not possible to fully convey the interactions and discussions in each session. The partial picture of those sessions that can be revealed here is only a glimpse of the final image, as painted by me and is thus forever limited by the finite documentation and knowledge of the events that transpired at each conference.

The content of the last section is coloured by the method - a summarizing, discursive description of the discourse that took place during the conferences, which is called **Constructed Discursive Validity**.

In some places throughout these descriptions, power and politics are evident, since even the discursive picture is unique. Moreover, some statements will have more space than others, depending on the author's input and the evaluation of the importance of the contributors.

A.3.2 Design Case 1

Managing as Designing Conference 2002

The **Managing as Designing Conference** was held in 2002 in Cleveland (Appendix E.1). This conference, as a case study, is included in this thesis, since it can be also studied from a historical perspective. In that respect, it allows exploration of the impact it made within the field of management and design. The conference proceedings are documented in a book entitled *Managing as Designing,* which was edited by Boland and Collopy and published by Stanford Press (Boland and Collopy 2004). Both editors of the book were also the organizers and the designers of the conference, even if they would not accept the latter title. The author considers this conference as a great inspiration, as it provided an arena where the concept of a profession might be collectively rethought, reshaped and, ultimately, redesigned.

Therefore, this conference can be considered as an example of a process, which is more important than some previous conferences, such as one held in Mexico, at Monterrey Tec. On that occasion, the author was an initiator, together with Avital, as the responsible designers and managers (www.positivedesign.com).

The gap within the positive design conference in Mexico is particularly evident in the missing documents, as there are no videos or other conference material accessible for the public. Moreover, no archival records of the events are kept, and there was no subsequent publication of conference proceedings; consequently, no textual matter is available, aside from the information provided on the original website, which makes it difficult to refer to or extract any documents.

In addition, the 'positive design' approach can be considered as a marginal issue, since the most important outcome of the discourse initiated during this conference was the importance of the purpose of the design process, which was addressed in the follow up conferences happening in Milan and Barcelona.

Discursive Summary of Managing as Designing Conference

As stated earlier, the first 'design case' presented here is the **Managing as Designing Conference** held in Cleveland at Case University in 2002. The discourse held during, before and after the conference is summarised in Appendix E.1. While the discourse summary does not explicitly make the case that the concept of design was coined during the conference, or states that design was redesigned, it still provides some indication of shifts in design definition.

The conference has succeeded in bridging the gap between design and management and makes the case that studying managerial discourse is problematic. Moreover, it also provides some guidance on how to capture these discourses. Within such situations in management, there are various distances between practical activity and discourse. There is a significant difference between daily small talk and discourse, as well as between any verbal communication and practical activity. Nonetheless, in some situations, as we can call them, a complete identity can be revealed. Looking within the management arena, we can find discursive history in, for instance, mission statements, brainstorming and scenario work (Appendix E.1). The problem is that such discourses do not translate directly into practice. Very often, history is made behind the backs of its creators, since these statements do not translate directly and literally into practice. In that respect, managers can be seen as designers, since they are designing products, organizations and services. Clearly, if they are designers, and they would improve their design, then they are better managers (Boland and Collopy 2004). One of the differences to indicate in Management and Design is the way they solve problems. In Management, we find a tendency to make decisions that address a specific problem. In Design, on the other hand, there is the tendency to keep the process and the problem space open. Still, neither attitude - closing or keeping the problem space open - is a final solution, because we need both attitudes. Therefore, managers need to learn how to keep the problem space open, and designers need to learn when and how to make decision (Ibid). Managers with design attitude usually work in teams, which enables them to play, think and rethink - the interaction between the people is driven by joy. Applying that to organizational design, we can propose six steps that should be followed, where the focus is on purpose,

principles, people, concept, structure, and practice, respectively. The main danger of designing is tendency to fall in love with a solution or over-designing; therefore, it may be difficult to establish when to stop.

The most important links to managing as designing come from interaction design methodology, especially if we see that process as comprised of creating a vision, moving to strategic planning, followed by the preparation and exploration of a specific brief for interaction design work. If these steps are followed, we can see the generation of design ideas and the selection of the most valuable solution. As it follows in the design process, the next step is planning, prototyping and evaluating the effectiveness through on-going research. This is followed by testing, which leads to the ultimate design for final realization. While that process is not new, the novelty lies in the fact that it can also be applied within the management arena from a designing perspective. We can even say that interaction design offers a possibility to describe how people relate to others and how we can mediate this relationship through products. In that respect, it hardly matters how these products are presented - as documents, computers, programs, services, business, strategic planning or organizational environments. Still, if we think of designers as managers, it needs to be understood that designers need to have sufficient understanding of accounting, finance, human relations, strategic planning, and vision building. As interaction design within organizations deals with organizational systems, if we deal with systems, we must be clear that we never know the totality of a complex system. (Ibid) Moreover, we must appreciate that organizational systems have never been totally designed; they have always had a life of their own. Organizational system is emergent across multiple individuals in an organization. We can only know it through abstractions and models, which always distort 'the system'. This is true, whether we deal with material systems - which was the focus of the traditional designers, focusing on systems of things - or with human systems, the integration of information, physical artefacts, and interactions in environment of living, working, playing and learning.

It is also very important to accept that designers never design endings, mostly middles. In other words, their focus is on a redesign of existing organization; and in order to do so, the process must include destruction of something that already exists (Ibid). Therefore, designing is often re-design, interruption, resumption, initiation and re-contextualization. More often, designers and managers, who are

always in the midst of something, are thrown into a situation of acting without the opportunity or need to disengage and function as detached observers (Ibid). Therefore, design is typically incremental, as designs often assimilate and normalize existing situation, bending it to whatever is already underway, so that they can continue. Such a design, within a situation the designer is thrown in, lives and gains from its resonance with the situation. Thus, if design is good, it should support the mood of throwness by providing affordances and reflects in action. (Weick 2004) Such throwness also stirs up pre-existing interpretations and encourages people to re-decide what matters. That means that managers and designers working in such conditions look for adaptation, because constrains are important in order to challenge new meaning negotiated by the environment. In summary, we can view organizations and management situations as a change from stable condition to an organization that changes over time. Business organizations are organisms and, since the problems are wicked, both design and scientific methods are necessary. Therefore, applying design thinking to business practice is the solution, especially when we can differentiate between the cases where programmed decision-making processes and non-programmed decision-making processes are needed.

A.3.3 Design Case 2

Design for Social Business Conference 2010

The Design for Social Business conference (D4SB) was initiated in 2009 and was held in 2010 in Milan (Appendix E.2). The conference was conceptualized with the intention of specifying a design for a Social Business agenda - as a **Designing Design** event, but without introducing that directly to the participants. By intention, the conference discussions and the various statements were studied and applied to the process of redesigning design, its understanding and its conceptual frame. The conference participants and the discourse were not univocal, but rather heterogeneous; therefore, not all statements deemed important can be represented here, and they never will be, as many interactions that took place at the conference were not documented. Furthermore, it will not be possible to go into the details of working with historical documents, their interpretation, the external conditions - which might have driven the formation of discourse - or the politics involved. It was stated before that the theme was political, partly due to the fact that Nobel Prize Winner Mohammad Yunus was invited; however, the political focus of the conference was accepted by all involved.

Nonetheless, the organizers still had to deal with decisions, such as who was allowed to speak and who was not, who was invited, and who came. Not all prominent design experts and professional were in attendance - though this would have guaranteed an impact on the conceptual framework of design and the re-**Designing Design** discourse. This can never be guaranteed, although the intention was to give design another disposition. It was also evident that, while some of the invitees were unavailable, others did not come for political reasons, not wanting to meet others, as indicated by e-mail. Others planned to attend, but - for reasons unknown - did not show up. Regardless, many invitees arrived and their participation ensured that the discourse was lively and promising.

Discursive Summary of Design for Social Business Conference (D4SB)

Social Business needed to be defined during the conference. As empirical evidence suggests, it appears to have emerged out of micro-banking in Bangladesh, where it seemed that poor people were poor, not because of lack of skills, but because they typically survive through creativity (Appendix E.2). The system is responsible for, and generates, poverty. While it is clear that the poor do not generate poverty, it cannot solely be blamed on a system or its policies either. Poverty is a difficult concept, because it can be understood in several ways (Auricchio and Faust 2011). Poverty can be understood as having only the basics necessary to survive - food, shelter and health. It can also be understood as having a general state of well-being, which is not an objective condition. One obvious aspect of poverty is the lack of to the financial system. Therefore, the question raised at the conference was how to build a banking system that serves the people. Or better, how to design such a system to help people. However, if we speak about design in such a way, we need to expand the question to determine what needs to be designed - the system, the institutions, the business (as a Social Business), or the products and the services, or all of these?

Design for Social Business can be seen as misleading, because there is nothing that has not been designed before. Therefore, all we can focus on is a redesign of what already exists. While every business can be redesigned as a Social Business, doing so requires asking the right questions. For instance, what is the meaning of business? How can it generate profit or create value? The latter could lead to the view that a business needs to create more value than it captures. Still, at the same time, such a task is difficult, since we have never designed such business systems before. Looking into interaction, design will help address some of these issues, as it designs processes and exchanges between people. The designs of these interactions are important and, even more so, are the implications for these interactions in their processes and services. Currently, design thinking is moving from mass production, graphic, industrial, and interactive design, to system, environmental and organizational design. Designing the totality of our lives seems to be the new designer's task.

This can be achieved only within a collective process, since it is not the task of a single individual. Designers need to talk to each other, and need to learn to work

together to build shared commitment and personal relationships leading to co-design and co-creation. The methodological aspect is manifold and includes dealing with opposites, filling the gaps in knowledge through the creation of systematic inquiry. Design needs to overcome the gaps in knowledge in order to work successfully in this environment; therefore, design needs to be redesigned, starting from the perspective afforded by discourse and evidence. This can be accomplished if we understand the subject matter - the process, the visualization, facilitation, and prototyping.

A major component of this process is defining its purpose, which was left out when we initially designed businesses. Within the designing of business, is providing goods and services the real purpose? Is profit a sole purpose? These and similar questions cannot be avoided. We must also understand that there are many conflicts between these perspectives. Further, throughout the development of a business, the perspectives can change. In the beginning of a business, there is a social need to collaborate. However, after some time, remaining competitive in the market becomes paramount. While this inevitably occurs in most businesses, it is still not clear when and why this shift takes place. Dealing with externalities is required. To address this, the design of policies is needed, which incorporate the entire concept from thought through action, as we have outlined above.

A.3.4 Design Case 3
Design Business Conference 2011

This conference was held in Barcelona (Spain) in 2011, as a follow-up to the D4SB conference of 2010. The goal of this event was to broaden the scope of design for Social Business to a general business design. The conference was held a similar format as the two cited previously. Between sixty to eighty experts from the fields of management and design were invited to work on and discuss 'designing business' for two days. Several questions were posed to the participants ahead of the meeting to allow them to prepare and submit a response or a statement, which we called a 'provocation' (Appendix E.3). These provocations were one to two pages long and provided some general thoughts about the theme raised. These statements were collected, published on the website and sent to all participants before the conference. Based on this information, certain participants were selected to give keynote speeches, and the others were assigned to groups to facilitate discussions about specific topics, the highlights of which were later presented to all conference attendants. The key concept was to group together individuals with similar interests, but varied backgrounds in academia or industry.

Each of the workgroups was given 10 minute to hold breakout sessions, where one person was assigned to lead their group in fruitful discussion, while another person was asked to summarize and present the outcomes of these discussions to the entire workgroup. All general presentations and discussions of the entire group were taped, and immediately presented on the website. The group discussions and participant statements proved controversial and lively. Everybody was invited to contribute to the subsequent publication the conference proceedings (Faust 2013).

Discursive Summary of Design Business Conference

When designing a business, the approach must be an extension of the current general design understanding, because designing business was never considered in the professional design community. Therefore, launching a conference with this topic already indicates a reframing of the purpose of design.

Of course, there are other premises of importance. First, there is the need to make sure that our design understanding results in an increased number of choices. Moreover, design within the business environment needs to be explicit and interruptive.

Design practice is shifting towards a rhetoric and dialectic in its move towards business modelling. Since dealing with wickedness (Rittel 1973) within the **business designing** environment is required, designers can solve the designing problem only through conversations - through the dialectic of that interchange.

This shift requires a designerly way of thinking and of doing. In the field of business, this calls for a radical innovation, requiring more arts-based design methodologies. It is a new way of practicing synthesis, and involves a cognitive process, envisioning the narrative and particularity of the discipline. It is also overcoming of the artificial imbalance between analytical and synthetic processes in management practices. The problem-solving, blocked at the symbolic level, can be eased through visual thinking. 'Ambidextrous Thinking' - Imagineering (which is about designing and using an imaginative narrative in 'seeding the future') - must be added to design thinking. (Ibid)

Still, designing business requires a different thinking on several levels. Management and design are not separate entities, since design is an underlying foundational aspect. Therefore, we need a different ontology and epistemology that capture both.

The concept of purpose in business needs to be rethought with at least three facets:

- Creating roles for the owners

- Providing value for society

- Survival of the business - the institutional purpose

Such purposeful thinking requires decoupling design from the destructive growth-based economics, because, in taking business design from a radical perspective, we design for people, not for companies. Our main constituents are employees, customers and products. Our purpose can be seen as orchestrating the (novel) value within the exchange in networks. In such a business environment, the observer and the observed cannot be separated, since we are designing systems. The importance is that designers need to include stakeholders

as designers in an on going discourse, to moderate, self-moderate and self-regulate. This will shape the behaviour through interaction within the same organizational structure.

The above process can be seen as a disciplinary approach, a ‘visionary’ approach, or an inquiry approach, whereby the inquiry of ideas is a sceptical dialectic task.

A business designer must be able to leave preconceived solutions to unknown problems. This, it is important to realize that these are metaskills required in an emerging role of designers as the design facilitators, design activists and community coaches - a ‘designagers’.

If design thinking is facilitated, it must be followed by design management and understanding of the rules of business. It must be followed by the knowledge of design strategy and design leadership. This methodology utilizes strategies that can be applied by professionals in all disciplines.

Still, when making such statements, acceptance that moral is private and design is amoral is also needed. A new functionalism cannot be created, as focus solely for the sake knowledge is still important. How to keep the relevance will be important in this endeavour, as there is a danger that, if focusing on theory only, for a theory to remain relevant, it essentially must be incrusted in all debates about trying to find boundaries.

A.3.5 Constructed Discursive Validity

The **Managing Design Discourse** has reshaped the design understanding. It has redesigned design by generating the following key statements:

- Managers are designers, designing organizations and services.

- In management we tend to close the problem, in design we tend to leave it open, but a good designer and manager has both capacities.

- An organizational design works from purpose, to principles, people, concept, structure, and finally to practice.

- The interaction design methodology and process follow a similar pattern: creating a vision, moving to strategic planning, planning and prototyping, and evaluating the effectiveness.

- Interaction design permits us to describe how people relate to other people and how we can mediate this relationship through products.

- Designers, as managers, need to have knowledge of accounting, finance, human relations, strategic planning, and vision building.

- Organizational systems have never been fully designed; they have always had lives of their own.

- We never design endings; we mostly design middles, as design is often re-design, characterized by interruption, resumption, initiation and re-contextualization.

- Designers and managers, always in the midst of something, are forced into action without the opportunity (or need) to disengage and function as detached observers.

- Managers and designers look for adaptation, because constraints are important to challenge new meaning negotiated by the environment.

- Design thinking in business practice is the solution in the area of non-programmed decision-making.

The **Managing as Designing** discourse is still shaping design understanding. It has spread across business schools and is still influencing design understanding

within the design community. It has shown in a very good way that the designing in management, organization and service are new and important domains. Many of the statements, condensed and reviewed, still pose a challenge for designers and managers, because they go beyond an average professional understanding.

In the case of **Design for Social Business**, the impact into design conception and understanding is not as obvious. The key statements might influence certain areas of design in the future. This depends very much how important the concept of social business will be.

- The design frame is moved into system design, asking, how we can design banking systems.

- There is a development within design thinking from mass production, graphic, industrial, and interactive design, to system, environmental and organizational design.

- Any business can be redesigned as Social Business.

- The design of the interactions can be a collective process, marked by co-design and co-creation.

- Within designing organizations and businesses, the purpose is important and can be determined by understanding the aim of the organization's design.

- Designing business can be conducted in two modes - collaboration (driven by social need) and competition within the field.

- We can design policies from thoughts to action.

- Designing the totality of our lives seems to be design's new task.

The discourse of this case extended beyond design, and often focused on the issue of social needs. Therefore, the impact for design is not as strong, and the understanding of design is not as greatly influenced. The statements generated do not indicate a revolutionary approach to design, aside from identifying that business can be designed, and even existing business can be redesigned. Business design is a collective process, including co-design and co-creation. Within business design, two modes - competitive and collaborative - are apparent. The designing of policies is important. The purpose needs to be

considered in business design, and that is a new discovery yielded by this Social Business discourse.

The third case on **Designing Business** is an extension and reconfirmation of the **Designing Design** project initiated in the second design case.

- The conference, by itself, is an example of **Designing Design**.

- Design understanding should increase the number of available choices.

- Designing business needs to be explicit and interruptive.

- The foundation of designing business is design thinking.

- The design practice is shifting to a rhetoric and dialectic.

- Designers can solve these design problems only through conversations.

- This type of design is a new way of practicing synthesis, and involves a cognitive process, envisioning the narrative and particularity of the discipline.

- Management and design are not separate entities; therefore, we need an ontology and epistemology that captures both.

- Designing business is an on-going discourse, involving moderation, self-moderation and self-regulation, to shape the behaviour through interaction within the organizational structure.

- Such designers are (design) facilitators, activists, community coaches- 'designagers'.

- Design thinking must be followed by design management.

The **Designing Design** factor of the third case is much more clear and distinct, than it was in the conference held a year before. The discourse reconfirmed the new domain of designing business. This was neither thought through nor attempted before. It is design where design thinking is the base; it is co-designing through conversations, through the rhetoric and dialectic. Here, management and design are the same process - they merge. In this domain, design and management collapse into one entity.

Summary:

In all three design cases, the frame of designing design allows to better understand what a community of people is actually doing when they meet for a

conference event to develop a discourse focused on certain thematic statements. In the **'Managing as Designing Conference'** held in 2002, the designing aspect is much more obvious, since the impact and the changes - even if not quantitatively measured - can be seen in various places, especially since the documents generated had been discussed in many places where the community of professionals meet and provide statements. But this is also visible and recognizable in statements, such as 'Managers can be seen as designers, since they are designing products, organizations and services.' In addition, humanistic discourse is indicated by consumption of textual objects. As outlined before, the time that lapsed since the conference held in 2002 might have helped to recognize the new understanding of design, and appreciate that management is its integral part.

While the **'Design for Social Business Conference'** cannot be evaluated regarding its impact, looking at the statement generated, it is evident that they are less focused on designing design. Instead, the focus is on the 'moral' aspect of the act of designing. This can be exemplified by the statement: Within designing organizations and business, the purpose is important; hence, determining the aim of the organizational design is necessary. This statement helps differentiate values within designing of business.

The **'Designing Business Conference'**, due to its purpose, implicitly included designing of design; since it expands the understanding of design into a realm that was not previously considered as a domain of design - business. Thus, the statements generated during the conference focused on how to design business:

- The foundation of designing business is design thinking.

- The design practice is shifting to a rhetoric and dialectic.

- Designers can solve these design problems only through conversations.

These statements indicate that there is coherence to what was stated in the procedural aspects of designing design. Design Thinking aimed at conceptualize the future of design, it is a design based on rhetoric and dialectic because the base is text and it is a conversation with the actors in the network - the community of people who met to solve some problems in design.

A.3.6 Theory in Action as a Participatory Design Process

The three conferences addressed above can be seen collectively as a participatory design process, since all are live communication events, which depend primarily on the participants.

'Participatory design approaches are considered to reflect design as a social process, illustrating that the sphere of the design activity extends beyond he designer. When engaged in a participatory design workshop the people who attend are part of the social process of design and play an active part in the issue/problem raising, discussion and decision making processes that are part of the early design stage of a project. The people who are commonly known as the users are active participants in the design process and hence the boundary between designer and user becomes blurred' (Luck 2003, p.523).

The three conferences were participatory, with many interactive parts depending on the participation of the attendees. After stage-setting and some basic lectures, the participants were given the opportunity to take on the role of designers. Their participation as designers is evident in the provocative statements and intense discussions held on-site, as well as in post-conference activities and collective writings, which exemplify a participatory design process that creates design and knowledge.

It is also important to note that the practice of participatory design has a practical and an ethical motivation. The practical argument is that users have a better understanding of their needs than those tasked with creating for them (Bødker 1996). Hence, in designing conferences focusing on design, the contribution of the users is a necessity.

Holmlid (2009) summarizes two premises that guide the development of participatory design and makes the point that the inclusion of users will increase the likelihood of a successful design outcome. Moreover, there is a moral premise that users have a right and possibly obligation to be involved in a design development (Holmlid 2009).

Sanders et al. (2008) approach these issues from the creative perspective *'First, to embrace co-creativity requires that one believes that all people are creative. This is not a commonly accepted belief, particularly amongst those in the business community'* (p.5). However, the conference was organized based on the belief that the participants would actually contribute with their co-creativity, even if some do so not as designers. *'We use co-design in a broader sense to refer to the creativity of designers and people not trained in design working together in the design development process'* (Ibid, p.2). This statement can be evaluated as a shift, since many 'normal' conferences are organized as traditional talking conferences, which are less participatory. *'It is a shift in attitude from designing for users to one of designing with users'* (Sanders 2002, p.1). Nonetheless, some participants have voiced that the conferences have not been participatory enough. Sanders echoes (2005) this, noting: *'It has become increasingly evident that everyday people are no longer satisfied with simply being 'consumers'. They want to be 'creators' as well'*. (p.5) All conferences described here can be seen as a generation of outcomes, statements, discussions and documents, achieved through a co-designing act. According to Sanders (2006):

'Co-designing is also known as the application of 'generative tools', which refers to the creation of a shared design language that designers/researchers and the stakeholders use to communicate visually and directly with each other. The design language is generative in the sense that with it, people can express an infinite number of ideas' (p.6).

The conference participants also acted as researchers , searching together for solution to the research questions asked, as we can see later on. *'In participatory experiences, the roles of the designer and the researcher blur and the user becomes a critical component of the process'* (Sanders 2002, p.2). Still, the conference organization and management was not completely given to the audience, as certain decisions had been made by a small group of people, namely conference chairs and organizers, all of whom took a role of designers. *'Designers will be needed because they hold highly developed skills that are relevant at larger levels of scope and complexity'* (Sanders et al. 2008, p.12).

'When all three perspectives (what people do, what they say, and what they make) are explored simultaneously, we are able to understand the experience domains of the people we are serving through design' (Sanders 2005, p.12). Participants change their perspective from that of an observer to a co-designer

during the conferences or the interviews. Sanders and colleagues (2008) also make the case that the designers have a new role within such a process: they will make the tools for the participants to facilitate the creative process: *'The onus is on designers to explore the potential of generative tools and to bring the languages of co-designing into their practice. Designers will be integral to the creation and exploration of new tools and methods for generative design thinking. Designers in the future will make the tools for non-designers to use to express themselves creatively'* (p.13).

In summary, while the design conferences have not been announced as participatory design acts, the participatory aspect was a part of the concept, and it applied to the conference as well as interviews. It was also evident in the creation of discussions, discourses and outcomes.

A.3.7 Theory in Action as Discourse Language and Practice

In his critical discourse analysis of social practice, Fairclough (2000) develops the following elements, which he sees in a relatively stable configuration:

Activities, Subjects (and their social relations), Instruments, Objects, Time and place, Forms of consciousness, Values, and Discourse. These elements are not fully separated, as they are dialectically related- (Fairclough 2000) Critical discourse analysis is the analysis of the dialectical relationship between discourse and other elements of social practice. Fairclough sees three ways of social practice. First is the way we are doing a job - i.e., using language in a particular way. Second, discourse serves as representation and recontextualization of other practices to incorporate them into their own. Thirdly, discourse helps in the constitution of identities.

In addition, discourse constitutes genres or ways of acting - the academic conversations during a conference, for example. Thus, the discourse of such an academic conference constitutes styles of intellectually active designers, thinkers, and researchers.

The way in which diverse genres, discourses and styles are networked together constitutes an order of discourse (Ibid). Order is the dominant way to decipher meaning, and the way to speak about something. In conferences, for example, order establishes how we refer to some people and not others when we speak. Still, such an order *'…is not a closed or rigid system, but rather an open system, which is put at risk by what happens in actual interactions'* (Fairclough 2009, p.4).

'Discourse includes representations of how things are and have been, as well as imaginaries- representations of how things might or could or should be' (Ibid, p.4).

For the conferences, this is the way ideas have been visualized - as concepts of change and models that can be used to understand what is needed. This applies to the systems as well as new models.

'The process of 'changing the subject' can be thought of in terms of the inculcation of new discourses' (Ibid, p.4).

'*…how people become unconsciously positioned within a discourse. Inculcation also has its material aspects: discourses are dialectically inculcate not only in styles, ways of using language, they are also materialized in bodies, postures, gestures, ways of moving, and so forth'* (Ibid, p.4).

Fairclough also recognizes that social life is reflexive. People interpret and represent to themselves and each other what they do, and these interpretations and representations shape and reshape their actions (Ibid). However, to some, such a method of discourse analysis is difficult to appreciate.

'…there exists no strictly Foucauldian method of analyzing discourse' (Hook 2001, p.36).

Since the research presented here draws heavily on Foucault, the question is whether discourse analysis exists and can be applied to justify the **Designing Design** theory. The existing work clearly indicates that discourse analysis has no clear method. As Graham (2005 stated, '*Perhaps the difficulty in locating concise descriptions as to how to go about doing 'Foucauldian' discourse analysis is because there is no such thing'* (Graham p.2).

At the same time, we should ask - can **Designing Design** and the design cases within this thesis framework actually be seen as discourse analysis? Is it a discourse case, which can be analysed in such a way, or can one say that it can be analysed but that the outcome is questionable? It may be questionable, as there are some doubts about the positivistic trap we might face if we systematize, for example. *'If Foucault had 'prescribed' (as in systematized) a way in which one must go about doing genealogy in order for it to be authentic, then I agree that this would be hypocrisy of the highest form'* (Graham 2005, p.5).

Does this suggest that there is no methodological frame with which to analyse the results? One of the core elements of Foucault's work was the description of the painter in a discursive act.

'In analyzing a painting, one can reconstitute the latent discourse of the painter; one can try to recapture the murmur of his intentions [or] ... set out to show a discursive practice that is embodied in techniques and effect ... shot through with the positivity of a knowledge (savoir). It seems to me that one might also

carry out an analysis of the same type on political knowledge' (Foucault 1972, p.214).

Following this advice, one can analyse the 'painting' created by the conferences, comprising the various statements, the murmur of its intention, the discursive practice that is embodied in the techniques and effect, and the knowledge created. Clearly, one can analyse the political knowledge as well. Still, the 'painting' from the conferences is a patterned textual matter, built from provocative statements, videos, online descriptions and articles written in books and presented online. For the first conference, there is even a vast number of articles referencing statements from the discourse generated.

Analysis and designing maintains the tension, as previously outlined. Within such events, there is the question of power. Who is responsible for deciding to select who speaks and who does not? Who is interviewed? Which statements are selected and which are not? Which questions are presented? The question of power is thus also a question of discourse. *'Over and above every opportunity for saying something, there stands a regularizing collectivity ... called a discourse'* (Foucault 1983, p.186).

'A refusal of analyses couched in terms of the symbolic field or the domain of signifying structures, and a recourse to analyses in terms of the genealogy of relations of force, strategic developments, and tactics .... The history which determines us has the form of a war rather than that of language: relations of power, not relations of meaning' (Foucault 1980a, p.114).

Foucault (1981a) claims that discourse can be seen as an event in opposition to the idea of discourse as creation *'Eventualization means rediscovering the connections, encounters, supports, blockages, plays of forces, strategies and so on which ... count ... as being self-evident, universal and necessary'* (p.6). The analysis might be incomplete considering the increasingly diverse data sources (Ibid). Nonetheless, looking at such a discourse, we will rediscover connections, supports, blockages, and plays of force (Ibid). In Foucault's sense, such a discourse is power and action. Discourse is the thing that is done, *'the violence'* in *'which we do things'* (Ibid).

'Discursive events must be treated along the lines of homogenous series which, however, are discontinuous in relation to each other' (Foucault 1981a, p.69).

This is especially interesting within the conferences included here as case studies, as they are a discontinuous series - while each was initiated to extend design, the themes and attendants are not always the same.

'Discourse is not simply that which translates struggles or systems of domination, but is the thing for which and by which there is struggle' (Foucault 1981, p.52-53). Thus, the textual level does not give all we need to analyse the discourse; what it gives is the instrument of power.

The textual analysis - what is left from such an event - is separate from the analysis of power, history, materiality and underlying conditions. A critical analysis of discourse brings the risk of producing results, which are disconnected from the discursive socio-political context; even the agenda and the reason for the agenda are given.

The violence within these events, and within the discourse, is the power needed to shape and redesign design.

In addition, there is the role of the author, in this case as the one who analyses and writes about the discourse. For instance, Foucault (1984) speaks about the *'Relationship (or nonrelationship) with an author, and the different forms this relationship takes, to constitute - in a quite visible manner - one of these discursive properties'* (p.117). What interests does the author have and what kind of relationships he has developed with certain members of the communities? Which people have been invited to discuss the selected topics? What sequence should the events follow? What kind of ideological framework has been brought to the writing? According to Foucault,*' there are reasons dealing with the ideological status of the author'* (Ibid). Still, Foucault also sees limitations on the author, which are, in his view, necessary to reduce significance.

'The author allows a limitation of the cancerous and dangerous proliferation of signification within a world where one is thrifty not only with one's resources and riches, but also with one's discourses and their significations' (Ibid, p.117). Therefore, the author can be seen as the ideological figure that provides the proliferation of meaning of statements: *'The author is therefore the ideological figure by which one marks the manner in which we fear the proliferation of meaning'* (Foucault 1984, p.119).

Within this series of conferences, all the various aspects Foucault identified can be confirmed: the authors' limitations, the reduction of textual elements without

looking into the socio-political struggle, and the limitation of data looking at the events. Therefore, a discourse analysis is questionable.

Saying that design discourse draws from theoretical and written statements, the excavation of such theoretical statements must apply, especially if design discourse is to comply with scientific rules. Foucault's ideas of discontinuity within archaeology seem to be helpful and insightful.

'It does not treat discourse as a document, as a sign of something else, as an element that ought to be transparent, but whose unfortunate opacity in the place in which it is held in reserve; it is concerned with discourse in its own volume, as a monument. It is not an interpretive discipline: it does not seek another, better-hidden discourse. It refuses to be allegorical' (Foucault 1972, p.139).

'Archeology does not seek to rediscover the continuos, insensible transition that relates discourses, on a gentle slope, to what precedes them, surrounds them, or follows them. …Its problem is to define discourse in their specificity; to show in what way the set of rules that they put into operation is irreducible to any other. It is … *a differential analysis of the modalities of discourse'* (Ibid, p.139).

' It does not try to grasp the moment in which the oeuvre emerges on the anonymous horizon.'

'It does not wish to rediscover the enigmatic point at which the individual and the social are inverted into one another.'

'It defines types of rules for discursive practices that run through individual oeuvres, sometimes govern them entirely, and dominate them to such an extent that nothing eludes them; but which sometimes, too, govern only a part of it.'

'Lastly, archeology does not try to restore what has been thought, wished, aimed at, experienced, desired by men in the very moment at which they expressed it in discourse, it does not set out to recapture that elusive nucleus in which the author and the oeuvre exchange identities.'

'In other words, it does not try to repeat what has been said by reaching it in its very identity' (Foucault 1972, p.139).

'It is nothing more then a rewriting: … a regulated transformation of what has already been written' (Ibid, p.140).

Summarizing the perspective of applying discursive methods to design theory, it is very important to make sure not to see discourse as the hammer that treats everything as a nail. Instead, we can summarize the value as Hook (2001) did, *'…there exists no strictly Foucauldian method of analysing discourse'* (p.521).

A.3.8 Practiced Theory as Action Research

Action research defined using the words of Waterman et al. (2001):

'Action research is a period of inquiry that describes, interprets and explains social situations while executing a change intervention aimed at improvement and involvement. It is problem-focused, context-specific and future-oriented. Action research is a group activity with an explicit critical value basis and is founded on a partnership between action researchers and participants, all of whom are involved in the change process. The participatory process is educative and empowering, involving a dynamic approach in which problem identification, planning, action and evaluation are interlinked. Knowledge may be advanced through reflection and research, and qualitative and quantitative research methods may be employed to collect data. Different types of knowledge, including practical and prepositional, may be produced by action research. Theory may be generated and refined, and its general application explored through the cycles of the action research process' (p.3).

The first sentence within this definition indicates a situation in which design is involved in the improvement of an existing situation. At least the knowledge creation aspect of such an organized event can be seen as such an arrangement. Events, such as the conferences used here as case studies, can thus be seen as group activities, as they are designed to involve participants and are very context-specific.

The participation process in the conferences described here was organized to have some educational aspects, and knowledge was produced through the collection of statements, which guided the formation of new theoretical models. The entire process can thus be reviewed from an action research perspective.

According to Lewin (1946), the action research cycle comprises a pre-step and three core activities, namely planning, action and fact-finding. The first step is the naming, which is very similar to identifying our design intention. This involves the overall plan and the initial stages of the research project (Ibid).

What follows is a learning - a fact–finding - endeavour in order to evaluate, adjust and improve the first step. This stage is a continuous spiral of steps, involving a circular process of planning, action and fact-finding. (Ibid)

It is clear that the conferences described here have not been introduced as action research processes. Each was introduced as a design conference intended to modify or confirm a theory. It is questionable whether the action research process can be applied to understand whether **Designing Design** can be verified as a theory, since such approach would typically be geared towards improving the character of the immediate setting - in this case, conference. Clearly, the author has gained substantial knowledge and experience from one conference to the next, attending the 2002 conference as a participant, and then serving as the chair of the 2010 and 2011 events.

With respect to the cases and interviews, we could assert that the first conference is not a conscious **Designing Design** event and discourse, because, in order to prevent a biased situation, it was not announced as such. Each conference can still be evaluated from an action research perspective, even though it was not setup and executed as an action research project. The first case was evaluated post-anthem, whereas the second and third cases were treated by the author as a **Designing Design** case. The first case, **Managing as Designing,** was a conference intended to produce knowledge within an existing field. The second and the third design cases, conferences in Milan and Barcelona, respectively, were intended to verify the **Designing Design** theory. Nevertheless, all cases are action research-driven, since the research is conducted through inquiry in social situations while executing a change intervention.

A.3.9 Theory in Action in the Frame of Grounded Theory

Within the research methodology employed in this work to test or modify the developed theory, grounded theory cannot be left out. Grounded theory gets very close to what has been called designing: *'We would all agree that in social research generating theory goes hand in hand with verifying it; but many sociologists have been diverted from this truism in their zeal to test either existing theories or a theory that they have barely started to generate'* (Glaser and Strauss 1967, p.2). Therefore, grounded theory methodology generates theory through verification, rather than justification. It is a systematic inquiry to construct theory. (Bryant 2010) Data collection and analysis is an on-going process; it is iterative and characterized by design qualities. Therefore, it is possible to call it designing (Ibid).

Since the **Designing Design** model is always involved in the construction of design, there is a similarity to grounded theory, which is nicely framed by some of the originators, including Strauss and Corbin (1948), who note:

'If someone wanted to know whether one drug is more effective than another, then a double blind clinical trial would be more appropriate than grounded theory study. However, if someone wanted to know what it was like to be a participant in a drug study [...], then he or she might sensibly engage in a grounded theory project or some other type of qualitative study' (p.40).

The same can be said of design, as there is no specific design entity (excluding design objects, which are not design). *'Grounded theories are guided by the assumption that people do, in fact, order and make sense of their environment, although their world may appear disordered or nonsensical to observes'* (Munhall 2001, p.214). Munhall describes the act of social construction of the artefact, of the terms, and of the concepts we are providing. Such a grounded theory methodology enables designers to conduct research. That is, it facilitates observing and generating connections between disparate entities. According to Martin and Turner (1986), *'[Grounded Theory] is an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data'* (p.141).

If the goal is to merge the designing aspect and the grounded theory, the process could begin by echoing Hannafin's (1997) words: *'theory-based approaches provide designers with powerful heuristics that guide design processes and procedures rather than provide explicit prescriptions'* (p.102).

This statement embodies what was accomplished in this research - developing a theory to understand the shaping of the understanding of the notion of design and applying this theory in order to reshape the understanding of design. The theory is developed within the instructional design context, since there are two similarities. First, instructional design as well as **Designing Design** - both design practices - have no outside entity that can be independently described. Second, theory merges into practice. *'It assists designers in synthesizing across, as well as recognizing important distinctions among, various theoretical perspectives'* (Ibid, p.102).

What seems to have validity for learning environments is equally valuable for design conception. And if Hannafin (1997) frames grounded design with four conditions, the same should be adequate within the current context: *'First, design must be based in a defensible theoretical framework'* (Ibid, p.103). In other words, theory must be public and identifiably different from others.

'Next, methods must be consistent with the outcomes of research conducted to test, validate, or extend the theories upon which they are based. The sources of grounded methods exist in instances, cases, and research in which strategies have been tested' (Ibid, p.103).

There should be a close link between empirically verified approaches and the theory. *'In addition, grounded designs are generalizable, that is, the methods can be applied more broadly than only to a specific setting or problem'.* (Ibid, p.103) Here, we can reflect on the conferences where we are able to generalize what we do. We could do that in other fields and in other professions as well. This is best summarized using Hannafin's (1997) words:

'Finally, grounded designs and their frameworks are validated iteratively through successive implementation. Methods are proven effective in ways that support the theoretical framework upon which they are based, and the framework itself is refined as implementation clarifies or extends the approach. The design processes and methods continuously inform, test, validate, or contradict the

theoretical framework and assumptions upon which they were based, and vice-versa' (p.103).

While the theoretical model is influencing the designs, the interviews are informing, testing, validating and contradicting the theoretical framework. It is an iterative and responsive context. Therefore, it is possible to say that design theory in action - **Designing Design** - is a grounded design process. This is true only if the four conditions are met, as Hannafin (1997) states: *'Clearly, not all design practice is grounded'* (p.103). Here, we can refer to the four conditions, which need to be fulfilled and recognized through the interviews.

A.4 Designing Design

Designing Design is not a new concept. There are at least several approaches, which have been mentioned and discussed in this thesis, and documents of these discussions can be found in extant publications as well as in practice. However, at present no theoretical framework exists, and a comprehensive theory - developed with designing design is at the core - is lacking. This research thus closes this gap and provides the necessary theory.

Looking at the history of redesigning design, we can find Cross referring to a '**Designing Design** Conference', which was held at De Montfort University 1998 (Roth 1999). Even earlier, Krippendorff pitched a similar term in an article entitled 'ReDesigning Design: An invitation to a Responsible Future'. (Krippendorff 1995a) Focusing on Design Discourse and its necessity, he claimed that, *'Even after nearly a century of its existence, industrial design still lacks a scholarship of its own. The inter-textualities that do emerge under these conditions further the discipline that creates them but provides little intellectual support for design'* (p.3). He also asserts and supports that the visual and non-verbal nature of design contributes to the situation. As a part of a discourse community's work, design has no clear boundaries. (Ibid) For Krippendorff, design needs to establish a discourse of its own, which is possible if design adopts a powerful axiom for industrial design. He proposes the following: *'No artefact can survive within a culture - be conceived, produced, distributed, used, maintained, etc. - without being meaningful to those who can move it through its defining process'* (Krippendorff 1995a, p.9). As a consequence, Krippendorff suggests that designers are concerned with the meanings artefacts can acquire by their users (Ibid, p.10). He proposes to develop a genuine second-order science for design (Ibid, p.11).

'This science for design will then encourage us to read our textual matter as a second-order phenomenon. Its vocabulary is invariably tied to an awareness of our own languaging. It takes for granted that Others ("the stakeholders") understanding is different from ours, and that incommensurate logics exist side-by-side. In practice, second-order understanding shows up in designing not functional objects that call for only one correct use, but the material affords a whole range of interface logics, a whole range of cognitive models that users

might apply. Moreover, such an understanding acknowledges that meanings are different in different social settings, in different cultures, and at different times. Second-order understanding gives designers the confidence of letting go of efforts to control "correct" uses and delegating some of the design activities to other stakeholders instead' (Ibid, p.14).

Krippendorff (1995a) believes that this second-order understanding is positioned closer to the humanities than to the natural sciences. He thus proposes that *'designers are responsible to each other for continually redesigning their discourse and in that process preserving, if not expanding, the possibilities it provides them'* (Ibid, p.14). He finishes his excursion on design discourse with the statement that *'(Re)Designing Design discourse challenges the habitual core of being designers'* (Ibid p.14).

In 1996, Jonas referenced Jones and Krippendorff, when writing about **Designing Design**:

You could systemically proceed to determine the most promising starting point. This would be a large empirical project. It would initially require research design (e.g., sociology of science), but would eventually probably still result in gains for design. I will instead initially adopt a ('semi-empirical') approach work out my approach further. Sensitivity analysis to identify points of intervention in problem areas is introduced as a method for design. It could, of course—as indicated—be applied to design self-referential in the sense of 'Designing Designing' (Jones 1978) or 'reDesigning Design' (KRIPPENDORFF 1994)' (Jonas 1996, p.7). (translated by the author).

('Man könnte systemisch fortfahren, um den aussichtsreichsten Ansatzpunkt zu bestimmen. Dies wäre ein großes empirisches Projekt. Es wäre zunächst (z.B. wissenschaftssoziologische) Forschung über Design, die aber schließlich vermutlich doch zu Gewinnen für Design führen würde. Ich werde stattdessen zunächst ('halbempirisch') meinen Ansatz weiter ausarbeiten. Sensitivitätsanalyse zur Identifikation von Interventionspunkten in Problemfelder wird als Methode für Design eingeführt. Sie könnte natürlich - wie angedeutet - selbstreferentiell auf Design angewendet werden im Sinne von 'Designing Designing' (Jones 1978) oder 'reDesigning Design' (KRIPPENDORFF 1994)' (Jonas 1996, p.7).)

Later, Jones puts **Designing Design** in the context of Universality and closes the gap between humanities and sciences and when he states that designing design is not focused on truth but on universality. This approaches strives to close the gap between the two cultures, humanities and the sciences (Jones 1984a).

Giaccardi (2005), with her concept of meta-design, moves in a similar direction:

'Designing Design, or Design by Anticipation (Meta as "Behind") - This plane of design promotes the malleability and modifiability of computational structures and processes, rather than producing fixed objects and contents. It entails anticipatory methods and techniques for the design of the design process (such as, in our framework, under-design). At this level, metadesigners play an important role in setting the conditions that will allow users to become designers in turn by anticipating both their needs and the potential changes that will occur at use time. The possibility of modifying the system that is provided at this level by metadesigners will allow the users to respond to the mismatch between what can be foreseen at design time and what emerges at use time. This possibility will provoke a creative and unplanned "opportunism" [Wood, 2000], building on situated processes and emergent conditions' (p.5).

The work presented in this thesis represents the first attempt to draw theory upon theories, a meta-theory. In that respect, it is a meta-design, and is contained within a meta-design (Giaccardi 2005) sphere, as we are **Designing Design** itself. The question guiding the thesis is the culmination of theory as a practice. Theory, as it is understood here, is a designing, reframing and redrawing the lines of what design means, intends, and comprehends. It is defining the accompanying technology in a sense of revealing (Heidegger 1977). Meta-theory is intended to be seen as a set of interlocking rules and principles that describe and prescribe what is acceptable and unacceptable as theory.

Theory development - that is, making design theory more comprehensive - is **Designing Design**, wherein theory and practice merge into one entity. Theory and practice are indistinguishable and can together shape something (e.g., an artefact or object) that ought to be. At this meta-theory level, design discourse and discourse design are one and the same.

Thus, one could say that **Designing Design** is a new, reframed 'conscious' design discourse - an integrated discourse, an intended discourse - in which designers are creating future models for design using science of design, design science,

and science for design. All these serve to enhance design discourse and create common language and meaning for the various communities involved in the design process and discourse.

It is an integrated discourse that draws upon all available conveyance matter to project and evaluate solutions. Of course, the discourse encapsulates the question of discourse media (textual matter) as well.

This reasoning rests on the manipulation of non-verbal codes in the material culture; these codes translate messages between concrete objects and abstract requirements, allowing us to say that design is turning documents into monuments.

Designing Design is also a meta-discourse, which can be used when describing one's own design thinking. Meta-discourse in design is **Designing Design** through the use of various conveyance matter (textual matter) to generate models and theories, thereby, extending and reframing the understanding of design and the design activity itself.

Theory development, in this case, is an action that shapes something that ought to be. Glanville (1999) describes such a process of designing:

'We use these understandings (devices)-simplification and pattern-finding to develop our understandings, especially how we understand these understandings (the understanding of understanding). Thus, our understandings help us develop our understandings, but also restrict them. When we find contradictions, we either modify or reject these understandings and start again: from the original, where necessary; i.e., we return to our initial simplifications. This circular process is, I argue, a design process: of continuous modification and unification, the inclusion of more and more in a coherent whole; occasional re-start, extension, and revolution; the increase in range and of simplification' (p.87).

Clearly, Glanville's description supports the view of design as a circular research process - the simplification and pattern finding to develop our understanding. In that sense, **Designing Design** is also a research process - an understanding of understandings, a discursive patterning of statements - and is therefore also a design process.

When people are **Designing Design**, they construct theory, or use existing theories to generate preferred ones. In such situations, one could speak about the

designing of theory, whereby design and science merge into designing science (Faust 2009).

Creating design theory then becomes a matter of argument, and part of a broader debate about social theory in general. (Margolin 1989) Margolin speaks about discourse, and design discourse (Ibid). Krippendorff (2006) also sees the change as a semantic turn, where artefacts (designed artefacts) become increasingly embedded in language as mentioned before *'The semantic turn is a seed for design to redesign itself by means of its own discourse'* (p.12).

Designing Theory would then encompass both the rhetoric of interpretation, and the judgment and evaluation of existing theories, while extending beyond that, into the rhetoric of design and the rhetoric of deliberation.

Design is discourse similar to the scientific discourse, as indicated in Foucault's analysis of a painting explored in *Archeology of Knowledge* (Foucault 1972).

Design has its history and its context. While it implicitly underlies a discourse, it also does that in a way of changing existing situations into preferred ones, even in preferred theories of design. Framing design in a new way gives new possibilities and new responsibilities, and by recognizing that we can say that design can be extended, it rephrases the understanding of change at a different level - in a way of seeing design and a way of speaking about design.

Designing as a Discursive Method

Starting with Foucault (2007) and reading through his order of discourse, a method of analysis can be identified, enabling various social aspects to be approached. For instance, the presented design cases can be subjected to a discursive analysis. Still, there are some doubts that this can be achieved, as no strictly Foucauldian method of analysing discourse presently exists. According to Hook (2001), *'The various methodological injunctions prioritized by Foucault can be better accommodated within the ambit of critical genealogical work than they can within any form of discursive analysis…'* (p.36). He further adds*, '…one of the broader conclusions that can be drawn from the proceeding examination is that Foucault's conception of discourse is situated far more closely to knowledge, materiality and power than it is to language*' (Ibid).

Hook summarizes his analysis noting the following priorities: '*Foucault's conceptualization of discourse indispensably requires the role of historical contextualization; discourse analysis only finds its real usefulness within the agenda of a 'history of systems of thought'* (Ibid).

This suggests that, in the research here, the analysis of the design discourse would be useful only if it is applied to a history of systems of thought. However, it is difficult to apply Hook's claim as requisite because, within this research, the development focuses on a system of thought, rather than attempting to assess its history. Hook argues even further that discourse analysis is not the right approach, stating that, *'…a study of discourse must necessarily entail a focus on discourse-as-knowledge'* (Ibid).

'Thirdly, without reference to materiality, … discourse analysis remains largely condemned to "the markings of a textuality", a play of semantics, a decontextualized set of hermeneutic interpretations that can all too easily be dismissed' (Hook 2001, p.38).

Hook finalizes his thought with his notion: '*As way of uniting the above three conditions of discourse in one over*-riding methodological imper*ative, one could suggest that the analysis of discourse, according to a Foucauldian perspective, cannot remain simply within the text, but needs to move, in Said's (1983) formulation, both in and out of the text'* (Ibid).

'In and out of the text' can be interpreted to suggest that the discourse cannot be fully grasped focusing on other aspects, because designers are practitioners - they practice. It is in this spirit that Jarzabkowski asserts that knowledge resides in both discursive and practical consciousness, which are discussed in the cognition literature sources as declarative or 'fact-based' memory, and procedural or 'skill-based' memory (Cohen and Bacdayan 1994; Moorman and Miner 1998, Jarzabkowski 2002).

Discursive consciousness implies existence of a conscious state, which appears within a discursive setting, as well as in practical settings. A designer is a practitioner and a reflective designer; he/she thus reflects in action, simultaneously relying on both discursive and practical consciousness.

Essentially, actors have knowledge that they can articulate and skill-based, practical, knowledge that they express through doing (Ibid).

Writing about discourse, writing and talking about **Designing Design** - about situations which might indicate a **Designing Design** act is a practice - is a skill-based activity, as it includes the skill of writing. Moreover, through the process of writing, it is possible to express the author's knowledge, which can then be shared, since it is presented as text. It can also be presented in social environment as a strategic act to **design design**.

According to Jarzabkowski (2002), *'…it is knowing in action, created and shared through social activity'*. (p.15) *'A strategic practitioner is thus engaged in knowing, some of it explicit, discursive or declarative, and some of it tacit, practical or procedural, but all of it occurring through the social medium of practice'* (Ibid).

One could say that this process requires a strategic practitioner whose intent is to **design design**. That is the confirmation of the coherence between epistemology and design, as it is clear how the knowledge is obtained- through design.

Guba and Lincoln (1989) suggest that the rationale for any particular method of research is always based on a corresponding 'epistemology' or theory about how knowledge is obtained.

'…Discursive theories of knowledge maintain that the "reality" perceived by any individual (including both the scientist and the subjects' involved in a study) is produced by an interaction between their expectation and activities and the constraints and possibilities of the physical, socio-historical and linguistic context' (Yardley 1997, p.26).

Design is discourse, as the author has asserted, and **Designing Design** is theory design - modelling design through discourse - produced by the individual involved in the discourse, as well as through the interaction between expectation and activities and the constraints of expressing it within text, language and context.

Designing Design in Practice

As the results of the conferences show, **designing design** is a practice, a discursive designing practice and can also be accomplished within a setting of participatory designing. Such settings show that such a design activity extends beyond the work of a designer. It is a social process of design and play, where

the boundaries between designer and user become blurry (Luck 2003). The conferences, as well as the thematic frame, show that the inclusion of users will increase the moral premise of design (Holmlid 2009), which is also how design process works in reality, as indicated by all three conferences. The generation of statements, discussions, drawings and documents is a co-designing act, where users themselves become designers.

The discourse initiated at the conferences is not completely accessible, which limits its analytical potential. The conferences, and the way they had been organized and structured, constitutes a way of acting - an academic conversation, an order of discourse. (Fairclough 2000) Whether discourse analysis is the right frame to evaluate these conferences is questionable since *'…there exists no strictly Foucauldian method of analyzing discourse'* (Hook 2001, p.36). Therefore, analysing and designing keeps the tensions present, making the power within these events obvious. The question of power is a question of discourse and, if design is discourse - as it is presented in the conferences - then design in a social setting is a question of power as well. From another viewpoint, the violence within these events, and within the discourse, is the power needed to shape and redesign design.

The conferences, and in particular their design, should be understood as action research as well, because the inquiry, the participation was educative and empowering. Knowledge gained through the participative reflection was an important part of the result (Waterman et al. 2001). The statements generated in the various conferences were subsequently put into text to distribute them through publications. Therefore, the action research cycle of planning, action and fact-finding is fully applicable in this case (Lewin 1946).

However, such designing process, such a participatory designing, as it is obvious in these conferences, can be also framed from a grounded theory perspective. Grounded theory methodology generates theory through verification, rather than justification (Bryant 2010). Such a design practice, as it was constituted in these conferences, has no outside entity that can be independently described. As, in this case theory merges into practice, such designing can be seen and framed as a grounded design as well (Hanafin 1997).

A.5 Designing Theory as Designing Design

Design is a construct - since design is not a material entity - is a culture, a 'kind of seeing' (Schoen and Wiggins 1992). Within the research process, it has become clear that there is no single way of **Designing Design** or re-**Designing Design**.

In his book, Krippendorff (2006) devotes one short chapter to discourses that are not merely spoken and written. Theory artefacts vary, and they range from abstract theory through, for example, medical practices, to concrete material arrangements. Discourse communities can have different sizes, which may change over time, and they can disappear as well. They can be more or less structured, and sometimes institutions are empowered to take care and control discourse. Discourse also responds to other discourses and defines or redefines borders, which are nonetheless permeable. Weaker discourses invite colonization by others. Thus, the main objective of a discourse is to remain viable, relying on other discourses and new members to bring life to it. (Ibid)

Designing Design can be considered in a range of discourses, and be executed in a range of discourse communities. One way to ensure this is to design theory in order to design, because it extends into knowledge. Theory can be designed in a mimetic fashion, acting and knowing tacitly.

Designing Design through externalization can be accomplished within an individual process or by a group.

An important initial clarification pertains to whether this meta-theory is a theory of design or a design theory. A theory of design would be a scientific theory, developed in order to create a model of design analogue to Cross's (2001), Krippendorff's (2006) or Simon's (1999) definition. A theory of design, as a science of design, *'…is the systematic study of design, the study of principles, practices, and procedures of design'*. (Cross 2001, p.52) '*So let me suggest here, that the science of design refers to that body of work which attempts to improve our understanding of design through "scientific" (i.e., systematic, reliable) methods of investigation'* (Ibid).

Understood in this way, design would be the systematic investigation, methodological study of designing theory in order to design design. The method

indicated as in A.2 is discourse - theory discourse needed in order to design a theory. It is a comprehensive theory that allows us to design design. This does not mean that there is only one way in which design theory can be designed, as indicated before. The method used here is designing theory through theory, since it is mainly based on the excavation of existing theories and models, through the excavation of text, dealing with externalized knowledge, namely lexical knowledge. Therefore, design research can be seen as a research into design as practice, since design knowledge and design research overlap (Friedman 2002).

The alternative way to **Designing Design** is described under the A.3, since it uses a discourse community and discourse events, such as various conferences and semi-structured interviews, to testify and verify, or even redesign the core thesis statements.

Designing theory is a discursive practice (Hart 2006). On this very special occasion, it is an opportunity to practice design and it also allows for potentially generating a model that others can use to reflect upon in the practice of designing theory.

Here, in this study, it is labelled as an integrated discourse, which draws upon all possible discourse (e.g., textual matter) or conveyance matter, to project and evaluate solutions. It is also a discourse, where theory and practice merge into one theorizing practice. This includes various discourse media outside of written text, such as verbal exchanges, acting, gestures, and images. It can include conversations and other matter that conveys discourse. Therefore, the term 'integrated' is appropriate.

The core premise of the theory stated here is that **design is discourse**. In order to change existing situations into preferred ones, designers and theory designers use discursive practices. Metaphorically speaking, this requires using various theoretical statements to draw new lines and borders with which to construct and comprehend new models that will frame and reframe design, as an entity. *'Just as architects use drawings as a rhetoric of a persuasive discourse we employ statements'* (Robbins 1997, p.41-42).

It is a meta-discourse, since it constructs and describes a meta-theory within discursive practice. This means nothing more than that it is a theory of design

theory designing, which creates meta-knowledge about designing. **It is a philosophy of design**.

Love (2000) proposed the following taxonomy of design epistemology, which allows us to understand what was done within this thesis:

1. Direct perception of realities - This is the level at which we 'sit on chairs', 'watch sunsets', 'hear the sound of a bird' ... - 'The woodworker feels the movement of the hammer as the nail is driven.

2. Description of Objects - The level that encompasses simple descriptions of objects, processes and systems. - 'a vacuum cleaner', 'a car body', 'a groyne', 'a typeface', 'a database'… 'The woodworker uses a 'claw hammer' rather than a 'chisel'.'

3. Behaviour of Elements - The level at which the behaviour of elements which may be incorporated into objects, processes and systems is described. For example, 'a camshaft rotates at 600 rads/sec', 'headline type needs to be set closer than body text', 'the lower windows need to offset the visual weight of the portico', 'the melody returns to the tonic'. 'The hammer is made up of two parts; a head and a handle… 'The correct angle between the handle and the face of the hammer head is necessary for nails to be hammered in straight.'

4. Mechanisms of Choice - The level of descriptions about the way that choices are made between different objects, processes, or systems, and how solutions are evaluated. For example, 'Why does a woodworker choose a claw hammer rather than a sledge hammer for hammering a small nail?'

5. Design Methods - The level in which theories about and proposals for design methods and techniques are described. - The theories about designing wood artefacts. 'How does one design a chair?'

6. Design Process Structure - The level that includes the theories about the underlying structure of design process, and the influences of domain, culture, artefact type and other similar attributes and circumstances. For example, 'What are the processes underlying the design of Polynesian catamarans?'

7. Theories about the Internal Processes of Designers and Collaboration - This level includes the descriptions of theories about the reasoning and cognition of individual designers, of negotiated design in collaborative design teams, and of cultural design effects on designers' output. For example, 'How did Mackintosh

design furniture?' 'What communication is necessary between the different designers of timber framed housing?'

8. General Design Theories - This is the level that is concerned with the details of those general theories, which seek to describe the whole activity of designing and its relationship to the objects involved. For example, 'The activity of designing a boat, or a turbine, or a comic strip can be described as follows....'

9. Epistemology of Design Theory and the Theories of Objects - This is the level that contains those analyses and discussions about the critical study of the nature, grounds, limits and criteria or validity of design knowledge. - 'What is a theory of design?', 'What does it include and exclude?', 'On what assumptions is this theory based?'

10. Ontology of Design - The philosophical study of the ontological basis for design theory and the activity of designing. It is at this level where human values, and the values and fundamental assumptions of researchers, are included in critiques of theory. For example, 'Which human values and assumptions effect the design of new legislation for narcotics?', 'Are the methods of evaluation used to choose between different design alternatives consistent with the ethical proscriptions of the relevant professional bodies?', 'What is reality?', 'What is existence?' (Ibid, p.306)

Within this proposed meta-theoretical structure of design theory (Love 2000), the theory that 'design is discourse' is a theory of designing theory as well as the activity of designing a theory. While it includes an epistemological aspect, it is also a general design theory, since it describes the entire scope of the activity of designing and its relationship to its objects involved.

From a theoretical design perspective in Information Systems, Gregor and Jones (2007) have proposed to differentiate between (1) theory for analysing, (2) theory for explaining, (3) theory for predicting, (4) theory for explaining and predicting, and (5) theory for design and action.

Looking at Krippendorff's (2006) design theory, such a discursive practice by an individual seems not to be considered, since he sees potential for discourse practice in communities:

'A discourse surfaces in a body of textual matter, in the artefacts it constructs and leaves behind' (p. 23).

Here, Krippendorff goes beyond the definition provided in a dictionary, as his definition includes all kinds of artefacts, and the objects that a discourse constructs:

'- A discourse is kept alive within a community of its practitioners.

- A discourse institutes its recurrent practices.

- A discourse draws its own boundary

- A discourse justifies its identities to outsiders' (Krippendorff 2006, p.23).

Within this context, designing discourse would not be possible without a community of practitioners. However, later, Krippendorff adds: *'Successful discourses manage to justify themselves in their (a) construction of reality (truths), (b) virtues (values), and (C) competencies (expertise)'* (Ibid).

This distinction could be challenged, since theory design based on theory is not possible only through a community of practitioners that have created/designed theory.

If we translate Krippendorff's five features into a designing theory, the following statements emerge:

- Within the body of text, the discursive character needs to be obvious and recognizable

- The discourse or designing needs to be kept throughout the documents created

- The discourse or designing institutes its designing practice

- The discourse or designing draws its boundaries

- The discourse or designing identifies itself to outsiders

In comparison to Biggs's (2002) interpretation of the AHRB model of practice-based research, it defines a series of research questions that will be addressed. It identifies problems that will be explored in the course of the research, and its objectives in terms of answering those questions. For this process to be successful, the research method must be applied systematically and be in the context of the research questions. Moreover, all identified problems must be explored. Further, it is an explicit necessity to identify the audience (Ibid).

A theory designed through discursive practice deals with a defined problem or problems. Thus, it is marked by the absence of a comprehensive theory of design, contextualized through design theory and design methodology. Theory must have an explicit methodology - in this case, a discourse method - the discursive method of designing theory.

Such a theory is a monument, whereby its design has turned some documents into this monument.

It theory is also a meta-discourse, in the sense that it is a motivated way of collecting under one heading the range of devices used to explicitly organize the related matter. This discourse comprises of texts, which help engage readers, and signal the authors' attitudes to both their material and their audience (Hyland 2004).

Meta-discourse is thus an aspect of language that provides a link between text and disciplinary cultures, helping to define the rhetorical context by revealing some of the expectations and understandings of the audience for whom a text was intended (Ibid).

Williams (1977) calls meta-discourse 'writing about writing,' or discourse about discourse. However, as indicated by both Williams (1977) and Hyland (2004), meta-discourse is mainly seen as an issue occupied by writing about writing. The term 'meta-discourse' refers to discourse; its designing is a discursive creation of design theory, insofar as the interpretation and use of the term differs within the various discourses.

Summary:

Designing design can be accomplished in various ways, in a range of discourses, executed through a range of discourse communities. While it is explored in this study through designing theory, it could have also been approached in a mimetic fashion, in acting and knowing tacitly. **Designing Design** can be achieved through externalization within a group process, while it can also be an individual process. The question is then whether **designing design** affects a common understanding. In other words, the issue is whether the two ways presented here can achieve the same outcome. First pertains to the excavation of existing theories and models, through the excavation of text, dealing with externalized, lexical knowledge, and putting it in proximity - i.e., generating theory upon theory. The second is research into design as a practice, where

design knowledge and design research overlap (Friedman 2002). This approach was described under the A.3, where it relies on a discourse community and discourse events. Designing theory is a discursive practice (Hart 2006). It is a discourse where theory and practice merge into one theorizing practice, just as architects use '*drawings as a rhetoric of a persuasive discourse we employ statements'* (Robbins 1997, p.41-42). It is a meta-discourse, **a philosophy of design**. Within Love's (2000) taxonomy of design epistemology, this thesis is a theory of designing theory, and thus includes an epistemological aspect. Nonetheless, it is also a general design theory, since it describes the full extent of the activity of designing and its relationship to its objects involved (Love 2000).

From a theoretical design perspective in Information Systems, Gregor and Jones (2007) have proposed to differentiate between (1) theory for analysing, (2) theory for explaining, (3) theory for predicting, (4) theory for explaining and predicting, and (5) theory for design and action.

In Krippendorff's (2006) context, such a designing theory has the following conditions:

- Within the body of text, the discursive character needs to be obvious and recognizable

- The discourse or designing needs to be kept throughout the documents created

- The discourse or designing institutes its designing practice

- The discourse or designing draws its boundaries

- The discourse or designing identifies itself to outsiders.

Finally **designing design** is also a meta-discourse, since it provides a link between text and disciplinary cultures. (Hyland 2004) It is 'writing about writing,' or discourse about discourse. (Williams 1977)

A.6 Design as Basic Human and Conscious Activity

Design as a discursive practice, which results in changing existing situations into preferred ones, does not need to be framed as design and it does not need to be executed only be designers. For instance, according to Rittel (1988):

'Everybody designs sometimes; nobody designs always. Design is not the monopoly of those who call themselves "designers". From downtown development scheme to an electronic circuit; from tax law to a marketing strategy, from a plan for one's career to a shopping list for next Sunday's dinner, all of these are products of the activity called design' (p.1).

Each iterative process that changes existing situations can be called design. We tend to call designers those people who studied design or design-related subjects, or those who have labelled themselves as designers. Design is not an exclusive profession, since many professions are based on iterations and changes of existing situations.

Shannon (2003) is one of many authors who question whether any profession has exclusive ownership of 'design'.

For instance, if design is applied in problem-solving, we cannot make the statement that only designers solve problems, since all of us, in every profession, solve problems on a daily basis without calling ourselves designers. According to Schoen (1983), a competent design practitioner is dependent on tacit recognitions, judgments and skilful performances.

Schoen calls this empathy knowing in practice, and claims that it interacts with the iterative approach of reflection in action (ibid).

This reflection guarantees explicit knowledge for designers, who - distinct from non-designers - have learned to step back for a second in order to reflective look upon the design process. '*The process of evaluating a product once it been produced [and therefore design] generates knowledge, whose accumulation results in experience proper of design's daily activities'* (Narvaez 2000, p.49).

What else would allow us to make a distinction between a designer and non-designer? According to Beadouin-Lafon (2003), the following statements may be helpful:

'*Designers are responsible for creating a design space specific to a particular design problem. They explore this design space, expanding and contracting it as they add and eliminate ideas. The process is iterative: more cyclic than reductionist. That is, the designer does not begin with a rough idea and successively add more precise details until the final solution is reached. Instead, she begins with a design problem, which imposes a set of constraints, and generates a set of ideas to form the initial design space. She then explores this design space, preferably with the user, and selects a particular design direction to pursue. This closes off part of the design space, but opens up new dimensions that can be explored. The designer generates additional ideas along these dimensions, explores the expanded design space, and then makes new design choices'* (p.1011).

However, if design focuses on problem-solving, creating a design space would be creating a problem space, and problem spaces are not left exclusive to designers. Therefore, this argument does not provide a clear distinction between designers and non-designers. Design seems to be a basic human activity with a possibility that the designer shapes the design situation through concurrent evaluation and experimentation based on the intuitive knowing implicit in the action (Schoen 1983). Further, '*it can be said that the designers (…) are more adept with ambiguity and at leaving aspects unresolved as well as more willing to quickly put ideas to the test by enacting scenarios, often early in the process'* (Wakkary 2005, p.14).

In Wakkery's eyes, design requires training, and therefore, is beyond basic human activity. This is true, even if an individual has the ability to apply intuitive knowledge to the action and can work with ambiguity and unresolved aspects. Finally, for design to be successful, testing often, especially early in the process, is necessary.

In his research, Wakkary (2005) stated: *'…close to half of non-designers can be mapped to 'designer' profiles in analyzing design'*. (p.14) He describes his findings with an observation that draws comparisons with Schoen's (1983) knowledge in practice. He notes that non-designers rely on learning and deciding while they actually create or do something. *'We found that non-designers engage in a reflective practice approach to design demonstrating a strong level of knowing-in-action that serves as a substantial base of design skills'* (Wakkary 2005, p.1).

That would leave only the explicit knowledge to the designer. *'An everyday designer has no formal design training yet through interaction with existing designs modifies or creatively extends designs into new uses'* (Ibid).

A non-designer cannot rely upon a great experience pool, but offers openness and interest for new things and therefore knows in action (Wakkary 2005). Motivation can be seen as the driving force for an everyday person to design. Any thoughtful action that produces an outcome can be considered design, despite the lack of design framework or explicit design knowledge. In that respect, if knowing is the central element of designing, design somehow has its own knowledge, even on a basic level, when an individual can state, 'I am designing.' This knowledge can be seen as a result of reflecting and experiencing, irrespective of whether the person is a professional designer or a non-designer. Design's own knowledge can be called reflexive experience, in line with the view offered by Narvaez (2000): '*Design retrieves while creating, acts while it reflects'* (p.45). Consequently, non-designers would be equipped with limited language to describe their doing - i.e., the words and language developed in reflecting action would be less meaningful, or they would simply have limited capacity to talk about their work.

This supports the difference made in Krippendorff's (2006) statement about the importance of language: *'In this course of trajectory, artefacts become increasingly embedded in language'* (p.12). He summarizes: '*…the causal model of a universe - a single version of what is - are replaced by linguistic models of how multi-verses come to be and are maintained*' (Ibid). Taking this statement for granted, it would mean that the responsibility of professional designers is not to be able to design what an average person would not be able to design; rather it is the potential to redesign the design profession using language to construct multi verses, new entities, brands, worlds, etc.

Summary:

Chapters A.5 to A.6 provide contextualization of the developed design theory in order to frame and test its substance. Within Chapter A.5, the issue of being able to differentiate a designing act between designers and non-designers had been explored, while there is no question that non-designers are designing as well, since design is a basic human activity. As Rittel (1988) stated: *'Everybody designs sometimes; nobody designs always. Design is not the monopoly of those who call themselves "designers"'* (p.1). While applying knowledge in practice and learning in practice belongs to both, the domain of explicit knowledge differentiates between the two, as it belongs to a professional only. Non-designers are equipped with limited language to describe their work; words and language developed in reflecting action may not be sufficient, or they would have less to talk about. That is especially important, if we are to take Krippendorff's (2006) statement, artefacts become increasingly embedded in language for granted..

A.7 Design Thinking and Designing Design

As stated before, **designing design** is based on design thinking - designing on a conceptual level. Therefore, this concept of design practice needs to be discussed. Although difficult to define, it is not only an important aspect of the current business world and fashion industry. Hence, it is worthwhile to explore.

Identifying who first introduced the concept of design thinking is difficult. However, it is believed that it was first mentioned in the 20th century and, according to Simon (1996):

'A thinking human being is an adaptive system; men's goal define the interface between their inner and outer environments, including in the latter their memory stores, to the extent that they are effectively adaptive, their behaviour will reflect characteristics largely of the outer environment and will reveal only a few limiting properties of the inner environment - of the physiological machinery that enables a person to think' (p.53).

Moreover, '*The intellectual activities that produce material artefacts are no different fundamentally from the one that prescribes remedies for a social welfare policy for a state. Design, so construed, is the core of all professional training; it is the principal mark that distinguishes the professions from the sciences'* (Ibid, p.111).

Therefore, Simon can be considered one of the initiators of design thinking. The main message he conveys is that the human system is adaptive, despite a few limitations stemming from the inner environment. On the other hand, designing is a general ability that serves as the core of all professional disciplines, and is thus useful in other fields.

In 1992, Buchanan referred to Dewey, stating, '*We mistakenly identify technology with one particular type of product – hardware - that may result from experimental thinking, but overlook the art that lies behind and provides the basis for creating other types of products'* (Buchanan 1992, p.8). From this perspective, it is easy to understand why the meaning of design and design thinking continues to expand and why the connections between these concepts and contemporary culture are beginning to emerge. *'There is no area of*

contemporary life where design - the plan, project, or working hypothesis, which constitutes the 'intention' in intentional operations - is not a significant human activity, thus it plays an important role in shaping human experiences' (Ibid, p.8).

Buchanan further notes, *'The challenge is to get a deeper understanding of design thinking so that more cooperation and mutual benefit is possible between those who apply design thinking to remarkable different problems and subjects matters'* (Ibid, p.8). Whether this challenge has already been met is quite a difficult question to answer; however, there has been extensive research on this topic in recent years. Moreover, there has been much hybridization and variations of the concept of design thinking since then. For instance, Faste (1994) introduced a concept he referred to as 'Ambidextrous Thinking'. He explains that *'Combining "Ambidextrous" with "Thinking" creates at least two intended images. "Ambidextrous" means the ability to use both hands, so the first image implies the use of the hands, and by extension, use of the whole body, in creative thinking'* (Ibid, p.1). In this statement, Faste is referring to Piaget and the three stages of human development - a body-centred stage, a visual stage and a symbolic stage - with the last stage beginning at age eleven or twelve. He further notes, *'When problem solving becomes blocked at the symbolic level, humans must revert to the right-brained abilities associated with these previous stages'* (Ibid). Here, he makes reference to the visual level. For that reason, he developed a course based on visual thinking and gave it a title 'Ambidextrous Thinking'. The name was chosen because it alludes to more than visual thinking, including solving problems using all of an individual's talents and resources (Faste 1994).

In the past twenty years, design thinking has grown in popularity, in particular amongst design consulting firms. IDEO's David Kelley was one of the leading public voices, who noted, '*We moved from thinking of ourselves as designers to thinking of ourselves as design thinkers. We have a methodology that enables us to come up with a solution that nobody has before'* (Tischler 2009, p.1).

The IDEO team had a desire to popularize the concept of design thinking, as evident in this statement:

'*Edison's approach was an early example of what is now called "design thinking" - a methodology that imbues the full spectrum of innovation activities with a human-centered design ethos. By this I mean that innovation is powered by a*

thorough understanding, through direct observation, of what people want and need in their lives and what they like or dislike about the way particular products are made, packaged, marketed, sold, and supported.' (Brown 2008, p.1)

'Put simply, it is a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity' (Brown 2008, p.2). While Brown does try to explain what design thinking is, he never produces a useful definition that connects design thinking with the design process and the three spaces involved - inspiration, ideation and implementation. Instead, he describes the profile of a design thinker with the characteristics of empathy, integrative thinking, optimism, experimentalism and collaboration (Ibid).

Cross (2008), as one of the initial design theorists focusing on design thinking, is someone who sees some problems with the kind of loose definitions published on this issue. In his view, *'… design thinking' has now also become such a common-place concept that it is in danger of losing its meaning. The new consensus seems to be that design thinking encompasses many forms of thinking and intelligence*' (Ibid, p.99).

Cross argues that the source for such a meaningless phrase potentially lies in the work generated by Simon, cited earlier. He notes, *'What Simon tried to communicate …is largely a reflection of the complexity of the environment (or design situation) in which it finds itself, whilst the underlying cognitive processes that control the behaviour may be relatively simple. So in this view, understanding designing is more about understanding design problems than about understanding design thinking'* (Ibid, p.99-100).

Cross sees problems in Schoen's approach as well, arguing that Schoen was seeking a new 'epistemology of practice' that would help explain and account for how competent practitioners actually engage with their practice. Schoen refers to this process as a 'kind of knowing', which, as Cross puts it, is different from the knowledge found in textbooks. In his analysis of the case studies that provided the foundations for his theory, he began with the assumption that:

'*Competent practitioners usually know more than they can say. They exhibit a kind of knowing-in-practice, most of which is tacit. He identified a cognitive process of reflection-in-action as the intelligence that guides "intuitive"*

behaviour in practical contexts of thinking-and-acting—something like "thinking on your feet". At the heart of reflection-in-action is the "frame experiment" in which the practitioner frames, or poses a way of seeing the problematic situation at hand.' (Ibid, p.99-100)

Reflecting on his own earlier writing and criticizing the way he framed design thinking in his earlier research, Cross further states:

'I summarized design thinking as comprising abilities of resolving ill-defined problems, adopting solution-focused cognitive strategies, employing abductive or appositional thinking and using non-verbal modelling media. I identified these abilities as highly developed in skilled designers, but also suggested that they are possessed in some degree by everyone' (Ibid, p.100).

Cross also sees design thinking as a form of intelligence, which helps to identify and clarify the nature of design thinking, and offers a framework for understanding and developing design ability through design education. In his words:

'*Design ability is something that everyone has, to some extent, because it is embedded in our brains as a natural cognitive function. Like other forms of intelligence and ability it may be possessed, or may be manifested in performance, at higher levels by some people than by others. And like other forms of intelligence and ability, design intelligence is not simply a given "talent" or "gift", but can be trained and developed'* (Ibid, p.103).

However, there are other strategies that can be useful in an attempt to clarify design thinking. In reference to creativity and design process, in extensive studies on human brain activity, researchers have identified specific areas of the right hemisphere of the brain as being active during design thinking. Cross summarizes several studies:

'The two hemispheres of the brain, right and left, appear to have different cognitive specialisms. Neuroscience studies tend to confirm that the right hemisphere of the brain is more specialized in spatial and constructional tasks, in aesthetic perception and emotions. The left hemisphere is more specialized in language abilities and verbal reasoning. Damage to the left hemisphere often results in the loss of some speech functions, whereas damage to the right hemisphere, as we have seen, can result, amongst other things, in the loss of design ability' (Ibid, p.102).

More recently, Terrey (2008) researched what characterized non-designers who accomplish design tasks, and identified several key attributes required for design success:

1. Strong visualization skills

2. Ability to work with complexity

3. Ability to think strategically from a user perspective to change

4. Ability to engage and drive collaborative dialogue

5. Ability to problem solve through inquiry

6. Ability to prototype changed experience

Comparing these attributes to those of successful designers, she is not surprised to find differences in visualization potential of non-designers and designers. Nonetheless, she finds many similarities between designers and non-designers who successfully execute design work. For example, the ability to work with complex problems, prototyping, and collaboration are equally present in both groups. Therefore, the question is how non-designers acquired the skills necessary to practice design thinking (Terrey 2008).

Earlier, Stempfle and Badtke-Schaub (2002) criticized existing design thinking explications with the following connotation:

'Three important strains can easily be identified. We will label these strains the normative strain, the empirical strain and the design-as-an-art-strain. The normative strain is dominated by design methodologists. …This body of work derives from a rational analysis of design tasks and their requirements and thus has culminated in widely-known guiding principles for designers within standard educational textbooks.

Research conducted in the empirical strain, however, has revealed that designers, in practice, rarely follow the methodology prescribed by normative theories. In fact, empirical studies raise the question of whether designers follow any methodology at all. Criticism against design methodology has emerged from empirical studies in design, depicting design methodology as a rigid prescription that does not work…

…and constraints designers need to cope with in their daily work, such as economic constraints, time pressure and teamwork' (Ibid, p.474).

Stempfle and Badtke-Schaub conducted a study to further examine this concept, subsequently proposing a two-process-theory of thinking in design. Process 1 is characterized by an immediate evaluation of solution ideas, whereas Process 2 includes the analysis of proposed solution ideas. Process 1 results in considerable savings in time and cognitive effort spent on a problem. On the other hand, with increasing complexity of the design problems, it is likely to produce errors. Process 2 will yield qualitative solutions to complex problems, albeit after investing greater time and effort. Thus, it has been argued that design teams will naturally tend to employ Process 1. However, given certain conditions, a transition to Process 2 is possible (Stempfle and Badtke-Schaub 2002).

In contrast to many others, Love (2009) primarily focuses on the limitations of human functioning, and thus the limitations of designers working on complex systems design. He claims that design professionals in Art and Design fields are not aware of such biologically-imposed limitations of human thinking, intuition and feeling in design education, practice, solution-discovery, methods and theory-generation. He argues:

'In contrast, the field of complex systems design (particularly sub-field that focuses on complex socio-technical systems design) has committed extensive effort into understanding the design implications of these human limitations and developing specific design methods to address them. Awareness over time of the high level of failures of complex systems design failures has led the complex systems design fields to identify, and develop design methods to address, the limitations of human cognitive and emotional functioning in designing in the realm of complex situations' (Ibid 2009, p.1).

Thus, as a solution to shortcomings in design education, Love posits a necessary transition toward a more sophisticated understanding of complex systems design and prediction of the behaviours of design outcomes in complex design solution spaces. That will also include multiple feedback loops established through the use of complex mathematical tools to address counter-intuitive behaviours relating to usability, emotions, user participation, interactions with other design objects, platform designs, design strategy, and design thinking (Love 2009).

In a recent collection of essays, edited by Lockwood (2010), several authors (including Lockwood himself) addressed design thinking from various

perspectives - including methods, value generation, service design and customer experiences. The result was a collection of design examples and their industrial applications. In his introduction, Lockwood states that design thinking is essentially a human-centred innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping, and concurrent business analysis, which ultimately influences innovation and business strategy (Lockwood 2010). He argues that many aspects of design thinking can easily be classified as design management. Finally, he makes the point that, while people use these terms interchangeably and Nussbaum even called it 'banana' to state that it is not important how you call it, the goal of design thinking is creativity and innovation (Lockwood 2010). He notes:

'*Design thinking could earn its rightful place alongside the design process, if we manage to connect the two in a meaningful way. The difference could be seen that business schools have tapped into the process of thinking through design, which allows them to quickly visualize problems and concepts, the development of people-based scenarios, and the design of business strategies based on design research methods'* (Ibid. p.63).

Despite the fact that the interest in this subject has been steadily growing, as exemplified by a number of recent publications (Lindberg et al. 2010, Jones 2010, Brereton 2010, Popovic 2010, Melles 2010), the confusion surrounding the definition of design thinking still remains. The complexity of a general definition shows that design thinking is still an emerging arena, not yet framed as a discipline, tool or technology.

The inability to produce a general definition of the 'design thinking' process stems from the term 'thinking', as it is equally difficult to comprehend and define. According to Merriam Webster dictionary definition, it as the action of using one's mind to produce thoughts (Merriam Webster 2011). Still, this does not clarify what a human thought actually is. Experts in various interdisciplinary studies, including cognitive science, are trying to answer this question, drawing from philosophy, psychology linguistics and neuroscience.

Moreover, the complexity increases when 'thinking' is associated with 'designing', since the latter is still in early stages of development. Nonetheless, several models have been developed to help understand the concept of design. Krippendorff (2006) offered one example in his 'Trajectory of Artificiality', noting

that the tendency towards discourse and thinking in design is obvious. It follows that design thinking is the human ability of using one's mind to produce thoughts that have the ability to change the existing situation into a preferred one (Krippendorff 2006). Of course, this does not stop at the border of the design discipline, since producing thoughts is an inherent human ability. Therefore, thinking, and design thinking in particular, are at the core of all professional development processes. Moreover, some argue that design thinking is an inevitable part of any designing. It is a general ability as part of the human system, which is adaptive, despite a few limitations. Hence, it is useful in many disciplines and should be at the core of every aspect of professional training. Design thinking can be seen as a technology and there is no area of contemporary life where design (technology) - the plan, project, or working hypothesis, which constitutes the 'intention' of intentional operations - is not significant in human operations, or is not a significant factor in shaping human experiences. Design thinking comes to its fore in problem-solving challenges, since it primarily operates on a visual level, and might offer solutions in cases where the symbolic (i.e., right-brained) level is no longer useful. Or one might see the strength of design thinking in resolving ill-defined problems, adopting solution-focused cognitive strategies, or when employing abductive or appositional thinking and using non-verbal modelling media.

Design thinking is a form of intelligence, as it is embedded in our brains' natural cognitive function. Thus, as it is not simply a given 'talent' or a 'gift', it can be trained and developed.

Design thinking thus encompasses engaging in discourse, producing discourse, designing discourse, co-designing in teams, and maintaining dialogues with objects and through objects, in order to overcome limitations of imagination, prototypes and forms (Faust 2009).

In addition to strong visualization skills, which are usually a designer's key strength, designers need to move towards a more sophisticated understanding of complex systems design and predict the behaviours of design outcomes in complex design solution spaces.

The discourse on design thinking needs to be sustained and extended. However, it is unlikely that there will ever be a consensus on its definition, as discourses have lives of their own. Still, it is worth noting that design thinking is the

underlying ability of producing design thoughts, and since design depends on the designer's ability to design, new aspects and elements are likely to emerge whenever design itself is redefined.

The same applies to **Designing Design**. Since this is a designing activity, design thinking is the activity applicable to designing. Even if not explicitly clear, it is a discursive approach to creating theoretical statements. Therefore, design thinking, from the perspective of designing theory, needs to be extended to define the ability to create models and metaphors within a discourse, based on other theories and statements and as presented to the community of practitioners.

'This demonstrates that design thinking is not an isolated activity from design itself, but rather a group of fields of knowledge which study and analyze the current social phenomenon of material production. Efforts behind design thinking assemble knowledge about the results of design's reflective and propositional action. Propositional actions, specially focused on a critical initiative of society to propose elements for its transformation (to be discussed later) undoubtedly has played a very important role in design and, thus, in design research' (Narvaez 2000, p.41).

Designing Design is a result of discursive design thinking, a designing of theory systems.

'Design thinking is a holistic, synergetic, and continuous whole shaped according to the designer's personality and social influence which also relies directly on the sensible, expressive, or communicative abilities required to accomplish an idea' (Ibid, p.41).

Therefore, design thinking can also be defined as:

'Thinking about doing, which refers to the design process and project. Thinking about how to do, which refers to technological production problems. Thinking about the consequences of doing, the environmental and cultural impact of design. Thinking about the dependence of doing, the financial and productive submissiveness of design. And, finally, thinking about "what needs to be done" to achieve institutional and social change' (Ibid, p.41).

This is the core activity of **Designing Design**. It is about the thinking of how to achieve the objectives of **Designing Design**, as well as the process itself, which is

discursive. It is about the technical aspect, what is needed for the production, and it is about the consequences of such a theory and model. Thus, in designing design, its implications must be clearly understood. It is also thinking about the dependencies and the acceptance of such a theory within the community of professionals. Finally, it is about achieving acceptance within design institutions, and being integrated in the models and theories disseminated to design students.

Summary:

Design thinking is a current popular approach used to describe design processes applied within the non-material areas of design. Thus, it focuses on processes, concepts and theories. Many theorists have attempted to define design thinking. Simon (1996), for example, who is noted for coining this term, believes that designing is a general ability. According to Buchanan (1992), the meaning of design thinking continues to expand and its connections to contemporary culture are starting to emerge. For him, the challenge of gaining a deeper understanding of design thinking still remains.

Design thinking can also be linked to Piage's three stages of human development - a body-centred stage, a visual stage and a symbolic stage. Faste (1994) notes, *'When problem-solving becomes blocked at the symbolic level, humans must revert to the right-brained abilities associated with these previous stages'* (p.1). He calls this visual thinking and gives it a label 'Ambidextrous Thinking' (Faste 1994).

A more popular, well known definition comes from IDEO and Brown (2008), who believes that the profile of a design thinker should include the characteristics of empathy, integrative thinking, optimism, experimentalism and collaboration (Ibid).

Cross (2008) criticises the fuzziness of this term and makes the case that design thinking encompasses all forms of thinking. He cites the works of Simon and Schoen as the source of the problem with design thinking we are seeing today. He summarizes design thinking as the ability to resolve '*…ill-defined problems, adopting solution-focused cognitive strategies, employing abductive or appositional thinking and using non-verbal modelling media. I identified these abilities as highly developed in skilled designers, but also suggested that they are possessed in some degree by everyone'* (Ibid, p.100).

Many others have written on design thinking, albeit without increasing clarity in its definition (Terrey 2008, Stempfle and Badtke-Schaub 2002, Love 2009, Lookwood 2010, Lindberg et al. 2010, Jones 2010, Brereton 2010, Popovic 2010, Melles 2010). While the confusion surrounding design thinking and its definition still remains, the complexity of concepts it implicitly subsumes indicates that design thinking is still an emerging arena, not yet framed as a discipline, tool or technology.

The inability to produce a general definition of the 'design thinking' process stems from the term 'thinking', as it is equally difficult to comprehend and define. It can be defined as the action of using one's mind to produce thoughts (Merriam Webster 2011). However, this does not address the issue of what a human thought actually is. Entire interdisciplinary studies, including cognitive science, are devoted to answering this question, drawing from philosophy, psychology linguistics and neuroscience. It is, however, widely accepted that design thinking is a form of intelligence and can thus be trained and developed. Design thinking comprises engaging in discourse, producing discourse, designing discourse, co-designing in teams, and maintaining dialogues with objects and through objects, in order to overcome limitations of imagination, prototypes and forms (Faust 2009). It is coherent with the process of **Designing Design**. It is a result of discursive design thinking, a designing of theory systems.

Design thinking is the core activity of **Designing Design**. It is about the thinking about reaching the goal, as well as appreciating the process required to do so. It is about the technical aspect, understanding of what is needed for the production, as well as the consequences of such a theory and model. Finally, is thinking about the dependencies and the acceptance of such a theory within the community of professionals.

A.8 Design Theory as System Design

Design theory or theory design is system design, since a theory always consists of complex elements. Therefore, it is sensible to consider whether **Designing Design** is system designing. The Merriam Webster online dictionary defines a system as: (1) *'a regularly interacting or interdependent group of items forming a unified whole'*; (2) '*an organized set of doctrines, ideas, or principles usually intended to explain the arrangement or working of a systemic whole'*; (3) *'an organized or established procedure' or 'a manner of classifying, symbolizing, or schematizing'*; (4) *'harmonious arrangement of pattern'*; or (5) *'an organized society or social situation regarded as stultifying or oppressive'* (Merriam Webster 2012).

All systems contain several components, elements or parts, which are interdependent and interact with each other to form an integrated whole within a specific context.

In 1948, the American scientist, mathematician, and science administrator, Warren Weaver, published the paper entitled 'Science and Complexity' in *The American Scientist* (New York City), in which he discussed systems without explicitly mentioning them (Warren 1984). He tried to explain the change from simplicity, through disorganized, to organized complexities. He also viewed the development of science prior to the 19th century, embodied in the scientific method, as a two-variable problem of simplicity. He concluded that scientific method follows the principles and procedures for the systematic pursuit of knowledge involving the recognition and formulation of a problem, the collection of data through observation and experiment, and the formulation and testing of hypotheses (Ibid).

Science is practiced by employing our senses to observe elements of interest in the world. We use some mental activity to make sense out of the sensory information.

The natural system, from which one singles out some smaller parts, is converted into a formal, theoretical system, allowing our mind to conceive all its properties. One can call this process system design through observation.

At the opposite side of the spectrum from that simple system is a complex system. According to Meyer (2010), complex systems *'… have a number of elements; have many interactions between the elements; attributes of the elements are not predetermined; interaction between elements is loosely organized; are probabilistic in their behaviour; evolve over time; are subject to behavioural influences; have subsystems that are purposeful and generate their own goals; [and] are largely open to the environment'* (p.7). The American biologist, physiologist and Professor at the Medical College of Virginia, Mikulecky (2001), has developed a working definition of complexity based on Rosen's ideas, which pertains to the research with the most fundamental aspects of biology. More specifically, it addresses the questions: 'What is life?' and 'Why are living organisms alive?'

On that Mikulecky notes:

'Complexity is the property of a real world system that is manifest in the inability of any one formalism being adequate to capture all its properties. It requires that we find distinctly different ways of interacting with systems. Distinctly different in the sense that when we make successful models, the formal systems needed to describe each distinct aspect are not derivable from each other' (Ibid, p.347-348).

In comparison to problems of simplicity, which involve fewer variables and are usually limited to two, problems of disorganized complexity deal with far greater number of variables, as well as additional factors. For example, each of the variables can behave individually and take inordinate number of properties, some of which may be unknown. '*However, in spite of this helter-skelter, or unknown behaviour of all the individual variables, the system as a whole possess certain orderly and analyzable average properties'* (Weaver 1948, p. 538).

Weaver describes the scientific developments from 19th into the 20th century, when physical scientists developed *'powerful techniques of probability theory and of statistical mechanics). … The great surprise is that the problem now becomes easier, for the methods of statistical mechanics are applicable'* (Ibid, p.538). These methods, however, are able to describe the probability of the system and its behaviour. In comparison with the simple problems, where boundaries are clearly defined, the boundaries of problems of disorganized complexity are difficult to define due to their dependencies on statistics and

probabilities. Thus, what does and does not belong in such systems is decided upon by the observer. *'Indeed, the whole question of evidence and the way in which knowledge can be inferred from evidence are now recognized to depend on these same statistical ideas, so that probability notions are essential to any theory of knowledge itself'* (Ibid, p.538).

Weaver indicates that, within the two system qualities (i.e., the problems of simplicity and disorganized complexity), a third system quality appears—organized complexity. Here, the number of variables is, and evanescent to the astronomical number of problems in disorganized complexity. The issue of interest here is not the number of variables, which is characteristic for problems of organized complexity, but the essential feature of organization. *'Living things are more likely to present situations in which a half-dozen, or even several dozen quantities are all varying simultaneously, and in subtly interconnected ways. Often they present situations in which the essentially important quantities are either non-quantitative, or have at any rate eluded identification or measurement up to the moment'* (Ibid, p.537).

To Weaver, however, in systems characterized by organized complexity, a sizable number of factors are interrelated in a complicated and helter-skelter fashion. The variables within the system form a coherent unity of an organic whole in order to carry out transformation processes, which include input and output - valid for every system (Ibid). For instance, the human body in all its complexity is characterized by permeable boundaries that allow exchanges between its different systems. Weaver finishes with a statement, '*science must, over the next 50 years, learn to deal with these problems of organized complexity*', and a third great advance is needed now, since '*the future of the world depends on many of them'* (Ibid, p.540).

Does such a system of reasoning help to understand the **Designing Design** problem and design theory? Writing about design theory builds from a system of statements, which are interrelated. The manner in which they are interrelated can be established at an individual level and presented in new statements. Therefore, the system of theory formation grows with each link to a subsystem. Each theory, therefore, can also be seen as an interdependent group of statements, excavated from one theoretical subsystem to form a unified whole - a theoretical system as an organized set of statements, the systemic whole.

Secondly, in thinking about a discourse community as a system of actors within a network - as the theorizing designers are - maintaining and developing discourse through statements, we are highlighting disorganized complexity, since the boundaries of problems of disorganized complexity are difficult to define due to their dependencies and probabilities. As the observer determines what belongs to the system, this implies that the system space and its boundaries change as a result of the research conducted and the statements produced within the discursive system.

Foucault (1972) writes on these systems of discourse formation: *'... when one speaks of a system of formation, one does not only mean the juxtaposition, coexistence, or interaction of heterogeneous elements (institutions, techniques, social groups, perceptual organizations, relations between various discourses), but also the relations that is established between them - and in a well determined form - by discursive practice*' (p.72).

Taking Foucault's position, the relation between various units within systems of discourse formation seems to be necessary. However, this represents an impossible condition, as '*these systems of formation must not be taken as blocks of immobility, static form that are imposed on discourse from the outside, that define once and for its characteristic and possibilities'* (Ibid, p.72). Foucault adds that these systems *'—I repeat—reside in discourse itself; or rather (since we are concerned with its interiority and what it may contain, but with its specific existence and with its conditions) on its frontiers, at their limit at which the specific rules that enable it to exist as such are defined'* (Ibid, p.72).

This view is comparable with Krippendorff's (2006) concept of intrusion. In his view, system is nothing more than discourse forming an interaction and co-existence and even juxtaposition of heterogeneous elements. As Krippendorff summarizes: *'In sum, discourses, so conceived, are not merely spoken and written, they are social systems with a life of their own'* (Ibid, p.24ff).

The question this prompts is - is it possible to see the intrusion - the crossing of the boundary - exactly as the life-generating energy, since the members of a community has to reposition themselves within the discourses to defend, to integrate and prevent? Each well-defined boundary gives a strong identity to its members, yet such boundaries also prevent viability by limiting input to the discourse system. Further, viewed as a discourse, such a system has a life of its

own and, inevitably, such a death of its own. It ceases to exist when it eases out, when the community of discourse members diminishes or moves over to other discourse realities.

Summary:

Taking the view that theory design is system design implies that **Designing Design** is system designing. It is designing complexity, since all systems comprise several components, which are interdependent and interact with each other to form an integrated whole within a specific context.

This view aligns with Warren's (1984) system design through observation, which he sees in science, where he recognizes three aspects of systems complexity - simplicity, disorganized complexity and organized complexity. While simple systems involve very few variables, disorganized complexity implies presence of a far greater number. In systems characterized by organized complexity; the number of variables is considerable, and evanescent to the astronomical number of problems in disorganized complexity. Scientists found dealing with such systems problematic, since their complexity does not allow work on a meta level. Moreover, statistical approaches cannot be applied, since there are too many parameters that need to be considered. Nonetheless, such system thinking yields better understanding of theory, which is built upon statements, and the system of theory formation grows with each link to a subsystem. Each theory can also be seen as an interdependent group of statements in a theoretical system, which is thus an organized set of statements, the systemic whole. As the observer decides what belongs to the system, this implies that the system space and its boundaries changes with the research process and statements produced within the discursive system. Each well-defined system boundary gives a strong identity to its members, while also preventing viability by limiting input to the discourse system.

A.9 Design Epistemology

In 1969, Popper took a step towards the clarification of knowledge, which might be helpful at this point, when he attempted to establish the relationship between knowledge and epistemology (Popper 1969).

On the sources of knowledge, he wrote: '*1. There are no ultimate sources of knowledge. Every source, every suggestion is welcome; and every source, every suggestion, is open to critical examination. Except in history we usually examine the facts themselves rather than the sources of our information'* (Ibid, p.27-29).

What Popper is trying to say here is that - whether it is a result of doing, design or designing for instance, or whether it is a result of reflecting design or designing, there is no priority - every information source is welcome.

As he states here, the questions are, rather, whether there is a coherence between the knowledge statements with the facts, whether it corresponds with the facts, and whether these are somehow consistent with observations. Popper implies that, while all arguments may be relevant, most knowledge originates from tradition; we have learned by example, by reading books, by being told, and by having been criticized through dialogues (Ibid, p.27-29).

Popper points out an interesting aspect pertaining to the value of traditional knowledge, suggesting that it needs to be overthrown to create new knowledge that - since it cannot start from zero - is an alternation of an earlier theory (Ibid, p.27-29).. Knowledge, therefore, can also be a hindrance to development and innovation. At the same time, knowledge without tradition would be impossible.

Pessimism and optimism are not helpful when trying to judge epistemologies. Instead, criteria must be established, allowing us to recognize error and falsity (Ibid p.27-29). Therefore, while clarity and distinctiveness cannot serve as criteria for truth, obscurity and confusion may indicate error as well as incoherence and inconsistency (Ibid). Yet, it is important to accept that intuition and imagination are - while essential - not reliable, since they may mislead. Observation reasoning, intuition and imagination, together with critical examination, are leading or misleading us in our attempt to attain knowledge (Ibid). In that Popper (1969) notes:

Popper summarized (Ibid, p.27-29).that a solution to a particular problem creates new unsolved problems. In other words, the more we learn, the more we know about our ignorance. Our knowledge is finite and our ignorance is infinite. So what does this mean for our context, and how does it relate to design epistemology?

Popper's (1969) statements presented above do not immediately provide insight into whether design - or designing - creates knowledge. Still, they do emphasise importance of having diverse sources of knowledge. It is obvious that a science of design is purely focused on knowledge creation, because it is applying scientific perspective and methods to design. In other words, it treats design as yet another scientific discipline. However, it is still not clear whether designing by itself, or design as the output of a designing process, is producing knowledge. Thus, it may be better to ask - in which case designing can be seen as knowledge producing?

Popper's statements cast light on other issues regarding design epistemology. Designing does not solve finite problems, as it creates new problems; more problems appear concurrent with solutions. Flusser (1999) gives a good example of this issue by noting that having a car helps us to go from A to B, while simultaneously preventing us from going from A to B when we lack a car - we do not always seek alternative transport, as the car is the obvious solution. For most designers, it is a well-known fact that design solutions are never finite and generate new problems. Popper's statement on design epistemology describes this well, since, in designing, intuition and imagination is required, even if unreliable. Only critical examination can help prevent falseness. Therefore, criteria for judgment are important, since pessimistic or optimistic epistemologies are not helping at all.

Further, the statement that knowledge cannot stem from pure observation applies to science of design, as it is a modification of an earlier knowledge. While an object of design cannot be observed, design discourse is observable. In other words, it is possible to look and evaluate design objects and the materials written about them. Therefore, while sources of knowledge are often traditional, renewing knowledge requires overthrowing existing knowledge and dispensing with traditional approaches. Knowledge can also stem from reframing existing statements. While, within science of design, design cannot be observed, observation is the key aspect of Popper's perspective, as he sees it as the most

important source of knowledge. Therefore, Simon calls design the science of the artificial (Simon 1969).

The second-most important source of knowledge is tradition. We learn from books, hear-say, formal instruction, conversation, and literature. As previously noted, there is an infinite number of sources of knowledge, and all sources are welcome, if open to critical examination (Popper 1969). The sources of design knowledge, therefore, should not only be subject to the epistemological question. Rather, the question ought to be whether the sources and knowledge agree with the facts. In design, facts are artefacts - things created by human beings, man-made objects - whether these design artefacts are material or virtual objects, or entities.

Summary:

This chapter focused on the evaluation of the epistemological value of **designing design**. In reference to Popper (1969), the relation between knowledge and epistemology was reviewed. It was revealed that, in knowledge acquisition, every source of knowledge is welcome, as coherence between knowledge statements and facts is essential. Most knowledge stems from tradition; however, creating new knowledge requires overthrowing tradition and breaking away from established norms. Still, knowledge without tradition would be impossible. Moreover, as pessimism and optimism are not helpful in judging epistemologies, criteria that enable us to recognize error and falsity must be established (Ibid). While intuition and imagination are essential in knowledge attainment, they are not reliable. A solution to a problem typically creates new problems that must be solved next. This implies that, the more we learn, the more we know about our ignorance - i.e., our knowledge is finite and our ignorance is infinite. In line with this reasoning, designing does not solve finite problems, as it creates new problems - more problems appear concurrent with solutions. An object of design cannot be observed; still, what will be said and written about design is observable. According to Simon (1969), this is the foundation of a science of the artificial. Facts within the **Designing Design** arena are statements, both written and said. Moreover, in design, facts are artefacts - things created by human beings, man-made objects - whether these design artefacts are material or virtual objects, or entities. This is the foundation of **Designing Design**.

A.9.1 Knowledge and Discourse

As the link between design and knowledge has already been discussed, this chapter focuses on the connection between discourse and knowledge. Many people - including scientists and philosophers - have attempted to address these questions, as did Foucault, for example. As Foucault's discourse serves as a methodological grounding for this thesis, his ideas on knowledge, science and discourse will be the starting point for the review.

One of the most noteworthy approaches to knowledge inquiry is Foucault's work, *The Archeology of Knowledge* (1972). By studying the historical methods used to create knowledge and connections, he finds that it is necessary to questioning the underlying bias and beliefs, instilled solely by attending to these facts for long periods. He states further that, beneath the solidity of facts and continuities - beneath the persistence of a particular genre, form, discipline, or theoretical activity - one attempting to create knowledge is rather trying to detect the incidence of interruptions. Bachelard (1972) called these the epistemological acts and thresholds, and posited that they suspend the continuous accumulation of knowledge.

History and the epistemological acts that constitute it must now be seen as discontinuous - a characteristic common to every discursive statement. These discursive statements can be studied in each field of scientific inquiry. Foucault (1972) explains further that the unity of any discourse is actually a dispersion of elements. Thus, the task of any discursive analysis is to discover the rules according to which this disunity of objects, forms, concepts, and theoretical options is present. Regarding discourse and knowledge, positives, in Foucault's eyes, are everything obvious, with nothing lying beneath or hidden. In this sense, 'positive' is an all-encompassing term that can be applied to statements, discursive formations, or sub-formations, such as the sciences. Thus, any one of these, or any set of relations between them, is a positivity (Ibid, p.181).

Foucault also said: *'To analyze positivities is to show in accordance with which rules a discursive practice may form groups of objects, enunciations, concepts, or theoretical choices'* (Ibid, p.181).

Knowledge, according to Foucault, is the group of elements formed in a regular manner by a discourse practice and these elements are indispensable for a science (Ibid, p.182).

'Knowledge is that of one can speak in a discursive practice, and which is specified by that fact: the domain constituted by the different objects that will or will not acquire a scientific status; knowledge is also the space in which the subject may take up a position and speak of the objects with which he deals in his discourse; knowledge is also the field of coordination and subordination of statements in which concepts appear and are defined, applied and transformed; lastly, knowledge is defined by the possibilities of use and appropriation offered by discourse' (Ibid, p.182-183).

Foucault also claims that, while some bodies of knowledge are independent of the sciences, no knowledge can exist without a particular discursive practice. Knowledge is, thus, the space in which the designer - if viewed in this context - or the scientist speaks about the object or process of design that he deals with in a discourse. Design knowledge is further defined by the possibilities of use and appropriation by discourse.

Therefore, Foucault proposes to explore the discursive practice/knowledge (savoir)/science axis instead of the consciousness/knowledge (conaissance)/science axis (Ibid).

'Knowledge is to be found not only in demonstrations, it can also be found in fiction, reflection, narrative accounts, institutional regulations, and political decisions' (Ibid, p.183-184).

Here, it is very important to appreciate that discursive practice does not coincide with the scientific development that it may give rise to. As Foucault explains:

*'The sciences-ignoring, for the moment, the difference between discourses that have the status of scientificity, or pretensions to it, and those really present the formal criteria of a science - appear in the element of a discursive formation and against the background of knowledge' (*Ibid, p.183-184).

The problem that arises from the above statements is that a design discourse does not necessarily require scientific approach. It can also mean that there can be discursive formations and statements that do not have the formal criteria of a

science. This might often be the case in design, as many statements are driven by optimism or pessimism.

One can find a hint as to how Foucault views the transition between positivity and knowledge. Within a discursive group of statements, he notes that claims are made to validate norms of verification and coherence. Thus, when this approach exercises a dominant function over knowledge, a transition towards knowledge occurs. Still, the archaeological rules of formation must be accompanied by certain laws for the construction of propositions, in order to speak about scientificity (Ibid, p.186).

There also must be a certain formalization of the scientific discourse, if it is to be able to define the necessary axioms - the elements that is uses, the propositional structures that are legitimate to it, and the transformations that it accepts. Only then science will be able to take itself as a starting-point for deploying the formal edifice that it constitutes (Ibid).

In line with Foucault's focus on discourse and knowledge, van Dijk (2003) summarizes his perspective on knowledge and discourse in stating that knowledge is belief, shared by the members of a community, and it is socially accepted. The knowledge criteria may be different in different epistemic communities; therefore knowledge is by definition relative. Truth in this context is reserved for statement rather than for beliefs. Knowledge and beliefs are intentional and cognitively conceptualized, mentally represented. And last not least interaction and discourse knowledge is attributed to self and others when it is shared by the speaker. (van Dijk 2003, p.9).

Clearly, accepting van Dijk's view would mean that design knowledge is the knowledge explicated and shared by design community, despite its relative nature. Such knowledge statements are true within their contexts and this is inherent. Such knowledge is cognitively conceptualized, and discourse knowledge is shared by the recipients. Design knowledge can, therefore, be different, in that thinking or imagining the 'designerly knowledge' is specific to the field of design.

'Knowledge is acquired, shared and used by people in interaction, as well as by groups, institutions and organizations. Indeed, without such a social basis, knowledge would be no more than personal belief' (van Dijk 2001, p.86). He

summarizes that, from a discourse perspective, knowledge is a property of participants of communicative events, and hence a part of the context (Ibid).

As stated before, knowledge is retrieved from discourses, but it must not be limited to scientific knowledge. Further, there is no knowledge without a particular discursive practice. Therefore, a discursive design practice and design **knowledge are inseparably linked.**

And the smallest part of meaning of a discourse is visible in text. According to van Dijk (2003), knowledge is a part of the context of discourse. In other words, design knowledge is the property of those who talk and write about design (van Dijk 2003). He indicates different categories of knowledge: cultural knowledge, personal knowledge, general knowledge and group knowledge. Group knowledge is derived from Common Ground knowledge, whereas design knowledge is specialized knowledge constrained by Common Ground beliefs of a culture (Ibid). The epistemic of the mind is not the same as the organization of discourse, as each requires a different structure. Possessing design knowledge is different from designing design discourse. Van Dijk argues further that a specialized discourse combines a theory of specialized texts with a theory of specialized contexts (Ibid).

Cross (1999) proposes a taxonomy that includes three areas of knowledge types - Design epistemology, Design praxeology and Design phenomenology.

Cross also touches on the knowledge, stating that it can potentially be found in the objects and the processes - some is explicated and some is implicit. Therefore, tacit knowledge is an important category in design, since knowledge in objects is not explicit.

Cross finds that designers do not work within the 'science of the artificial', for their value is derived from the techniques of the artificial. Thus, design knowledge is of and about the artificial world and means of contributing to its creation (ibid). Tacit knowledge, within the techniques of the artificial, is not sufficient because some use of language is required. Theory requires more than tacit knowledge (Friedman 2003). Moreover, design knowledge is not a design theory either, as the latter is a model that puts aspects and things into perspective.

Narvaez (2000) differentiates between episteme and doxa, indicating that, while episteme is the result of reflection, doxa is the result of daily living. In design,

two classes of knowledge are combined - noesis (objectual reality) and poiesis (projectable ability). Noesis is linked to design thinking and poesis is comparable to the design process and the designing as a poetic act (ibid). As a result, we can differentiate between hermeneutical-historical and the sociocritical, which needs to be combined in design.

Summary:

Trying to detect the incidence of interruptions may be viewed as an attempt to create knowledge (Foucault 1972). Epistemological acts that constitute knowledge are discontinuous - a characteristic common to every discursive statement. Knowledge, according to Foucault, is the group of elements formed in a regular manner by a discourse practice and these elements are indispensable for a science. He also claims that, although there are bodies of knowledge that are independent of the sciences, there is no knowledge without a particular discursive practice. Knowledge is also the space in which designers - if translated into the current frame - or scientists speak about the object or process of design that are relevant to the discourse. Design knowledge is further defined by the possibilities of use and appropriation by discourse. Thus, it is very important that discursive practice does not coincide with the scientific development that it may give rise to. However, that opens up the problem that a design discourse may not see scientificity as a necessity. It can also mean that there can be discursive formations and statements that do not conform to the formal criteria of a science.

Van Dijk (2003) summarizes his perspective on knowledge and discourse and states that knowledge is belief that is shared by the members of a community. While knowledge is socially accepted and shared, as criteria for acceptance may be different in epistemic communities, knowledge is relative. Truth is, therefore, reserved for statements or discourse, as such statements are intentional. Moreover, knowledge is conceptualized and mentally represented to characterize situations. Discourse knowledge is shared in interactions, and attributed to self and others.

It can thus be concluded from the above that design knowledge is the knowledge explicated and shared by design community - statements created in discourse - despite such knowledge being relative. Such knowledge statements

are true within their contexts and this is inherent. Design knowledge can, therefore, be different. Finally, ‘designerly knowledge’ can be specific to the field of design and may not be perceived as scientific knowledge.

C.0 Designing Design Theory validated

Part C is organized and designed to assess the value of the proposed theory. If follows on the content presented in Part A.3 that described and discussed the three design conferences, which served as the design cases. Here, the focus in on establishing the value of the theory proposed. Thus, in this part, the framework of theoretical and practical contexts will be tested. In a forward-looking manner, the theory has been put to the design theory professionals, facilitating discussion on the value of the proposed model. This was executed through some semi-structured expert interviews, which yielded assess to core statements that had been at the core of the **Theory of Designing Design**. These interviews are thus both qualifications of the model and the tools for evaluation of the utility within existing theoretical frameworks from other experts.

C.1 Testing Theory and Testing Design Theory

Within a scientific setting, it would be necessary and appropriate to test the theory in order to prove its accuracy and utility. Failure to do so would imply that the theory needs to be adjusted and refined. However, within design context, theory testing is a more complex task. Posting the question of testing to a design community brought some interesting responses that indicated that theory testing seems to be an overlooked aspect. As Friedman (2012) stated: *'I nor most others writing on design theory construction have not written much on testing. This is a gap in the literature'* (Dec. 19th, 2011). And in literature we need to understand here in the literature of design theory testing.

Within this posting, Love recommends reviewing Popper's *'three incommensurate worlds'*, which outline the role of falsification and provide the real value of Popper's contribution to the understanding of validity tests. According to Love (2012):

'Put simply, Popper argues reality can be separated into three incommensurate worlds:

1. The world of subjective and subjective experiences

2. The world of theory

3. The world of the external and objective' (Ibid).

Love summarizes his point with: *'The significant issue is these are incommensurate. This needs saying again - the three worlds are "incommensurate", i.e., completely and totally independent'* (Ibid).

What does this mean for generating a design theory, and further, trying to test this theory? Turning to the source of Love's statement (i.e., Popper's original writings), we find the following statement: *'I will propose a view of the universe that recognizes at least three different but interacting sub-universes'* (Popper 2011, p.143). According to Popper, World 1 refers to the physical world, which is dividable into non-living physical objects and the world of biological objects, living things (Ibid). World 2 is the mental or psychological world - the world of feelings, decisions, perceptions and observations - the world of subjective experiences. It too can be subdivided - into fully conscious and subconscious

experiences (Ibid). Finally, in Popper's eyes, World 3 is *'… the world of the products of the human mind, such as languages; tales and stories and religious myths; scientific conjectures or theories, and mathematical constructions, songs and symphonies; paintings and sculptures. But also aeroplanes and airports and other feats of engineering'* (Ibid, p.144). Popper proposes distinguishing between different worlds in World 3, such as science, fiction, music, art or engineering. He uses book as an example, in order to clarify his meaning. According to the aforementioned classification, printed book belongs to World 3, as it is an object, even if there are various editions and copies in several languages - it is always a physical object. However, as a chapter could be located at a particular place within the book, it is a part of World 1 (Ibid). The meaning of the written text, then, is content and belongs to World 2, as a thought, a theory it is embodied in World 1. Therefore, within a book as an example, there are representations of all three worlds, as Popper intended them. If attempting to measure the impact of a model, presented in World 2 as content, one cannot verify that impact in World 3, the way it is written, and presented as a work of art or an artefact. A design theory, therefore, is a World 3 object. It is conducted and presented in language and - much more important to Popper - can have a causal effect upon the physical objects in World 1 (Ibid, p.154).

We can change the world with World 3 objects. For instance, Einstein's thought process - a World 2 object - has led him to write the outline of his Special Theory of Relativity (Ibid, p.154) - a World 3 object - which further led to the construction of the atom bomb - a World 1 object. Popper differentiates clearly between knowledge in the subjective sense and that belonging to concrete mental disposition, which belongs to World 2. Knowledge in the objective sense is thought content. It consists of the content of our linguistically formulated theories, which can be translated from one language to the other. *'It is the objective thought content of a conjecture or theory on which the scientist's subjective thought processes work. They are at work to improve the objective thought contents by way of criticism'* (Popper 2011, p.156). While objects belonging to World 3 can have an effect in World 1 and 2, they can only be 'tested' in World 3. *'By formulating a thought in some language, we make it a world 3 object; and thereby we make it a possible object of criticism'* (Ibid, p.159). Moreover, World 3 objects can stand in logical relationships. *'The logical consequences of a theory are especially characteristic of a world 3 thought content'* (Ibid).

These thoughts from Popper are the foundation on which Love (2012) constructed his statements about theory testing:

'In each, proof is only valid within its own world. For example, in the limit, you cannot look at external reality (external world) and prove the truth what an individual is feeling (subjective world). You cannot make tests in the theory world that prove what happens in the external world.

And, obvious if you think about it, but often erroneously presumed otherwise, you cannot make tests of physical reality (external world) or use feelings and opinions (subjective world) to prove the truth of a theory (theory world). The testing of theory is in the theory world, against other theories. The testing of theories is via the elements and processes of that world - mainly correct reasoning' (19 Dec 2012).

The theory presented here is a World 3 object; it is objective knowledge and thought content. Therefore, its proof of adequacy can be pursued through logical reasoning and by theoretical scrutiny. It is not possible to verify it through testing within the observational context of World 2.

However the discourse found in written form as a result of the conferences are World 3 objects, which belong as well to the world of theory, therefore they belong as well to World 2, because it is thought content and the 'monument' here, the discourse 'as a whole' as something which is 'constructed' by the human who thinks it. The social reality, which follows from the theory, if the theory is accepted, belongs to World 3, and it can only verified in world 3.

Therefore, the thought content of the design conferences and interviews is the only valuable approach for theory verification, in our case.

C.2 Semi-structured Professional Interviews

The interviews with the experts - professional designers, scientists, managers and researchers - were designed to elicit the responses that would reveal interviewees' perspectives on the developed theory and field of research.

The structured questions have been shaped to identify the experts' ideological frameworks in order to prevent some biased responses. Therefore, the questions are a framework within the dialogue to move towards the developed model. The answers are contextual frames that allow understanding of the theory.

At the same time, it was important to understand some of the experts' beliefs, since these beliefs may make a dialogue about the model absolute. For instance, a belief in the 'universality of concepts' would require that design is a universality, and that we are only moving towards the recognition of this entity. It would be impossible to design design; the possibility would only be within our limited understanding of design.

The process applied to shape the 'Expert System'

Talking about an 'expert system' requires expansion of the idea of expert system, which is usually referred to as a research approach in Artificial Intelligence research and was first developed by Feigenbaum (1993).

Expert systems are designed to solve complex problems by reasoning about knowledge, as an expert does. In order to use this phrase for the purpose intended here implies dealing with complexity and reasoning about knowledge, while relying on the experts to judge the result(s) of this study. In this context, the usage of the term is misleading, since one is not dealing with a system comparable to a computer system. Here, a group of experts (and their superior knowledge) help in answering questions in a social system, which is far less predictable.

The research applied here is qualitative, and therefore, has some limitations. Interviewing is a standard data collection method employed in qualitative studies; however, other methods could have also generated useful results, even within the scope of interviews.

The interviews conducted as a part of this study can be called *'general interviews'* (McNamara 2009). As they are semi-structured, they facilitate inclusion of commonalities and forms that provide more focus than a purely conversational approach would yield (Ibid). On the other hand, such approach also provides a degree of freedom and adaptation to the interviewees' intention(s). Still, such general, or semi-structured, interviews keep the researcher in the driver's seat, helping generate useful results.

The interviews were prepared in accordance with McNamara's (2009) proposal to:

1) Choose a setting with little distraction. This was ensured by conducting interviews via Skype, which also helped overcome the issue of geographical distance between the researcher (i.e. me) and the interviewees.

(2) Explain the purpose of the interview. This was necessary to respect the limited time these experts had at their disposal.

(3) Address terms of confidentiality. While confidentiality was guaranteed in various ways, the interviewees were specifically assured of their anonymity.

(4) Explain the format of the interview. This helped gain the interviewees' commitment to participate.

(5) Indicate how long the interview is expected to take. Logistically, this was necessary for planning, and to ensure that the experts allocated the correct time for their respective interviews.

(6) Tell interviewees how to get in touch with you later if they have questions or would like to learn the result of the study.

(7) Ask interviewees if they have any questions before commencing with the interview. This serves to build confidence and trust. In the present case, this pre-setting is not presented in the transcription, but it was recorded.

(8) Do not depend on your memory to recall the interviewees' answers. All interviews were recorded and transcribed (McNamara 2009).

McNamara's outline is in accordance with that of Schmidt (2004), who proposes to deal strategically with semi-structured interviews by following these five stages:

'First- in response to the material- categories for the analysis are set up. As a second stage, these are brought together in an analytical guide, tested and revised. Thirdly, using this analytical and coding guide, all the interviews are coded accordingly to the analytical categories. Fourthly, on the basis of this coding, case overviews can be produced; these form the basis, in the fifth and final analytical stage, for the selection of individual cases for in-depth single-case analyses' (Ibid, p.253).

Creswell (2006), in reference to Tesch, has provided a similar method that can be followed in order to cope with interview data. He has outlined eight steps for coding qualitative material:

'1. Get a sense of the whole. Read through all transcriptions carefully. Jot down ideas as they come to mind.

2. Pick one document. Go through the document and ask: 'What is this about?' Think about the underlying meaning, rather than the substance.

3. Do this for several documents and make a list of topics. Cluster together similar topics. Form these topics into columns that might be arranged as major topics, unique topics, and leftovers.

4. Now take this list and go back to your data. Abbreviate the topics as codes and write the codes next to the appropriate segments of the text. Try out this preliminary organizing scheme to see whether new categories and codes emerge.

5. Find the most descriptive wording for your topics and turn them into categories. Look at reducing your total list of categories by grouping topics that relate to each other (e.g., you could draw lines between your categories to show interrelationships).

6. Make a final decision on the abbreviation (i.e., code) for each category and alphabetize these codes.

7. Assemble the data material belonging to each category in one place and perform a preliminary analysis.

8. If necessary, re-code your existing data' (Ibid, p.21).

The interviewee selection was based on the potential candidate expertise, which was evaluated through publications and conference involvement. Once selected

for participation, the potential interviewees were asked for their time and commitment to participate in this study. Selection criteria included openness to existing theories and the modelling of theories, as well as a willingness to openly and honestly share information and personal position on the topics discussed, along with their standing in their field (i.e., publications, conference presentations, etc.). All the candidates that agreed to be interviewed and met the inclusion criteria were thus scheduled for one-to-one interviews.

The next step was to prepare interviews and pilot test them in order to determine limitations and weaknesses within the interview design.

The experience confirmed that the design of the questions is an endless process, as the execution of the interviews gave new insights with which to redesign the questions. The questions were finalized following the pilot testing and revisions, and were used to conduct the interviews with the experts.

In the final phase of the interview design, the data was collected, compiled, interpreted and presented. Here, the main challenge was interpreting interview content correctly, in order to make sense of what was said and link it to the study objective. To facilitate interpretation, the data was compiled into sections and groups of information and statements, which are referred to as themes or codes, and which are seen to be common among the experts (Creswell 2003, 2007).

This method called for a third-party consult to review the identification and selection of the themes and codes, as well as to maintain the quality and efficacy of the interviews (Creswell 2007). Use of the third-party also alleviated biases and misinterpretation. The PhD advisor (Antonio Caronia) was consulted for his input, and his review was taken under advisement for reformatting the interpretation.

Interviewee Selection

The experts who were invited to participate in the interviews were all active within the design theory community, as faculty at universities and/or researchers, and have nearly all participated in at least one of the conferences, which were used to redesign design. Only one interviewee was external to this experiential design network.

These experts have published internationally in important design magazines, and are recognized as design theorists or theorizing experts within design or management. Due to their expert backgrounds in design, it could have been expected that most of the interviewees would have held a common position towards the themes and questions posed to them. However, none of the participants engaged in an on-going, direct exchange or discourse (at least no publicly known exchanges). It was also expected that the interviewees would propose different answers towards the questions raised, based on their different backgrounds, careers and involvement in various discourse activities.

It was important that not all interviewees would come from the same country, background or school. Thus, the interviewees are from Germany, England, Netherlands, Denmark and the United States. They work in Design Schools, Management departments at Universities and Business Schools at Universities. While Europeans are in majority, several participants have studied in the US or Asia, and are now living in Europe again.

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Based on the aforementioned criteria, the following experts and backgrounds have been selected:

Interviewee E01. A practising engineer with the focus on design and innovation, interested in contributing to design theory. He/she gained his/her PhD in Cambridge and currently lives and works in Europe. He/she is European and, although his/her background is mostly not academic, he/she has contributed to the theory design. He/she has published several articles and has shown some interest in theory as a practising engineer.

Interviewee E02. An engineer/designer with a long history in publishing about transportation systems, who has consistently shown his excellent view on design systems. He/she has taught as a faculty in many leading German universities and has focused on theory development, from a system perspective in particular. He/she is seen as one of the most critical thinkers in the German design world and positions him/herself clearly as a constructivist.

Interviewee E03. A designer and design theorist with a PhD in design from Carnegie Mellon University. His/her interests have predominantly been in theory development in organisational design, with the focus on policies. After several years of teaching in one of the leading UK design universities, he/she has moved to Denmark, where he/she is currently a faculty for design theory and is teaching at one of the leading art and design schools.

Interviewee E04. An engineer and a physicist, trained as a natural scientist, with a PhD in humanities. For many years, he/she has been teaching as a media and management faculty at a university and has published extensively, focusing on media theory and media-oriented contexts. He/she is particularly interested in data-oriented research and has positioned him/herself as a positivist.

Interviewee E.05. This individual has a long-standing history as a management faculty (teaching in US and Europe) and has contributed extensively to the discussion about design in the management field. He/she is as a leading scholar in the field of operational research and has published many articles about the problem of language in design and management. He/she is viewed as one of the most well-known scholars in design and management and represents the North-American theory-driven management scholars.

Interviewee E.06. This individual has gained his/her PhD in the US and has since focused on behavioural research and Management Information Systems. He/she has taught at leading European universities and is currently a faculty at one of the European leading Management Schools. He/she is an editor of several important information systems journals and has published extensively on the topics of design and designing information. He/she is crossing the boundaries between information systems, design and management.

Interviewee E.07. This individual was born in Asia and has gained his/her PhD in the US. Currently, he/she is a faculty at one of the leading management schools in the US, and also serves as a director of a Centre for Design, Innovation and Strategy. His/her research interests include digital innovation, design, and experiential computing. He/she is a senior editor of several important journals on management and innovation and has contributed to the development of design theory within the management sector.

As the brief interviewee biographies show, theory building and reflecting was one of the common criteria for the invitation. In addition, ensuring that the participants had a wide range of different backgrounds—such as engineering, design, natural science, information systems and management—was important, as it was expected that this would provide various perspectives of the theory.

All interviews were performed by video chat (Skype) and the participating experts received the questions at least one week in advance, allowing them time to think about the topics to be discussed and prepare their responses. The interviews were recorded, transcribed and edited, before being sent to the interviewees for revision. In nearly all cases, the edits were minor and did not affect the original meaning of the answers.

Once all interviews were subjected to the process described above, they were analysed and emergent themes identified. The statements that contributed to the formation of these themes were subsequently tabulated (the pertinent tables are included later in this chapter) to compare and summarise the various positions towards the context and theory presented.

After the evaluation and comparison of positions on each identified topic, the statements were summarised for evaluation. If the interviewees did not give a position statement towards a particular topic, a corresponding gap was identified within the evaluation summary.

The Questions

The questions asked during the expert interviews reflect author's careful approach to understand the concept of design and the reasoning towards design, science and research. The interviews always began with the same questions, which were given the interviewee a week before. In all cases, interviewees stated that they had prepared their answers. The design theory was not presented to the interviewee before the interview to prevent some prejudgment. Instead, it was mentioned during the last session of the interview. The questions were structured and designed to move the interviewee into the realm and provoke thinking about the presented design theory. For instance, the questions are very general, beginning by asking the interviewee about how he/she viewed the profession and ending up with an indirect question about **Designing Design**. Finally, the inquiry was cemented with the development of the design concept and whether such a development is triggered by an individual or a collective. This approach was chosen to prevent provocation through the theory developed. Something disruptive might generate opposition, which would have precluded the necessary feedback by provoking opposing statements. Therefore, it was necessary to introduce the thinking and the context with some questions designed for the interviewees.

The questions presented to the interviewees were the following:

1. Do you think that you are a designer, a scientist or a design theorist? Or, are you all of that the above? Or, would you choose even a different category to qualify your thinking?

2. In your thinking, is design something static, or is design a dynamic entity that has been shaped and developed over time and will shape in the future?

3. If you were to think as a designer, would you have a different perspective when later thinking as a scientist towards that question?

4. If design is a dynamic entity, how do you think that we develop the notion, the concept, of design over time? What are the underlying processes?

5. Is such a development of design triggered by individuals, or do you think that it is a collective process? How would you frame the relation between the contribution of the individual and the collective?

6. Regarding the position you have offered, would it change if you thought as a scientists or as a designer?

Interpretation of Data Collected

The complete transcriptions of the interviews are given in Appendix E.0.

The charts 1 - 5 below present the interview evaluation results.

In each table, the first column lists the topics - the codes - which were identified in each interview. Within Appendix E.0, the themes revealed in the interviews are marked by bold text to serve as reference and link to the information presented in the table.

Very short phrases that covered these topics are collected and summarized within the table. The data belonging to each category, topic or code is then collected in one row and ready for a preliminary analysis.

The last row in the table presents summaries of the topics that were identified in interviews with individual participants. The summary pertaining to each interviewee is found at the bottom of the column corresponding to that particular expert. It serves to reduce the perspective of the author to a comparable clear perspective, even if such statement does not appear as clearly within the interview. There is a certain degree of subjectivity in this process, as the summaries are created by the thesis author. Nonetheless, while summary was perhaps the most difficult to provide, it will facilitate making a general statement pertaining to whether the developed and presented theory is valid and useful. Of course, it no longer reflects the specific position of the interviewee.

Thus, it is evident within this research that generalization of the data greatly diminishes its value.

Chart C.2.0a Semi-structured Professional Interviews, Chart 1

Themes/Codes	Interview 1: T.	Interview 2: J.	Interview 3: S.	Interview 4: C.	Interview 5: D.	Interview 6: M.	Interview 7: Y.
Theme 1. Profession: Are you a designer, a design theorist, scientist, natural scientist?	- I am all of these at different times	- A designer - Design theorist - Something in between - Not a scientist -It is important to distinguish design and science.	- A designer - A researcher - Research into design and research through design. - All humans have capacity to design	- A natural scientist - Studies in humanities - Crossing the border between explaining (scientist) and understanding (humanities)	- Organization theorist. - Management theorist. - A theorist and a scientist	- It is definition driven, scientist, manager and designer - We detect - We are all designers - we generate - Everybody is a manager	-Scientist work - Design theory work Designer: -System designer -Product designer - Designer of business models
Summary	**All of that at different times**	**Designer, theorist**	**Less a scientist**	**Not a designer**	**Less a designer**	**Designer, manager scientist**	**Designer, manager, scientist**
Theme 2. Methodology: Science, design and design (engineering)	- Science: Following a scientific method - Independent replication of the outcomes - Engineering: sufficient demonstration of possibilities	- Design is situated between science and humanities - Design is action - Design is not a science - Science is a differentiated social sub system like economy, design not - Science looks from outside, a reflective position	- Design has generalities, making a case/theorizing - Design can take roles in very different circumstances - Design research is wording, looking for persuasive argument/researching - Theory alone doesn't do it - Science is using scientific methods	- Hundreds of methods to solve problems - Design/humanities or methods influence the system of investigation - Design: no explanation and understanding, science experiences limits - The object of investigation and method is different across disciplines.	- Methods will always evolve - The doing of science is design - Designing is the doing of science, patterns of interaction - Design related to design logic - Creation of artifacts	- The key difference between artist, designers and scientist are the outputs -Designers produce objects, scientists knowledge - Designers think visual, divergent - Scientists produce ideas and knowledge, socially construct	- The scientific work is descriptive, describing what is out there, how dynamic artifacts are - The funding is important for legitimacy - Good design is the one that creates dynamic artifacts that captures the continuing imagination of users
Summary	**Science: method with replication of outcome**	**Science: reflective position, what is** **Design: is action**	**Science: scientific methods** **Design: is doing, adjusting to situation**	**Science: investigates with methods** **Design: changing situation, no explanation**	**Science: creates artifacts, is design** **Design: is the doing of science**	**Science: produces knowledge** **Design: produce objects**	**Science: descriptive** **Design: creating artifacts**

Chart C.2.0b Semi-structured Professional Interviews, Chart 2

Theme 3. Investigation (research): in design, science, humanities, management	- Design research is understanding designing - Design research should adopt science methods - There is something that you can actually get your arms or hands around - In science we have presumptions that it exist.	- Design is not existing or not yet existing, we construct - It is complete when design enters the market - Inherent knowledge gaps in design processes - Scientific research is a sub category of design research - We can design models and prototypes of how design could be	- Scientists design the research approach - Object of investigation is changing from physical objects to virtual - We are talking differently about design b) We are not necessarily understanding what we are doing c) We are not looking into alternative ways or other ways of design methods.	- Physicist and natural science it is the reproducibility of facts - Everything that can't be reproduced is not a object - A physicist in principal has no problem with the wonder - In humanities: specific situation will be understood and extrapolate it to other cultures	- Methods always evolve, how it is and could be - Play of analysis and synthesis - Values will continuously evolve and change - The process parallel of design and science how the pieces can fit together will enhance	-New understanding or do you change meaning in terms of re-branding - Designers output is the artifact that is being shaped, - A scientist shapes ideas, concepts and knowledge	- Reprogramming the artifacts by the end users. _ Who is the end user and what is the design artifact? - Barrier is becoming blurry through technology - Good design is the one that creates dynamic artifacts
Summary	**Science: researches what is Design: researching understanding design**	**Science: is a subcategory of design Design: isn't we construct it**	**Science: design research approach Design: the object of investigation is changing**	**Science: reproducibility of facts Humanities: understanding of situations**	**Science: how it is Design: how it could be Synthesis: how pieces fit together**	**Scientist: concepts and knowledge Design: artifacts that is being shaped**	**Science: what is Design: dynamic artifacts Barriers are becoming blurry**

Theme 4 **Perspective of a designer, scientists manager**	- As designer you are moving and you are not sticking where you are - Designing is a sort of history	- Internal and external dynamics. - A co-evolution between the ideas produced by design thinkers and the context	- The art of invention and discovery that allows you to change the perspective - -Designing, changing, organizing and managing are interconnected activities. - Law is designed for specific purpose but if something changes and has unintended consequence.	- Management and designing are getting closer because management was never really linked to a physical object as design is now - As a designer you iterate	- Management the problem finding and problem defining is most powerful - Ones I know what I am against then I can work for what I am for	The way design is being framed it actually helps people to change the thinking about design - Changes in science goes back to Kuhn's idea for paradigm shift - You change meaning in terms of re-branding something.	- Changing artifacts - From scientific view we learn how dynamic and revolutionary these artifacts are - Designer creates such dynamic artifacts - Biologists have four different nuclear types, to see change
Summary	**Design: moving**	**Design: dynamics**	**Design: changing, organizing**	**Design: iteration**	**Management: problem finding and defining**	**Design: change meaning**	**Design: creating dynamic artifacts**

Chart C.2.0c Semi-structured Professional Interviews, Chart 3

Theme 5 **Design and knowledge**	- Year's of knowledge level, depending upon a notion of agent - If there is no agent then there is no knowledge. - The knowledge abstracted from designing builds models to design a design support system	- Designers have to bridge knowledge gaps - There are knowledge gaps inherent in the design processes	- Design comes from experience, entered into realms where design is not understood - Talking discourse of objects, it doesn't change minds of people.	- Design thinking should tap into the knowledge of large disciplines like natural sciences and humanities or social sciences - Design is very similar to management it is not about understanding or explaining an outer truth to somebody	- Science and theory is the creation of artifacts	- Designers are not interested in creating knowledge, managers as well, they are interested in deciding - Most scientists will end up with an idea or a piece of knowledge - Designers don't produce knowledge	- As a scientist, I want to develop the theory of design - In science we describe what is which creates knowledge, in design we produce objects
Summary	**Design: knowledge through design models created by agents**	**Design: knowledge gaps**	**Design: doesn't create knowledge, and discourse doesn't change minds**	**Design: not creating knowledge, needs to tap into science and humanities**	**Design: is not creation of knowledge**	**Design: no knowledge creation**	**Design: no knowledge, object**
Theme 6 **Dynamism:** **Design a changing entity?**	- The practice has changed over time	- Design is a very dynamic and very fluid entity, context dependent - Science is stabile with fixed terminology and methodology	- Absolutely dynamic and ongoing - Always shifting development. - Evidence that is happening/changing	- Design is a changing entity - Management is changed by humanities	- Something is changing all the time – It is a hermeneutic process	- It's a dynamic entity, not a thing - We are constructing design and management	It is a dynamic entity which is being shaped and developed overtime
Summary	**Changing over time**	**Dynamic and fluid Science: fixed terminology**	**Dynamic and ongoing changing**	**Changing entity**	**Changing all the time**	**Dynamic entities, constructed**	**Dynamic entity**

Chart

C.2.0d Semi-structured Professional Interviews, Chart 4

Chart C.2.0e Semi-structured Professional Interviews, Chart 5

Theme 7 **The change in design is influenced by?**	- Practice of certain individuals have influenced how design is perceived	- Strong individuals are very loud and have input. - Individuals give their irritations and perturbations - They can't control the discourse - They irritate the discourse and they are very active to influence	- Design as a dynamic entity is reaching much more deeply into social matters or environments or organization - Change is triggered by language. - Things are designed for specific purpose and law is designed for specific purpose but anything changed and now	- It's like drawing a decision - It's an individual thing or collective process? It is both and essentially it is both.	- People who are educators and practitioners incorporate their understanding and thinking about design	- The change is influenced by framing - the influence by individuals is limited	- The design community is influencing frame work through theorizing - If you belong to it, then you have a chance to influence depending on your reputation
Summary	**Individuals**	**Strong individuals, but can't control**	**Language and by organizations**	**Individual and collective process**	**People**	**Individuals, but limited**	**Design community**
Theme 8 **Designing Design**	- The practice is changing over time visible in patterns - The knowledge of theory designing is well abstracted from any practicing - Theory to kind of practice. - I would be very uncomfortable in claiming this theory	- We are designing theories, but we cannot predict - We have limited control over designing design - The discourse is subject to evolutionary selections and mechanisms, we cannot fully control	- the discourse is driven by methods -There is an immense power in the rhetorical approach. - Individual alone cannot do this task - Institutions, universities with research resources can influence the trajectory	- Conscious moment of decision are very important otherwise everything is designing - If the concept of designing is too broadly it becomes meaningless. - Discontinuity and failure is very important	- It is intimately tied with what it is to be human and what it is to be changing.	- Questioning the concept: the output is different between design and science - Designing design, how do you avoid the notion that we design everything?	- We are always designing design - The artifact itself are very dynamic, therefore design becomes even more iterative - It is a system of complex adaption system a feedback loop - It all goes down to power and politics to certain extent
Summary	**The practice is changing**	**Designing design, but limited control**	**By institutions and universities**	**Conscious designing, too broad it gets meaningless**	**Human and what is changing**	**Designing design, how avoid the meaninglessness**	**Designing design**

Findings

The first topic that emerged from the analysis of the interviews pertains to the interviewees' perceptions of themselves as professionals, with responses including a designer, design theorist, scientist or natural scientist.

Topic/Code: Are you a designer, design theorist, scientist or natural scientist?

The interviewees included one designer (owing to the qualifications held and employment history), and five individuals that identified themselves as designers, depending on the situation and time and depending on the definition of design. However, one participant indicated that he/she is not a designer, while another indicated that he/she is less of a designer, but that it depends on the definition. Interviewee 2 made it clear that he/she is not a scientist and it is very important to distinguish science from design. On the other hand, Interviewee 3 sees him/herself as a researcher, as a designer who researches into design and researches through design. However, as Interviewee 4 has not made any contributions in the field of design, he/she viewed him/herself as somebody who crosses the border between explaining (scientist) and understanding, as is done in the field of humanities. In addition to these positions, one individual viewed him/herself as a theorist and a scientist—as somebody who explains organisations and management. Interviewee 6 provided yet another view, as he/she indicated that, depending on the definition, he/she can be seen as a scientist, manager or designer, since we all detect, we all generate and therefore we can all be seen as designers and managers. In addition, Interviewee 7 identified him/herself as a scientist who designs theory work, who designs systems, products and business models.

Yet, despite the diversity of their responses, in general, the interviewed experts stated that their perception of their role very much depends on what they are doing and when, and under which frame they are doing it.

Topic/Code: Methodology: science, design and design (engineering)

The second topic that emerged from the interview analysis was not as easy to identify as the first one.

The statements extracted from the individual interviews nonetheless indicated that most experts tend to agree that science requires adoption of scientific methods, which are reflective and aim to describe what is. In other words, they produce knowledge.

Interviewee 1 sees science as the process that yields results that can be replicated independently from time and location. In contrast, he/she perceives engineering as focused on the demonstration of possibilities, thus being generative. According to Interviewee 2, design is situated between science and humanities, since design is action, rather than science. Science, on the other hand, is a differentiated social subsystem and looks from the outside, from a reflective position. Interviewee 3 sees science as a collection of methods, while design is making a case and theorising it. Therefore, according to his/her view, in design, theory is insufficient. Design research requires wording and modelling, and is looking for persuasive arguments.

Interviewee 4 sees design and humanities as applicable in the same contexts, as both are used for solving problems and are thus influencing the system of investigation. Unlike science, design does not seek to explain a phenomenon, and the object of investigation is different.

In contrast, Interviewee 5 sees science as the creation of artefacts; therefore, practicing science is perceived as design.

According to Interviewee 6, the main difference between science and design is in the output—while designers produce objects, scientists generate knowledge, ideas, and social constructs.

For Interviewee 7, scientific work describes what is out there, and the functioning of dynamic artefacts, which are created by designers.

From the above, it is evident that all interviewees saw replication of findings as the key determinant of science. They also indicated that scientific approaches do not allow for contradiction of the findings. In sum, there was a consensus among the interviewees with respect to what science does and what it does not.

While the same applies to design, the interviewees' perspectives on this topic were not unified. Some experts perceived design as action, while others noted that design is characterised by adjusting to situations. Yet, to others, the aim of design is changing situations. Finally, some interviewees offered a view that

design is descriptive, noting that, in that sense, it can be science, if the artefact is text or action.

Topic/Code: Investigation (research) in design, science, humanities, management

The third theme that emerged from the interviews pertains to the object of identification in design and science, as well as in management. According to the interviewees, in science, the research aspect focuses on what is. The results must be reproducible and facilitate development of concepts and creation of knowledge. However, this can also be applied to design. One participant even shared the perspective that science should be viewed as a subcategory of design.

Interviewee 1 sees design research as understanding design as a discipline and thus believes that scientific methods should be adopted. This, however, is based on the assumption that design exists. Interviewee 2 questions whether design exists, as he/she thinks that it is constructed and is only complete when the design enters the market. In his/her view, while we can design prototypes of what design can be, we experience knowledge gaps in the design process. Looking at the artificiality, this interviewee even suggested that science is a subcategory of design. This perspective is, at a certain level, shared by Interviewee 3, because he/she believes that scientists are designing the research approach, and sees the object of investigations—when we look at design—changing from physical objects to virtual. Still, according to this interviewee, in general, we are changing the object of investigations when we are researching in design.

Interviewee 4 stated that natural science is looking for the reducibility of facts, and perceives the reproducible aspects as objects. Instead, in the humanities, in the aim is understanding of situations. Interviewee 5 also believes that science is focused on what is; it is a play of analysis and synthesis, how the pieces fit together. Therefore, in science, values will continuously evolve and change.

Interviewee 6 believes that the main difference between scientists and designers stems from the output, as scientists produce concepts and knowledge, while designers create artefacts. On the other hand, Interviewee 7 sees the barriers between science and design becoming blurry through technology, since the end user is changing the artefacts created by the designers.

Despite these varying responses, all interviewees agreed that science looks at what *is*, even in design, and even if this object cannot be made.

The interviewees shared a similar view when asked about design and its object of investigation. However, during the individual interviews, various perspectives emerged. Many experts noted that the object of design investigation is changing, in a sense that design investigations focus on artefacts being shaped. Moreover, there is also an indication that the boundaries of design and science investigations are becoming increasingly blurry.

Topic/Code: Dynamism: Design a changing entity?

Design as a changing entity was clearly identified as a topic, as it was noted in all interviews. Interviewee 1 stated that design is a sort of history because, as a designer, you are moving, rather than remaining stationary. There is a co-evolution between the ideas produced by design thinkers and the context. According to Interviewee 2, there is a distinction between internal and external dynamics. Interviewee 3 shared that the art of invention and discovery allows you to change the perspective. He/she also believes that designing, organising and managing are interconnected activities.

Managing and designing activities are increasingly becoming less distinct, according to Interviewee 4. In his/her view, managing was never linked to physical objects as design is now. Interviewee 5 sees management as focused on problem finding and problem defining. In simple terms, if I know what I am against, then I can work for what I want. Interviewee 6 offered the view that the way design is being framed actually helps people to change the thinking about design. He/she also sees some changes in the meaning in terms of re-branding. Interviewee 7 instead sees the changing artefacts, based on the scientific view that we learn how dynamic and revolutionary these artefacts are. Designers create such dynamic artefacts, while we can learn about changes from biologists, for instance.

All interviewees agreed that design is changing over time, and this can be seen in practice. If compared to science, which fixes terminologies, design can be described as a fluid environment. Both management and design are perceived as changing entities, which are constructed. However, as one interviewee stated, management is changed by humanities. The alignment of all interviewees towards this topic and code is obvious.

Topic/Code: The change in design is influenced by?

Here, before we can identify influences on changes in design, it is important to first establish how and by whom these changes are triggered. According to the interviewees, change is triggered by the (strong) individual, and in particular the language he/she uses. This is true, even if the influence of the individual is limited and the individual cannot control the change. Interviewee 1 noted that the practice of certain individuals has influenced how design is perceived. This is shared by Interviewee 2, who believes that strong individuals are very loud and have input in the change, even if they do not necessarily control the discourse. Instead, they irritate the discourse and they are very active in their effort to influence.

According to Interviewee 3, the change in design triggered by language, and design is a dynamic entity reaching more deeply into social matters, environments and organisations. Interviewee 4 believes that change is influenced by an individual, as well as by a collective. The same is stated by Interviewee 5, who sees the change being effected by educators and practitioners who incorporate their understanding and thinking about design. Still, the influence, the framing by the individual is limited, according to Interviewee 6. Finally, Interviewee 7 believes that, through theorising, the design community takes charge. Still, he/she raises the question of whether one belongs to this community.

Topic/Code: Design and knowledge

The next theme that emerged from the data analysis pertained to design and knowledge. The interviewees shared the view that design does not create knowledge, but rather models that can be applied to understand design (knowledge). Interviewee 1 sees no knowledge if there is no agent and believes that the knowledge abstracted from design is used to build models, which can be used to design a design support system. Interviewee 2 sees the knowledge gaps in design inherent in the design process and believes that the designers are responsible for bridging them. In contrast, Interviewee 3 offered the view that design comes from experience and is gradually entering into realms where its objectives are not well understood. According to Interviewee 3, the key is that talking discourse does not change the minds of individuals. In the view of

Interviewee 4, design thinking should tap into the knowledge of well-established disciplines, such as natural sciences, humanities and social sciences. He/she sees design as having many similarities with management as a practice; therefore, it is not about understanding or explaining an outer truth to somebody. Interviewee 5 sees the difference between design and science in the knowledge, since design does not focus on knowledge creation, while science and theory building aim to produce artefacts.

The same is stated by interviewee 6, who offered the view that since designers and managers are not interested in creating knowledge, but rather focus on decision-making. Interviewee 7 sees himself as a scientist, who wants to develop the theory of design, in order to define it. He/she posits that design by itself produces objects.

In general, nearly all interviewees shared the view that knowledge gaps exist within design. Moreover, as designers are not interested in creating knowledge, design should tap into knowledge gained in other fields, such as science and humanities. Finally, even if design is engaging in a discourse, that does not mean that it changes minds, as one interviewee stated.

Topic/Code: Designing Design

The next topic that was common in the interviews pertains to the value of the Designing Design model. Nearly all participants addressed this issue indirectly, even though their views varied. Interviewee 1 believes that the practice is changing over time and this shift is visible in patters. Still, he/she would be uncomfortable to state that design is being designed. Interviewee 2 shared that designers have limited control over designing design, as they design theories but cannot predict the ways in which they will be adopted in practice. He/she further noted that this lack of control stems from the fact that the discourse is subject to evolutionary selections and mechanisms we cannot fully influence.

Interviewee 3 believes that academic institutions, especially universities, are in charge of influencing trajectories and sees an immense power in the rhetorical approach. Interviewee 3 also shared that individuals alone cannot design design. Interviewee 4 warns that a too broad definition of design becomes meaningless. In addition, in his/her view, design needs to be a conscious decision, otherwise

everything is designing, since changes are constant and inevitable. Thus, we need to include discontinuity and failure in our conception.

Interviewee 5 sees this topic intimately tied to what is to be human and what is to be changing. Interviewee 6 questions the utility of theory, since it becomes meaningless if we design everything. In contrast, Interviewee 7 believes that we are always designing design, since the artefacts are very dynamic. Nonetheless, the process is influenced by power and politics to a certain extent.

Four of seven experts confirmed the value of both the theory and the model. However, two of these confirmations focus on the limited control and on the institutions and universities influencing the course of design through their power and research.

Summary:

Design, as indicated in literature and revealed in the interviews summarized above, is not a discipline available only to designers. It seems that most professionals who think about design, see it as related to management and science. Nonetheless, they have the tendency to see themselves as designers. Comparison of science and design reveals one important difference - the object of investigation and production. Science is (re)producing facts and knowledge using scientific methods and the results and findings must be replicable by others in order for them to be accepted. Instead, design is action - adjusting to situations and creating objects. The investigation in science focuses on what exists, even if it changes, as design does, for example. Design investigates design itself, even though the boundaries between design and science can become blurry.

Design is a changing entity. It is fluid, since it is constructed over time. Science, on the other hand, fixes terminologies. Strong individuals, through their language, shape the change in design, without being able to control the change. Instead, the community controls and shapes and changes.

Design creates objects. Science, instead, creates knowledge and artefacts that help understand phenomena. Design, on the other hand, creates knowledge only to understand design. Moreover, even if design is engaging in discourse, that does not mean that people will change perspectives.

Therefore, Designing Design is a useful concept - as confirmed by the majority of the interviewed experts - because it is a model that captures changes. Still, the interviewees raised the important question of the generalizability of the model, stating that there is a danger of losing the theory's meaning if the definition of design is broadened too far.

C.3 Findings Related to Designing Design

Designing Design is a novel concept, in the sense as we claim that the moon in its monthly appearance is 'new' moon. It is not uncommon to call something new because it is occurred for the first time within this period of time, within this month, decade or century. There have been many recent and on-going attempts to influence the course and trajectory of design. Authors, such as Buchanan, Cross, Friedman, Krippendorff and many others are deeply integrated with such approaches.

A discourse is established in design, and the community practising it is growing. Within the interviews conducted as a part of this study, it became obvious that designers had started to take responsibility for the meaning of artefacts by users, as Krippendorff (1995a) proposed. A science of design is getting established; designers and design theorists have started to work on the language that should be used within this field. These changes can be seen in, amongst other places, summarizing statements from these interviews:

Knowledge-level designing is a complete abstraction of designers, and design practice of the theory will look the same, despite practice being quite different. The designing changes according to the circumstances in which it is being practiced and designing will take the theory to where it can be tested today (Interview E.0.1).

Designing is the action motivated by trying to change your position. Design is a construct and, for me, the design process is complete when your design is entering the market (Interview E.0.2).

Discourse has failed to articulate in time what design is actually contributing and instead has rather focused on articulating management in design. When we are talking about design, which is a dynamic entity, we are talking about design reaching much more deeply into social matters or environments or organizations. Then you are dealing with people not trained enough in that language (Interview E.0.3).

In humanities, you do not have any problems with the influence of the object matter; you have so in natural sciences and maybe in design. Design thinking

should tap into the knowledge we have of the role of such large disciplines, like natural sciences and humanities, or social sciences. Design is very similar to management because, ultimately, it is not about understanding or explaining an outer truth to somebody. It is like drawing a decision (Interview E.0.4).

But our conceptions of how the world is and how it could be will continually be changing. So, I think, of our values, or let's say our sense of ideal and what we are striving for, will continuously be evolving and changing (Interview E.0.5).

So, when you manage your time, you are a manager, unless you say a manager is a person who manages people in an organization; and even then, you can say that, in order to be a manager, you have to have X number of people under yourself. We live with other people and, with this interaction, we construct the world around us - at least the set of terms that help us to communicate (Interview E.0.6).

I think it is certainly metaphorical and we actually identify genes in products; and then we actually use the gene sequencing to understand how this product evolved using those genes that we identified in products (Interview E.0.7).

These statements indicate that design moves towards humanities, redesigning discourse and establishing meanings of artefacts as a second order understanding (Krippendorff 1995a). Phrases such as 'shifting to a rhetoric and dialectic', 'solve the designing problem only through conversations', and 'a cognitive process, visioning the narrative' cannot be otherwise interpreted.

Still, **Designing Design**, as proposed, is not claiming universality. It is a designing act, extending the field of design into a profession to take responsibility for the meaning of design. As one interviewee stated: *'Designing is the doing of science,'* or as indicated from interviewee No 2: '*Scientific research is a sub category of design research'*

The above can be summarized as, 'designing on a meta-level' (Giaccardi 2005). This was indicated by a statement during the Design for Social Business Conference (E.2): *'as a new designers task: designing the wholes, the totalities of our lives.'* Such framing, such designing, is a theoretical activity and practice by itself. Theory and practice are becoming indistinguishable, and we use them to shape something (e.g., an artefact or an object) that ought to be. On this meta-theory level, design discourse and discourse design are one and the same, as stated in chapter A.2.9.

However, we need to prevent the rendering of **Designing Design** as meaningless, as two interviewees noted. Without clarifying that it needs to happen as a conscious task, the worth of the model and claim are useless. Everybody designs. As it is not a professional designing - a conscious act of designing - the inflation and uselessness of the concept is avoided.

The real danger is rooted in the generality of the presented theory.

Shaping design - consciously **Designing Design** - is possible through discursive activities. All conveyance matter has to be taken in account. The textual matter can be carried by non-verbal codes engraved in the material culture. Such documents are the precondition for claiming that design is executed by consciously and is thus intentionally changing these documents into monuments.

Design discourse shapes action, by shaping something that ought to be. It is a continuous modification and unification, occasional re-start, extension, and revolution; it is the increase in range and of simplification (Glanville 1999).

Designing Design is also a research process; it involves pattern finding and simplification that help develop our understanding. It is also designing of theory, of a model. For instance, if we look at the interaction design interpretation from the Managing as Designing Conference: '*…interaction design offers a possibility to describe how people relate to other people and how we can mediate this relationship through products and it hardly matters how these products are composed, documents, computers, programs, services, business*' (C.1).

Such a statement has been simplified and modified, to identify what is needed to extend its meaning and its semantics.

This simplification, as seen in many of the statements, is rhetoric of interpretation, but it goes beyond that into the rhetoric of design and the rhetoric of deliberation. In short, it is a designing act, stating something more comprehensive, rephrasing it to advance the field.

A summary statement, after refining and modifying, can be found in C.3: the observer and observed in such a business environment cannot be separated, since we are designing systems. The implication of such a view is that designers need to include stakeholders as designers in an on-going discourse, to moderate,

self-moderate and self-regulate, shaping the behaviour through interaction within the same organizational structure.

Design seen within this context, is meta-design - a Designing Design discourse.

Finding is Stating - the Design Cases

The conferences used in this context as case studies are not confirmations of the theory. Nonetheless, all three conferences and the results demonstrate that the theory helps to shape the design of the discourse platform presented.

Within the **managing as designing** event, it is possible to see how the conference and the discourse initiated have influenced the management and design trajectories. Designing in the management context is often re-design, interruption, resumption, initiation and re-contextualization. If designing occurs in an organization, it requires action without detached observation. We always design incrementally by redesigning what is already there; therefore, we never fully design organizations, as they live lives of their own. The models we use distort and influence what we find. The interaction design principles are applicable within organizational design as well; in this context, we design how people interact with each other and how we mediate these interactions through products we provide, or policies and rules we employ. Managers are designers, if consciously changing their attitude to shape an organization, which ought to be different.

In **Design for Social Business**, we have realized that the essential first task is designing applied concepts. Our responsibility starts with the terms we use - such as 'poverty', for example. Designing systems, like the financial systems, to serve people is a new concept design must address and provide. However, this accomplishing these new and complex tasks requires educating new designers. Each business can be designed as a Social Business, once the designing act encompasses the business, the organization and the products and services offered. The conference confirmed that interaction design is crucial, here, as well. We need to know the principles of how to shape the interactions between people. The systems can only be shapes within a collective process, as co-designing and co-creation. When attempting to design for Social Business, we must accept that the biggest change in our design understanding is the purpose. The purpose of the organization or business, is not derived by default, it is a

result of a design act. Thus, we must make sure that we understand that the purpose needs to be carefully designed, since it determines what the business will achieve, and what kind of problems will be solved. This includes the design of policies, which influence the systems we are acting within.

Many of these aspects were confirmed in the third conference, the design business conference. This type of design requires an extension of our current design understanding, so that it increases the number of choices available. Such new understanding also needs to overcome the preconception that we shape forms when we design. Design of systems and organizations is shifting to a rhetoric and dialectic. Only business modelling can overcome the artificial imbalance between analytical and synthetic processes in management practices.

Management and design are not separate entities, since design is an underlying foundational aspect that allows managers to rethink the concept of purpose in business. This relationship between design and management must meet at least three purposes:

- Creating roles for the owners

- Providing value for society

- Survival of the business, i.e., the institutional purpose.

In referencing Perelman (1999), it is evident that there is a difference between the humanistic and the engineering discourses (p.66). We can extend that to the design discourse, since design discourse is also informed by rhetoric of design. Humanistic discourse, by contrast, is based on the consumption of textual objects (Ibid). Within the interviews, both aspects are evident, as we bridge the design and humanistic discourses.

Asking the interviewees about their professional activities revealed varied views the experts had of themselves and their professional roles. Some professionals see themselves as designers, design theorists or natural scientists, at any given time. Others view themselves only as designers and design theorists. One participant stated that he is of a designer, while another indicated that he is not a designer at all. Finally, two interviewees have indicated that they are designers, managers and scientists. This wide range of responses indicates that the design as a profession can be viewed from a wide range of perspectives, as evidenced by a variety of answers to a seemingly simple question.

Regarding the methodology and differences between design and science, the answers the interviewees provided offered some common perspectives, including: design is action, doing, creating objects, artefacts, and changing situations. Therefore, design can also be equated to the 'doing' of science, as interviewee No. 4 stated.

As science produces knowledge using methods to replicate outcomes, it focuses on reflection and investigation in order to describe what is. Science can nonetheless be seen as design, since it produces artefacts, as interviewee No. 5 suggested.

Therefore, science can be seen as a subcategory of design. Interviewee No. 2 stated this in his response to theme 3 - research in science and design. Design research is research conducted in order to understand design - looking at something that changes, something that we construct, and trying to understand how the pieces may fit together. For interviewee No. 7, therefore, the barriers between science and design are becoming blurry.

Theme 4 reveals alignment across the responses provided by individual interviewees, as they all indicate that design is a moving, dynamic, changing entity. Design requires iteration and creates dynamic artefacts. Management, on the other hand, is busy with problem finding and defining.

Looking at the interviewees' opinions of design and knowledge, it is clear that design is not busy with knowledge creation; instead, it exhibits knowledge gaps. It creates knowledge only through models, developed by agents tapping into science and humanities (interviewee No. 4).

Theme 6 clearly demonstrates that all interviewees see design as a constructed, dynamic entity (interviewee No. 6). Science, instead, has fixed terminologies, as interviewee No. 2 indicated.

Searching for the agents responsible for this change, the experts agree that the change is triggered by some strong individuals, even if they cannot control the change. Rather, it is accomplished through a collective process in the 'design community', through organizations and through language.

Theme 8, as a final exploration of **Designing Design**, is evaluated from different perspectives. Interviewees No. 7 and No. 2 see the limits of **Designing Design** in

the individual. According to interviewee No. 1, while the practice of design is changing, to conclude that it is being designed would be too big of a leap.

Interviewees No. 4 and No. 6 indicate that the problem we are facing today is that designing must be conscious in order to confirm the hypothesis. Another problem they recognize is how to avoid the loss of meaning if design is defined in too broad terms.

D.0 Summary and Conclusion

The purpose of this chapter is to form a synthesis and to summarize the outcomes of the research. It also contains a synthesis and the answer to the research questions that guided this study. In the second chapter, the new knowledge generated as a result of this project is indicated and summarized, focusing on the knowledge pertaining to the general design theory, which helped to shape design. The methodology employed to generate such a theory is also briefly summarized.

D.1 Answering the Research Questions

The first question was: *'How to design a comprehensive theory of design?'*

Inherent in this question are several other dialectal questions, which are just as important. For instance, in attempting to answer the main research question, it was necessary to first address the following: *What is a design theory? What is a theory? What is a comprehensive design theory? Is it possible to design design? What is design made of?*

While none of these questions have been explicitly raised as a part of the research process, in order to arrive at the answer to the question guiding this study, they had to be answered.

Starting with **theory,** it can be understood as a model that can be applied to describe something, and to illustrate how something works, by revealing its components and their relationship to one another. Such a theory cannot be deduced, since it is a metaphor. Metaphors have the ability to both reveal and hide things. While theory can never be experienced, as it can be seen as a system, it is a totality. Moreover, theory is based on patterns that produce objects and allow discerning recognizable behaviours. Such a theory is applicable to science, as in scientific research the objective of experiments is reproducibility of findings that - when combined, coordinated and simplified - lead to general concepts. Such a circular process of finding and simplifying is valuable in science as well as in design. Popper (2002), who distinguishes between three

worlds, calls this world of theory, knowledge and problems World 3. Such a theory, according to Popper, cannot be proved through another type of world, such as the world o material objects, or the subjective world of minds (Ibid). Thus, theoretical model should be viewed as a proposition that, though unproven, is considered to be true, as it has not been disproven.

Theory, as a conceptual frame, must not only be productive, but also provide links between the centre and periphery of the aforementioned circular process, and it cannot be altered without being destroyed. In general, two methods can be applied to arrive at a theory - those based on quantitative interpretations of nature, and those utilising theory- then-research strategy. The latter approach is, in fact, a circle linking theory construction and empirical inquiry. However, there are also different categories of metaphors, and while some are much more interesting for certain processes than others, the most widely utilized are hermeneutical and logical metaphors.

With respect to **design theory specification,** the research conducted as a part of this study confirmed that it should include purpose, scope, constructs, form and function, artefact, testable propositions, justificatory knowledge, principles of implementation, and an expository instantiation.

How design and discourse can relate and how design in such a context has to be thought of is of interest as well.

Design refers to a process, which is goal-oriented approach to solving problems. Its aim is to meet needs, improve situations, or create something new or useful (Simon 1986). Simon's definition of design is the broadest and most inclusive, as he makes the case that design is the process by which we '[devise] courses of action aimed at changing existing situations into preferred ones.

Krippendorff (2006), on the other hand, indicates a 'semantic turn' when he states that the assignment of designers is Design is making sense of things.

Cross (2007a) summarized his research by stating that anyone can design, designing is one of the highest forms of human intelligence.

Buchanan (1996), instead, defines design as the new liberal arts.

Schoen (1987) describes the active process implicit in design and makes the case that, in a good design process, the conversation with the situation is reflective

and the situation talks back. His statement culminates in his concept of reflecting in action, which gives designers a new frame to conduct research (Ibid).

In general, an all-embracing definition of design generates a wicked situation, which reveals that there is no all-inclusive answer. Instead, what emerged is the fluidity and the constant transformation of a young discipline that can be best described as fluid and slippery (Verganti 2008).

Design Discourse, as a concept, was coined by Margolin (1989), who demonstrated the fluidity when collecting a set of essays on design understanding in order to define what design might be. In his study, he focused on the statements of various authors, which collectively comprised the design discourse his approach revealed. He summarizes his understanding of design discourse with the notion that design theory becomes a matter of argument and is a part of a debate in social theory in general (Ibid).

The distinction between humanistic and engineering discourse is interesting, since the former consumes textual objects, and the latter is informed by rhetoric of design, rhetoric of deliberation (Perelman 1999). In contrast, Poggenpohl (2004) sees various design sub-disciplines having virtually no discourse tradition. Despite their different perspectives, in general, all aforementioned theorists make the case that design discourse is needed. Therefore, Krippendorff's design discourse framework is used in the next chapters, and is discussed with Foucault's groundwork as the backdrop, with the aim of providing a better understanding of the design discourse.

Design knowledge, which is a term commonly used interchangeably with design theory specification, is generated in practice. It overlaps with research and is contained in traditional, rationalistic formats, as well as in discreet formats across various media. Design theory is the analysis and discussion of the validity of design knowledge, which connects past situations with new design problems.

Design knowledge is also present in the changing of artefacts, in the techniques of the artificial. Design knowledge is reflected in the grasping of the principles and methods that allow us to create effective products, as well as in the strategies and tactics - in the processes that include the natural and physical sciences as well.

Thus, Popper (1969) rightfully concluded that, in pursuit of design knowledge, every source is welcome. Of equal importance is the coherence between

knowledge statements and facts. Most knowledge is derived from tradition. However, in order to create new knowledge, the traditional knowledge and norms need to be challenged and overthrown. Nonetheless, in doing so, we must acknowledge that knowledge without tradition would be impossible attain. Pessimism and optimism do not help to judge epistemologies; instead, criteria that can be applied to recognize error and falsity are required (Ibid). In knowledge acquisition, intuition and imagination are most important, even if not always reliable. A solution to a specific problem typically yields new, yet to be solved problems.

As in our pursuit of knowledge, we solve and create problems, it is clear that our knowledge is finite, whereas our ignorance is infinite. In that respect, designing can be viewed as a problem-solving activity, which thus clearly cannot solve finite problems, as it creates new problems. In other words, in design, more problems appear concurrent with solutions.

An **object of design** cannot be observed. On the other hand, everything that is said and written about design can be observed, and if recorded, it can be subjected to later scrutiny. These statements - both written and said - become facts within the Designing Design. That is the foundation of a science of the artificial (Simon 1969).

Facts in design are artefacts - things created by human beings, man-made objects - whether these design artefacts are material or virtual objects or entities. Thus, artefacts are the foundation of Designing Design.

According to Cross (1999), there are three different knowledge areas - praxeology, phenomenology, and epistemology - where knowledge can be found. These three areas respectively refer to the knowledge pertaining to practice, the knowledge about the objects of interest, and the knowledge about knowledge - theory. Another differentiation between different knowledge types is proposed by Fallmann (2003), who distinguishes between 'design study', 'design practice', and 'design exploration.' These are particularly relevant for this thesis, as they focus on knowledge as it relates to design.

According to Roth (1999), **Design study** is 'research into practice'; however, this process is still different from science, as scientific methodologies are descriptive, product-oriented, whereas design methodologies are normative and process-oriented.

While design is mostly related to qualitative methods, science requires both quantitative and qualitative methods that would yield measurable and reproducible findings.

Another difference between science and design research stems from the fact that, in design (arts), there is the operation within an episteme, which does not allow for incoherent elements. Methodology (design) is concerned with identifying the right method to apply.

Design research methods are those that employ methods and processes from design practice. These methods have the advantage that they construct the future with disciplined imagination, instead of limiting the scope of their research by analyzing the present and the past only (Zimmermann 2008). According to Nadler (1967), the key difference between design and research stems from the fact that design is deductive while research is inductively-oriented. Aim of research is to derive generalizations or hypotheses from many instances and specifics, while design proposes solutions. In the research presented here, this dichotomy has been shown not to be valuable anymore. As discussed in this thesis, while there is a difference between design practice and research practice, as well as processes they rely on for knowledge acquisition, there is a way to view them together, especially if we extend designing into the realm of thoughts, as Buchanan (2001) does.

The dichotomy between practice and knowledge is no longer sustainable, as this research project has shown.

While the above relationship has been proven, without a methodological transparency, the difference between research and design practice will remain. 'Reflection in action' and 'action research' are the concepts that can be applied to overcome the theory and practice dichotomy (Swann 2002). The design conferences organized and discussed as case studies in this research have demonstrated that. It is evident that design profession is moving towards a more pragmatic position, since the work is not committed to one philosophical system, and especially since there is no strict dualism between the mind and the reality.

This process culminates in a situation where one no longer seeks the answer to the question of a design reality, as it rather becomes a question of changing the subject (Murphy 1990). In other words, we shift the focus on the subject of

designing theory, through working with theory and through designing conferences, as well as through individual conversations with practitioners (as was the case of expert interviews presented here). By describing process or action, we reveal a dynamic relationship between various elements that simultaneously indicate a methodology underpinning those theories, which needs to be better understood. The process of developing design theory can also be viewed as an attempt to relate two extreme ends of a continuum - theory and practice (Jonsen and Toulmin 1988).

The second research question was: *What methodology is needed?*

The second question opened up a discussion pertaining to the field of methodology, which can be understood as the path taken towards the proposed theory or metaphor. Another, more generic definition of methodology could be that it is the manner in which knowledge about design is generated.

The issue of identifying the best generated a general theory of design, **Designing Design,** whereas discursive practice helped understand how to get there. In addition to discourse practice, the designing pattern of theory design was also shown discursively.

Therefore, in this context, the practice refers to theory generated from theory, through simplifications and pattern finding. It is thus a circular process - a design process (Glanville 2009).

Foucault's concept of discourse, which is used as a reference in this work, is primarily focused on language and differs from structuralist methods of inquiry. According to Foucault (1972), discontinuity is characteristic of every discursive statement and dispersion is the reality underlying all discursive statements.

He defines 'discourse' as group of statements, which belong to a system of formation (Foucault 1972). Such group of statements may have any order, correlation, position, or function. A discourse can thus be a historical event or an archive of historical statements, as it was shown in this research. Discursive formations determine each other's limits or boundaries.

Pre-existing notions of unity must be abandoned (Ibid). Discourse is instead identified by attempting to define the elements of a series, by fixing boundaries, and by determining the laws governing the relationships between the series. Of

equal value in this process are the time chronologies and the notion of discontinuity, as both are instrumental to identifying discourse. This approach is the shift from a total history to a general history (Ibid).

Krippendorff (2006) drew a series he referred to as **'Trajectory of Artificiality'**, which starts with objects and uses discourse to produce change. This process is in fact a design discourse and uses Kuhn's paradigm shift as a philosophical base. While Foucault's episteme has a much broader focus, the main misalignment between Foucault's and Krippendorff's definition of discourse is located in the understanding of power, which Foucault sees as unavoidable, while Krippendorff deems erasable (Krippendorff 1995b).

Within this research project, the question of power evident and could thus not be avoided.

The **rules of design discourse** include five features, namely the production of textual matter, the artefacts it constructs and leaves behind, its life within a community of its practitioners, the instituting of its recurrent practices, the drawing of its own boundaries, and the justification of its identities to outsiders (Krippendorff 2006).

Foucault's (1972) concern is more radical, as he believes that design discourse requires dissociating statements from their original context to place them in a new context. However, he also notes that no discontinuity can be ignored (Foucault 1972).

For Krippendorff, knowledge is not partitioned, as it rather provides 'a continuity' through various disciplines (Krippendorff, PhD listserv, August 07).

Therefore, according to Krippendorff, work between disciplines is not needed. A discipline operates within a conceptual framework and holds discourse that represents a set of developed paradigmatic structures. Viewed in this context, design discourse is a discontinuous field of research, crossing into other disciplines. Thus, design discourse can be taken as a discourse hosted by various disciplines.

Still, it must also be acknowledged that **discourse is a method**, which can be shaped, changed, and designed. Discourses are different - one notable difference can be found between natural sciences and design since discourses (Krippendorff 2006).

The approach to problem solving has also experienced change, from a top-down technical problem solving to a conception of design that accommodates the participation of stakeholders, which then differentiates between tame and wicked problems (Rittel 1973).

The activities of designers are different to those typically included in scientific research, which are focused on search for what exists.

Designers are motivated by the challenges; they generate futures (Krippendorff 2006). In his later work, Krippendorff (2011) preconceives discourse as systematically constrained conversation (Ibid).

Discourse boundaries need to be set. Thus, intrusion - the crossing of the boundary - can be seen as an invigorating challenge, as it may lead to a change in an existing situation.

Visual input is central to framing discourse and the way thought is developed (Foucault 1988).In that respect, a designer can be likened to a painter, as designing process, while producing discourse, may not necessarily generate knowledge. In design discourse, the visual aspect is important, since there is a way to say and a way to see it (Deleuze 1986).

A discourse act is turning documents into monuments (Rajchman 1988).

Dialogues can be conveyed in various textual forms. Discourse and evidence - each layer is a combination of both, and from each layer to the next, there is a combination of discourse and evidence.

Key statements for design discourse are:

1. Design is practice and research.

2. Design is discourse.

3. Design is discourse about designing as well as design research discourse.

4. We are constructing design and design research as well as its discourse through the language we apply.

5. The discourse matter needs to be seen as comprehensively as possible, through verbal matter, images and objects, as well as text.

6. Theory, as it is understood here, is a design discipline, reframing and redrawing the lines of what design is and redefining the accompanying technology.

7. Designers produce discourse and evidence.

8. Design knowledge, as well as design discourse, is accessible and explicit, provided that evidence is accessible and can be understood by the audience.

9. Through discourse, design generates documents and transforms them into monuments.

Discourse, discourse analysis and discourse practice all have their unique characteristics that differentiate them from other two activities. For example, while discourse practice is not limited by language, discursive analysis is the search for discourses, discourse formations and rules (van Dijk 1989).

Drawings, for instance, in design are a mode of discourse (Robbins 1997). However, artefacts become increasingly embedded in language (Krippendorff 2006).

While Hart (2006) argues that there is difference between the interpretive processes of practice and research, since research is methodical search for knowledge (Friedman 2003). The elements of design knowledge begin in many sources, and practice is only one of them (Ibid).

As presented in the three design cases, the frame of designing design allows a better understanding what a community of people is actually doing when they practice discourse focused on certain thematic statements. The outcome - the changes in design theory, i.e., models of framing design- is obvious although difficult to measure. Nonetheless, some statements, such as examples below, indicate such an assumption.

- Managers are designers, designing organizations and services

- Organizational systems have never been totally designed; they have always had lives of their own.

- Design thinking in business practice is the solution in the area of non-programmed decision-making.

Such discourse initiated in a professional community, is shaping design understanding; and is still shaping, since it has spread across business schools

and is still influencing design understanding within the design community. In the case of the discourse Design for Social Business, the impact on design conception and understanding is not as obvious. The key statements might influence certain areas of design in the future. While such statements indicate reframing of design as well, there are other factors:

- The **design frame** is moved into system design, asking, for example, how we can design banking systems.

- One can design policies from thoughts to action.

- Designing the totality of our lives seems to be design's new task.

An imitating aspect might be that discourse initiated is very much outside of design, focused on the issue of social needs, and therefore effecting design to a lesser extent.

Within **designing business** - which was the topic of the third conference presented here - the impact of design and the theory of design is more obvious, as the statements below confirm:

- Design understanding should increase the number of available choices.

- The design practice is shifting towards rhetoric and dialectic.

- Designers can solve these design problems only through conversations.

The **Designing Design** aspect of the third case study (third conference) is much more clear and distinct. The discourse reaffirmed the possible 'new domain' of designing business.

There is coherence between what was stated and the procedure of **designing design**. The discursive procedure can also be identified with design thinking, which is based on rhetoric and dialectic—it is textured. Design thinking is best exemplified by a conversation with the actors in the network, the community of people who met to solve some problems in design. However, from methodological perspective, it is evident that there is no single way of **Designing Design** or re-**Designing Design**. A range of discourses can be applied, executed in a range of discourse communities or as an individual. What is needed is to design a theory is theory discourse, or discourse practice within a community of professionals. This is also design research, or more specifically research into

design as a practice, the practice of executing research, executing discourse. It is here that design knowledge and design research overlap (Friedman 2002).

The alternative way of **Designing Design** is described under the A 3, since it uses a discourse community and discourse events, various conferences and semi-structured interviews, to testify and verify (or even redesign) the core thesis statements.

Design is Discourse, as it is discursive; the structure of design processes and discourse settings are the same. Love (2000) proposed taxonomy of design epistemology that belongs to the meta-theoretical structure of design theory.

Moreover, according to Foucault (1972) and Krippendorff (2006), such a discourse practice must have some rules, such as how to get there (which is a rule-based process). In relation to Krippendorff's five features (Krippendorff 2006, p.23) the following statements regarding the rules can be made:

- Within the body of text (texture), the discursive character needs to be obvious and recognizable.

- The discourse or designing needs to be kept throughout the documents created

- The discourse or designing institutes its designing practice

- The discourse or designing draws its boundaries

- The discourse or designing identifies itself to outsiders

Applying such a **general theory**, design is a monument, and design has turned some documents, textual objects into a monument.

It is also a meta-discourse (Hyland 2004).

Engaging in discourse is designing, and since it is conceptual designing, it is also engaging in Design thinking. If such process involves others, it is not only co-designing, but also producing discourse. Such designing discourse helps maintain dialogues with objects and through objects, in order to overcome limitations of imagination, prototypes and forms (Faust 2009). Design thinking is coherent with the process of **Designing Design**. It is a result of discursive design thinking, which results in designing theory systems.

Design thinking is the core activity of **Designing Design**. It is about the thinking of how to reach the goal and executing the process. It is about the technical

aspect, focusing on what is needed for the production, and it is about the consequences of such a theory and model - what does it imply? It is also thinking about the dependencies and the acceptance of such a theory within the community of professionals.

Cross (2008) criticizes the fuzziness of this term and makes the case that design thinking encompasses all forms of thinking (Cross 2008). However, within this research, the discursive act of designing theory is in coherence with what is called design thinking. Epistemologically, it is a discontinuous process - a characteristic common to every discursive statement. According to Foucault (1972), there are bodies of knowledge, which are independent of the sciences, but that there is no knowledge without a particular discursive practice.

Knowledge can also be understood as the space in which the designer - focusing on the current frame - or the scientist speaks about the object or process of design that he/she deals with in a discourse. Design discourse does not necessarily conform to scientific standards, as there can be discursive formations and statements that do not conform to the formal scientific criteria. Knowledge is thus also a belief that is shared by the members of a community. Knowledge is socially accepted and shared, even though criteria for acceptance may be different in epistemic communities. In that respect all knowledge relative. Design knowledge can, therefore, be different. Such 'designerly knowledge' can be specific to the field of design and it is not necessarily scientific knowledge.

Third research question: *is such a theory valuable?*

What is obvious within this summary, that the questions have generated further question to make the answer transparent. An attempt to establish whether such a theory is valuable puts new questions on the table, such as: Can such a theory be verified? If so, what value does it have? In which context does the theory have value?

The **value** can be seen within the theory generated, in the process of designing, as well as in the theoretical modelling of the process - the framing of the practice of generating discourse. Such a designing process is also **action research**, since the action research cycle comprises a pre-step and three core activities -

planning, action and fact-finding (Lewin 1946). It is a learning process - a fact-finding endeavour - with the aim to evaluate, adjust and improve the first step. It is a continuous spiral of steps; it is a circular process of planning, action and fact-finding (Ibid). This recursive process was evident in the conferences, which allowed a pattern to emerge, framing such a discursive setting.

Such fact-finding endeavour has value, in that it is a participatory design process, reflecting design as a social process. Since the conferences executed, the discourse practice is extending beyond the designer. It's a shift in attitude from designing for users, to one of designing with users (Sanders 2002). This collaborative learning process can also be characterized by sharing language to communicate visually and directly to generate designs.

On the other hand, it can also be understood on the basis of **grounded theory**, as it allows observing and generating connections between disparate entities. It is an inductive theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data, which were, in this case, statements (Martin and Turner 1986). Grounded designs are generalizable, in that the designs can be applied more broadly (Hanafin 1997). The conference setting can be thus aligned with other areas. The theoretical model is influencing the designs, whereas the designs are also informing. It is an iterative and responsive context. Therefore, it is possible to say that design theory in action: **Designing Design** is a grounded design process, or it can be framed that way.

Finding is Stating

While the conferences cannot be seen as a confirmation of the theory, together with the results, they still demonstrate that the theory helps to shape the design of the discourse platform presented. That is their true value.

It is also immensely valuable to see how the conferences and the discourses initiated have influenced the management and design trajectories.

Designing in the management context is often, in fact, re-design, interruption, resumption, initiation and re-contextualization. If designing occurs in an organization, it requires action without detached observation. The models that can be applied will always distort and influence what is findable. Thus, appreciation of these coherences and links is valuable as well.

The interaction design principles are applicable within organizational design as well. Within this type of design practice, we design how people interact with each other and how we mediate these interactions through products we provide, or policies and rules we employ. Managers that consciously change their attitude to shape an organization and change aspects that need to be modified are also designers.

Given the above, management and design are clearly not separate entities. Increasingly, design is being recognized as an underlying foundational aspect that allows the managers to rethink the concept of purpose in business. It helps fulfil at least three purposes:

- Creating roles for the owners

- Providing value for society

- Survival of the business, i.e., the institutional purpose

Perelman (1999) points out the difference between the humanistic and the engineering discourses. Extending that notion to design discourse indicates that it is also informed by rhetoric of design. Humanistic discourse, by contrast, is based on the consumption of textual objects (Ibid).

The value of the design theory was discussed in the semi-structured interviews that were conducted as a part of this study (documented in Part C). The feedback the interviewed professionals provided offered some important insights and limits. Thus, even though the frame of **Designing Design** is not novel, the thesis presented some new ways to explore it in more depth.

There have been many recent, as well as some still on-going, attempts to influence the course and trajectory of design. As the interviewees indicated within their answers, knowledge-level designing is a complete abstraction of the role of a designer, enabling design practice to generate theory (Interview E.0.1). Performing design is action and a construct, whereby the design process is complete when design is ready to enter the market (Interview E.0.2). The value of this process is in its contribution to design, which facilitates execution of management responsibilities. Although most people design as a part of their everyday life, they cannot be called ‘designers’ as they lack language to describe the process and its outcome (Interview E.0.3). In other words, the value of design as a profession is also in the language created within the theory. In humanities,

as well as in natural sciences, problems might arise due to the influence of the research activity on the object matter. However, the same applies to design.

Design is very similar to management because, ultimately, it is not about understanding or explaining some universally accepted truth to somebody, as its main objective is arriving at a decision (Interview E.0.4).

Our conceptions of how the world is and how it could be will continually be changing. Our values determine the goals we are striving for; however, they too will continuously be evolving and changing (Interview E.0.5).

We live with other people and, owing to this interaction, we construct the world around us, at least the set of terms that help us to communicate (Interview E.06).

Value of an artefact can be metaphorical. However, as genes can be identified in products, their sequencing can be used to understand how this product evolved (Interview E.0.7).

The statements provided above are a brief summary of the information yielded by the expert interviews. They collectively indicate that design moves towards humanities, redesigning discourse and establishing meanings of artefacts. Krippendorff (1995a) sees this as a path towards a second-order understanding, which adds value to the entire process.

Without accepting the above statements as valid, phrases like 'shifting to a rhetoric and dialectic', 'solve the designing problem only through conversations', 'a cognitive process, visioning the narrative' cannot be otherwise interpreted.

The value of **Designing Design,** as proposed, is general, since it is not claiming universality. It is a designing act, extending the field of design into a profession to take responsibility for the meaning of design.

One can call it, *'designing on a meta-level'* (Giaccardi 2005). This was indicated by a statement during the Design for Social Business Conference (E.2): *'as a new designers task: designing the wholes, the totalities of our lives.'* Such a framing, such a designing, is a theoretical activity and practice by itself. Theory and practice are becoming indistinguishable, and we use them to shape something (e.g., an artefact or object), which ought to be. At this meta-theory level, design discourse and discourse design are one and the same, as stated in Chapter A.2.9.

Still, there is a need to prevent the rendering of **Designing Design** as meaningless, as two interviewees noted. Without clarifying that design needs to evolve as a conscious task, the model and claim proposed in this work are worthless. Everybody designs, but it is not a professional designing, a conscious act of designing. This clear distinction between the creative acts of ordinary people and design professionals helps avoid the inflation and uselessness of the concept.

The real danger is rooted in the generality of the presented theory, as it typically leads to less specificity.

Shaping design - **consciously Designing Design** - is possible through discursive activities, while making sure that all conveyance matter is taken in account. The textual matter can be carried by non-verbal codes engraved in the material culture. Such documents are the precondition for design being executed consciously and intentionally. This, in turn, transforms these documents into monuments.

Design discourse shapes action, by shaping something, which ought to be. It is a continuous modification and unification, with an occasional re-start, extension, and revolution; it is the increase in range and of simplification (Glanville 1999).

Designing Design is a research process; it is pattern finding and simplification aimed at developing our understanding. It is a designing of theory, of a model. For instance, looking at the interaction design interpretation from the Managing as Designing Conference, it can be seen that '*…interaction design offers a possibility to describe how people relate to other people and how we can mediate this relationship through products and it hardly matters how these products are composed, documents, computers, programs, services, business*' (E.3).

Such a statement has been simplified and modified, to identify what is needed to extend its meaning and its semantics.

This simplification, as seen in many of the statements, is rhetoric of interpretation, but it goes beyond that into the rhetoric of design and the rhetoric of deliberation. In fact, it is a designing act, stating something more comprehensive, rephrasing it to advance the field.

A summary statement, after refining and modifying can be found in C.3: the observer and observed in such a business environment cannot be separated, since we are designing systems. The importance is that designers need to include stakeholders as designers in an on-going discourse, to moderate, self-moderate and self-regulate, shaping the behaviour through interaction within the same organizational structure.

Design seen within this context, is meta-design - a **Designing Design** discourse.

Within the interviews, the bridge between design and humanistic discourses is obvious. The interviewees included professionals who see themselves as designers, design theorists or natural scientists, at any given time. The value is here to see that design discourse is not a domain reserved exclusively for designer and theorist. Design activity and the role the individual performs always depend on the situation. Design is an action - doing, creating objects, artefacts, and changing situations. Therefore, it can also be a scientific endeavour, as interviewee No. 4 stated. Science can be seen as design, since it produces artefacts, as interviewee No. 5 suggested. Therefore, science can be seen as a subcategory of design. For interviewee No. 7, therefore the barriers between science and design are becoming blurry.

The value of the work presented here can also be found in the perspective that design is a moving, dynamic, changing entity, based on iteration. Most importantly, it creates dynamic artefacts. Management, on the other hand, is busy with problem finding and defining.

Design, however, is not focused on knowledge creation; it exhibits knowledge gaps (interviewee No. 4). Design is constructed, and is thus a dynamic entity (interviewee No. 6). Science, instead, has fixed terminologies, as interviewee No. 2 indicated. Change is triggered by some strong individuals, who cannot control the change. Rather, it is accomplished through a collective process in the 'design community', through organizations and through language. Interviewees No. 7 and No. 2 see the limits of **Designing Design** when attempted by an individual. Interviewee No. 1 indicates that the practice of design is changing, albeit without making the leap to conclude that it is being designed.

The problem all interviewees agreed on is that designing needs to be a conscious if it is to confirm the hypothesis of **designing design** (interviewees No. 4 and No. 6). The value of the theory can be undermined by its breadth and generality

D.2 Theoretical and Practical Knowledge Contribution

The main contribution of the research presented here is the description of the **Designing Design** theory, the **generated methodological frame** and **the documentation of discourse** as the underlying method, and **two discursive practices**. Design discourse, as outlined in this thesis, is another contribution of this work to the field. The exploration of Foucault as a backdrop for design theory and its coherence and dissimilarity to Krippendorff's design theory is a contribution as well. Although mentioned and touched upon, as this analysis was not explicated before, it could not have been called knowledge. Therefore, the contribution of the thesis is the newly attained understanding that discourse has the potential not only to design, but can also generate models and metaphors.

The second methodology explored in this work is the research into practice, executed through the design of the conferences and the documentation of the outcomes. Within the developed terminology, it was the design of a platform where a community of people discursively discussed given themes to expend or reframe design. Adjacent there has been knowledge produced through the given topics: 'Managing as Designing', 'Design for Social Business' and Designing Business'.

The intention of this research project has been to:
- To gain or produce more knowledge in the field of design
- To enhance the methodological divide between design and science
- To create a distinctive position, based on the knowledge generated

In reference to the first objective, much new information has been generated about the coherence of discourse, design discourse, design methods, and design theory. This helped understand how to design theory, design epistemology, and its contextualization within core concepts as design thinking or co-design. New information was also generated on the links between theory and design practice, revealing how the research into practice has generated documents from a design process, where a community has been performing the design work.

The significance of the explicit methods and processes is described in Part A and Part C. It was shown that, with the explicit method and processes, it is possible

to move design into new territories, allowing us to redesign its understanding and its meaning. The work presented here also highlighted the importance of fix a new boundary, as shown in Chapter A.6. Finally, a clear distinction between design as a basic human activity and a professional designing was established. The research questions were already formed on the basis of the thesis that **Design by itself is discourse**. **Designing Design** can be seen as a meta-discourse. The hypothetical statements have been generated abductivly, not logically, base on some preliminary studies and experiences in the field of design theory. The evidence produced in the theoretical discourse, in the design conferences as well in the professional interviews, does not give a clear-cut answer; nonetheless, it strongly indicates that designing design is executed within various modes, individually as well as collectively. Still, there is no guarantee that the professional community will accept it. There is the danger of the generality, as some interviewees indicated, since less specificity goes hand in hand with limited utility.

The second intention within this project was to overcome the methodological divide between design and science. Part A.2 shows that there are 'frames' where design and science overlap, since scientific work also aims to change the current situation into a preferred one, possibly leading to new models and theories. In this context, scientists design as well. The exploration of discourse, of design theory discourse, using the documents presented confirms these statements and facilitates discourse formation, allowing us to understand how these frames can be conceptualized.

These findings also suggest that is necessary to introduce knowledge generation to designers and to show them how discursive acts can be used to explicate the underlying knowledge in design processes. Discourse, as it is shown in this research project, needs to leave space for discontinuity - for the gaps, for the unknown—in order to prevent the progress being hampered by preconceived notions. Methodologically, it was shown that such discursive acts are not linear;

instead, they a characterized by circles - by the need to go forwards and backwards, while positioning and stating - that might lead to the solution.
The **third intention was to create a distinctive position** in the design field, based on the knowledge generated. As the conferences, the interviewee statements and contributions of different experts to the documents show, a distinctive position can be evaluated from various perspectives. It can be understood as the acceptance of the knowledge contribution in the field of study, as the coining of terms, as the influence of the discourse trajectory in the design discourse field, or it can be politically positioned. These are the rules governing the discourse and the acceptance of formations.

The thesis has been accompanied by some publications, in addition to several sections that are currently being prepared for publication in various international journals. In particular, the methodological aspect of designing design and the discourse, as outlined, will have its place, since it is still not a part of the design discourse.

As recently signed contract to publish the results of the design business conference shows, the distinctive position can grow and is expected to grow even further in the future.

The discourse contexts, as well as the application of the theory within various design frames, have shown that the knowledge generation has just begun. Putting an idea, a model, a theory into the world, will allow us to reframe existing frames, as it was shown in Chapter A.3. That effort is directly linked to the creation of monuments, which can only be accomplished with documents. In terms of avenues future studies should pursue, many of the topics covered in this thesis can be explored further, because, as the thesis has shown, knowledge creates further knowledge and raises further questions.

In closing, it is important to note that **the hypothesis can be confirmed:**

Designing Design needs to be seen as a (conscious) design discourse, as co-designing with others in a community, and it is always a re-designing of pre-existing theories.

Designing Design requires thinking, which rests on the manipulation of non-verbal codes in the material culture, as well as in signs and symbols. These codes translate messages between concrete objects, abstract requirements and language elements.

Design is turning documents into monuments, as discursive action turns textual matter into theory.

Designing Design is not focused on discourse analysis, since it will always remain confined to the markings of textuality - a play of semantics. **Designing Design** is a focus on discourse-as-knowledge.

Discursive consciousness can be understood as the conscious state, which emerges within discursive as well as practical settings. A designer is a practitioner, and a reflective designer reflects in action, simultaneously relying on his/her discursive and practical consciousness. Such a designer is thus a strategic practitioner, whose intent is to **design design**. We can confirm the coherence between epistemology and design, as it is clear how the knowledge is obtained - through design. In the context of this study, it is generated through theory design.

This design discourse or, for instance, the **Managing as Designing** activity, serves as evidence that the model of design has been redesigned, since the understanding of design has been reshaped to now include managers as designers.

In the case of **Design for Social Business,** a very important notion that we are designing totalities, systems, emerged. The question is how can we mediate the two modes - collaboration and competition?

As the **Designing Business** discourse shows, the increase in the number of choices within an act of designing business is a prerequisite for a successful shift to a rhetoric and dialectic. This will allow conversation-based problem-solving.

Design changes over time; it is fluid, as it is constructed. In comparison to science, which fixes terminologies, design is dynamic. The change in design is shaped by strong individuals, by their language; yet, they cannot control the change, despite their efforts to control and shape it.

Designing Design is a useful concept, because it is a model that captures the changes.

E.0 Appendix

The Appendix E includes all needed material that was essential for the research and was thus used to evaluate and compile the thesis.
In sections E.0.1 to E.0.7, all professional interviews are transcribed into text verbatim.
Moreover, in sections E.1-E.3, the documentation related to the conferences is presented, followed by a discursive summary and the references utilized in the events.

E.0.1 Interview T.

J: The first question is: 'Do you think you are a designer, a scientist or a design theorist or all of that? You can choose a category to qualify your thinking.'

T: I tried to do little bit of thinking about these questions beforehand, so I think to answer your question **I would say I am all of these at different times (1).**
So I would want to be clear that I am all of them but not all of them at the same time. I am somehow each of these at different times. I do some professional designing, although I am not a professional designer. Very few people pay me to do designing these days. I do a lot of things, which I count as kind of designing, sometimes It is the work I do, and sometimes there are other things I do on the scientific side and on the theory side as well. So, I call myself a professional researcher and I would make a distinction between doing a science research and doing some engineering research. Most of what I do comes under engineering research and actually covers things in robotics. Most of that robotics work will typically be an engineering type of research involving some designing, which engineering research does, but It is principally a research question in engineering.

J: Can you explain your answer: how would you differentiate between an engineering research and science research?

T: I do make a difference here and It is interesting. You should ask me this because I do not find many people having this distinction or even using this. **Science, I believe, follows basically a scientific method in doing research**. This means, for me, principally **independent replication of the outcomes (2)**. So, until there is some sufficient independent replication of the outcome, science does not establish the fact that there is an outcome. So, there are outcomes, which may have a preliminary status perhaps. Now, curiously, if you look at something like computer science, almost everything is preliminary. So It is a bit funny and this is why I like the distinction because you'll find lot of workers learning computer science, which is pretty strange from the scientific point of view. It is actually not good engineering research either, so it falls between the two. Engineering research, I do not think necessarily needs independent replication of outcomes. What it needs is **sufficient demonstration (2)** of possibilities in all-engineering senses. Another reason why I would like to keep these separate is that engineering brings in all sorts of

another dimension aspects that have to be given good consideration in practice, [and should] therefore [be] understood by doing some research, like effectiveness, safety, liability, recycling etc. And, of course, there are tons of these aspects and you can find good engineering research being done on these aspects, sometimes together or sometimes separately.

J: It is very interesting for me as well. Let me ask you how you would identify the difference between scientific research and engineering research.

T: Yes, I do make a difference. It is kind of tricky because, in doing some science research, you have to do some engineering research quite often, and in doing some engineering research; you have to do some designing. But I wouldn't call it a design research. So let me give you a concrete example from my own experience very early on during my PhD. I did my PhD in the engineering department at Cambridge University and I worked on some computational technique to support the design of a very special kind of structure only used in radio telescope. After I finished, I went and worked in the radio-astronomy group at Cavendish for a year or two. Here, I used what I had done in the PhD to design a structure for a real telescope and this motivated the PhD work in the beginning. This telescope eventually got built and this is at the top of Mauna Kea at Hawaii, It is the Canada- France millimetre telescope. It is quite old one to be used in radio astronomy but it is one of the early ones and quite successful. Now, the people I was working for were radio astronomers and these are scientists as well and they were interested in making certain kind of observations of millimetre waves, principally used in making observations in dust and star formations. But in order to do that science, they had to do some very serious engineering in simply designing and building a telescope, which means building the optical, the big dish, plus the receiver in their case, and these were quite complicating things too. What I discovered in the Cavendish lab was not just radio-astronomers in particular case, but in that group, there were some very good engineers who designed receivers and who also worked on aspects of telescope engineering and design, plus some engineering research that went on. I grew up that way; I have lot of science involved in doing a lot of engineering and a lot of engineering research to support that engineering to do that science. And, of course, within that, you could find necessarily some designing, but not research typically. So, I kind of pulled out design research and have relatively had a small corner for it because **design research is about trying to understand what designing is (3).** So I like to keep that separated from these notions of doing research by designing that we see on PhD design list.

J: Interesting differentiation.

T: Now let me finish the previous answer. Design theory work that I do, I would count that within **science research, which I do on trying to understand the designing**. I think design research is, or should be, a kind of scientific research in the sense that it needs to adopt, broadly speaking in the pragmatic way, scientific method.

J: In order to pick up what design is. Now we can talk about that in some of the later questions. So should we go to the question 2?
So are you thinking design is something static or design is a dynamic entity, which is being shaped and developed over time and shaped in the future?

T: I find this a very interesting question. What I had for myself may be not quite stated in this way, but It is been in much of my worry to think about designing, but I've never seen anybody else ask it. **But I think it is rather central to the whole issue because, if you take this sort of scientific stance on something, you do have to make some presumption that the phenomenon you are interested in understanding in scientific way does exist.**

So, is there something like designing? It is sort of getting our arms and fingers around it and grabbing enough of it and say 'at least we're getting to understand something out of it'. I can think two sides of that, one is I know this word is used by so many different people actually' there is no real phenomena here; It is just a pretty theory. **I do believe there is something that you can actually get your arms or hands onto.** But It is not clear to me that It is static time and this kind of little bit helps me towards my approach to designing at all. If **you look at the practice of designing, it is almost inevitable, you reach a conclusion that the practice has changed over time over hundreds of years**. If you look back 100-500 years, you know what people were calling designing is what it is today. Now, is that a change of word or is that a change in practice? **I am happier with the idea that this is a change in practice and I think this change is still going on.** It is wrong to think that is has stopped nowadays due to some static reason or something else; It is still going on. So, the question now is what is a design theory about? **Or, over a period, does design theory also have to move with it?** It is a very motional theory, [but] that's not how it looks like in science. The theories are meant to be static and, over the time, they may be thrown out when we discover that they do not satisfactorily account for observations or we find better ones.

J: Yes, because science is always busy with what exists. You are right, that's interesting.

T: Right, so I always have felt sort of tension. **If you look at history of the practice, you can safely say that practice has changed over time and for a good reason; not just the technology, but also the society, economic conditions, human conditions - basically not just the technical conditions.**

J: Let me ask another question because it is very interesting the way you describe, when I look at the questions 3 I did send to you - 'If you think as a designer, wouldn't you have a different perspective as a scientist to watch that question'?

T: Yes, I do. I think It is exactly the right question to follow up here because I **think necessarily, as a designer, I have to be going and not where you are, in this changing world.** And I think it is about history of designing, which, it turns out, very few designers know. How many subjects that I come across design is having ever been taught, not explicitly, often as is [a part of] architecture. So, for example, when I happened to have a conversation last year with somebody who happens to be a chip designer, electronic circuit design is quite natural process is not it? Nevertheless, It is very sophisticated kind of design work, very skilled, very specialized and he knows nothing about history of designing chips. It is hard to do what he does and he is very good at it. He makes good business out of it, but he knows nothing about how chips were designed 10-20 years ago, which I found little bit shocking. So It is interesting and I think may be it depends on what kind of designing you are doing. So, if you are an architect, It is probably rather difficult to not know where architecture has come from and how It is done and how the designing was done.

J: But maybe that's not such an easy undertaking because I know you have been pushing the issue of history of practice. But is there a clear history of practice?

T: No, I think this history is not well documented, not well studied from a historical perspective.

J: But is not it clear that history is known as one of the most weak and fuzzy things. When you speak about scientific approaches, history is one of the most difficult entities. Is not it?

T: Yes, it does not fit naturally, given that we are principally educated to be science researchers or engineering researchers and I admire myself for being educated as an engineer. History does not come to me easily and I find ancient history really boring although other kinds of history I have come across over

the years **I find incredibly interesting and mind boggling. So I do have some interest in how the history has evolved. For me, that fits in a strange way somewhat similarly to what we do in designing**. **Designing is somehow sort of history, I suppose, where we know quite a little about how things are now.** The quantity that you give due consideration to and perhaps you can specify for at the end how things could be or need to be or will be featured. Thinking like that make it easier for me to think and also explains to people why history has so much importance in designing. They are the side of where you need to have to look forward into the future.

J: I want to provoke you a little bit. Does it really help to understand designing if we know that, depending on our construction history, it looks very much different?

T: I think It is in a way inevitable. **If history making is a constructive process and by different people** it is likely to look different. But **designing to different designers approaching design project will often come to very different things because it is a constructive process involving people or human beings** who have different experiences etc. And I think it is normal and natural thing to some extent. Designing and history making, these are things we pretend to escape from while we try to do science.

J: I think the interesting part is that, when you see history as a dynamic entity and the designing depends on how you make up the history, how you tell the story so It is pretty clear that design is a dynamic entity. So, how do you think that we developed the notion or concept of design over time and what are the underlying processes of that?

T: This is another good question because this kind of fits with the struggle. **I do see patterns of change in designing over time, certainly for variety of reasons. So, how can you think about capturing a notion of what designing is? It is somehow a target moving with times. So I have the hypothesis that It is the practice that does change over time or has changed over time. And we can expect it to continue to change. But there are always and have always been ways that are somehow according to it, which may be more or less reflected in the practice that you see. And so I have this notion and, if you like, you can call it a theoretical hypothesis, because you'll take a awful lot to demonstrate it. So I have this belief that you can capture important understanding of what designing is, which is essentially independent of the practice we have seen, we see, or we'll see.**

J: So, this kind of capturing is independent of the practice. Can you explore that a little bit more?

T: This is what is rather peculiar and I have to admit, for many design researchers, a bit objection and a bit satisfactory part of the theory I worked on or I developed. In this knowledge of the designing list that I had published about, I have not done a lot of work for a quite long time now, nearly 10 years in fact. But I did quite a little work for 10-12 years and let me just give you a little bit of history why I started this. After my PhD at Cambridge, I started working for a small company and then, later, I moved to the department of artificial intelligence in Scotland and then I ended up working on two things, one of which was robotics. I was appointed as a teacher in robotics and then I was included in a big group, which was working on design on a collaborated project on a UK-funded project. We tried to develop intelligent knowledge-based design support system. So, this was a lot of pulling together, I would search in representation reasoning, principally to try and build systems that would support real design to do some real designing and we had real designers who did real designing in this project. It worked more or less well; we worked hard on building the systems and sometimes they were okay and sometimes they weren't. And, after a while, you could see a lot of other difficulties, like the technologies didn't go fast enough, and you could see if it did go faster as 10 times faster, it could probably be quite useful. But you could look those and improve them by further research; and we did, and we made some improvements.

So they all were sort of research issues that were recognized in the works that we did and we made certain progress in improving things. But the other thing, which I grew to be worried about, was, we do not know anything about the designing that we are going to support. We easily talked about designing and we talked with the designers as to what we had to do. But we knew nothing about the engineering of the systems. That's how I started design research and, of course, I knew some from my Cambridge days, so it was easy and I knew some of the literature of designing methods. So, sometimes, I wondered where we could find a law in theoretical support to what we were doing and I could not satisfy myself that I could find anything. I kind of started doing what was useful. That was a non conventional theory design. I was trying to understand what the knowledge processes are and then go to make up all of the designing, so that we could understand how those knowledge processes might be supported. Now, I fairly quickly went and discovered the knowledge levels; I knew it, I was teaching the stuff and I felt well this has a very clean notion of knowledge, a practical one. So I took that and, it turns out that, so many people at that same time got involved in what was called 'knowledge engineering' and I found a happy home within that community. So we had some quite useful and strong conversations about the work and designs. So my theory came out of that. What I tried to do in my theory, I put together a clear organization over the different kind of knowledge needed in doing designing. **Now the thing about years of knowledge level is that it allows depending upon a notion of agent because, if there is no agent, then there is no knowledge. You can convert the knowledge independently of how the agent is implemented, which you can abstract away from people. So, knowledge level designing is a complete abstraction of designers, and design practice of the theory will look the same, despite practice being quite different. And It is with that sort of claim that I resolve this tension.** We see designing as its practice is changing. Well, it has and it will and, even if you look across different aspects of designing and different types of designers, [it] is different. But, I still think this scenario, because it is abstracted well away from practice and can still say something about what's inside, that even though we cannot necessarily see that.

J: Let's come to the next question. Do you think the development of design, as you just mentioned in your modelling, what you have done in order to understand what you have been doing in your practice, is this kind of design triggered by an individual, or do you think this is a collective process? And how would you frame the relation between the contribution of your individual and collective?

T: I think, if you look at designing for over a long period of time, and I have to look at only particular kind of designing because I do not know lots of them. I know something about few kinds but not all. You cannot find examples of architecture of individuals influencing how designing is done. For example Frank Gehry, whose way of designing and in particular his use of computation modelling, is now rather common today, but when he started doing it probably 20 years ago, it was not what you saw in that kind of architecture practice.

J: Absolutely, I know Gehry personally. I worked with him in the US, so I know the history of how he changed the software. He was focused on the software before he was able to construct a building.

T: He saw opportunity in getting a software developed that would have allowed him to do things he was imagining, but wasting tons of time trying to do it. So he got support from the things he was imagining. Of course, he not only did that, once he got started, his imagining changed inevitably and he went on designing. **So you can identify in particular cases when practice of certain individuals influenced how designing gets to be done more broadly in certain areas, architecture in this case.** Now, there are many more examples where institutional type of changes influenced more broadly. Perhaps companies looked at an outside point of view and I like Design Consultancy Company as an example; they have influenced how designing is done. They practice as a professional company and I think you can see the influences.

It is essentially grown a kind of business sector particularly in the US and now we see it more in Europe. Perhaps you can find other more social types of movements, which brought about changes in designing and one I know about because I have been involved would be to do accessibility designing for all.

J: It is wonderful. You actually describe design as a dynamic entity. Then, let me ask you something relating the model I have developed. My statement would be actually, 'we cannot design design; design is an entity which we try to excavate and discover so at this point of being conscious of what design as an artefact might be we are able to design design'. So, the question is how are we doing that?

T: Let me respond to you slightly with a side track. **The knowledge of theory designing is well abstracted from any practicing, which is slightly funny for most designers who expect to see practice in their methods.** I have always presented this and I have always worked on it quite explicitly and **quite consciously as a descriptive theory**. So I have never made this claim, **I would be very uncomfortable in claiming this theory** and could play a normative role. In other words, it says how it should be done, not how it is done. I have always done that because, if you start talking about how things should be done, they do not often respond too well. So, if I do not have a theory well established by lots of experimental evidence, there is no point in going on and provoking an argument. Nevertheless, in responding to your question how might we design design? **Well there are two sorts of ways we design things. Sometimes we have it strongly from theory. Design can be theory-based and often in engineering areas we do that and it is a very way of designing things.** In other cases, for example in fashion design, dress design or shirt design, you would make use of anything that would be of practical understanding. These are all very practical and very empirical. Lots of the empirical knowledge is not just his, he moves a lot, he talks a lot to fabric makers, scientists and people, but you cannot point important components of theory going in there. That's how some kind of designs would not be described or practiced theory-based. So, if you are talking about **designing design**, would we expect it to be more empirical-based kind of designing, or we expect it or want it to be more theoretical-based kind of designing? If we consider it to be theory-based, we would have some theories and you might ask to have enough of these. Well, there are theories of designing and you would look to use them or you might be expected to use more empirical-based.

*J: It is very interesting what you are saying. You speak about **Designing design** and you speak **about working from theory to theory. Am I right?***

T: Theory to kind of practice.

J: But this kind of practice is it practice or is it designing on a theoretical level? Is it designing artefacts?

T: **No, it would be practice need to design artefacts. So, the theory does not say how the artefact turns out. This is how I see the process involved. I do have the notion that you could build the knowledge level form particular kind of designing from my theory and then use those models to design and build the design support system.**

J: This means that you build the theory from theory, right?

T: I would rather call it **a model from the theory,** because it is not so right to reuse the word 'theory'.

J: What is the difference to you when you look into theory as model building like many people think, metaphorically.

T: For me this is bit too fuzzy. **There is quite a lot similarity in building theories and building models, so often it feels the same.** PhD students in my time would get frustrated with me because I would be extremely fussy at times about the terminology what we are using and what we are saying. Theory should be a statement of all possible instances overall; it should cover all. It must be instance-free in a sense; it should cover all the instances all those we know, and those we do not know. So It is a pretty grand statement at a pretty sense whereas for me **modelling is essentially a practical issue**. I am an engineer and, as an engineer, I've learnt to build models because these are all important in doing engineering. This is a purely a practical issue and therefore a model must be useful for what we built it for.

J: But what if I built a theory modelled in a language?

T: **In a sense, you can use your theory as a grand unified model of everything so It is sort of rather trivial. If you have a theory, you can take it as a model of everything of the phenomenon the theory covers.** But that is not a very useful model. Usually, when you want to use a model, you want to model some subset of everything that goes on. This is why I worry about people who take models to be theory. They seem to be talking about models like they are never going to use them. Well, from engineering point of view, we only bother to build models because this is a time consuming and expensive work and we have to deal rather carefully with it.

*J: For me, at this point, theory and practice collapses. When I speak about **Designing Design**, science theory building is a design assignment. Is it right?*

T: Yeah, I think it is. **A lot of theory development involves a lot of what I am happy to call 'designing'.**

*J: So that's it. This is also what I have been realizing in my life and so now the question is: when I look into the field of design, the notion what I call design, I think you also confirm that, because of practice change design is a dynamic entity. Now we totally agree to that, from now on, I want to understand the difference you are making. I think, for me, it is interesting, but when I speak of **Designing Design**, here the theory and practice collapses. As soon as I bring it down to the instance, It is not theory anymore, but within the moment of creating theory from theory, what you have been indicating clearly, the difference between designing and practice is collapsing.*

T: The way, I would see it is that, I would put my engineering hat on my designer's hat and say okay, the **job today is - we need to design this designing and this designing that we need to have going on has to have certain characteristic, properties that we see and we already know we are going to need and cover the design practice that have these.** So, It is the new design practice I would call it and the new way of designing is perhaps something that we used to design. So, maybe we are designing the same thing, but we want to do the designing in a different way. Now, say we want to do this by our theory-based approach of designing design, rather an empirical one, and I would say 'let's take my knowledge of theory designing and use this in out theory based way of designing widgets'. These widgets we are designing, can we say what kinds of designing we are expecting this to be or how does this tend to look today or how it is done today? So, how does this need to be different from others to be better and this might change our view about how the design is gonna be. And we might use the theory to show us how we might get it to be more like we think we want it. It is the best way to do that, to do the model of how we think we want that. Model is the way of drawing out the theory and getting close to the practices we expect to try and have it because I think going straight from the theory is just too big a distance. **I think theory is generally set out in a conceptual space, which is very different and distanced from the domain of the practice and the conceptual terminologies are not needed in the practice anymore. So, I think, the moral is this, sort of practice is an intermediate step and then you can get the model to build**

methods, guidelines, practice indications. Now, I must admit that It is strange to me because it does have quite strong normative, but I do agree with you. There are now times where we both see the need for, and I think I have the possibilities of, designing the design we need to be doing.

J: For reference, I give you an example. In one of my test cases in this conference, I invited a set of professionals and you say 'let's come together' and what you are pitching is the future of design, is that practical?

T: I think this could be an example here. Yes, I think so.

J: Very often, we do not do that consciously. ***Designing Design****, I found a couple of sources that go back to [Jones]. I think you know Krippendorff probably very well and Jones was doing it already in 86-87, but he was very on the surface. Nobody was doing it radically, was looking what it actually means. I think what we have developed here is more or less a very different perspective; It is going in the same direction. Design is not a static entity; design is a dynamic entity, and the way we contribute. You spoke about theory from theory and the differences. At this point, I would say science and design are also collapsing in one.*

T: **Of course, they come together so closely in doing, as they are hardly distinguishable. If you step back, after the doing, and develop a clear review of how they had their roles and how they play together, you'll get a useful thing to do to make sure they played the correct roles as it were and they didn't get messed up.** But, in the doing, I think they are essentially fused together, as I mentioned, in lot of theory developed. I have a very good friend who is a mathematician - not a professional mathematician, but he is a very good mathematician - and he had spent quite a long time doing mathematics developing theorems. Developing proofs is a design process. I have had rather long conversations with him about him and doing his proof development and both of us agree and in my terms it looks like a designing, which actually fits my theory in some way.

J: But can you say the same when it comes down to theory development?

T: Yes, developing theory in mathematics is, roughly speaking, equivalent to theory development in science.

J: Because you cannot go out in the world and say 'here is my model and I can testify it', right? And this is because this is a design; you have changed the existing situation as soon as you are trying to prove it.

T: That's right and, of course, this is why I find the philosophy of science particularly important. It would be unfair to be improper but no way in their thinking and writing they have any notion of people doing designing. That means, Mr. X is designing theory Y and knows for well that there are some other people in the community doing experimentations and observations. And he designs his theory to try and match what is currently known and, as things happen, more results come out. He does not make experimentations on somebody else, he teaches the theory. **The designing changes according to the circumstances in which design is going on and designing will take the theory to where it can be tested today. I think, in the history of science or the theories in science, this is clear.** No way have I said, in the philosophy of science or in history of science, that there is real designing going on here and that's right because very few people in science really have a safe notion that there is something we understood here, which we call designing.

J: Herbert Simon didn't have a clear notion of designing, but he was still focused on trying to work on that. Intuitively, he had the sense that this is one of the key aspects, which needs to be clarified.

T: Unfortunately, I feel, he had the insight very early on, but for many years he still didn't bother to try and clarify certain things, which I thought glaringly needed clarification. You probably know his very short definition of designing, which is 'we design when we have to make the configuration better'. Now, It is kind of our happy warm statement but we know we disagree with this. I was struck when I first heard it from him that this is essentially empty. I was shocked and thought that it was rather an empty statement coming from a man like him. I have always said that, unless you start designing, how it is that you come to know what better is here?

J: I think, summarizing the whole interview, I would say that it was a wonderful elaboration of thoughts, which was very clear. But let me ask you one question. I was also looking for years because I am an engineer and I am an artist as well. I was working in a management arena over the last few years. So, what drove me was the need to understand the core of designing. What is the model or what is designing? What I came up with in the last year, I found in a footnote where Foucault describes it as a discourse. This is what a designer is doing; you make a proposal and you revise it. This is what you indicated in the book you sent about drawing.

T: Let me perhaps draw things to closure. So, my sort metaphor of designing fits with how certain kinds of painters work. I have had these notions, or the other way I would like to say, designing is essentially a puzzle making and a puzzle solving. And it goes on because what you do is you play a game. So It is a game of a game, where the way you make the puzzle is by trying the solved versions of it or part of it and It is on the basis of what you think of the solutions is the way to judge how the puzzle is. I must end up with the puzzle with at least one solution of it. Designing does not always have to deliver the design, but it usually does. I think you can do designing and not end up with a design. **So, puzzle making and puzzle solving, this is why always felt uncomfortable with Simon.** He talks about design as problem-solving which it is not, because usually you are not given with a problem; the problem is created by you. Designers are the people responsible for what problem the design solves.

J: When you contradict Simon, I would like to ask you, is it not the same indicated by different metaphors? I am not saying that metaphor is not important; I am saying that it is very important.

T: Maybe we are saying the same thing using different metaphors.

J: I think, regarding metaphors, we have been doing works over hundreds of years.

T: Yeah, exactly. We are not having metaphor wars here. I worry about that. A little while ago, I didn't have differences with Simon, but I think where the difference lies is the use of different metaphors. In our different ways, we are talking about the same thing. I looked at his work principally with new illustrative problem-solving methods and I am more or less convinced myself that there is a difference between how I am trying to categorize things and it is in fact reflected in theory designing, where it builds in a very strong and explicit notion of exploration. Now, I make distinction between exploration and search. Search you do when you know what you are looking for, because you know where you'll find it, whereas exploration is when you go out and discover what's there, sometimes not knowing about what is there.

J: But the problem within an artificial world is that there is nothing before we produced it.

T: If you think of explorers of Africa, they had to go out there and have a look. In the past, it was sketching and drawing, different designers had their different ways of designing.

J: Ok, T. we would probably go on and it would be worthwhile and probably I may come back to a second interview. I do not know yet. But I think, for me, it was incredible to listen to your exploration and, in certain areas; I have learned various new things. You have made statements, which are incredible from my perspective, and I hope it was good for you.

T: Actually, I kind of enjoyed this kind of thing. For me, it was a kind of activity that I am not usually engaged in. I liked your questions particularly, because they made me think about things, some of which I have not thought about in quite a long time, and I liked it. I think it was very much useful for me and it is delighting to talk to somebody like you about it. So, I clearly appreciate it; this is not a kind of conversation I would have very often.

J: This is the great part; I too do not have conversations like this. I am trying to build those instances, and this is one of the reasons why I like my work here at the university. During the course of questions and answers, I think you too got to learn various things.

E.02 Interview J.

J: I am in the wrap up of my PhD, which I was doing besides other things over the last couple of years, and I am in the last round of wrapping it up. So, I need to have a couple of semi-structured interviews with some professionals that will help me to wrap this up. Thank you for agreeing to this. I have already given you a set of five questions and, using those questions, we can start our interview.

JO: I had a look at the questions, but you start and you lead the interview.

J: Yes, of course, but you'll be given more time to speak along the interview. So the first question is 'Do you think that you are a designer, a scientist, a design theorist, or you are all of that, or you'll choose a different category to describe yourself?'

JO: I thought about that and I think I would characterize myself as a designer or a design theorist or something in between, or may be changing between designer and design theorist. **I would not call myself scientist because it is important to distinguish design and science.** You might know that I like Herbert Simon very much and I think it **is something genuine for design to be situated between science and humanities**. And I would say, this is my mission to define and develop this position in between.

J: But can you elaborate this a little bit more. What do you mean by saying you're a design theorist and you are a designer? There is a distinction for you, am I right?

JO: Sure, theory is an important part of designing **but It is always interconnected in a circular way for me, reflecting on a design and doing design**. So yeah, sometimes it is very closely interlinked, sometimes you do design and theorize about it later, but I think mostly and ideally it should be very closely linked.

J: When you speak about reflecting about design, is there some scientific way or science for design? Because, when you say, 'here is my design and here is my theory', when you build up the theory how do you do that?

JO: Well, I am thinking of designing as a phenomenon to be described and modeled and, in this description or modelling, I am theorizing. It is a deliberate change of perspective; I mean, **doing design is the action and trying to change your position. To look from outside this would be the reflective position** and the result of this would be a model of design or a theory of design for me.

J: And science, does it come to plate at this point when you say that in observing you use scientific framework to look at design from a theoretical perspective or is that for you separate?

JO: Of course, there are theoretical frameworks behind when I look at design, for example. I am referring very much to Luhmann's systems theory when looking at design, where it is very important to distinguish the closed systems of body, consciousness and communication. Luhmann's systems theory is very important theoretical framework for me, **which introduces the notion of knowledge gaps inherent in design processes. Designers in their work have to bridge knowledge gaps. This is even a kind of definition of design** and, as a theoretical framework, I am using systems theory, which is a rather radical approach.

J: Okay, let me be little more specific because there are things that appear in my perspective, 'Are you building your design theory form theory or are you building from observation?'

JO: This is a very good question. I am building it from both sides but, of course, every designer and every theorist has a biography. For example, I have an engineering biography and training in systems thinking and I have a preference for this kind of approach. In other way, in accordance with my career or my development, I extended engineering systems thinking towards social systems thinking. I found this very useful for describing design processes and especially for describing the design problems that we have in

design processes, because one of our big problems in design and design theorizing is that we do not have anything like the capacity to predict something which is the main goal of science. We will never be able, this is my statement, to predict a fit of design outcomes in the future situations that these outcomes have to meet.

J: Has this to do with the nature of design, since design is not something, which is out there. Design is not something existing.

JO: **Yes, it is not existing or not yet existing. It is existing in our minds and imagination. It is a construct and, for me, the design process is complete when your design is entering the market.** You can look at the used processes, but you do not have any influence anymore after you have given your design proposal away to the market, to the user, and this is the main difference from the scientific findings.

J: Let me explore your thinking because now we come to the 2nd question because it fits so well here. In your thinking, when you look at design, is it something static or is it a dynamic entity which is shaped overtime or over near future?

JO: I would say **design is a very dynamic and very fluid entity.** This is also different from science; **science has achieved a kind of not static but a kind of stability** and fixed terminology and methodology, which makes it rather identifiable and makes it more difficult to change or move.

J: We have located within the recent history some kind of part-time shifts. Even then, when you say 'design', it is much more fluid than science because science for me, when I look back to 80s when I started to grasp this kind change paradigm shifts suddenly, looking even at discourse proposed. You see that science is not static. It does not seem as static as we are trying to handle it.

JO: I fully agree; It is not that static as some people would like to have it or would like to describe it, that's right. But I think the developments are slower in science and I think science has achieved to establish a social system. I am speaking in Luhmann's terms again, a system status with its own codes and structures which are much less fluid than what's happening in design. It is not a black and white image what I am trying to put here, the fluid design and static science there is shades of gray in between. But I think design will never be able to reach the level of science. My opinion is that according to the development in modernity, in Luhmann's terms again, **I would call science a differentiated social sub-system again, like economy**, like law, like arts, for example, **but design has never achieved this degree of differentiation and closure. Design has remained orthogonal to this development. Design still feels competent for everything; it does not care about these boarders that are established in this modern era of development.**

J: But is not this a huge issue that there is not a constant realization of boarders?

JO: I think this is one of the big benefits design has, that it has not followed this differentiation, that it still feels competent for everything, for the whole of the life world. And that's **why I am opposing this mainstream development of making design a science,** like activity, or science-like institution. I think It is the quality of design of being different, of still having these in-between qualities.

J: So, when you look at this dynamic entity design and, in your thinking, would it change if you look at it from a design perspective towards this dynamic entity than looking at it from a scientific perspective towards this entity?

JO: Maybe from the scientific perspective, I would be more irritated about what I am seeing there and, from design perspective, I would take it as normal. But the scientific perspective, you may know **Ranulph Glanville's position; he describes scientific research as a sub category of design research, which for me is very valuable.** I was always glad to see this kind of idea because It is not totally isolated, even in the science field there have been people who have indicated something similar. I like it very much. If I look

as a scientist, I would be irritated and I have problems to find the right theoretical framework for it. But now, I am realizing that I am talking like a scientist because I think the systems theoretical framework is quite useful from the scientific view to observe design. Designers have always been accustomed to this kind of mess they are working in; they do not mind. One more remark to question 2, **I think the notion of the context dependency of design is very much important as a reason for this fluidity, for this flexibility and dynamic development.** Design is not conceivable without the context in which it is working, whereas science might be considered as working in the ivory tower and design has never done this. You see, I have this system / context perspective regarding the development.

J: But is the system context, which comes from the science perspective not a nice way to deal with the messiness? Because system identifies itself and you never grasp the complete system for that reason; it legitimates the blind spots.

JO: Yes, I think systems theory is an excellent perspective for dealing with messiness of design - two kinds of messiness. One is the problem of design, which is due to the complexity, the irreducible complexity of design situation and this is the problem of control, and next, we have the problem of prediction because we are aiming at future situations. We are imagining things; we do not have control about what's happening in the future. This is the problem of prediction and this introduces the theoretical concept, which I am using which is Evolution. Systems and evolutionary thinking are my most important frameworks.

J: But does this fit with my 4th question, which I sent you - if design is a dynamic entity, how do you think that we develop the notion or concept of design over time and what are the processes? It has to do with your evolution term, if I say design is an evolution.

JO: **I think here we can distinguish between the internal and external dynamics. The internal dynamics, of course, we have some directed developments, for example** Bruce Archer's definitions or Findeli. He described this development from products via processes to people. In early times, design was thinking about products' aesthetics, then design was about thinking about processes and logic, and now we're thinking about people and ethics. Enlarge the field, and ethics comprises almost everything again, because it has everything to do with human practice with the life world. At the same time, we have extension from the production side to the use side of the design cycle and I think this development is driven from inside design - trying to understand what they are doing and developing theoretical models about the work they are doing. They realize that all these spheres via processes are important to them; but, of course, this is subject to external conditions to the evolutionary development of design thinking, you could say. And there we see what's happening; we are having debates and several schools can be distinguished, and yeah, I think It is not predictable what will happen because **we are designing theories about design but we cannot predict which one of them will survive.**

J: No, we cannot predict, but I think what Krippendorff was focusing on for a while probably, as you know as well, was this kind of discourse regulations, which have pointed out certain things, one who can speak and there is some power game going on. This archeology of knowledge was very clear. This was one of the legs I have in my PhD research because I was using discourse modalities in order to understand what is happening in the design field and, looking at this, this is very much applicable in my eyes. It is interesting here how you frame that because, from the outside or outskirts, it is pretty clear that there is a power game always going on. Who gets invited, who gets the keynote, who does this and who does that, is it?

JO: **Yeah, I think it is a kind of co-evolution between the ideas produced by design thinkers and the context conditions in which they have to survive.** And, of course, the context is dominated by power games.

J: I think this is also a part of answer to question 5 which is, 'Is there such a development of design where we can find individual contribution, or do you think it is collective process or is it more or less joint venture? Is it how design is evolving?'

JO: Question 4 and 5 are very much interrelated and **I think, of course, there are strong individuals who gave inputs which were very loud and informative. But, in my theoretical understanding, they are giving their irritations and perturbations; they do not have the power to control the discourse, [so] they irritate the discourse. They are very active and, of course, they influence it, but they do not have direct influence over what's happening with their input**s. Maybe this makes a bit clearer what I meant by evolution because, after these irritations happen, the discourse is going on and discourse is a different process than these inputs and irritations. **The discourse is subject to evolutionary selections and mechanisms; we cannot fully control this.** We can only observe what's happening. For example, in the PhD list, It is very hard to influence the general direction of what's going on. You see that some of the irritations the key persons are throwing into the systems do not have the effect you are expecting, but this just irritates and drives the discussions and discourse into rather different directions, which they didn't expect. So, there are strong individual contributions, but they are then subject to communicative processes, which are also selection processes and may be some or many of these inputs are dying.

*J: Now, I come to one of my core theses of my PhD. Would you then say that **Designing Design** happens, but it does not happen that an individual can **design design**, It is a collective process which is not controllable?*

JO: **I think, yeah, this is reflective again or kind of fractal. We have limited control over designing design or designing the future of our discipline. We could say, we can design prototypes at best. We can design models and have prototypes of how design could be**, and these are all subject to the discourse. I think we can build scenarios about what design could be in 10 or 12 or 15 years from now and then we will see what happens. This is what we can do.

J: One of the things I was testing also within the kind of conferences you have been joining, with me and others. About 2002, I got this idea that this kind of scientific entities do not exist, so we're making that up in the kind of discursive relationship we socially contain or provide. And for that reason, for me, this conference, which we have been joining together was a design instance.

JO: **I would interpret it as design episodes of a short conference time, where we had design activities. But then, all of us went apart again and things developed independent of this.** The evolutionary concept stays in between what's happening then and, of course, design conferences are strictly designed events. You can choose whom to invite, which models to be preferred; then you can have the illusion that you can design a design.

*J: I am not saying that you can fully control, as you described it earlier, that you have this kind of individual input and you also have this kind of outside that you cannot control. But you still would agree that **Designing Design** is possible in negotiating in the communities of thinkers and design thinkers?*

JO: **Yes, I would agree. We are designing design together, but without knowing what will be the output or the final result of this process.**

J: Can you elaborate 'without knowing the final result'? Will there be at certain point a final result?

JO: I think that there will never be a final result; you said that there is a dynamic entity. May be what we can achieve is a kind of general direction, where we will proceed, but this depends on how you define a design community. Who is part of the community, who is not, who is outside? Are the managerial people included in the design community, are the engineers included in the design community? I think it needs

a very clear definition of inside and outside of what a design community is in order to talk more about designing design.

J: But do you think this kind of clear inside-outside definition exists? I think, in my understanding, when Krippendorff speaks about intrusion, and we have to defend, and if you do not defend the profession loses its discourse because it loses its pace, this is what Krippendorff says. But I found this interesting because, if there is no intrusion anymore, then the discourse is not interesting. I think It is very interesting for me that management and engineering is intruding the science discourse and this shows the liveliness of discourse within design and this shows how interesting the discourse is within design.

JO: I think what Krippendorff was talking about was the colonization of design by other disciplines. Letting them define what design theory is, what design is at all. What you are saying is, to be open to these kinds of inputs, to be curious about what they can bring us, or what we can learn from them. And, of course, there are major interactions and these interactions are important for their life work. And we can see, we can realize, that the other disciplines have problems with their own identities, looking at design. **There is a kind of contradiction in talking about closed borders and flexibility. Do we have to close ourselves in order to get accepted or become serious, or is it our quality to be open? And if this is our quality to be open, are we still recognizable by others?** This is one of the paradoxes.

J: It is one of the paradoxes, but we have lot of metaphors which might be helpful because, as a body, we not only sustain ourselves but permanently inhale, we exhale, we take liquid, we give liquid. This is probably the best way to use metaphors to talk about this thing.

JO: Yeah, we need this exchange and, referring to the body, the body decides by its own logic what the effect of the inputs will be. And I think it is clear that the discourse community decides that there is intrusion by management or design. Then what to do with it?

J: So I think this kind of colonization is what Krippendorff was afraid of. I am not so much afraid of that. I would say, for me, that shows the liveliness. It is clear that we do not have a strong discourse that is recognizable because I look into Germany, wondering how many people are thinking about design publicly, that they make statement. There are not many, do you think so?

JO: There are very few, the community is small and very heterogeneous at the same time.

J: How many you would say exists in Germany? Seriously, because you are more closely connected to the chairman of the Design Discourse community.

JO: I would say 20-30 and, of course, there are new PhD students who are very active. This is very good development, if you heard about this. The PhD students organize a conference every six months with help of some seniors. It is their own organization because, you're right, we do not have established the discourse like in UK and the United States.

J: Let's give you one of the other parts of my theory. I think, for me, design is discourse because. when I found a footnote where it was described that a painter was looking at a kind of mark and revising it, which clearly describes a design process and exactly this kind of making a mark or making a statement and changing the statement and revising a statement is nothing else but a design process itself and an indication how design designs itself.

JO: It is also self referential. I would call it a learning process quite simply.

*J: For me It is also very interesting that at, this very moment of **Designing Design**, there are two aspects falling together - theory and practice. I cannot differentiate any more between the two because I change an existing situation, where I look at statements into the future ones. So, that means that I think that the community of designers are shaping permanently what we call design through an ongoing discourse. This*

is the basic assumption what I was doing over the last couple of years, to look at how we are shaping design; we are shaping design like we are shaping a piece of artefact, but in a social dialogue.

JO: And do you take this process as a consensual process, or do you look at the power plays that are happening and the ideology that is evolving, or the fights that are going through?

J: Yes, this is not a consensual process; this has never been consensual. There's disagreement and there's been agreement but, from my perspective, since I was looking from my mental level, for me, this kind of disagreement is part of the game.

JO: Of course, nothing would change if there would be no disagreement.

J: Exactly, so this is ongoing. I certainly agree. But for me, at the mental level, this is part of the game. So It is not a question that I like it or I dislike it; It is part of the complete game, and for that reason, I always invited people who disagree.

JO: This brings what I call the irritations and this is part of the process. When you are looking from another perspective, It is directing to other versions where we are heading.

J: Not really, but for me the question is also how I can contribute to the maintenance of this discourse. It is pretty clear that we all had this idea how this should be individually. More or less, you know, if you ask me, if I ask you, if you ask the people in the community, I find that everybody has found some issues. I would say what I have observed so far is that It is getting more comprehensive. This is one of the things that I think I may say without losing a value of my statement and comprehensiveness is one of the things that grow out of complexity probably.

JO: I agree for sure.

J: For that reason, I would say that design is getting more comprehensive.

JO: And do you think design is getting more recognizable? Do the others realize what design can bring for them?

J: Yes, I think so. Otherwise, I would not be at the university. I am here at the school with 75% management people and I am the Vice President. I am the academic dean, I am not the manager. They have recognized me as a designer to lead the management people, which is the result of that.

JO: Maybe they have recognized you as a kind of very special designer.

J: Yes, I think so. What they recognized is the science thinking. Now, this is the interesting part, we have also shown here that design thinking has also drawn from scientific base [and] can deal with scientific methods in order to make them more adequate henceforth. I think, for that reason, when I arrived here, there was absolutely no acceptance of design within the management community. And, in the meanwhile, I find this very interesting that this management community, with all kinds of PhD coming mostly from empirical science, has accepted our methodology and research. You would have experienced something similar.

JO: Yeah, management schools are probably very good context to that. Traditional art academies are more difficult.

J: Yeah, and for that reason I left that field.

JO: When did you enter this management school?

J: I entered five years ago, it took me a while.

JO: I am very curious to hear about that.

J: Yeah, for sure and thank you for taking your time and giving me importance.

JO: Thank you, the question was very interesting. Sometimes I fear that I am better in writing and answering in written form, but I hope that I was useful to you.

E.03 Interview S.

S: I went through these questions and I thought 'I'll answer them one after the other'. And I would say, I would definitely think of myself as a designer and reason why I am doing that is, I am constantly engaged in designing because it is at the heart of the way that I go to living even.
So I see design concepts and design approaches even in my life and so It is a very practical art in some ways for me. I am interested in generating opportunities; these opportunities are means to create something that you do not know what it is. But it has potential to unfold over time into what I would say unknown territories and experiences, when I made these choices. And so I feel like I design my own career. I create and take my own jobs; I am just reflecting how I would think of myself as a designer. The other thing is that, even with a right paper, It is a way of designing something that would probably describe more in this case as product development, but that comes down to developing something that has not existed before and I do not quite know what comes out from it at the end. So, yeah, **I would definitely say that I describe myself as a designer.**

J: And are you also a scientist?

S: I think, I first think of myself as a designer than **I think of myself as a researcher and the reason is because I research into design and research through design.** So, research into design covers mostly my theoretical interests, or it concerns how we think about design, how different people look differently at design, how they go about designing, the concepts the people have about design, the way they go about identifying or addressing design problems, or even describing them. The roles and relationships of design in the life of people and organizations, values and practices constitute my research interest in design or where I would feel and think myself as a researcher. **So, coming from designer to researcher, then I am wondering, am I a scientist? And then I would say 'NO', because I am not looking for proof, I am looking for persuasive arguments** that in some way assume the place of evidence. But we send them consecutive proofs in a scientific understanding.

J: So you think that, when you do something, then you do not try to prove it because you model it in your project.

S: I model, I exemplify and I make tangible, but I do not have proof because often, where I am starting from is where start something, and I put people into territory that they have not thought about before or they have not considered before. So there's nothing. I cannot prove something but **I can develop an argument and I can make a case of something and to make a case of something in some way is a theorizing, right?** And some people would say, 'well that's scientific', but that's a part of science, is not it?

J: It is only a part of science, but probably It is at an interesting place because I think you definitely also touched some scientific aspects, whether it is pure science is another question.

S: I took the question as pure scientist and then I would say that I was not looking for general truth because we have been constantly working on particular and integrated problems, right? Then I also have the 2nd part to answer, where I would say that **it does not mean that there are no generalities with regards to science. So, for example, all humans have capacity to design.** Man have been doing design, being unaware that this is what they do. **I also claim that designing, changing, organizing and managing**

are interconnected activities. That's more like a theoretical concept not built on the idea of something I can prove or that is truth.

J: But there is an interesting quote from Goethe where he says, 'The difference between science and design is that you go from specific to general and in design you go from general to specific'.

S: Exactly, **I would absolutely agree with that and that's what the reason why I would always be careful to describe myself as a scientist**. **It does not mean that I do not understand scientific methods and it does not mean that I do not borrow from them when I feel fit**. When I fell that there is something as a rigorous research, or there is a thing as you have to see numbers and you have to be able to interpret them, and you have to see the earlier theories and other things.

J: It is very clear what you mean. But [according to] this kind of polarity, which we just wonderfully described, design theory is in different spot. Is it right, because if a design theory only fits at only at certain purpose, only at very small instance, does not that fail you when you say design theory looks for some kind of generality?

S: Yes, that's what I meant in 2nd part of my answer that I absolutely insist that **there are generalities in which we define design.** And when you say all humans have the inherent capacity to design, that's not something specific. That is a very broad statement and, with that, it is irrelevant to all people in that manner.

J: But you know I think regarding design theory can also be located in different spots, when he makes the difference between methodologies, then he speaks about the third path, where we locate design theory by itself. So I think that's interesting. So you could also locate design theory within methods, as for long time design theory was about methods.

S: Yes, I know.

J: And, at first, it was about products and now It is how we change by knowledge, how we create knowledge. For me, it was very interesting overview, where we can locate design theory. But let's go to the second question. In your thinking, is design something static or is design some dynamic entity which has been shaped and developed overtime and will shape in future?

S: Well, I mean what you just asked about is same what Richard Buchanan described as rhetoric of design, right? And really, in that second question, I am not allowing Richard's thoughts to come to my mind when I am trying to answer this question. And I think there's a powerful argument and the way you just described the evolution of design understanding, or the purpose of design or what design does. Buchanan talks about rhetoric as a productive art of invention and discovery and he makes a really convincing argument that design is taking on this very role today. So, what you are saying is that **we are talking differently about design. So it directly comes into two ways into designing, right?** On one hand, It is the way we're just talking about design, first about product design or designing product and then about methods. Now we are talking about creating knowledge. But It is also about what designing in itself contributes in this process. It is **this art of invention and discovery that allows you to change the perspective and it allows you to shift the ideas and to change** understanding and views. Like, what is a car, what is a phone? So, to be very clear to your question, **It is absolutely dynamic and ongoing and always shifting development.**

J: This is very interesting and it gets little bit philosophic that this argument about rhetoric of Buchanan is this the way we talk about it. Or, we could say, design does not change at all, what changes is only the way we talk about it.

S: I do not think so because, in that case, there is evidence or even proof that it does change and the reason is the materials we are dealing with. First of all, we were just dealing with pencil and pen and paper and then dealing with metals and steel and glass and now we're dealing with concepts and services. **That means that design can take role in very different circumstances, it also has meant that design is reaching another level and has been recognized. And the fight is specifically to achieve specific changes,** which was before the change in decisions to buy a product or using different material to build houses, and now it has gone into choices in daily life, which are more regular. It is kind of evolution in life. So, I think that we can see a change in how design is being practiced and you see it in a way how design schools are changing; and see in another place the way dimensional world is changing. **So, I would take that as evidence that something is happening.**

J: Would this perspective change if you think as a designer or you think as a scientist?

S: Actually, I do not think so, and this is also kind of a passion to the question. But I think most scientist are not completely applying the ideas and concepts of design. **But there's rather many of the best scientists who begin their initial research into the topic by designing their approaches** so that It is only at the end that they need to develop the proof that the methodological approaches separate them from that kind of design. Because when you see proof, you have to approach them when you are generating something, right? But I do think, for example, that **science does have its own right to be very dynamic.**

J: If design is this dynamic entity, then how do you think that we develop this notion or concept of design over time and what are the underlying processes? How do you think the processes are structured when I look design as an entity?

S: I think I didn't understand the question fully, but just for a try, I would say that, in order to produce design, there's a requirement to happen. And in some ways, these requirements have only come up over last one or two decades, whereby we are able to recognize design as such. Because in many places in areas of design practice, [they] will still not recognize when they account the design problems or design challenges or opportunities.

J: Can you give an example or reference of what you mean by that?

S: I mean, we're seeing that, in the public sector, now in the public organization, that we have different professional services and new businesses. And when you're looking at many government organizations, you go like, 'wait a second, they have [had] design services for ages'. Now, the question is, how did they do it? And what the design service profession contributes there in improving the services and fulfilling the organizational services and social goals. But the reality is that designing has been going on in these kinds of places.

J: Also, before they might be aware that they are doing design, or not?

S: Yeah, exactly. Suppose you're a bureaucrat and you have a safe career, you are going to begin a university. Then, in Germany, you're going to learn about the laws, the restrictions and suddenly your classmate enters the design school and comes back with these fantastic models and forms. I mean, did you think yourself as a designer when you were at the school? Definitely not. But in essence, products

come out of these organizations, services come out of these institutions. So, I think that is the change in perception that has finally come up. And so I think what had to **happen is happening now and so there is such a thing called design** and people are beginning to understand that this does not necessarily mean that all rest of us are lacking skills or that design is something that'll take over everything else. But that is just another factor in the doing and it has consequences.

J: So you mean that the concept or notion of design has changed over time. There's a quite a divide based on language too and, for that reason, It is very interesting to say, when I look at the contemporary design concept, how it changed and so what are the underlying processes to this change. How do you think that we're shaping this concept?

S: Who do you think with 'we'?

J: This is the question. For instance, Krippendorff says we are moving each other in the world of reality, this is Krippendorff quote.

S: There's certainly something about that. **But I think the wording alone would probably not do it and, in some ways, that really gets to the heart of design because the word or the theory alone does not do it.** You have to also make it; there must be an action touched to it, and unless you can show it is action and practice, I think it won't work. And that has been part of the problem of design because think of how things have actually emerged. I sometimes push too much towards the Australian project, but this project is now 20 years old, right? It was exactly that; it was put into action and from that it started to build a case, and you need these kinds of examples. You need the wording, there's no doubt about that. And in some ways you could say, 'I have shared Krippendorff's views to some extent because in design management I always felt that in design management institute, for example, has failed to put into words.' **It has failed to articulate in time what design is actually contributing and instead has rather focused on articulating management in design**. It has been very articulate in making us speak the management language and so on. At the end of the day, It is interesting because the managers now want to speak the design language, right? And while they want to speak the design language, the management institute has no services to offer or very little. I am saying that they have changed the decree and they are trying to catch up with it, but when you think of design management institute positioning, or potentially positioning, itself at the core of the field, you're not driven by mostly designers at that time and so wording was there problem.

J: How would you frame this problem when you look at design management?

S: I mean, when you look at the publications in design management over time, most of them have either been written by scholars interested in applying management science or designers trying to talk about some popular design concept, but not really connecting design theory that actually existed and does exist, and building a case around design, so there has been a huge disconnect. But this is not only wording, I mean **wording seems to be flat for me because you need more than wording to go to the extreme and I am sure Krippendorff does not mean that way.** And It is little bit like soft history, so talk nicely somehow and you get to write a slogan and people buy it, and in some ways that is what's happening when design thinking is brought to market. But you can argue that, in some ways, that's the proof for Krippendorff's theory. But the problem is that we have to be a little bit more deep and substantial to develop or to have these processes and that's what happened in the last four decades.

J: It is very interesting what you said and I will try to elaborate this little bit. You're focusing on a specific critic, which I do not see there when I look at the language concept. When you say 'talking', the question is how designers talk. I think designers talk in action and they talk in material.

S: Yes, you could argue that and that's of course valuable and important way of articulating themselves. And **it is the connection between theory and action** because what they talk they put into practice and this is where design research and design theory has been slow in beginning its own kind of scholar community. You still need a reflection on that and you do not have to expect the designers themselves to do that kind of job. But if we are concerned that design has value, then we will be able to articulate how so, and can other people benefit from that value and not only in creating another funk product, right? Just kind of level which is a kind of articulation that designers do it in products has been kind of conducted and that's kind of I-phone thing, 'I want to be the next Apple', right? It is totally understandable; that's what some people are interested in and want to do but that does not get to what design is or how it works.

J: But wouldn't you say design discourse also happens at object level? Designers talk to each other through objects.

S: That's true; designers who speak the language talk through objects. But **when we're talking about design which is a dynamic entity and we're talking about design reaching much more deeply into social matters or environments or organizations, then you are dealing with people not trained enough in that language.**

J: That's right, but I think there are always discourse communities which are always in act with each other. And I would say this happens at many different levels. Some discourses have some sub discourses even if they cannot talk actively because they speak other language. So you can argue, and I from one perspective can also argue, that objects are observed by designers who can also talk in words. I think that is not unusual thing. I think I would not give design a special case here; I would say all the practices invented practice-based research and not design and it would always help in design. But I think there is a similarity there, because I found this topic on discourse and I thought, whether this is transferable to understanding what's happening in design. It took me quite a couple of years before I found a quote in a footnote from Foucault's archaeology of knowledge, where he describes the discourse of a painter. Making a mark, looking at it and revising it describes his process. It is an iterative process in which the designer is involved into and I think this is happening outwards. It happens without words, but somebody follows it by language. If you look at Picasso's painting, you can see how he develops one shape from another and how he tries to solve the form problem. Then suddenly, he scratches it and starts again to associate new. Is not it little bit similar?

S: Yeah, now I get it.

J: I think the question was how this develops over time? How do we shape concept over time and then we can even add the next question, which may be even clarifying this question - is such a development over time tricked by an individual or do you think that It is a collective process between design and science? And how would you frame the relation between the contribution of an individual and collective?

S: Well, let me add something on your last question. If you ask what are the underlying processes and following and explaining on the conversation which we had, I think again the word and action, theory and practice, and I think we need both and in some ways we need to have it even in a way we do not

want to have it. There is such a discourse between objects or design outcomes, and yet at the same time, we need to have a way to reflect on that in order to enhance our understanding of this and in order to make full use and take advantage of that. I guess you also have to understand that **I come from an experience where I entered into realms where design is not understood and, if I come in and talk about discourse of objects, it does not change minds of people.** This is how design can have a role let's say, in an organization. And so, for me, the discourse of objects or the discourse between objects is, of course, existent and is important and it cannot be neglected in order to shift the conversation to a design having a broad role.

J: Let me ask here, when you reflect on these things in your environment, let's call them artefacts, in your environment, there is no physical object, there is a policy, is that right?

S: It is a policy and, of course, these are tangible products and services which tend to be tangible, but they can be experienced. And in some way, you can say that discourse is well right. But the product with policy is to move beyond the discourse of the object and to draw out that designing begins way before these objects started discourse. And for that reason, I feel that this is a very important aspect that you have been pointing out and It is well enough then that it deserves all the attention that it can get. But It is just not enough in its own right. If we want to generate even more or explore even more what design can do or cannot do.

J: But in this kind of field differences, let's call it policy field, right? When you reflect on these policies, is this not kind of reshaping the policies? For instance, when I look at law, I was doing very early on the project on the morphology of law, how law changes through its interpretation, right? And law changed over time, depending on the environment. As you know, law is not a static entity. We have law designers, nobody wants to take this word into mouth, but people who shape law and who make law are designers.

S: Yeah, absolutely. But this is also how products are in use, right? The funny thing is that **I have learned about these things under interesting consequences because It is where one thing is designed for specific purpose. And law is designed for specific purpose. But whenever anything is changed, it can have unintended consequences. The thing is, when products are changing in use, is that design process or is this really a passage in some ways?**

J: I know what you are saying and I have this in my PhD. I was struggling with this kind of theory because is it a conscious act or not. But as you know that, as soon as you use the word 'conscious', you get really a flap of problems on the table, which you should try to prevent because this concept of consciously is so heavy. I have dealt with this for over 10 years. I was working recently with Meryl Donald, a cognitive scientist in Cleveland. He is closest to cognitive science who has actually taken concept of being conscious and unconscious and he is differentiating the two, and that's history but this is very difficult.

S: I am not sure how far this goes but **let's say a hammer is being designed, so by the time that it gets into the user's hand, there has been a designer designing the object. The moment the user takes the hammer and uses it, the user becomes the designer. Then It is not the matter of the object but It is the matter of the person.**

J: Or It is the matter of semantics, as Krippendorff says, because he says that what designer is responsible for It is the semantic part how we use it. It is how we put into reality because It is the hammer what we use to catch fish; this is interpretation of the hammer. So the designer is responsible for the interpretation, for this reason, he called it a semantic term. He said actually that we designers are responsible for how

we give the people the tools to work them into reality. For instance, I give you an example, when you look at what you are doing and there's nothing else in your environment that the people in the policy are missing out, they are doing design without knowing the results.

S: Yeah, but because of that, they are also using specific approaches to design, where there are other approaches which could help more and better and it would lead to different outcomes. And by not understanding that they limit their range of innovation and their range of outcomes and that's part of what the difference is.

J: I agree, for that reason you are trying to offer different models, right?

S: Exactly. What I offer is to say like **(a) you are designing, (b) you are not necessarily understanding what you are doing and because of that, and (c) you are not looking into alternative ways or other ways of design methods.** You are not reflecting on your design methods; you do not understand the limits of design methods or design concepts, and for that reason, you may not make the best choices.

J: I totally agree. I was working for a couple of years on this notion that design is actually happening, but we are designing it. So the theory I was working is ***Designing Design*** *in a discourse arena and a discourse arena happens on a different method because we are using language. We are using conferences, we are using design objects in order to exclusively re-work our concepts of design ongoing.*

S: Yeah, I agree. And then, **at the heart of the discourse and what methods you are using to drive the discourse, that's a different question then. And I would say I really do recognize that there is an immense power in the rhetorical approach.**

J: Because we have, from what I found is very appropriate is Foucault's discourse modalities. There are certain rules put down by the discourse community, thus certain people. For instance, the conferences I was running over the years had been for me design places where I tested out my theory whether it is possible to design design. This is what belongs to testing of my theory. So I invited some people who had certain kind of standing in the community and with this standing in the community you are giving certain people power to speak while others have to listen. I think this is the power game within the discourse community, so you cannot prevent that. I was also amazed how important it is when you invite certain people and you give certain people little bit more time to speak and others will critique you immediately, as to why you gave them too much time. So, I think what I think and this is the question for me, I have no control, I do not have any control at the end how this kind of discourse we have initiated will impact the general concepts and notion of design. But what I see when we look back to 2002, when we started this design discourse, we actually impact the design theory very much.

S: Yeah, that's very interesting and this is in some ways a bit strategy of the whole Western group, right? And actually **that goes back to systems theory and the current systems of power.** For example, the current system of management schools would have listened to that idea, so they have to create an alternative system next to that. They have to do that very strategically and they have to take up the right people. And it developed as a network with reliable people or speakers who could advance, who were interested in advancing, who had the ability or who were in position to advance. And you can see, for example, how I am one of the benefactors of that. When I started my career in academia, I had the PhD in organizational change and design. I did not fit into design school at all. I didn't have the drawing skills, I didn't have artistic portfolio. I had my researches and all that, and I even came from journalism originally, right? So, it was a complete misfit, at the same time, I was not embedded in the management group at all, even though I had a supervisor. But I mingled and I tried and I did and I learned a lot

because I exposed myself in the academy of management. But it was all a kind of uphill and no matter I was a novice or outsider, I tried my best. But now, all of a sudden, I am in the heart of things and that is one of the consequences of that dynamic that has been involved and I have also contributed to that in the meantime. But, at the same time, the first couple of years, I taught myself rather on my own and this is little off the record. Buchanan was so busy in his own thing that he could not really worry about PhD students, positioning them and all that.

J: What happens in the design discourse community is that certain people have more time to speak and the statements they make get more attention. And if you are their student, then suddenly your statements also receive more attention. This is exactly what happens, so are we shaping the concept of design? We have been reshaping the concept of design since 2002, when I attended these conferences. I left these conference and I thought for the first time in my life, attending these conferences, I had this kind of fuzzy idea, are we shaping something? I didn't know what we are shaping there because I was intended to design and what I developed now. Looking back to 2002, I started to do my PhD and I was trying some models and I found one of Foucault. Then, at a certain point, I found that what we are doing in this kind of world together, we are trying to design design within this kind of discourse context. We are trying to create some kind of huge model for design. I think, in design, we have some kind of specific conveyance method, which means using language in different materials. For that reason, within this kind of discourse, we are ***Designing Design*** *and, within this kind of arena, theory and practice merges in one.*

S: Do you know about the paper by Buchanan about design because It is a different interpretation on one hand and it comes very close to core of your argument. And, in some ways, depending on ways how you wanna use it, but It is something what you can use as your strength in your case. I mean, in essence, with your experiment of the conferences and so you can actually support your stuff.

J: Yes, I am not saying that you as an individual can design design, but you can design context, at least with some kind of discourse, that can actually happen.

S: Yeah, to a certain degree. You have been in an institution, right? So, I went to Lancaster and the first thing I encountered was humans and design. They wondered, what's that? And now, five years later, they are actually taking it seriously.

J: Sometimes you have to leave the institution in order for them to start taking it seriously.

S: Yeah, this was a strange change and it was very interesting because we were two PhDs entering the same time, me and a colleague of mine. So it was hard, it was organizational change; we didn't know what to do with it at all. Of course, it is now all about transformable and organizational change, right? And you know how it goes when you are in an institution and you feel that you've spent time in trying to explain it, but they do not even listen, because it takes them too long and It is too complicated. Instead, they are thinking, let's get the quick service design thing going. But then, I entered the institution here and realized that they have their own issues. It is a small design school; It is a transition from an art school to university. It is a school looking for its place, but I have conversations and I have the platform to talk.

J: This is the power game I was talking about. This is happening, you will see that, further at certain point, you will get even more space. It does not need to happen; It is not a natural organic thing, but as soon as you keep the performances up, at the certain point, the influence is growing. It was also interesting, I had a very interesting exchange in the last couple of days with Krippendorff because, in my PhD, I was actually putting Krippendorff concept of discourse next to Foucault and I found one paper where

Krippendorff was little bit opposed to the Foucault's power concept because he was writing even a paper in 1995 which he called 'The undoing of power discourse'. He called this on purpose because he was little opposed to this power game and, at the same time, when I see him on the PhD list, he plays this power game very well. And I am stunned, we cannot prevent it but he also says, from his theory, which I found very interesting, because I think this power is the concept we have been creating through language into reality. Does that even need to be there? Maybe he is right or wrong, I am not sure. From a conceptual perspective, I would say he is right, but I never saw discourse without this power game. He had this power game in the conferences and as soon as you invite some people on the table, you have a power game somehow. I do not think you can prevent it, but It is very interesting. This is more or less my theory, it says we are ***designing Design*** *together and this happens in a discourse manner. And we are individually contributing towards the collective, but in general we cannot control it.*

S: No you cannot, but still is great how far you succeed. **While we have to change the conversation, the proof is in the pudding, to speak. And we are just succeeding in getting interest and open ear from communities and people who for long time have dismissed design, period.** But It is still got the burden of having the flavour on the month.

J: Yeah it happens with design thinking, we can call it a fashion. I think Krippendorff was always concerned that designers are not capable of protecting the design space for themselves. He calls it very often invasive. One of the things that design community does is, if they believe that It is healthy, they protect their discourse space. And he sees that designers are not able to protect their discourse space because they do not actively contribute to design discourse.

S: This is exactly what I was trying to say and I have to be careful when I say that I want to be more distinguished because It is not so much about protecting, that sounds more like territorial. **I think we need to have an open discourse and we need to get from every side of the discourse. But at the same time it goes back to your power theory, we cannot leave it**. It is very simplistic kind of interpretation that does not hold lot of good to design.

J: I totally agree but this is exactly what happens right now also with our business design. I just got an invitation and I wrote in the last couple of days a review of an article, which will appear in design issues. I read this article and I thought, 'this is great in some ways because the notion of designing business is out there'. But we need to publish our book relatively soon, otherwise this space will be occupied by others.

S: Exactly, and that's why we have to work on the book. I am not sure we can get to that. Did I answer your fifth question?

J: I think so, we have been turning and reframing it from outside which is all right.

S: My in-depth response was that **individuals alone cannot do this task. We have seen this over the past decades, where we had great design research going on, but only when it becomes more institutionalized in universities, scholarships and business practices, can we really achieve this.**
J: All right, I would agree with that. Individual is not unimportant, It is a collective thing; it needs a strong individual to make statement.

S: Absolutely, I agree with that without individuals nothing would happen.

J: Yes, and you need these statements from individuals and you need this kind of, how you can call it, theorems and within this kind of discourse space, where you have to look through. For that reason, I

*think this kind of **Designing design** is also kind of Meta design, where you draw from theory because I was only drawing from theory.*

S: And this is something **I was lacking for a long time in design because there was expectation that the practitioner would do everything and It is not possible because they are all also not prepared**. I see that now, at the design school, again there is also great research going on and they do not know it, they do not understand how to share it. We have tons of outlets and, if some beautiful project is going on, and when people come in, they are all disputed. It is this where it needs to get to the next level, which is quite another topic. You are Associate Dean for Research aren't you? Well, they want to make me head of research.

J: Let's finish here. It was a great interview.

E.04 Interview C.

J: So, let's start with the first question. Do you think you are a designer, a scientist or a design theorist, or all of that, or do you choose a separate category to define your thinking? I could also add references in your case because you are coming from management perceptive, so are you a management theorist?

K: Actually it is more complicated. I had prepared myself for these questions and when I asked myself the first question, I thought that **I am trained as a natural scientist and, few years later on, when embarking on my parallel studies, that is humanities that** it makes already quite significant difference whether you are scientist or whether you are coming from humanities because the attitude towards the object of investigation is different. **Scientist wants to explain the research, whereas person from humanities wants to understand and I found myself on crossing a borderline,** which I did not notice before. So the colleagues from humanities, they considered me as a scientist. I am not real cultural scientist or a person from humanities, I am somehow spoiled by the attitude of posture of science. On the other hand, I earned quite some critical looks from my colleagues from natural sciences [who] could not accept this different proportion of understanding, rather than explaining things.

J: Can you explain little bit because I am also not too far away from this kind of boarder and this is very interesting?

K: I think that it is very important that It is not only **the object of investigation but also the method is different across the disciplines.** It is also the access of perspective of posture, attitude, and **I would describe myself as a scientist who has the experience of the limits of explanation.** Some things cannot be explained but they may be understood. Nevertheless, and I think when you take this poles of explaining to explain and to understand the attitude, and the access of **the designer or methods of engineer, is again quite different and is rather to solve the issue you do not necessarily need to explain. Nor do you need to understand it in order to solve a problem.**

J: So if you solve the problem you are not changing the existing situation; you do not look at the perspective from natural sciences?

K: Yes, you do. It does not bother you; it bothers you as a natural scientist because they also have the problem. **When you try to explain something, you influence the system and investigation and, as a researcher from humanities, you know, of course, that there is no absolute truth or free objective truth.** You can rather ignore the object of investigation in circle, you make it closer, but still It is the matter of interpretation and how It is constructed. So, **I think, in humanities, you do not have any problems with the influence of the object matter; you have so in natural sciences and may be in design. But I am not a designer, so I cannot judge that.**

J: It is very interesting what you describe, especially how you change existing situation because you are constructing it. That's out of your design habit or design attitude, as we understand from the design perspective. This goes also very much along with theory and methodology.

K: This is an access that is completely strange to a natural scientist. A natural scientist is brought up in distinctive thinking. There is a truth out there and everybody will explore the same truth when setting up an experiment or so.

J: But in nuclear physics, there are borders, I would say, that's an interesting part is not it?

K: Yes, I mean there are borders and there's very interesting study in this physics laboratory. A lady from humanities, who outlined that even in the objectivist or positivist physics, there is construction taking place. There is a very important book laboratory, life it is called. It takes critical look to that claimed

objectivity and its limits because **already what we study is not objective, It is the matter of finding, It is the matter of culture.** But even then, we need to accept that a mathematical model could also be other. There's no truth in the model; It is still a model that is constructed. But I think there is one important difference: object matter **for the physicist where natural science in general, reproducibility of a fact is the core. So, everything that cannot be reproduced is not an object matter. So a physicist in principle has no problem with the wonder** because It is a one-time errand. It needs some reproducibility, some repetitive aspect and I think that's also quite important to take this into account when you compare it with a design approach. If I understood it correctly, a designer is happy when he solves a specific problem and [has] understood this very situation.

J: As you have described an engineer before, It is very natural because for me engineers are designers.

K: And It is interesting to see that I think it runs parallel to this design thinking, to these theoretical approaches. There is an engineering philosophical approach and it dates back to the 70s, but it never really took place academically, at least not in Germany.

J: I experienced very much in US and even more Mexico, an engineering environment that is very linked to the Russian engineering theories, and I found a difference regarding designing from this kind of engineering designing. And there is also literature out there, which is different. Let me go back to the second part of the first question. So you are crossing the border, you have a whole different kind of thinking style, is that right?

K: Yes, and as a researcher, I am trained and **I always fall back into this attitude that I am trained as a physicist.** But I can push myself to cross the border, to take another perspective, and this naturally helps me to understand the points you made on design. It was accessing design and design thinking from a purely science point of view. It is very difficult and may be impossible even. I think this design approach is very much on a specific, single aspect or problem, whether wicked or not, to be solved. **In humanities, you try to approach specific situation and understand this specific situation, and you are happy with that; you do not need to extrapolate and to apply this learning to other cultures, for example.** You are happy to understand how or why particular kinds of people build houses in a certain way and there is nothing to be extrapolated.

J: Now, let's move a little bit on. So, in your thinking, design is static or dynamic entity, which is being shaped or developed over time and will be shaped in future, as you could also say for management, for instance.

K: I think you have to distinguish at the first place whether you talk about design as a discipline, as an academic discipline, or rather professional activity. For me, management is a professional activity. You may have the perspective of different disciplines to study reality or explain or experience reality, but management is merely a professional activity. We can talk about management studies too, but I would be very critical about management studies because mainly they distinguish themselves just by the object method that they study and they make use of either humanities or the social sciences or more quantitative approach, very similar to natural sciences.

J: Is that different from design? I would say, in design, we have very similar situation, do not you think so?

K: I think both **from a professional point of view a designer is quite similar to manager because It is not so much to explain or to understand an issue for the sake of understanding it, It is rather like you have to embark on a task or you have to solve a problem. As a manager, It is exactly the same.**

J: There is a huge similarity; there is a huge overlap.

K: I think here they have a task and they make use of whatever means that are suitable but they mainly differ in their normal process to develop the solution. And I think **what makes a designer different from**

most managers is that a manager depends very much on numbers. He is very much influenced by natural science explaining; **he wants to repeat the learning's he made, he wants this reproducibility as a natural scientist.** A manager's finance and business courses are same as philosophy to solve things to a designer, and they apply these over again and again.

J: But in case of designers, you have some standards or a strong academic movement within design.

K: Yeah, we have hundreds of methods written down in order to capture or solve the problems to the best. Maybe It is started the same way, but I experience design now that is more open in the process.

J: Okay, but is not there also a huge change in management research philosophy, since you look at what happens now, the MBA schools are exploring the design studies within their environment.

K: Maybe one could even call it a shift starting with very much quantitative and natural science-oriented controlled schools in management, brought up by Michael Porter and that made you believe that there is a single best way to do certain things.

J: That means to you that, when you look at this development right from the start, it seems to be more dynamic and also more open-ended. So, you see that there is a development over time?

K: **I would say so and management became much more influenced by what was learned from humanities. That It is not the power of reproducibility** or single best solution, but It is rather about understanding empathy and finding a solution. And that may not even be stable, but may be a never-ending process. So the metaphor for the traditional management school was rather the machine that works somehow and It is more now like an organism, or like an ecosystem - that maybe better.

J: So if you look at this kind of changing entity what we could design and we have indicated that something similar is happening with management.

K: Yes, I would say so and I think It is in a very similar position as the designer because, at the end, the manager has to deliver something that is useful or that is usable, very much like a designer.

J: But the change within design, does it go more than physical objects that have always been attachable, or it moves more into the artificial arena and then suddenly you have this kind of possibility that you have the overlap of management.

K: Yeah but, **in this process, this comes even closer to management because management was never really linked to a physical object; it could be anything.**

J: And now we have artefacts and we have constructs.

K: Yeah any construct, all these are for a specific problem to solve.

J: So if you look at this kind of changing entity or changing constructs or concepts of design or management, if you look from a design perspective, do you get the difference in the answer in comparison, if you look at this entity from a scientific perspective?

K: Well, I think the discussion on this specific attitude of thinking or specific way of thinking or **design thinking should tap into the knowledge we have of the role of such large disciplines like natural sciences and humanities or social sciences.** Much in this discussion can be used to find in the exact location of design today and [what] design thinking may develop into. I think It is not a very standalone answer. One has to relate to other aspects that we already have and It is all about a human being finding its way in an outer reality. So the question is how we experience reality, how we interpret reality and how we make use of it for the benefit of ourselves. This then comes back to very philosophic questions.

J: I want to give you an example, one of the lines from the theory of one of my research studies has it that, to find a new role as a designer from such a context we just started to explore, we are wording each other into reality.

K: And by doing that, you pick up a notion that you'll always find in humanities, the construction in reality. All these tangling postures and perspectives, all these ultimately lead us to very origins of questions, like who we are and how do we experience reality. The basic philosophical questions, that's where they ultimately come together.

J: Therefore, It is interesting when we talk about design and management, we know that we are constructing and artefact of management, is it right?

K: I think this very origin [designare] the Latin word designates something; it designates meaning to something and, I think, its very origin is much more descriptive of what design actually does than the rather limited approach of shaping physical things. This shaping or drawing something is also in the original word but there are other notions and, I think, this excitement is very significant, but also contains a beautiful act. This design is also very distinctive for a modern design understanding.

J: Would you see there a similarity to management as well?

K: Yes definitely, **design is very similar to management because ultimately it is not about understanding or explaining an outer truth to somebody but It is like drawing a decision**. A manager always has to draw a decision at the end, even if he does not find the absolute truth. Scientist, on the other hand, he or she may circle around and never reach anything. He does not need to draw a decision, so this drawing of a decision is very important I think.

J: So if he conceptualizes design, we are drawing decisions as well, is it right?

K: Yes.

J: And when we conceptualize management, we are drawing decisions.

K: Yes, and that too [is done] consciously. I think this is an important thing, it may just happen at the end that you run out of time and **there is something conscious. As a designer, you deliver something and say that this is it for now, you may change it again but this is it for now, the manager does the same thing.**

J: But how does this develop over time? When I look now, I think It is very interesting when some say that there is a lot of management, which has no conscious management, there's lot of design without a conscious design history.

K: That's true. But, as you know, what managers actually do and in particular successful managers is mostly not what we consider or what we think managers typically do. They walk around, they talk to people but to predict and control notion is rather an exception.

J: Yes, It is an ideal case, I would say. In such a moment, you would say it is controlled.

K: But still, as a manager and as a successful manager, you may be asked what do you do, I want to learn from you, can you explain me how you tackle this problem and how you came up with your solution. And this is the same thing that happens to a designer. If you hire them as service provider and if you ask them, 'I want to understand how you did that and how you came up with this solution', then I do not think they are going to reveal anything. It becomes interesting; we are still quite far away from systemizing and learning whether there is such thing as a process that can be standardized.

J: Okay, so if we have now this kind of notion of design or notion of management or concept. Because when I go through your answer, one of the most difficult things I have found out first that the English

language does not have such idea of like [Begriff]. It was a big issue, there's no translation, notion is similar to it but you can say 'grasp', but notion is not the same. It is never the same because, in English philosophy, there is nothing like universal thing, but that's okay. Let's see that, we do not want to go there because It is a thing by itself, but let's look at this kind of notion or concept of management of design and how this changes overtime, as we have indicated or even used the word 'part-time shifts'. So what do you think are the underlying processes of this change?

K: The thing is that there is an extrinsic issue when trying to study this problem because usually, when you ask a designer or manager, 'How did you do this?', you only ask in the case when he was successful, right? But maybe I am thinking too much as a natural scientist. You should also study more when problems were not solved, when you didn't come up with proper solutions, when it didn't work out, to understand the process. We are misled; It is a positive bias.

J: Yeah, Foucault says that most people look for continuity; they look for things which are similar in order to identify them and that's one of the biased aspects within a discourse looking at how it shapes. If you look at discontinuity you might be more successful.

K: **Discontinuity and failure is very important; it may shift our attention to what is actually done when we describe a designer or management process.** We have plenty of description how so called designer or manager problems may unfold. These descriptive approaches may be wrong because they did not consider discontinuity and did not study failure intensively enough.

J: Now we are into the interesting part of my thesis. When you look how this kind of entity 'design' is shaping over time, I think you can identify discourse modalities, you can identify exactly what Foucault has outlined. Here, we have a discourse community and strict rules - who can speak and who cannot speak and for how long. There is a power game involved, there is always power included, as you know in physics.

K: Yes, but then, in physics, you come up with the only explanation in it and I think in design and management you may find a solution in the midst of conflict and contradictions.

J: Can I challenge you that, as I understood reading Heisenberg, when they had been together and they designed it, I think we want to get rid of the concept of ether. I think we do not need the concept of either anymore; that was a democratic decision.

K: Yes, it was, but neither model worked and there was an experiment that tested that there is no ether and full-stop.

J: But an experiment does not mean that there is a physical science problem because you have changed the existing situation through this experiment.

K: I mean that ether model was proved wrong, or at least it was considered wrong at that place and it was not needed anymore to explain the outcome of certain natural phenomenon, and just to understand the precession, you can calculate things in a thesis. It is incredible and there's nothing in comparison with other sciences, like humanities, up to 11 digits you can measure, for example, frequencies. It is incredible; It is a series of 10 numbers that you make as a result of a measurement. And so theories to describe certain phenomenon are working quite well, but obviously not all phenomena that we have to take into account as human beings can be tacked in such a way. That is what Heisenberg derived in his Heisenberg's uncertainty relation—it was simply that you can measure or conduct a very precise measurement, but as soon as try, for example, to pin down a location of an elementary particle, you cannot simultaneously measure the velocity any more.

J: Okay, now I get the difference. But let me focus again on this kind of terminology of paradigm shifts and, in my perspective, It is same kind of look towards phenomenon, which we call notion or concept,

as Foucault has been doing. Because Foucault says, look at history; history is excavated all the time, but we construct it. It is true; It is an agreement that if, at certain point, certain statements are considered right, or true from the community, these statements are more valued than others. Do you think that's very different from the part-time shifts that Kuhn was pointing out?

K: Yeah, but I think Kuhn was very much focused on natural sciences.

J: That was the difference between Foucault and Khun, between the part-time shifts and the discourse.

K: I think Foucault goes further than Kuhn. I think Kuhn was still talking about paradigm time shifts within the natural sciences, the move from classical mechanics to quantum mechanics and relativity. Still, the attitude of the posture of natural scientist remains the same throughout this paradigm shift. **One model was replaced by other; other one was explained more or to higher precision, but still the posture or the attitude remained the same.** What we learned later was that, by this construction or deconstruction, everything we consider is relatively out there and can never be proved as such. There is always deconstructive element, but the physicists are happy with the illusion of something they share as a reality. But I think, to understand design and management and its process, and also its development across time, we need to go beyond this understanding of paradigm shift Kuhn focused on in natural sciences.

J: I agree with you and I have described it a bit different in order to see sometimes the alignment between the discourse context and what Kuhn was identifying was also at certain time the discourse within the natural science. This leads to a different paradigm.

K: Yes, It is true. But still, what happens in the natural science is that there is an external influence in the way we focus on specific issues, but not so much in terms of the models. Because it is up to the decision of funding and social acceptance also what we study much more in biology than in physics, whether, for example, it is possible to clone animal or even human beings. It is not funded and It is against what we consider right.

J: But It is same with design, do not you think so? Because, for instance, my theoretical model I have developed looking at the notion of design, I would see that what happens at the end is discourse which is ongoing but not only through language but also through object. I have also been looking through the cell phone discourse. There is one company that brings out one model out there which has certain features; immediately, other companies react with a different model proposed. So, within this kind of discourse context from language up to object, design is shaped by its community.

K: Yes, I think one can understand these different levels of construction taking place. Again, going back to natural sciences, it is always the constructive element that you shift your attention to a specific subject matter and not to others. This, **I would call the lower level of construction.** A natural scientist would also accept it that they focus their attention according to funding and social acceptance, but they would refuse [to acknowledge] that there is a 2nd level in construction, **the models themselves are influenced. And It is a way of thinking, It is model of truth itself, and in that respect, the model is also a construction, whether it studies this object or another one.**

*J: I totally agree with your concept and design, as currently we conceptualize, is a matter of discourse of who can speak and who has the power to speak. I think it was never identified in that way. But speaking about paradigms, for instance, when Krippendorff calls it a semantic term, when we realized that designer makes meaning out of the world that's a speech from the physicality or designing something where you can touch in the realm of making sense of something. Therefore, in order to explore little bit more what kind of model I have developed, what we are doing, for instance. As you know, I have been running a lot of conferences and these conferences were a testing case [of whether we] are we actually able to de**sign design**. So, the question is, within this kind of conferences, where certain kind of people*

*you invite to speak, you create some kind of literature, are you really able to **design design** in such a context? And I would say, for me, this is interesting, because you cannot control it individually.*

K: No, certainly not. And there is also something to be explored in these kinds of conferences in comparison to science. **In science, you just need to describe the current stage of a system and then everything is fully described. In management, you not only design, but also you need to understand how the system got there. The notion or the trajectory is very important.** It is not just the state, but also the solution how we got there which is important. It could be list trajectory but also another we do not know.

J: No, we do not know but we may know; it depends always on the way you invite people. Because, if you get certain people on the table and those people speak, they will speak in a certain way. You know that before. So if you stretch that in a way, for instance, when we started in 2004 this kind of designing, I was not clear how at that time it will change the route of design, but it changed a lot. So that means that designing or co-designing or collective designing approach are not independent from us by default.

K: Exactly. That is the difference from a natural scientist point of view because he thinks that is different. The measurement has no relation with the physicist who undertakes that measurement and it is completely independent. In management design, every object is entangled in a mutual relationship of people objects, decisions and certain outcomes at the end. So, I noted that you are also interested in network theory. I think it gives us the tools to give us the design process to understand better what actually happens in designing or engineering.

J: Yeah that's true. But It is also clear that, when you look into this kind of designing or conscious designing, there is a difference. I think we do it all the time, but we do not do it consciously.

K: That's why I emphasized at the beginning of the interview that it is very important to talk about design or management.

J: Also, we know that 'conscious' is very problematic word; otherwise, It is kind of a no brainer. At every point of life, we solve something; It is the basic theory of life, or being alive, but solving most of the time is done unconsciously.

*J: And my question was that is it possible. And, as you know, you cannot verify theory from theory through such an experiment. This is also clear, right? When I look at the conference now, even from 2004, I cannot verify that it is really possible to **design design**. Is it possible because, when you are trying to verify something, which is already a construction because what we got is already a construction, It is already a theory about what happened there. It is not the real thing and then you draw theory from theory, so you cannot verify. As you know, this is very classical; you cannot justify theory from theory without outside interference.*

K: You have to go beyond in order to do that, but the question here is what does 'beyond' mean?

J: For that reason, I think what I am trying to do is, I am trying to test whether this model makes sense. Does it give you another perspective on what we are doing, for instance, in this kind of discourse arena? Does it make sense when we look at this kind of magazines? Actually, this is a discourse platform and that's why we have these numbers of magazines today. I think this is a discourse at an object level and we also have discourse at the language level. When a painter makes a mark and looks at it, this is revising. Likewise, when we are drafting something, and we write a line and then another line and choose which one is better for the draft, this is a kind of designing of the draft.

K: I think It is very important that, at the end, you know that It is this line and this text and that's it, there is a decision. If you define and you discuss the concept of designing too broadly it becomes meaningless.

J: It is true, but is not the meaningless important?

K: **I think this conscious moment of decision is very very important because, if you leave this out, you can call everything designing; it is procedural. We live in time, but design process takes one moment that is also not interpreted. That's when you deliver, 'this is my solution'.**

J: That's true, but do not you always have to explore the border of such a notion? Because, now, you can say at a certain point that It is too broad, It is meaningless.

K: I think, when we talk about design and design thinking, the ultimate goal is to understand about the process, that it goes beyond the singular event. In my thinking, it may still be useful to design or manage, but it is not suited for academic discourse anymore.

J: It could also be that, at a certain point, when you realize, for instance, and we are doing that very often intuitively. I think, when a professional field is coming at its end at a certain point, as it reaches some level, what are you doing then? We are getting frustrated. In science, when I was young and suddenly there was this kind of chaos there. This kind of determination was at its end at a certain point and, suddenly, you see this kind of paradigm shift in natural sciences and you know that we can see this in all fields. But how does this happen? And, if you know that this happens, you can also contribute to this kind of changes. You can get the people together. This we are trying to do all the time, this you are also doing in society and you are doing it politically. We get the most important academic leaders there trying to generate new ideas. In my eyes, this is exactly what designing is. In such kind of co-activity we are designing together consciously.

K: **And I think coming back to the list of questions you had, at one point, you asked whether It is an individual thing or collective process? I think it is both and essentially it is both.**

E.05 Interview R.

J: So let's start directly with the interview. And do not get concerned, we'll go with the flow because it is semi-structured and I will start with the first question. Do you think you are a designer, a scientist, a design theorist or even a management theorist, or are you all of that? Or would you choose even a different category to qualify your thinking?

D: I guess **I would think of myself as an organization theorist.** So It is a different thing all together, **but I am also a management theorist.** The fundamental thing what I am into is organization, but from the stand point the particular issues related to managers and the thing I have been interested in from the very start is information and how different kinds of information are being [made] available in different kinds of ways and exchanged in different kinds of structures and discourse patterns, argument structures, aesthetics and communication of information.
So that's kind of thing I am mostly into, and then, from there, the first thing I started out with was a paper that I first presented in a congress and that was back in 1974 maybe. It was a Management Science and Operation Research Congress and **it was about information, about active manager.** That was kind of a reaction to the passivity with which managers were being portrayed in management theory, i.e., through the rise of decision-making emphasis in 1960s-70s. **This emphasis and decision-making, it involved the manager sitting at his/her desk and something is placed before them and the thing that is placed before them is the need to make a decision.** So, there is some kind of situation that is described and then there are some kind of alternatives for action that is presented, and certain kinds of data that are supposed to be digested, analysed and taken into account in making a selection in the alternatives. **Managers' actions begin with this passivity and being presented with an occasion to make a decision along with the information that's supposed to be available**. So that's how I got into the concept of design and actually I had my thesis on design way back in 1976. My thesis was based on interaction between information system designers and information system users. But I didn't really appreciate the importance of design back then. It is like the organization is full of information systems' they are everywhere around us in the general world. And **so, there's lots of talk about designing them, that's what I did my thesis on - patterns of interaction, design related to design logic, and so on, as far as structure of information. But it was not until I started working with Frank Gehry** that I saw how it really was the thing I have been wanted to talk about, but hadn't exactly how the idea of the active manager, the agency. **The world shaping aspect of management in particular, the problem finding and problem defining aspect of management is most powerful way to capture and talk about that.** That was, I think, in 1997, and I have been doing design for long long time and I have written all sorts of things on design and distributed intelligence and stuff like that. But the idea of the manager as the designer didn't hit me as much as it did after working with Frank Gehry and seeing that the problems were very much based on problem redefining, problem reformulating. And since things could be other than they are and things could be much better than they are, so the different aspects of design were like an answer to, or an antidote to, the passivity with which managers were portrayed in the world, especially the academic world.

J: It was very amazing how you have been describing your relation to design. But in your thinking, or looking at what you call design, is this something static or is it a dynamic entity, which has seemed to develop over time or does it shape in future?

D: Yes, **well definitely It is something that's changing all the time because it really is a kind of hermeneutic process, where the manager is attending to some details and something factual, or let's say, some perceptual elements in the world.** And then, moving to that, to some kind of sense or feeling

that the whole could be different than it is, and of course some kind of values and ethics associated with that kind of hermeneutic back and forth attempt to understand the world to understand It is possibilities. So, as a hermeneutic instance, every movement attacking back and forth from a particular sense of whole to a particular sense of pole is the understanding, or the particulars are understood in a way and in that sense It is always dynamic.
The methods, I think will also evolve and I think the inner play of analysis and synthesis, sort of stuff that we talk about, that will be a kind of foundational like the hermeneutic attacking back and forth from the particular sense of whole or from the implications from theory back and forth. And back and forth, that kind of movement **I think will be the same, but our conceptions of how the world is and how it could be will continually be changing. So I think of our values are something, or let's say our sense of ideal and what we are striving for, will continuously be evolving and changing.**

J: But you know, when you speak that between back and forth, you could also say that it is some kind of iteration or it is such an iterating process. You have not been introducing yourself as a designer in the beginning, so It is interesting how you speak about shaping and at the same time you do not feel that you are a designer.

D: I guess I do not. I think of myself as a theorist.

J: And how do you get to the theory? Because, for me, creating a theory can also be a designing process, right?

D: Yes, **actually I am getting ready to teach a course this afternoon and one of the things I was thinking this morning was to get the students to see the entire process - parallels between design and science, with science being the sense of how the pieces can fit together in a hole that makes new action or totally more beneficial action in the world possible.** And so, the shape of the theory is very much like the shape of a diagram that we give logic of a design. It would have elements and relationship among the elements and how these were to come together in a whole in practice, either to build a product, or whatever it is. So**, yes, the doing of science is design and designing is the doing of science.**

J: Yes that's it, especially in this moment of creation, when you create this kind of new theory or model.

D: Yes, exactly. I took interest in not just describing what people do in organization or what managers do, but coming up with ideas for better tools and usually thinking of those tools as information-related tools, tied to human carpet of processes. And so, I was devising tools that extend human cognition, that take into account biases and limitations of human cognitions and help people to have processes that are more humane and more generative. So, those are the types of things that I would like to design, some of these tools that we have made these software things, these basically have to do with that sort of things.

J: But, in general, for me these are artefacts. For me, one of the solutions to the problem is to use the word 'artefact'; whether the artefact now has some kind of physicality or it is only some kind of conception thing, it is still an artefact.

D: Yeah, **I do definitely see myself as a creator of artefacts**. So, as artefact creator, I am also working with different kinds of diagrams and different ways to diagramming situation, understanding of situation and manipulating of diagrams.

J: So, for me, that would be a designer, but I do not want to convince you. But I am interested in your thinking and that's the reason I am here. I wanted to ask you, if you look at design as an entity and you

look from creation perspective, and if you switch to more scientific perspective, how does your thinking change?

D: Well, I think when I say, 'I do not think myself as a designer', yes we have created software; and yes, we do these things and even just diagrams and diagramming tools and these representational structures that we play with. But I think, what can I do? And what I can do is more of the theorist or more of the abstract. Cognitively, I do not know if that's the right word, more of the writer about ideas, more of the critic who is against passivity. **Once I know what I am up against, then I can work for what I am for,** I think it is more sort of an intellectual exercise. When I see a great designer or any kind of designer, I tend to think, 'well that's something which I am not very good at'.

J: Let me provoke you here little bit. Did you speak that before that you have just said to me.

D: Have I just said to myself?

J: Or somebody else?

D: No.

J: So you just invented it.

D: Well, I think It is kind of a self realization. Like, we have students now who are coming from the design world and they are very talented. I do not know, it may be a sense of statics or sense of something that I do not really have. **I am more of a theorist and a scientist than a designer.**

J: I totally understand. I can follow that, but let me be provocative at this point. Does the word 'statics' play a role in your writing? Because you have used this word couple of times in our interview and this word 'statics' has quite a great meaning for designers, it defines a separate category in design.

D: Now I am thinking that this is a bit different thing. Well yes, in the sense that **I tried to be a good craftsman in writing. So I tried to incorporate a sense of flow, a sense of tension and something where a reader is carried along** and is going to experience twists and turns and surprises, where there is balance and where there is a sense of beauty in writing.

J: Yeah, but you described statics there, is it right?

D: Yes, that's what I do. I try to write that way and edit other people's writing that way. My notebooks are full of, I do not know what the right word is, not poems but short statements and phrases that have very compressed meanings in short statements.

J: And you collect them?

D: I have dozens of notebooks full, I could say.

J: But you do not consider yourself as a designer, It is very interesting. It is more like draft, is it right?

D: My writing? Yes. In the writing, I basically think about ideas I have been working on basically my whole academic life. **I basically write them in a way that's more endurable and accessible and make**

some kind of contribution. Because I got papers that people read, but I think there is something more to do, or something more to accomplish in the way of writing and creating.

J: But It is interesting because I was reading your paper a couple of times and, I remember when we met in a studio in Cleveland, that's one thing, but the interesting part is that I met you always in context of design discourses.

D: Yes, and when we met then, I was being swept away.

J: I met you within design discourses and It is interesting that, even today, you would not consider yourself as a designer.

D: I think so when it comes to identity.

J: But, from my perspective, what I have observed over the last few years, and I do not know whether you would go with me or not, because from what I have observed since the conference in June 2002, I think in my eyes you have contributed to discourse, which actually also changed the notion of design.

D: I cannot say that apart from being a theorist and a scientist, I am also a designer. Because, if I would be a designer, I would not be worried with that sort of stuff.

J: Are you sure? Now I come to the core of my PhD and research which I have done for the last few years. How would you describe your activities and the results we have been generating in these conferences? How would you describe this activity?

D: Well, I think something that I hope and I think Fred also hopes, is that it has to do getting other people, especially **people who are educators and practitioners to see what they are doing as designing and incorporate their understanding and thinking about design. And, in the same way, calculating their risks in some financial instrument, that It is just a responsibility that they have and as an actor in the world.** So, for instance, I would think politicians, 'O my god', our leaders, our congressmen, senators and all these sort of people, spokespersons, media voices and so on, if they could appreciate their activity, their agency that they exercise and the importance of their agency and the way they are giving shape in words that they do not think about or do not take into account or do not reflect on it any way. Take, for instance, the politicians, the way they frame the very pieces of legislation that they grab or the social problems that they define or are supposed to deal with is so inadequate, so partial. It is like, if they were designing a spoon, they would make a shitty spoon because they wouldn't think about anything or a person actually using that spoon or how it fits in with eating or cooking.

J: Yes, I agree. But I think the question is, I think I can also follow your thoughts about politicians. But the difference between designing a spoon and designing something because the problem for politicians is the social aspect which is coming into play, which we also have when it comes down to management, right? But let's go back to these conferences and I want to make this connection between politics and conference because I was also doing a lot of Foucault's study. Foucault's discourse and, for me, the interesting part is that also in these conference, there is politics included: who can speak, who'll be the people that we'll listen to, how long they can speak, how important are these statements, a lot of politics is involved. Maybe the politicians do not know what they design because, in my eyes, if they are doing well, then they are doing good policies, they are designing policies. Policy design is a growing - interesting theme. So the question is, I totally agree if you have a conference and there is too much politics, then we do not like it any more, is it right?

D: Yes.

J: This is the issue when it comes down to social [aspects], because this is also a difference between a designer and a managing designer.

D: The difference as in the impact on the social awareness.

J: Yes, as a manager, you have to deal with the social and as an object designer, as a spoon designer, you do not have to deal with the social in the first place. And therefore, the interesting part is, looking back at 2002, how it changed my understanding of design. Since this time, I realized that it changed my thinking about design. It changed also my thinking about management.

D: I certainly need to talk about this. When you said what we hope to do, It is certainly changing people's ideas about management and how it is to be practiced or what people's possibilities are and what being educated in management means all those sort of things. So, something that really gets me excited is when somebody writes up to me says, 'I have been working on...,' let's say, human interaction with computer. Like a guy who recently wrote to me and how he came across the book 'Managing as designing' and you know It is like a religious experience for him. It is like a conversion type experience for him, and so, that's a sort of thing that one person at a time who can level the ideas and sort of make it more mainstream. I am sure you too had the same sort of feeling, which I got my whole life. [I have] always been labeled as something on the sidelines or the edges, something not mainstream. I used to call myself 'the soft underbelly of management' or let's say being classified with that sort of thing, you know. So, **I think that, deep down, having the ideas of design becoming corporate into a new realization of what managers' responsibilities are and what their practices should be** and if that could become mainstream, that I think would be the long-term thing that I would really value being able to contribute to.

J: Okay, but what I have learned, or what never left me since 2002, and for that reason I have been doing this kind of research for over the last couple of years, was this idea when I experienced what I have done so far in this kind of conference that I have been shaping this concept of management in different concept of design.

D: Yes.

J: This is what I felt. Today, I know that we have been shaping the notion of design and the notion of management, is it right?

D: Yes, Fred had been telling me that one of my MBA students who went through his one year design course and the other things got hired by Apple. So, you think that Apple would be right in the center of design and management. But what she did was that, yes they had these designers, but may be the job was of designers but the rest of the management team did not have any sort of link to design, design thinking or design practice. And so she got a week to spend with the top designers like David Cooper, and since then, they have changed their approach to let her supply chain where they didn't used to be thinking about the design of the supply chain as affecting the human workers. And [they started to] design the policies that they use in selecting the manufactures for themselves from a much more holistic and humane way than or what is usually shaping the world, kind of thing. And anyway, he was very surprised and very pleased that one of the students can go inside working for him and say, 'hey you guys need to get serious about design' and they reacted to it seriously and they did it.

J: So what it means for me and when you say they are shaping. In the meanwhile, I also say that the way you are shaping something, the theory or the statements are discursive. You take statements, you melt them into each other, you look and you melt them into new statements. This is exactly what a painter is doing as well. He makes a line, he looks at a line, he adds a second one, he overwrites the second one, and so forth. This is Foucault; Foucault described exactly the discourse of a painter when he makes the first color, changes it, and so forth. This is the kind of iterating process of design, right? And I think what I have learnt and what never left me, and this is from the core of my model that I have developed, I think we are ***Designing Design*** *and we are creating this kind of instances, like the conferences, were we are shaping our notion of design in order to change the existing notion so that it fits more to what we intend, right?*

D: So, **for the manager, the ability to look at anything, any aspect of the organization, anything in the environment and to do so with the sense that everything could be other that what it could be, that's design.** That's what their responsibility is - to make things what they are not and what they could be. So, that is to me what is broadening, expanding idea of design is - beyond artefacts, beyond images, beyond social configurations and practices.

J: When I did the third conference in Mexico, it was an interesting time. I was not on the right track, but when I did the second conference in Milan, it was the first time with the notion that I am trying to change design through a designing process, inviting a set of scholars who have the ability to do that. As you know, when you draw theory from theory, you cannot justify that through an experiment, right? But this is what I have been working on so far and this is what tricked in my thinking. When I saw how it impacts actually, the notion or the concept of management, and I can tell you that it just arrived in a broad level. I am now getting invited to speak about these issues all the time.

D: You know, I have spent a lot of time on this Paleolithic art, Upper Paleolithic, savage cave. So, the cave paintings and then also the stone tools what they call lithic industry, making and shaping stone tools and the emerging evidence of how the making of stone tools goes on, which is a constant process of evolving design and expanding the kinds and types of tools and so on. [This] is related to the development of human cognitive abilities and so it was the creation of artefacts that attempts to perfect design that was may be a very co-evolution of the human being. And then what happened in those caves, especially those 35000 years ago, it was just incredible. So **I think It is very very intimately tied with what it is to be human and what it is to be changing.**

J: When you say that design is changing, well design is what makes human a human. So human being is changing, but It is an interesting situation because there is a social aspect always included. I cannot change design. I can only contribute in this kind of change. Krippendorff says wonderfully that we are wording each other into reality. This is our responsibility to make sense out of things. You can use a mirror also as a surfing tablet, you can use mirror in order to make fire, you can use mirror for many things and I think this is kind of what is very important. And what we have realized in the last 20-30 years is [that we need] to make design the responsibility to make sense out of the world, right?

D: I think that's another way to phrase what I was trying to say, **that, as the actors in an organization of all kinds, be it political, profit, non profit, as they come to see their agency as a design agency, then you have this what you said earlier. It is a new understanding of an individual for shaping the world in ways that may lead to reality.**

J: When I look to manage organization in realities, there is no objective of organizational reality. We are inventing it, even the descriptions a design act.

D: And people who do not have design sort of sense, or awareness of self, they take the world as something that is given and fixed and It is a very obverse and restrictive kind of thinking about the world. So called 'common sense', 'be practical', 'there's nothing you can do', and so on. I think that sort of reasons **why people really like design and management workshops, as it does have very uplifting, optimistic re-affirming, capability of humans to make things better.**

J: And even if It is only the description of the reality of the organization.

D: Yes.

J: Because It is very interesting and It is also very interesting that from this perspective to look at the political space. When you see suddenly a description of a crisis in an organization, whether we have a crisis or not, this crisis needs to be commonly accepted. For me, this is the most interesting aspect in management, also when you try to describe the problem space.

D: Well, I think that one thing that makes design approach to things very unsatisfying is, if you have not struggled to somehow come to grasp to the whole. You have not struggled on the trap of focusing on some little part, so that's where I started in the beginning - the hermeneutic attacking back and forth. And part of the whole as being such a central dynamic is at the back of my mind for what can be accomplished by people having a greater sense of the importance of design or design agency.

J: I think we are very much near to what I was trying to describe and It is very interesting for me. And I would say that you do not define yourself as a designer and I have experienced you as a new kind of designer, which I indicated. And even within this kind of first conference, you could even say what happens in this kind of discourse arenas. You are trying to gather and, I think, the way you formulate things for me is typically designer way of approaching it.

D: Definitely, that's something that I would aspire to. You know, I used to be so deeply involved in Foucault, but you sort of moved the thing and so, when you end up writing about Foucault in your thesis, I would be happy to react to the ideas, being a sounding board.
J: I have two things, Krippendorff and Foucault are the two columns that I have been building my thesis on. And I would say this discourse in design is discourse. For instance, I have been looking into the discourse of design world, when they put I describe it. There's one company called the Samsung which launches a new cell phone with the latest features, what is Apple doing they are reacting with another cell phone with another feature. So I spoke even of discourse within objects. There is a discourse going on at different levels and in different systems, right? And one of the things is the difficulty to understand designers and understand discourse in some ways. Because, in here, you have to discourse in a language that's very clear and it is heavily researched. But the discourse in design happens partially through statements and presentations and documents; one drawing and another drawing, and it ends up with a monument. Then you have the Frank Gehry building before you. So this is what happens as well and this is the core of my thesis, and this happens as well in the discourse arena, which we have initiated in this kind of conferences. One statement, another statement, and by putting them against each other we are coming up with documents. We are creating books, we are creating articles.

E.06 Interview M.

J: Thanks for taking out time for me. Actually, I am using these interviews for my PhD in order to validate my theory.

M: Do you identify me in your PhD or not?

J: I do not identify you in my PhD, is that okay?

M: Yeah, that's perfectly fine. I just wanted to know whether you keep it anonymous or not.

J: I keep it anonymous, but I already find that the interview results are so interesting that we could make even a book out of it. This is what I have seen so far. Let's start. I have already sent you the questions, but I'll put the questions to you again and you can start to answer. So, the first question I would like you to answer is, do you think that you are a designer, a scientist or a design theorist, or are you all of that? Or would you chose a different category to qualify your thinking?

M: **I would be very careful [not] to put myself in a box, but I realize that sometimes you need to put people in box.** If you really need to put me in one of those three boxes then I would say, as far academic is concerned, **I am a scientist, but I am not a traditional scientist. And even if you think about who is a scientist, you'll find a very wide variety of people who are in this business. So, if you need to put me there, I would say, put me there, but as individuals, we are all designers and we are all scientists. So, it depends on how you want to get the answer.** Do you want to get the smart answer or you want to get the administrative answer? If you put me in the administrative answer, then definitely you should put me in the scientist box, but if want to take me top level, then as a human being, I would probably gravitate in all of those.

J: But you know, making the statement that everybody is a designer, or everybody is a scientist at a certain point, it does not mean anything anymore.

M: It means, of course. If you **say everybody is a designer and everybody can go and design an airplane, or anybody can go and design a poster, then you think designer is a professional person who designs an artefact of some sort. But if you think design is motive thinking, then everybody can pursue this kind of motive thinking. So, it comes back to your definitions of what a designer is.**

J: But would you say the same to a scientist because you have spoken about everybody being a scientist?

M: Yes, because in a way, kids are acquiring creatures and they investigate the world around all the time and discover and rediscover it all their life. So we are all kind of amateur scientists. Look at mothers and people who keep track on their way to find out what is going on with their kids. Everybody is a kind of doctor, if you look at the forms in which they are keeping tracking the diseases. So, the boundaries between the professions are getting very vague or blurred. People tend to get knowledge on other things that they engage and there is no boundary to say, 'hey, you cannot design a poster'. Everyone can design a poster if they want to engage in this profession. Of course, you will not get a certificate to verify the work you have done, but you know, if you want to design your own greeting cards for the New Year, who's going to stop you? So, basically, what I am trying to say is that it depends on your definition. If you think in terms of administrative characteristics, clearly I am not working in design school or design firm. I am not writing books exclusively on design theory and [I am] not working in that academia. **So, if you want to go by your strict definition, you would put me in the scientist box, but if you want to open up the definition into kind of activity or mind patterns, then there's lot of people engaged in various activities during their life and its part of their living.**

J: But then you would also say that everybody is a manager?

M: Yeah, I think so, to some extent. **Everybody has to manage their own life, whether it is their business or any other thing. I mean, you are supposed to manage your own time. So, when you manage your time, you are a manager, unless you say a manager is a person who manages people in an organization, and even then, you can say that in order to be a manager you have to have X number of people under yourself**. If you manage only two, may be you are not a manager, you are a group leader. So, what I am trying to say is that, it really comes down to whether you can come and define it. And if you can give me definitions, I can tell you what I am. So, according to the question, you will get various answers on the basis of assumed or the implied definitions of those things.

J: Would you say that one is a conscious decision and the other is the things that happen? Would it be appropriate for you to separate between everybody being a designer and one saying I am professionally a designer?

M: Absolutely, and it is also a matter of self image. I am a designer, I wear black and use only apples and I am a scientist and I have a light count on glasses and I teach in schools and I have a very important mustache or something like that. **So ultimately, it comes down to definitions of professions, as to place a fork. Or to clarify, if you want to manage a large company, then you need to have some skills and experience. And if you need to design an artefact for industrial process, you need to know what you are doing.** This is not something that you pick up on the street; it clearly requires education, training, experience and so forth.

J: Yeah, but this can also be outside of academia because you have also famous designers which have never had the traditional design education. Some of the famous managers had never had traditional education.

M: They are self-educated and self-taught. They just learn on their own.

J: Yeah, for the same reasons I sometimes use the term 'conscious'. I am a conscious designer because I design very often without being conscious of the process.

M: If you want to go down this route, then I would say, 'am **I a professional designer, professional scientist or a professional design theorist?** I can add the professional modifier or adjective, then you can put me as professional scientist, if you want to go down this route.

J: Okay, I think It is clear and I can follow that very well. The second question is: In your thinking, is design something static or is design something dynamic which has been shaped and developed over time and will also shape in the future?

M: I think, **I assume that anything static is kind of naive.** So, to think of it that even if design is not a entity that stays outside, that you can touch and its tangible material formed, then you can say It is there. It is a construction like any other human construction; it keeps being shaped by social interaction.

J: Can you elaborate that a little bit. When you say 'It is a construction by social interaction', how does this happen in your eyes?

M: Let's start with the first issue. **Design is not a thing. If you ask different people, design will be different things for them, because they construct them differently according to their context and most of us do not live alone in caves. We live with other people and, with this interaction, we construct the world around us, at least the set of terms that help us to communicate. And I am not getting to the notion that design is a verb or noun or something like that**. It really depends on how you want to use

the terms in your context. Some people will use it in a simple form, because they tend to ascribe only one meaning to it and others will have a wider set of meanings that they will just change to fit the context of conversation or thinking or reflection. So again, if you go to a design school environment, they will refer to design in one particular context, and if you talk to some managers about managing as designing, for instance, they will think about designing in a different context. And if I talk to a person on the street, then they will have a different image of design, based on what they were exposed to.

J: I think, for me, it refers also to little bit of Krippendorff when he says, 'we are wording each other into reality'. So this will be appropriate and a little bit academic in semantic terms. We are wording each other into reality. This is what happens when a designer negotiates within a community. This happens not only in design but also in management, is that right?

M: It happens in any field. **You can say things are being defined in management for sure. Management was pursued differently in 1950, and in 1980 and in 2000, and it kept shifting. And you can clearly see the line in management or organizational theory, what people think about the nature of this activity or entity.** And designer would assume pretty much the same. I mean, there is a traditional school of designers who design in certain and very specific way, and people start changing the way It is being perceived. And these ideas are rooted in, and they are being expressed in the discourse both of designers and non-designers.

J: Okay, it is also very interesting and we will come to this discourse a little bit later. Let me ask you now at this point, this kind of dynamic thinking of yours just outlined design and even management is a shaping entity.

M: It is both shaping and shaped. I mean, it goes both ways. **The way design is being framed actually helps people to change the thinking about design, but the people in their interactions keep shaping the terms, going back and forth.**

J: So this kind of perspective you have just outlined towards design and management, is this designerly perspective or is this a scientific perspective?

M: That's a trick question. It depends on who you ask. What do you mean by designerly perspective?

J: Because it is this design perspective, which means that you are changing the existing situation, or it is the scientific perspective that you describe actually what it is.

M: **It is probably theoretical perspective, so I do not want to call it design to science, but I would say this is a theoretical perspective.** I mean, as a side note, I could tell you that I have very near uncle who has taught designers for many years and he teaches them philosophy of arts. He is a philosopher by his training and, according to him, designers have major difficulties in thinking in abstract fashion. **They think in a visual way and their brain has major difficulties in dealing with obstructions.**

J: Yeah, divergence and convergence are different issues. But I think these kinds of polarities are only one way to look at it. There are also other perspectives. Who could say the designer, as compared to the artist? We need to have both. But there is also traditional, who comes from this kind of convergent thinking, right? But you know this is one way to look at it.

M: **To be a designer who is creative and innovative, you must have a divergent phase, otherwise you cannot get anywhere.**

J: That's true, and as a scientist?

M: **As a scientist, you need both. A scientist is a sort of an artist; I mean, you cannot be a good scientist unless you are a good artist; that's my thinking.**

J: Then, what's the difference between a scientist and a designer, not a big one?

M: **Scientist and a designer? I guess, the key difference between artists, designers and scientists is the kind of outputs. So, it really has to do with the products.**

J: But where do you see the difference?

M: Here, It is also a kind of tricky thing. In a way, it depends on where you produce your outputs. Let's try to make it in a very simple way. Let's take two illustrations and think about it. So, let's say, the scientists produce what? Let's say they produce recent result and end up with an artefact called the paper. And let's take a designer. He works in a design firm or a studio and they produce certain kind of design artefact, whatever it is. What's the difference between those two? This is the kind of question you want to ask? So, clearly a paper would work on a much more abstracted level than a designer. **The artefact would end up to be something very tangible and clear, this is one way. Usually, the scientific output will be represented by a set of words or syntax that would be again going back to the abstract session, whereas artefact will be some sort of artefact, whatever it is.** I mean, yes you can come in a smart way that you design a process, etc., but that's not what most designers do.

J: Or what they had done in the past?

M: I mean, today, you have designers with the fantasy that they can design the entire planet or the world or everything else. But if you ask me, then It is a fantasy. It is not something that is actually working very well. I mean, some people think that I can design everything, yes, but no. You can apply design thinking to many areas, but you need more than design thinking to be effective in work in different areas. So, you can say that you want to design something for eradicating hunger, but you need to be more than a designer to know how to eradicate hunger.

J: That's right, I would agree to that. But I think I found it very interesting when you said they both produce an artefact. The paper is also an artefact and the design is also an artefact, is it right? But I think the place where they put them makes a huge difference, is that right?

M: It is also true because a **scientist is working on a market of ideas and usually the channel to distribute these things is usually through formal presentations, journals, etc. But basically, the scientist would end up on the final output, which is an idea, which should be a noble idea and a very useful idea.**

J: Is it only an idea?

M: **Most scientists will end up with an idea or a piece of knowledge, and usually designers do not produce knowledge**, they shape or reshape something in a certain way. Scientist will shape necessarily ideas and knowledge and designers do not shape knowledge, they do something else and what they shape is open for debate. They shape text or visuals or much more and I would say go where you want to go, but rarely do they shape knowledge. That's the insight of what I got through the conversation with you. I do not know more.

J: I found the difference between scientific rhetoric and engineering production very interesting. One has been saying that scientists consume text and actually engineers produce artefacts. In order to describe the difference between science and engineering, [we must acknowledge that] both produce something. It is much more difficult to differentiate because lots of scientists even ***design design*** *theory, is it right?*

M: You can say that theory is designed or scientist designs theory.

J: Yeah, but still It is a model.

M: Yeah **scientists have to design theory as well**. If you are in a laboratory, you have to design instruments as well, and it all depends on which field you are in. So you all must have instruments that help to do your work. That means the ultimate output of a scientist is a piece of knowledge. Unless you contribute something to the body of knowledge, you are not a good scientist by almost universal definition, regardless of your scientific religion. But as a designer, It is very rare to gain theory and knowledge; a designer is a person by definition who shapes and reshapes entities around the world. It is said that scientists shape knowledge. Okay, you can go with that, but designers, as far as I can see, rarely shape knowledge, they usually shape artefacts, entities, ways of doing, may be even ways of thinking.

J: But that's again if you go to the very rhetoric levels of design. You go to a designer which, for instance, is described by Krippendorff, who's mainly active in how to make sense out of things.

M: But Krippendorff is an anomaly and an exceptional designer. I mean, this is not the generic designer who comes out of a design school. He is totally an exception.

J: But It is a new phenomenon; It is especially the design theory where people go into this kind of understanding of creating artefacts within the textual realm. What he is doing is creating designs within the context of scientific realm.

M: He actually creates bridges. A person creating bridges would definitely be called as a traditional designer.

J: This is very similar to management. The traditional manager is a decision-maker. We have also managers who are much more consistent. There is set of decision-making tools.

M: **For me, designer is little bit different than manager. There was a public image that design is all about decision-making. If you were experienced manager, you knew that's not the case. Maybe you didn't have the vocabulary to express it, but you knew that going to a place and just have decisions will not take you anywhere because the world is not run by decisions and people do not follow your decisions, regardless of how important you are.** Things should be negotiated and shaped, and that is the way it is. Before the 2000s, people didn't have the vocabulary to express it. So it was not expressed in words.

J: But is not that contradiction? Regarding discourse, I differentiate between words and textual matter. In 2002, in the book that came out, there were no words to differentiate between the both.

M: It was probably there to some degree. I mean, we were very familiar with the process, but if you look at the impact over the world overall, it didn't do a big dent. If you go to most business schools, or most managers, they never heard about it at all.

J: But in the meanwhile, It is a big issue.

M: But they have heard about design because of the faster deal made because a lot of people have heard about design and a lot of people know the importance of design. But, it is not the book, its ideas work and, if you go back to organizations, enough people work as they work.

J: Are you really sure that is not both because, when I look at the impact as I have seen it over the last 10 years, in the meanwhile, this book is very often referenced.

M: It is referenced among designers. Let me give you an example. I was in Amsterdam and now in Copenhagen. Nobody has heard of those and I am not talking about people in strategy in marketing that do not even have a clue. I am talking about designer organizations; they have no clue and some of them heard something and they really like to hear my stories. But they do not know anything and there are people who sit in the center of academy of management and define policies and all the rest.

J: But it takes some time. I would say there is a time, but I would see in a moment, even here in Germany, that now I get invitations to talk about stuff, It is very funny. It takes a long time; it gets consumed when you talk about consumption of textual matter. Sometimes it takes a while, it spreads around. For sure, designing is very popular, even when I look at YouTube, I see how lots of people are taking up design thinking. I think also managing has some designing impacts, which was unexpected for me.

M: Yeah. If you go to Germany and rest of the Europe, you see the impact, absolutely.

J: Management is a dynamic entity. The question is what are the underlined processes to develop the notion and concepts of design and management? My understanding of design and management has changed from 2002 to today. There is a community of design, which negotiates, somehow publicly, the concept of design.

M: I think of it as **a social construction to a large degree. I think It is very important to differentiate design in terms of where and for whom, because design for designers will have a very certain life.** In design school, I have a whole set of responses. This will be one clear community that cherishes design and keeps dealing with the notion of what it means, etc. And probably this will be the people that have the most intense feeling about design. However, if you go outside this community, I think you will get into people who treat design in casual way and then for them design will be much more shallow or less complex or constructive. If you go to person in the street, for them design is what they see in design store - design furniture, meaning something that is branded. And they all will have their own opinion about it, whether they like it or not. Design is a fancy term that gravitates into management and other fields in which people start to think of design as a cognitive mode of thinking. It becomes a more abstract way to describe how we do what we do or how we think, what we think. So, maybe these three groups is the way design is developed. I think this is the answer to your question.

J: Yes. But you mentioned the word 'discourse'. There are different levels of discourse arenas and there are sub discourses in the society. One of the textual matters in discourse arenas is that there is a discourse in objects' for instance. Look at the cell phone market. One company putting cell phone with couple of new features and immediately other companies react and make a statement or propose something different.

M: But now we talk about how artefacts change, not concepts. Or we talk about incremental or radical about how products develop. We do not talk about products like mobile phone and chairs, which are much more static in terms of changes. A chair is changed with the generation slowly. Phones change much more drastically. But if you look around, you would say that there are very clear waves of changes. Since the introduction of smart phones or iPhone, there are no big changes. The market is bit stable. The screen may be bigger, or camera may be of better quality, but basically It is the same concept.

J: We can say It is an incremental organic development then.

M: Exactly! So, **if you think about changes, then you can go back to Kuhn's idea for paradigm shift**s. It can be implemented in these areas as well, if you like. There is some kind of notion of the design and you come up with new ideas. We have mentioned Krippendorff; he introduced a new meaning to design.

Some people adopted this and kept moving on from that point onwards. When you think of an abstract concept, it is much more difficult to come up with new set of ideas. If we go to philosophy, these entire fields are characterized by this mental shift of concepts. So, probably design is the research to see where the turning points are. **But if you follow the design theory, or even if you follow the public discourse, just see how design is changed with the years.** I m sure you can find something. I can tell you that technology will probably be pretty close to that; you can see how technology changes. Technology was an external entity that affected people. And design is something that affects whatever we do and then, under the influence of social construction theories, people start to think that actually technology not only affect you, but people and society keep shaping and reshaping how technology forms. Although individuals create, shape and reinforce technology, technology can have an effect on their lives. If you think of design, you can put it on the same mind pattern. There are turning points in which we keep shaping the form and its meaning. Even if you have a book of a great author, unless It is being adopted, it does not work.

J: I agree. This is exactly what I understand about discourse formation. Within the communities, there are certain people who are assigned to speak longer, who have the right to speak long, and other people need to wait little bit. May be they never have the time and place where they can [exert] influence. This may be due to politics. But I have been researching so far the way design is shaping through a discourse activity; somehow in theoretical level there are different model out there. I propose a model, others also propose their models, and then we negotiate in this kind of conferences. In my research over the last year, I found that actually we are ***Designing Design****. I got the first notion that we design these entities in this conference held in 2002. It is very interesting that, since 2002, I have initiated other conferences, for example in Mexico. I asked myself whether we can actually* ***design design****, whether we can give our notion of design some kind of new shape. So I tested that.*

M: **Okay! If you think about designing design, how do you avoid the notion that we design everything?**

J: I think the only way to differentiate by knowing that, whether it is done consciously or not. For example, in the design world and in the understanding of design, Steve Jobs really didn't contribute. But at the object level, somehow there will be always a reference to him. But in the notion of design he will never appear important.

M: Absolutely! He never tried to, I think.

J: But there are also people like you and me; we go to these conferences, we are trying to contribute between these conferences with our statements in order to shape something together.

M: If you remember, at the start of this conversation, I told you that **the key difference is the outputs. If the output is the artefact that is being shaped, then you are usually in the box of the designer. And if you shape ideas, concepts and knowledge, then you are in the science part. Shaping ideas and concepts are kind of very tricky way.** The question is, do you create new understanding or do you change meaning in terms of re-branding something? Like big glasses are nicer than small glasses, or shaving the planet is something a noble thing to do.

J: I can give you an example; I created a theoretical model in order to understand the process, which is interesting. I created a design theory. It is a scientific model that tries to map out the process, as I see it how we shape the notion of design. In the second part, I actually did some kind of design. I designed the conferences in order to actually shape the existing situation. But in the scientific context, I cannot use this as an example of design. But this design work is not appreciated.

M: It depends on where you go, because now you said it has to be in text. But what about if your work is produced as a movie, for instance?

J: I think my interest as a designer was not to create a model of misunderstanding, but my interest was to create design drift more into the social context. We can also design business in a different way. This is what interests me as a designer.

M: Absolutely! I can see that.

J: Can we actually shape something in management which is different?

M: Absolutely!

J: My statement is, we design design, or we re-design design, because it is already designed before. People unconsciously do not do it as a designing act and for me this is a new thing. I am going through this conference and I contribute because I think we are shaping something together, which is not there. We try at least, whether it is sustainable or not, we will see it much later.

M: So you are at the point of almost finishing it up!

J: Yes! I am finished. I need to testify whether this makes sense to this theory or not. For this I have this kind of semi-structured interviews and I use these interviews to validate my theory. Yes, this makes sense, because you are much closer to my thinking than others I have interviewed. As soon as you have an understanding of notions and concepts as a dynamic thing, which we shape together, in this course of arenas, then you are very close to the thinking I was having as a base in order to develop my concept.

M: But my thinking is not coming from a traditional designing basis.

J: I do not know whether my thinking is coming from a traditional designing basis, probably not. As you know, I am originally from engineering background and science is never excluded from me. I always hated this kind of thing.

Great, thank you! I think we can stop here. We had been going somewhere very interesting. In my PhD, I found that all the design processes are discursive.

M: Most designers will never understand even what you said.

E.07 Interview Y.

J: Okay, let's go to the questions. Should I send you the questions, or you have it in front of you?

Y: If you could send me the questions, that would be great.

J: Okay I'll send it to you in just a moment. So let's start the discussion. Your name will not appear in the PhD, it will be named from some expert. The first question is, do you think you are a designer or scientist or design theorist, or are you all of that? Or would you chose a different category to qualify your thinking?

Y: Well, to be honest, I am a professor in business school, right? **So, in a way, I think I am all of those. In a way, I do a little bit of designing, a little bit of scientist work, and a little bit of design theorist for different aspects of work.** So, let me start with designing. When I teach or when I do research, a lot of what I do is designing our actions in designing systems. But recently, I started working on something called 'Urban maps and studios', which is directly involved in creating digital artefacts, services and products. There are designs to support urban, poor population community members. Really seeing city full of potentials but not yet fully connected, and fully find a way to build solutions by themselves, and then use them to solve their own problems. So, in this sense, I think I am acting more like a designer, both in terms of system of that platform that allows us to do those activities on a continuing basis, as well as in some occasion. I actually do get involved in the design of website and business models. In a way, that's what consumes a lot of my time.

J: The designing aspect really affects you on a daily basis.

Y: Right.

J: Looking at the models, I understood your explorations that you called of first, second or fourth order. Looking at those, it was clear that you do system design or you do some other design.

Y: So. I am of the thinking **that the artefacts that we create are more of third and fourth order design, but clearly my biggest impact is fourth order design. Because we have to think about the whole ecosystem**, the whole situation, revenue sharing, the IP, technology and infrastructure to support this type of activities, and so on. So yeah, in that sense, it is very much of fourth order design. As a scientist, I do carry out the traditional science work. I have funding from N.S.F and we have a very conventional sort of science work. Recently, I started moving into evolutionary genetics and system biology, and research methodology to study how human design artefacts evolved. So, I am doing science to understand the evolution of artefacts, design, human artefacts, and how they evolved over time, and I think It is very straightforward scientific work that really follows the conventional scientific paradigm.

J: Especially when you get N.S.F funding, It is very helpful. It was very interesting to know that one of the categories of evaluating a scientific work is that 'are you able to get grants for that'.

Y: Exactly. I mean, what little our university is saying is that you are a scientist if you get N.S.F funding. **If you do not have N.S.F. funding, we really do not care whether you got hold of social science or natural science. And if you have N.S.F or other government funding, then you are legitimately made a scientist, no matter how good you are. If you do not have these scientific agencies' funding, you are not a scientist.** So It is as simple as that.

J: So It is clearly the question of power and the legitimacy of certain things.

Y: Yeah, exactly, and also when business school people and social scientists are in the same room with a hard scientist, the only currency that we can carry is your funding record. They listen to you when they

say ‘Oh, by the way, I have five N.S.F grants’ and then they become quiet. Even if you have a publication in science and nature, it does not matter. Even if you have five top journals, they do not care. If you have the cost-prolific publication record in your field or design they say, ‘It is not really science, and It is all fluffy stuff’.

J: Yeah, that's the life of a scientist, and then the last one is the design theorist.

Y: What I am doing at the end is based on the work as designer and based on the work as a scientist. I want to develop the theory of design. Like how can I prepare a design of what we do and I reflect on my own practice. **I also reflect on my own scientific knowledge to evolve my theory of design in a way**.

J: Yeah, I saw that before, when you said about your scientific work. It supports your theory building.

Y: **It is a very descriptive science work, like the whole biology work is very descriptive, there is no theory process.** They just learn from how things evolve.

J: This biological work is more or less metaphorical to your design work.

Y: Well, yes and no. **I think it is certainly metaphorical and we actually identify genes in products and then we actually use the gene sequencing to understand how this product evolved using those genes that we identified in products.** So, it is in a way yes and no, both. But the idea within this is - how can you design certain artefacts better fit within involvement? And those things can be said and, as a scientist, I really do not take a position of design theorist because I assume these things have their own sort of evolutionary dynamics. We treat designers as a single source of mutation. When I take the role of design theorist, then I want to take the role of designer who exercises’ his/her agency in creating those artefacts. So that's all.

J: Okay, all right. In your thinking, when you speak about design, is it something static or is it a dynamic entity which is being shaped and developed overtime or will be shaped in near future?

Y: **Definitely, to me, it is a dynamic entity, which is being shaped and developed overtime and will be developed overtime in future.**

J: So, for you, is it something specific to design or is it a general quality of such a profession?

Y: Well, I think there are two aspects. The things that I am interested in are digital artefacts. Underlying technology is changing and we are discovering constantly new things that we are able to do that we thought that we could not do in the past. And so we changed our approaches. As an individual too, you constantly learn new things and then you attempt new things or results. So, I do not think it can ever be static in a permanent sense. And particularly the digital technology is one of the few technologies that are deliberately designed to become purposeless. It is reprogrammable. If you give somebody a computer and a programming tool, then by definition, you can do anything. As someone who is designing digital artefacts that are ultimately reprogrammable, what's the role of design in that sense? You are involving a capability that can be reprogrammed again through your artefacts to the end-users. So who is the end-user and what is the design artefact? I think the whole barrier is becoming quite blurry as we deal with this very dynamic technology, and this underlying digital technology is really being developed constantly. So, I think that in my own domain design is always quite dynamic and is constantly developing.

J: This is very interesting. But if you switch now, then is this a desginerly view of the world, or is it scientific view of the world? Does this perspective change if you look at it from your designer side or from your scientific side?

Y: I think that, to me, It is both in a way because, from the scientific view, I learn how dynamic and revolutionary these artefacts are. But the good design, from the designer point of view, is that besides the one that creates such dynamic artefacts, one that captures the continuing imagination of users so that they will come back. I think the smart phone is a good example. I use iPhone as an example of a product that is never finished; I mean It is always in reinvention. The moment I download a new app the phone, it is having different kind of functions, and in a way, It is both from a designer and scientific view that's dynamic.

J: So, if I take this concept from a designer perspective and if take this concept from a scientific perspective, how do you think that we developed the notion of design overtime? What are the underlying processes? Because we have stated before that design has changed and you've also said that, as soon as you think designerly, you get a different notion or concept of design overtime. So what are the underlying processes in our communities and how does this change?

Y: So I think that's actually a great question for design research community. Let me answer in two parts. **Design community has done a great job in theorizing the underlying theoretical framework that we consider product as a finished, fixed entity.** And so, what has been popularized as design thinking and ideal approaches and so on, **I would argue, is really great in building product and a service that we know where it begins and ends. Whereas we are struggling as a community together and I think I get this question many times.** I have talked to major mobile manufacturers of mobile phones in Korea, so they say, 'How do we design a good platform? What's the underlying process of coming up with a good platform?' and my response is that I do not think we really know how to do it because it will change. It is not like a human-centered design, like you do this while others will do that. And then you deliver the prototype and you then come up with a design or service and hand it over or implement, and then you get the feedback and you go back to the cycle. It is not like that you throw something that is essentially incomplete by guessing what people might do, but fully knowing that some of the things might completely be surprising. And then finally, there may be a new type of dynamics that may take place that is perpetual sort of re-shaping of the very thing that you created. You must be very good at things such as (1) What are the things that you created? (2) What is the statics of the platform of the dynamic thing that we are planning? (3) What is the rhetoric of the thing that we are planning?**I do not think we actually have a good theory for things like that.**

J: Let me get to one of the things that you said earlier. My question here is, when I teach system design; you never know the complete system. It is one of the reasons why there is always a sense of incompleteness. For me, this is a part of my PhD, where I was interested in how our community shapes the notion of design. And I found a very interesting model, which connects to very famous researches, for instance Krippendorff, who speaks in his semantic terms that we are wording each other into reality. It is such a wonderful, poetic description, but this happens every day in an organization. What is the reality of these organizations? In an organization, are we wording each other into reality and is this reality changing?

Y: Yeah, in a way it is very linguistic kind of way of looking at things. One way to think about it is to develop the underlying theory and concept, going back to some of the structural elements, like the grand mark that enables you to do such revolutionary things. And one of the reasons **why I do such things is that what they precisely allow me to identify genetic elements underlying primitives. And so in biology, we all sort of see wonderful varieties, which are very dynamic. Biologists were able to bring them to four different nuclear types.** I mean, that's wonderful and **you can see every change that happens in the world by looking at the sequences of the underlying four elements.** It is such a powerful and beautiful way of doing things, right? So, to certain extent, I am very curious if we have certain structural elements that would define.

J: But this is very interesting and I was surprised when I looked into Foucault's discursive basis. His basis of discourse is very clear. There are communities and rules of communication, even if they are not spoken out. But there are clear rules, who can speak and for how long, how serious we will take his speech, and henceforth. This happens, for instance, in these conferences. I was using these conferences, which we have been drawing up, as a study. Certain people can speak, others have no time and so forth, and if you do not follow these rules, the community would punish you.

Y: You will not be invited here, there are clear rules; but this is what Foucault has been working out. But same happens in the design community, or a management community. **At a certain point, you belong to it, and at other point, you do not belong to it. You belong to it because, at a certain point, it has for sure to do with how many papers you have submitted. But It is necessary and It is not very complex situation, or it is not only the NSF grant. Because if you see how many papers UK has published then they are not so many.**

J: There are not so many papers that are published. There are certain people who are considered more important than others, [when giving them right] to speak. You can also say that the communities decide the paradigms. So I think, for this reason, we have been doing these conferences together. It had been a very interesting follow up in order to study how we design together. I call this 'design' because, when I was looking into Foucault's idea of discourse, he speaks also about the discourse of a painter who makes a line, or sees a line, and makes a correction. The same happens in a discussion hall, It is very similar. I even did a research in between my PhD and I learned that even the cell phone markets do the same. One company launches a new cell phone with certain features, immediately another company launches its cell with same features in another context.

Y: Exactly! And you know that this kind of innovation is taking place and certain types of unexpected moves are accepted, while certain actions are punished. So let's say, in a conference, you have given a floor to Buchanan and you didn't know his prodigy but then Buchanan knows it and he was embodied and take over half of his time. And, in a way, it could be a water shedding moment for the community. Or there is the appearance of this brilliant superstar who changed the discourse, or someone who does not belong to any of those and attempts to do it, And then people will say 'he was such an obnoxious person'.

J: Exactly! And at least ten people will say, 'if you invite this person again, I'll never come!' Some people may even start to threaten you. This is exactly this kind of discursive relationship that we have in order to shape certain things because, from the sculptural perspective, you could say there are sympathetic statements and there are antipathy statements. Some add and some take away, some criticize; and I think these are two forces you have within the community of professionals. This is the idea that I got during my research, this is designing. The core statement in my thesis is called 'Design is designed'; it does not happen by default. It is a designing act.

Y: Yeah, and you always have to communicate, you are meta communicating and you are refining. It is very structural form of talking about our action that is we enforcing and throwing upon or reproducing social structures, right? So, when you apply that into the design, we are always **designing design** and then the artefact itself is made very dynamic, and then it becomes even more iterative in the sense.

J: But the question is, is such kind of design triggered by an individual? How does this work in collective and individual? For instance, even a person like Buchanan cannot change the definition of design all by himself.

Y: I think it all has to do with power and legitimization. There is a force of institutionalization and then I think there is a system of complex adaptive system, or a feedback system, or loop. And I think these things are all in play. These things are simpler, if we remove power. Then everybody has same voice and then our individual action will create a feedback loop. And we keep **designing design** through our design

action and we should be very reflective about it. Our hope is that, somehow sometime, it will affect our collective consciousness in a sense about what design is. But the reality, I think, is not that simple. Some people, I think, have more powers than others. Certainly Buchanan had lot more power than others and then we often use institutional forces. Those who have power can mobilize institutional forces to create certain momentum and forces to nurture a shape the direction of collective in a certain way. So, I mean, it all goes down to power and politics to certain extent. And I think the notion of politics, if people cannot figure out what is right way of doing things through this kind of civilized discourse in a debate, then there may have to be civil war in academics. We have seen academicians ragging war against each other and creating splints associations and different groups, and publishing different kinds of textbooks on the same subjects, and so on. And, in the end, it is who wins and who survives, and then that settles. Again, it is based on power, at the end who has the power to influence. Why do we have civil wars? Well, because you cannot sort things out through civil process. At the end, the last resort is that I'll have to kill you, right? Because I cannot live with that idea. And then it settles and I think this is what international politics and power is all about. It applies to same kind of collective process how individuals influence and, of course, lot of times, in what we do, the stake is not too high; no one will try to kill anybody. We have certain threshold of tolerance and differences in opinion.

J: This is great this is exactly right! As you can imagine, I have never had such an interview, which is so aligned with my thoughts. I have seen over the last few years how there is a lot of commonality in our thinking. We have certainly different aspects at our table every day, but there is a certain kind of design thinking which is very similar between us. I have also asked people from outside our community, and I have also interviewed some of my friends who are design engineers from Oxford who had a very different take on various things, but it was interesting. What I wanted to do is, I wanted to do a testing of my ideas within these interviews. As you can imagine, that there is no way that you can find my thesis, it is completely based on field testing. I can only show that this model that I have developed is not everything. But you are ***Designing Design*** *through discursive actions, right? And this is what I have done until now in order to close my research. Thank you for the time. Thank you very much.*

E.1 Managing as Designing

Managing as Designing Conference 2002, Cleveland, Ohio, USA

June 14-15, 2002

Mission and History

Managing as Designing:

Creating a vocabulary for management education and research.

Design should be a core capability of the people who manage today's complex organizations. By design, we mean the giving of form to an idea - shaping artefacts and events that create more desirable futures.

In this workshop, we will develop a vocabulary of design for management education. Frank Gehry, along with other designers from multiple disciplines, will work with organization and academic leaders to jointly construct an understanding of design as the primary mode of cognition and action through which managers change the world.

We will get beyond the current fascination with design as making 'stylish' products, and instead set a course in management education that makes design thinking and design skills as important for managers as decision-making skills are. The important task is to make the process, judgment and philosophy of design real and vibrant to managers, so that they can better and more responsibly shape technologies, practices and organizations.

The workshop could not be held in a more suitable environment to consider the issues at hand - the Peter B. Lewis building at the Weatherhead School of Management is one of Frank Gehry's greatest designs. Workshop sessions will be held in many of its unique learning spaces. To emphasize our broad approach to design thinking, renowned chefs will prepare workshop meals and discuss their design process with us. Here are the designers, managers and scholars who have agreed to participate.

This is the first in a series of Frontiers of Management conferences that will be hosted by Weatherhead faculty at our new Peter B. Lewis facility. These conferences and workshops will explore emerging areas in management research.

Place, Carrying Organization, Media access

Cleveland, Ohio, Peter B. Lewis Building, Weatherhead School of Management

Responsible chairs as well as the organizing people

Richard Boland

Fred Collopy

Participants

Michel Avital

Richard J. Boland, Jr.

Geoffrey C. Bowker

Hilary Bradbury

Richard Buchanan

Bill Buxton

Bo Carlsson

Michael Century

Chung Po-yang (Alias Po Chung)

Claudio Ciborra

Fred Collopy

Nicholas Cook

Frances Cort

Barbara Czarniawska

Sandra Dawson

David Deming

Paul Eickmann

Yrjo Engestrom

Jurgen Faust

Lee Fisher

Tim Fogarty

Ronald G. Fountain

Pasquale Gagliardi

Les Gasser

Frank O. Gehry

Jim Glymph

Joseph Goguen

Julia Grant

Bill Hicks

Matthew Hollern

Keith Hoskin

Anthony Hopwood

Anne Huff

Mariann (Sam) Jelinek

Sten Jonsson

Paul Kaiser

John King

Alice Kolb

David Kolb

Klaus Krippendorff

Merriam Levin

Leonard Lane

Jeanne Liedtka

Kalle Lyytinen

Peter Miller

Jan Mouritsen

John R. Nottingham

Wanda Orlikowski

Joseph A. Paradiso

Alan J Preston

Julie Rennecker

Rikard Stankiewicz

Leigh Star

Antonio Strati

Lucy Suchman

Alexander Tzonis

Betty Vandenbosch

Ina Wagner

Karl Weick

Youngjin Yoo

Managing as Designing

- A discursive summary -

The goal of managing as designing and this conference was to bring out the idea that, in most cases, what managers do and think is design (Boland 2013). They design products, organizations and services. And if they become better designers, then they are better managers and they live in a better world. In 2004, Boland and Collopy (Boland 2004) stated that design thinking is crucial for managers, but it remains overlooked in management practice and education. And management is in a crisis and therefore

the idea was to open new horizons for the practice of management (Ibid). And the reason why Managing as Designing is needed is that we need new organizations; we need new ways of creating new solutions, new ways of cross-organizational collaborations, new ways of creating solutions (Ibid). It is as well needed to do that with an attitude that the alternatives we have taken for granted in the past a not good enough. And there are many reasons why we want to change (Boland 2013). The solutions are not too great; for instance, these solutions are environmentally destructive, socially oppressive etc. - there are not yet the best possible solutions (Ibid).

Describing the workshop at the Weatherhead School of Management in 2002, they speak about a stellar collection of artists, designers, and managers to explore the implications of talking the manager roles and responsibilities as a designer more seriously. Gehry, as the architect of the new building where the conference was held, opened the workshop with his perspective towards design and management (Boland 2004). Weick gave a keynote using Gehry's design process and applied it to our concept of organization design (Weick 2004). This is also the structure of the book publication (Ibid). The book is composed of short contributions on aspects of design that are relevant to managing as designing (Ibid).

Interestingly enough, before the workshop, each participant wrote an initial statement on design to provoke discussion. These statements have been distributed to all participants, to spark discussions. These statements had been rewritten after the workshop in 'light of the ideas generated' (Boland 2004). And, therefore, it is an initial vocabulary of design for management, which draws from the keynotes, the contributors and the workshop discussion.

As Boland and Collopy stated in the first lines in their article *Design matters for Management* (Boland 2004) that *'*problem-solving can be quite different, comparing the management problem-solving approach with the one from Gehry they did experience*'*. *'*Managers', so Boland and Collopy *noted, 'if they would embrace designing would approach problems with a sensitivity that swept in the broadest array of influences to shape inspiring and energizing designs for products, services, and processes that are both profitable and humanly satisfying. They see for instances Frank Gehry's approach to problems like entrepreneurs at the heart of the industrial and information revolution'* (Boland 2004, p.6). Boland and Collopy make a clear distinction between a design and a decision attitude. A design attitude, in their eyes, as they experienced in workshops with Gehry, is very different, since Gehry is not satisfied with one solution. He is looking for many possibilities. The decision attitude in management, they state (Ibid) is obvious. *'It solves problems by making rational choices among alternatives and uses tools such as economic analysis, risk assessment, multiple criteria decision making, simulation, and the time value of money'* (Boland 2004, p.6). As a final conclusion, they are stating that the decision attitude closes the problem space, and the design attitude keeps the process and the problem space open. But there is a time for closure and for openness; therefore, managers need to develop strength in both decision and design attitudes (Ibid). Boland and Collopy also state that there is currently a need for design in management, since the failings of management are obvious. *'Only the inventing and delivering of new products, processes, and services that serve human needs can do that'* (Boland 2004, 7). There was a precedent for a design attitude in management practice, if we follow the work of Simon. Citing Simon, *'business is not concerned with the necessary, but with the contingent, with how things might be, with design'* (Ibid). Simon also asks for a design that has no final goal, leaves possibilities open, avoids design which is irreversible, and opens to the largest numbers of diverse experiences possible, and makes designs satisfying as well as economically viable (Ibid, p.9).

A major difference between a design and a decision attitude Boland and Collopy see lies within the problem definition; whereas the decision attitude carries it with a default representation, the design attitude begins with questioning the way the problem is represented. And within design attitude, the outcome of the process is open. That does not need to cost more, but a good design solution is more satisfying. It solves many problems, often ones that were not envisioned, which indirectly refers to a

wicked problem. Within Boland and Collopy's representation, they argue with the experience they had during the process of working with Gehry (Boland 2004, p.11). And Gehry works simultaneously with multiple models and scales. Then finally, what he brings it into the software, as a project design process, is the number of models that grow into the hundreds. But even within the final design, having all the details within the software, final is relative, since there are changes, if there are better solutions to the existing problem. There is an ongoing process between the sketching and the modelling, even within this phase, an ongoing dialogue. Here, the managers can learn, for instance, 'When should an organizational process be embedded in computers and information systems? What parts of the process are better handled outside those systems, relying upon the kinetic and holistic interaction of participants with materials and with one other?' (Ibid) Boland and Collopy also call for a design vocabulary, because designers have their own vocabulary, good designers at least. It is not about creativity, since creativity needs the guiding energy of a design attitude in order to focus the efforts on results that will be innovative and long lasting (Ibid). Design is therefore larger than creativity. Therefore, the vocabulary needs to be rethought. The workshop managing as designing has been focused in a balancing approach between the decision and the design attitude. After the workshop the participants, a selected group of participants, not all, have written expanded statements and these statements have been grouped under 10 headlines.

Managers as Designers

Gehry states that the clients are very important for him, since the best building is done within a concert with the client (Gehry 2004). In the beginning of each project, there is a liquid state, where many models are studied, and slowly but surely, it crystallizes. Then during this stage, it is more difficult to revise the planning, since the ineffable has become more precise. Because there is more investment in engineering etc., and there is a price on each step. But staying liquid in the beginning allows for the freedom and the opportunities to make adjustments and choices. Usually clients have problem understanding that, since when they have seen a model, they think, that is it. And when they realize that is only a model that is going to be revised, they usually cannot understand that, because clients are not implicit in the process.

And during the process of creating this architectural form, there is also an on-going development, even of the own perspective. So, according to Gehry, for instance, when architecture is finished, in the beginning, we see the collusion of forms, which have no refinement, as they have from Mies van der Rohe. And I think these are positive elements. But it could be that, after the next years, I would say: *'How could I have thought of that?'* Gehry states that this is the process of development' (Ibid). But clients are complicated as well, since they do not know what they want and very often they are immovable; they have fixed ideas. But architecture can facilitate a lot. For instance, it can play a role in helping to create desired interactions (Ibid, p.25). Architecture that is in opposition to buildings can support the things people want to do there. And, within the process, there are technical challenges that Gehry and associates have been solving through the 3D software used in the airplane industry. But it is the way the software is used, which is the key. All contractors have access to this software and know, on an on-going basis, what is happening. So they know each step and can think about solutions and contribute solutions to the challenges. That makes the risk less costly, since these contractors are paid from the beginning. But the working together in the team is play, the interaction between the people is driven by joy of needing to think and rethink. When you fall in love with a stage it is always difficult, because it crystallizes before all information is gathered (Ibid). But looking at the process of shaping a company, a big company, the core values might be the ones that hold it together (Ibid).

Rethinking organizational design (OD), Weick makes the case that its microcosm includes the following six steps: from purpose, to principles, to people, to concept, to structure, to practice. The incident is about the limits of design, because relationships are too complex; It is hard to agree on much beyond intent (Weick 2004).

The incident is about identities and structures reified into solidity. The incident is about making do, improvising and cobbling together - a bricolage, on the micro level improvisation. The incident is about flow, motion, dynamics, updating, negotiating. But an incident is also about feeling intensity, passion, cunning, exploding. It is about heart as much as head (Ibid). Managing as designing, according to Weick, is about monitoring, containing, and reversing of compounded abstraction. In reference to Irwin, Weick explains sense making as a move through six stages (Ibid). The first step is perception, the second is conception, the third is form, the fourth step is formful. The fifth then is formal, referring to patterns of relations, and the last step is formalizing. That is compounded abstraction, the concrete is replaced by the abstracts and design options get foreclosed (Ibid). There is also a difference between perceptual and conceptual processing. The conceptual processing is not stimulus-driven, it is schematic and they elaborate their direct perception into types, categories, stereotypes, and schemas. Conceptual processing lets you know less and less about more and more. Instead of the result of continued direct perception, you know more and more about less and less (Ibid).

In regards to OD, Weick makes the case that perception-based knowledge is important, since designers need to moderate the demands for coordination. But whether designing moves into the direction of compounding abstraction, or towards undoing of abstraction, unfinished design has more vitality (Ibid). The danger is in over-designing. Stopping and knowing when to stop is a difficult thing to solve.

Managing as designing has to be taken seriously in order to leave the machine metaphors. Managers need to understand and coordinate variability, complexity and effectiveness, they need to mix together conceptual and perceptual modes of action and need to move forward between these two modes (Ibid). Weick sees design as a battle to name the thing and losing the dream, and keeping the dream but losing the name. It is a move between compound abstraction and loosing the names through focusing, perceiving. Within this move between clarity and confusion, we can find some stability; then the design is more focused on sense making then decision-making (Weick 2004).

Within this context of using design thinking in organizations to manage more effectively, Buchanan (2004) draws attention to interaction design and argues with Geoffrey Moore. Interaction design provides the new concepts and methods that are transforming computer systems into the devices and tools of ordinary social practice for living, working, playing and learning.

Buchanan sees a similar transformation of organizational systems and management, since organizations become more complex. Interaction design offers this possibility of strategic discipline of management. The bridge is easy to make, since human-computer interaction is only a small area of all other interactions that human beings have in their daily lives.

And therefore we can describe that interaction design is nothing else then how people relate to other people and how products mediate those relationships (Buchanan 2004).

And it matters a little whether the product is a product, a document, an artefact, a computer or a computer program, a service, a business activity, or an organizational environment.

Secondly, if we look at bridges, design needs to understand the critical importance of accounting, finance, human relations, strategic planning, and vision building. Therefore, interaction designers must immerse themselves in the reality of an activity and the supporting ideas that surround it (Buchanan 2004).

The third span is to build a bridge. Buchanan argues that interaction design is task-based and human-centered; it seeks to facilitate human beings to accomplishment of their goals. For instance, one of the goals of interaction design is to make organizations accessible to all people who must interact with organizational systems. Meaning, clearly a public office responsible for rules and regulations to be met

would be redesigned in order to support customer needs to meet rules and regulations. That is quite a paradigm shift in our attempt. Buchanan would even be interested to use interaction design methods to rethink agency operations, within the regular constraints of operations. Buchanan summarizes the interaction design process in the following steps:

(1) Vision

(2) Strategic planning and strategic design planning

(3) Preparing and exploring a specific brief for interaction design work

(4) Generating ideas for design solutions and selecting the most valuable solution

(5) Planning, prototyping and evaluating the effectiveness through ongoing research and testing, which is followed by the ultimate design for final realization (Boland 2004).

Even if we can see some coherence with management, there are some distinct differences, one of which is the emphasis on visualization throughout the process.

Imaging and visualization helps to map out ideas to make complexity accessible within a team. Collaborative and participatory design is necessary because of complexity and involves customers and designers. Rapid and frequent prototyping is common, since it involves all participants in the process of critique. User research and user testing also play an important role. Task-based scenario building is common as well.

Brand experience often merges into interaction planning. In general, the work process of interaction design allows for horizontal distribution of responsibility, according to Buchanan (Boland 2004).

But in order to bring interaction design to life within the management arena, there needs to be severe management education for interaction design, since it is evidently lacking.

Ironically, Buchanan sees the most design thinking activity not within design; he sees it within management and organizational behaviour that emerged in the 20th century. In referring to Guillen and Simon, Buchanan makes the case that all kind of professional behaviour is a kind of design thinking (Buchanan 2004).

For Simon, design is decision-making and it matters little whether this is done in an organization or a consumer product. Clearly Simon's work creates a formal connection or bridge between management and design.

Since design thinking is implicit in management and organizational theory, we can see the reason why managing as designing has its role in Guillen's (1994) identification of three major paradigms of organizational management of human relations in the 20th century, like scientific management, management of human relations, and management through structural analysis.

The analytical tools have dominated in management and there is a clear **lack of synthetic skills** in new programs of human-centered action. There is a clear underdeveloped area of management as designing.

On the other side, designers have focused on images and products and have not been thinking towards the potential of design thinking in organizational life. And Buchanan sees the need for such focus in a growing landscape of complex systems.

But as interaction design teaches us, we never know **the totality of a complex system**; we know it only through abstractions, i.e., through a model of a distort reality (Buchanan 2004).

This is the alignment Buchanan has phrased as the change in system understanding, whereby we are no longer focusing on material systems, on systems of things.

We are focusing on human systems, the integration of information, physical artefacts, and interactions in environment of living, working, playing and learning (Buchanan 2001).

This also reflects Buchanan's idea of ordering design. He sees the development of design in four orders.

Design started with the design of symbols and the graphic design discipline was the result, which leads us immediately into the second order design, where we have to deal with things and artefacts.

The third order design is already different; here, we have to realize that it has not to do with the digital medium that only appeared there as a strong need to understand 3rd order design. The 3rd order design has to do with how we design a form of experience and how we evaluate the consequences of action, i.e., with interaction design.

The fourth order design is focused on systems and environments (Buchanan 2001). This has much to do with the change mentioned before, not focusing on material systems anymore. And it has also to do with the recognition that we never see the entire system; we can only experience the personal pathway through a system (Ibid).

'And in our effort to navigate the systems and environments that affect our lives, we create symbols or representations that attempt to express the idea or thought that is the organizing principle. The idea or thought that organizes a system or environment is the focus of fourth-order design. Like interaction, a new focus on environments and systems - which are where interactions take place - has strongly affected design thinking and design research…' (Ibid, p.12).

Within the idea of managing as designing, the system idea and the design of systems play a major role. These can also play a role in understanding some existing issues within organizations and can also show us the limits of designing.

Foundations of Managing as Designing

Alexander Tzonis looks towards architecture and management and what management can learn from architecture. However, transferring methods from architecture to management is new. A half century ago it was quite different; architects have been using managerial methods to overcome the opaqueness and lack of rigor in architectural thinking (Tzonis 2004). The building metaphor is something interesting and fundamental people like to use in order to describe organizations and institutions. Such metaphors seem to make it easy to communicate, justify the distribution of power, arrangement of control, structure of information and other struggles management deals with (Ibid). Therefore, the architectural sketch is worth more than 10,000 words, mixing different modes of representation. The effectiveness in communication is evident. Using sketching in management can be very supportive in creation of working hypothesis for interpreting problems. In relation to metaphors of architecture, they can be applied to communicate complex and abstract ideas, to communicate problem-solving, where more than one expert is needed (Ibid). The building metaphors can make the management of organizations easier. And analogy is important to develop 'new ideas', comparing drawing from one architectural design with another and to recombine and redraw. *'Reasoning through precedents can accelerate the formation of working hypothesis for dealing with the unfamiliar…'* (Ibid, p.71). But transferring such tools to other domains can be quite difficult, since diagrammatic sketches are notoriously ambiguous and fuzzy. And more importantly, such sketches can have a negative impact on design thinking, since analogy is not controlled through rigorous testing. The question therefore remains; can such instruments be transferred successfully in other domains like management (Ibid)?

Weick (2004a) sees that, in design, middles are common and endings are rare. In other words, to Weick, designing is much about re-design, interruption, resumption, initiation and re-contextualization. What separates good design from bad design may be determined more by how people deal with the experience of throwness and interruption than by the substance of the design itself (Ibid, p.74).

In referring to Heidegger, Weick sees us, designers and managers, as always in the midst of something. We are thrown (geworfen) into a situation of acting without the opportunity or need to disengage and function as detached observers. Describing such a situation of being thrown into something, a situation as an incident commander or a chairperson experiences it, he uses the description of Rhona Flin (1966, p.37) to describe the situation such people are facing:

(1) extremely difficult decisions, (2) ambiguous and conflicting information, (3) shifting goals, (4) time pressure, (5) dynamic conditions, (6) complex operational team structures, (7) poor communication, and that (8) every course of action carries significant risk.

Weick notes, *'In situations such as these,* ***designing unfolds*** *in a world that is already interpreted where people are already acting, where options are constrained, where control is minimal, and where things and options already matter for reasons that are taken-for-granted. These taken-for-granted reasons are lost in history and hard to retrieve, if retrieval were even an issue' (*Weick 2004a, p.76).

Therefore, he argues further that thrownness is useful within a vocabulary of design, since designing starts with a different set of background assumptions. First, the designing starts here, with a situation characterized by a limited amount of options, unreflective submission, continuous acting, occasional interruption, unquestioned answers, readymade categories for expression and interpretation, and disjunction between understanding and explanation.

Second, design is only incremental, because there is already an existing situation, and clients assimilate and normalize new design and bend it to whatever is already underway, so that they can continue.

Third, good design gains meaning from its resonance with the condition of thrownness. That means the situation cannot be determined. It may enlarge a limited set of options, reduce blind spots, facilitate brief reflection, reduce the disruptiveness of interruptions, encourage trial and error with safety, refine primitive categories into a more nuanced set of distinctions, and tighten the coupling between existence and interpretation.

Fourth, good design supports the mood of thrownness, which means that good design takes the edge of thrownness by providing affordances that make it easier to generate wise actions, reflecting in action (Schoen 1987).

Fifth, the assumption of thrownness in a pre-interpreted world spotlights the potential value of design that stirs up those preexisting interpretations, throws some of them up for grabs, and encourages people to re-decide what matters. Weick even argues that these conditions for design are valuable and effective even when we enter a new building. We are thrown into such an experience into a situation of acting without the opportunity or need to disengage and function as detached observers (Weick 2004a, p.78).

The incompleteness of language, for instance, in music the notation, is for Cook (2004, p. 85) quite obvious, looking at a sheet of music and listening to the performance and comparing it with the notation. The same applies for the planned activity. Therefore, it is better to think about scripts that choreograph a serious of on-going social events (Ibid).

Wanda Orlikowski sees the parallels between design and management practice (Orlikowski 2004, p. 91). They both occupy privileged, authoritative positions, have become institutionalized, and tend to embody and employ separation of conception and execution. Both engage in social engineering, designing and

managing the artefact, tend to be normative, produce representations, tend to impose a formal, selective, and abstracted order, tend to downplay the influence of everyday action, and tend to neglect unanticipated consequences, assuming that designs will be implemented. In addition to the parallel, there is the importance of understanding the need for enactment, since good design is not a stable property or stable quality of representation. Good design and management needs to be enacted, is enacted (Ibid, p.93). However, learning from enactment requires designers and managers to examine their assumptions critically.

Engestroem looks how history is created and claims that history is made up of future-oriented situated actions, which had been made visible and analyzable (Engstroem 2004). In order to study managerial discourse, therefore, we have to figure out how to capture these discourses. And within these situations, there are various distances between practical activity and discourse. Within daily small talk, there is a huge difference between discourse and practical activity, but in other situations, it seems to be completely identical (Ibid).

Writing mission statements, brainstorming and scenario work, for instance, are examples of discursive history making (Ibid). But such discourses, and that is the problem, do not translate directly into practice. Therefore Engstroem claims that history is made behind the back of the makers, since these statements do not translate directly and literally into practice. In reference to Spinoza, Flores and Dreyfus, he is proposing three modes of history making - making joint decisions, modelling and 'here and now' decisions. Making joint decisions represents articulative actions, modelling represents reconfigurative imagination. In addition, *'managing as designing can be understood as reconfigurative production of visions and articulative production of decisions'* (Ibid, p. 98). The key is to understand, according to Engstroem, when envisioning and decision making, that these are dialectically intertwined is the potential of management as the design unfolds (Ibid).

Czarniawska proposes to see the meeting between management and design as the designing of an action net. It requires an image of an activity where the intellect and the emotions never separate and visions are adjusted to new circumstances, whenever needed. That is the crucial point in management and in design (Czarniawska 2004).

Boland sees Simon's The Science of the Artificial as the best example of theory for managing as designing (Boland 2004a). He indicates that the design artefact can be a product, as well as an organization, a policy or a work practice. Still, the problem space and how it is framed is critical in the management environment. Therefore, the vocabulary for representation is a key and influences the design work (Ibid). Boland looks at the three modes of activities Simon pointed out, which are essential within design: intelligence, design, and choice. These activities are interdependent, but at the same time they are separate modes of action. And Boland works out the punctuations in making sense of these activities and comes up with six variations:

1. Intelligence, design choice / Intelligence, design choice

2. Design, choice, intelligence / Design, choice, intelligence

3. Choice, intelligence, design / Choice, intelligence, design

4. Intelligence, design choice / Intelligence, design choice

5. Design, intelligence, choice / Design, intelligence, choice

6. Choice, design intelligence / Choice, design intelligence

And for each of the punctuations, there is a way to provide a story-based, dynamic sense of wholeness (Ibid). For instance, the first punctuation is what we probably would expect from a design perspective,

making proposals of solutions, when you have understood the environment, the complexity and have done extensive research. Then you can make a decision that is based on intelligence. Number 2 is a typical situation, where the manager wonders at a certain time, how was it possible to be in this mess. But even large organizations follow this pattern, according to Boland (Ibid). Number 3 punctuation typically applies to the manager who fixes things that are not broken. Such a manager is disconnected from the environment and free-floating from reality. Number 4 punctuation typically refers to these rational managers who have many insights and information and make decisions without creativity. It is a failed version of the rational man economic theory (Ibid). Number 5 is a version of punctuation in which design is the driving force, but intelligence comes into place to make the design meaningful, aesthetically pleasing and morally acceptable. Here, goals, if they have ever been there, are understood retrospectively. Number 6 punctuation, so Boland describes, refers to the manager who makes decisions, and then develops alternatives on self-defined criteria. He is the self-certain, self-sustained hero, detached from the world (Ibid).

Looking at the possible punctuations, only are making sense in a management environment - putting off the decision up to the last moment, i.e., number 5 and number 1. But number 1 seems to be the satisfying manager and most promising for a human and sustainable organization. All the others lack an evolutionary capacity (Ibid).

Jelinek makes the case that we had management before we have created theories, and management theories have only been created (formalized) when we, the mankind, started to manage over long distances. And these metaphors have also changed from machines, to living organisms, to chaotic entities (Jelinek 2004). Therefore, we can also see a change from stable organizations to organizations that change over time - organisms. And these metaphors are important; they create realities, as we can see in practice. The design metaphor invites us to new questions, such as the architectural metaphors. But these changes in metaphors and models also invite us to think about the impact of various metaphors and models we are using. Designing theory is therefore an important aspect (Ibid). *'…Considering management as design invites us to redesign out understanding of management, out theory of managing, and our management of theory'* (Jelinek 2004, p.119).

Bradbury and colleagues compared spider webs with Kevlar and its qualities, production processes, impact on nature, as well as their physicality and reminded us to be specific within our metaphors. Bradbury also asks what would be the impact, if women executives redesigned organizations for our children and used action research methods to determine outcomes (Bradford et al. 2004, p. 124). The results are obvious - the concern for the whole system, for diversity of input, in contrast to the monocultures of mind (Ibid, 126). Bradford sees that as managing as designing, as an invitation to change metaphors and processes, to design organizations, business that can be at home in a more sustainable world - a world that works for everyone, including our children's children (Ibid, p. 127).

Goguen looks at design and management and the obstacles of reduction. According to him, management and design cannot be reduced to numbers. Instead, managers and designers should live in a groundless world, *'entailed by social reality, rather than in the stable, grounded world that appears to be promised by reductionist science'* (Goguen 2004, p.130). This groundless concept can be found in Asian as well in Western philosophy. And the design space is also a co-emerging space; there is no ground for phenomena, as '*Design is the problem of massaging a source space, a target space, and a morphism to achieve suitable quality, subject to constrains' (*Ibid, p.131). That is the problem if we design a website or we manage an organization (Ibid).

The enlightenment project and its effect on communication is what Levin brought into perspective (Levin 2004). Social relations from then on are controlled through communication and thus become an engine of progress towards modernization (Ibid).

Hoskin (2004) sees management within *'the development of modern knowledge and concerns'* (Ibid, p.144). These methods of investigation, which end up in description, are also the underlying features of management and decision theories represented in organization and decision trees. Represented in Simon's intelligence and decision, design is integral to both, but design is also different, since it is an old *techne* (Ibid). Nonetheless, design has gone through the same changes, where writing and calculating have become a key features in the drawings and representations of architecture, first crystallized in the work of Leon Battista Alberti (Ibid). Based on this background, Hoskin sees the Gehry drawings as a breakthrough, moving beyond perspectivalist/representationalist designing practice. It offers also a model for management to refuse the org chart design. But such a transition is not simple, for it requires intelligence and decisions in support of this new designing practice (Ibid).

Learning from Design Practice

Wagner (2004) sees the new architectural challenge not being able to control and define each single detail of a large building as an inspiration for managers to think about organizations. Therefore, she claims that *'the art of designing consists of mediations and interventions in highly conceptual, complex, and cooperative processes'* (Ibid, p.153). This includes the need to enlist the perspective of others in organizations; if we stick with this metaphor we call 'open planning'. The opening planning can be best described through a few metaphors, including the art of seeing, inspiration. The second is the quality of the different view and recontextualization, which always reveals new aspects. The third metaphor is working with placeholders, if we try to represent complex systems before they have taken shape. They help us to focus on the concept, instead of the material or details. The final one is the persuasive artefact, since architects are using such artefacts to communicate, to stimulate and inspire through their openness and their ability to expand (Ibid).

Balancing the analytical and the intuitive in designing is Collopy's (2004) contribution, looking at boundaries and the way we learn through hands. Decision thinking and design thinking can converge in models that can capture the spirit of the piece. As images are visible and concepts are abstract, the balance might lie in modelling (Ibid).

Suchman (2004) elaborates on the commonalities between design and management, which she sees in the ordering of everyday lives, in being a profession exclusive to those with credentials, and the distance to the specific sites, mediated through technologies. It can result in a change of perspective, whereby we see managers and designers not as the origin of change, but rather actors involved in the circulation of ideas and objects.

The idea of participatory or cooperative design is a follow up to the need to close the gap between professional design and the various actors. This reconceptualization orients us away from the designing manager as a singular and central actor, towards an on-going and collective achievements of differently located, mutually consequential persons and things (Ibid, p.172).

Grant (2004) makes the case that design, in a sense of designing something undersigned, is not the average reality of a manager. Usually, a manager redesigns something that already exists, because he finds an existing organization with certain structures. In order to do so, a destruction of something already in existence is often required in order to reach the new design.

Chung (2004) speaks about his experience and learning while setting up a company like DHL as a cofounder. He differentiates between a designer and a driver, where you have usually 50 times more drivers than designers in a company. In the beginning, when conceptualizing a company, the designing-managers are in charge and then the driver-manager take over, as the former can tell the better driving story, because they are trained at the business schools. These drivers are also better in taking the car for a spin. But these drivers can as well be dangerous for a company, since they have learned that in school,

in an artificial system. But designers have learned their skills over years. And these skills are important, in particular when asked to build a philosophy and keep the designers in the organizations. Thus, a company should never let the drivers take over.

As Coughlan and Prokopoff have pointed out that system-level problems are hard to solve, as we never see the entire system. Moreover, as organizational systems have never been fully designed, they have taken a life of their own. The organizational system is emergent across multiple individuals in an organization. It is simply that various parts of a system are optimized for their own local goals (Coughlan and Prokopoff 2004). Therefore, an organization can be seen as a system that has a DNA, and it is hard or seems impossible to change. Organizational systems are negotiated, compromised and realized as a collective task and experience (Ibid).

Liedtka (2004) looks at design thinking and strategic thinking and recalls that design modelling is a recent phenomenon, with its origins dating back to the middle of the last century. The linearity model was soon replaced through the wickedness (Rittel) of many design problems, as it was recognized that the interconnectedness was the more appropriate perspective. Within this view, there is no good and bad and strategy is a matter of choice. In reference to Cross, Liedtka makes the case that design creates a series of hypotheses, before selecting the most promising one for further exploration. Contemporary theorists are more or less focused on the distinction between science and design, and the description that design is focused what does not yet exist, whereas science is focused on what is. Science discovers the law that governs today's reality; design, however, invents a future. Design thinking is thus abductive and it is the unfolding image, which makes design creative. In business, the wicked nature of strategic problems calls for scientific and design methods and that is the strength of putting design thinking into business practice (Liedtka 2004).

Vandenbosch and Gallagher (2004) are focused on the importance of constraints, noting that they are important for many design disciplines, engineering as well as for learning, since adaptation takes place when there is an interaction with its environment. But constraints can also be negotiated to get to a new meaning. Moreover, constrains in organizations and the accompanying learning is usually a collective activity, since these constraints are socially constructed. Yet, managers, far less then designers, are not looking for constraints, they try to work around. Here, managers can learn from designers to negotiate the meaning of these constraints and include them, as an important aspect, into the design process (Ibid).

The creative collaboration, its various frames of understanding and its limitations are described in Conways's Law is the frame of Kaiser's statements. He looks at the limitation of collaboration when communication between people breaks down. Therefore, one possibility is the independent creation that, when finished, is shown in artistic projects. But the collaboration can have various aspects and there are various formats to understand them, including mind-reading, conceptual blindness or interaction, which also includes the material. Still, as Kaiser (2004) notes, there are no standards for collaboration.

Preston (2004) is drawing from the experience of designing the Australian Tax System, which includes tax policy, tax law, and supporting administration. Developing an integrated tax design process, the question of purpose, i.e., collective purpose, has been quite obvious. However, due to the inherent complexity that requires including tax payers as well as policy makers and other stakeholders into this process, a successful outcome is not easy to achieve. Therefore, the design process and research is continually evolving (Ibid).

Joensson (2004) reports from his design experience working in complex groups and joining groups with different cultures and values using actor network theory to explain the situation where he sensed that we could be losing control over persuasive artefacts we produce to do work for us. Such texts given by a

speaker, as a contributor, can be separated and called 'actant' (Callon). And if we see such a situation, a submission, then it is possible to state that it is possible to work under a mission (project) without being fully committed to all its goals (Joensson 2004).

The designing, according to Lyytinen (2004), should start with the exploration of the recent definitions of design and its imperialistic tendency, because everything can be designed. He argues that, for a modest analysis of play, design is not just a human activity. He also sees such an illusion as dangerous, because the design stuff can be and is different. Looking at his experience and research in system design, Lyytinen makes the case that the question is very different if it is about the design of technical artefacts (computers) or human behaviours, expectations and work processes that surrounds them. He identifies three important issues on information system design, which are a common issue in current discourse. Firstly, in system design there is a need of integrating multiple ontologies. Secondly, the issue of how social behaviours and capabilities to do the work become translated in the behaviours of a computer system so that communication and work is made possible. Finally, design ontologies are an issue in the social space, since the world of system design is about control and individual creation. That is in contradiction to the realm of social order, which is co-created and negotiated and depends on the recursively organized knowledge of each other's beliefs. In using two different theories, structuration theory and actor network theory, it becomes clear that neither theory allows better understanding the technical, the semiotic and anticipation and how these elements can be integrated simultaneously (Ibid).

Envisioning the Future

Yoo makes the case that we can learn from the musicians, noting a great peace and being able to deliver it in another time and space. Exactly that is what managers and technologist should do, giving instructions, but leave space for interpretation. If allowed to learn from composers, that is what managing as designing can bring (Yoo 2004).

Faust (2004) compares a theory of sculpture and its metaphorical components, such as liquid and fluid, with solid crystal and chaos, gas with an organization and what understanding we are getting of an organization when applying these terms. He also describes two processes in an organization - a process of development and generation, which is organic, and a process and development, which is destructive. However, in general, designing process must be seen as going from chaos to a movement, with direction, finally delivering a frozen shape. Applying such a theory to organizations, we can refer to Simon's three layers of organizations - basic work processes, the programmed decision-making processes and the area of non-programmed decision making processes, where design and redesign of the entire system takes place (Faust 2004).

Eickmann et al. (2004) see a difference between artistic and scientific learning and indicate this difference within design and management education as well. According to the authors, the potential lies within the change of learning to enhance the learning space and learning style.

Dechow (2004) sees a need to change the research setting within this arena. He proposes three axioms that include the explication of managing as designing, which includes the technologies, the visions and the narratives. He further proposes focusing on the networking, because these nodes live through the interdependencies. Finally, the focus should be on the trading zones resulting from networking (Ibid).

Stankiewicz (2004) looks at society and asks what is designable and how. The advantage is the speed we can achieve through design attitude in organizations. The designability is also increasing through the technology, via the increasing information and communication technologies. This process yields improvement of symbolic representation of complex systems (Ibid).

The design of policy is a very challenging aspect, according to Carlsson (2004), who asks, 'How can we design policies if we cannot specify the goal?' The first goal is the increase of absorptive capacity or receiver competence, which means that the abilities of the actors within the systems need to be increased. Then there is the increasing connectivity, which must be supported. The linkage between business, academia and institutions must also be enhanced. Finally, a public policy needs to support and promote entrepreneurship and variety.

Summary

This exploration about managing as designing can be approached it from various perspectives:

1. A historical one, establishing when this term appeared for the first time and who wrote about it.

2. A fundamental philosophical perspective, defining designing and managing and trying to coin the phrase by looking into the adjacent discourse.

3. A personal perspective, drawing from our experiences and then elaborating it to a more general understanding.

4. Looking into design discourse (even if it is only implicit) in the managing field and trying to see whether it matches with the discourse. When looking into management, we may find, for instance, the design management discourse.

There would potentially be further possibilities or sub-explorations, which could help us to know more and to create more knowledge.

From a historical perspective, there is some evidence that this phrase was coined by Boland and Collopy (Boland 2004). This remains unclear, since both authors had been writing on the theme. Moreover, design thinking has been nurtured by both Boland and Collopy for almost thirty years, who questioned whether managing as designing was a phrase used before, or whether designing thinking has been nurtured. Since the preparation for the conference generated the need for such discussion, this was the initiation of the phrase.

Boland and Collopy note in this context:

'This book is an attempt to stimulate change in management practice and education. Its creation was motivated by our good fortune to work on the Peter B. Lewis Building project with the architect Frank Gehry and his associates …

We were inspired by the power of his design thinking and the almost universal interest in his creations' (Ibid, preface).

The author was lucky enough to be working as a design professor at the same time on the same campus for the Cleveland Institute of Art, watching the building construction of the Peter B. Lewis Building going up over quite some time. Luckily, Boland and Collopy did find me, looking for some designers who actually had some interest and knowledge to work on the managing as designing theme.

The book, which is a result of an interactive design workshop conducted in Cleveland, is reflecting the discourse experienced during this workshop. It is shaped into two parts:

Part one is about the consideration of management as a design discipline and part two explores some intellectual foundations approaching managing as designing.

One of the key ideas throughout the workshop was the assignment '**creating a design vocabulary'** in order to use it for everyday practice for teaching and researching about management.

Today, after several years of reflecting and theorizing about design, I would say that the intent of this workshop was also the designing of design, or redesigning of management and design, in order to extend the design discipline into the management arena as well. Therefore, this workshop and the results can be seen and studied as a case to underpin my theses, which postulates that design does not exist in a sense that design is out there.

Design also depends on all other disciplines, on the intentions and discourse the stakeholders perform, and the way they construct their discourse. It is thus reflected in the terms they use.

Hence, we want to approach the discourse on whether management can be seen as a design discipline and what terms need to be reconstructed and redesigned in order to fulfill the stated premise.

Managing as Designing Discourse

However, others have seen design far less originally then it looks.

Nonetheless, here participatory designs and design processes including stakeholders can be the key for change and can create the value, which is often missing.

As we have stated before, interactive design is mainly horizontal and brings stakeholders together.

The systems perspective can also be a bridge between both disciplines - design and management - as we have seen within the problem-solving aspect, since we have to work with systems when we design.

We can even see design as a system. And, in management, we also have to deal with organizational systems, etc.

Interestingly enough, Ulrich (1977) focused on the idea of a problem-solving system relatively early on. In order to understand systems, he states in the beginning:

'There is no such thing as an 'objective' perception and comprehension of a phenomenal reality. There is rather a complexly determined reciprocal action between a 'real world' not attainable as such and the cognitive-affective organization of a human problem solver.' (Ibid, p.1099)

He also states that a problem is an unsatisfactory purposeful state of the individual. Clearly, the ideal is to overcome the unsatisfactory state. But we always have imperfect knowledge. Problem-solving takes place within the limits of a problem solver's system awareness (Ibid). This, we have already seen several times before. From a system point of view, we can say:

Problem-solving processes occur in the context of social or socio-technical systems, perceived by human problem solvers (Ibid).

'Problem-solving is to be considered as a complex, cognitive-affective process of formation and reorganization of conceptual systems. From a systems point of view, it is useful to consider problem-solving as a process of systems design. Problem-solving then becomes a question of:

(a) proper conceptual support: how to support the cognitive-affective organization of the problem solver in order to give him the conceptual tools which he needs to grasp the relevant systems adequately;

(b) proper design ideals: what formal design ideals to give the problem solver for his job of designing 'better' systems;

(c) proper conceptual standpoint of the problem solver: internal or external to the problem-relevant (problem-generating, problem-solving) system (internal or external problem-solving)'(Ulrich 1977, p.1099-1100).

That is what a comprehensive designing approach needs as well. How can we understand and comprehend the situation we are in? Which tools do we use? How do we optimize our conceptualization and how do we design what we will call 'problem'? Is my design goal clear? Can we be satisfied with what we intend to achieve? Did we benchmark enough? Do we know what can be a nearly perfect solution? Which standpoint does this include? Where is our blind spot? Which problems do we generate when we try to solve a problem?

'Generally speaking, intelligence activity precedes design, and design activity precedes choice. The cycle of phases is, however, far more complex than the sequence suggests…

The design phase, for example, may call for new intelligence activities; problems at any given level generate sub problems that, in turn, have their intelligence, design, and choice phase, and so on. …' (Simon 1960, p.3)

In order to summarize what it is obvious within the problem-solving approach, or what is discussed within the managing as designing approach, we have to note that both focus on the generation of solutions.

Driven by decision attitude, we will never look for the best solution possible, and a designing attitude is not looking for decisions, until a satisfying and possible the best solution to a problem is found. Here is the difference and the possible bridge.

Another interesting perspective we found in Nadler's approach to design methodology (Nadler 1967), when he investigates engineering or design approach to problem-solving. He notes:

'*(a) identify the problem for which a single system, product, or piece of equipment is required; (b) subdivide the problem into its component parts; (c) analyse the components to uncover any new elements of the problem which would change the design specifications; (d) recombine the components into the desired system, product, or equipment' (*Nadler 1967, p.B-643).

Nadler states that, in the most cases, this is identical to research methodology. At first, you try to understand the problem, break it into parts and analyse the components, before creating solutions and before putting the components into a desired system. But Nadler also notes that such an analytical approach restricts the vision of the designer. He also sees the issue in the fact that such a design approach focuses on components instead of focusing on the whole (Nadler 1967). Such a design methodology overemphasizes importance of techniques used to separate the whole into parts. The problem here can be the focus on techniques, instead of an optimum design. Lastly, Nadler sees that such a design approach contributes to a differentiation between the experts that know the analytical tools and those that do not and isolates design decisions (Nadler 1967).

Focusing on other design methodologies, he looks into the following sequence. The first step of the design process is essentially invention, the second is analysis and there is the translation of the solution from analysis into an actual system, according to Dixon (1964). Such an approach would not be limited by the negativity of the problem constrains and the problem research. Nadler (1967) then comes up with 10-step design methodology: 1. Function determination, 2. Ideal system development, 3. Information gathering 4. Alternative systems suggestions, 5. Selecting the feasible solution, 6. Formulating the system or solution, 7. Review of the system, 8. Testing the system, 9. Installing the system or solution, 10. Performance measures establishment.

Nadler also points out that such a design approach is an iterative process. These steps will never exactly be found in such a design process and some parts of a design system design may require movement forward to later steps, indicating the need for iteration and reworking. Moreover, Nadler argues that there

is substantial empirical evidence indicating that such a designing approach has produced better results for design projects, compared to the conventional approach based on the research methodology (Ibid).

Therefore, we can make the link to managing as designing, which more or less emphasizes the same aspect. Within the problem space, we have been focused on the analytical and research part in problem-solving, emphasizing the decision attitude. If we want to overcome this managing paradigm, the designing focus is necessary. Thus, will require that management is treading problems and problem-solving with a design attitude, emphasizing the generation of solution, the iteration, the redesign of solutions, prototyping and evaluation before we make a decision.

That means the cultural clash between the two disciplines will be reframed and will be bridging. That is what the new management, the new paradigm, will provide. In other words, before we act and do, we will need to evaluate and refine, improve to reach the best. This will hopefully allow us to educate managers, whose training should be similar to that in the applied sciences, such as engineering or architecture, rather than the natural sciences because the manager's professional responsibility is not to discover laws of the universe, but to act responsibly in the world and to transfer existing situations into more preferred ones (Boland 2004).

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E.2. Design for Social Business (D4SB)

Design for Social Business (D4SB) Conference 2010, Milan, Italy

October 18-19, 2010

Mission and History

When the Nobel Peace Prize Laureate Muhammad Yunus stated: *'I believe that we can create a world without poverty, because it is not the poor who created poverty' (Yunus* 2011) it sounded like a utopia, since he imagined that a world without poverty could be created through business activities.

Our current economic system is mainly responsible for the wealth pyramid, creating billions of people with little or no income. However, using the capitalistic system and business activities carried out by the poorest is subversive and very successful in overcoming poverty, when we follow Prof. Yunus's Social Business concept, which is carried out by, for example, Grameen Bank or Grameen Danone. The concept of Social Business is simple, yet convincing. Social Businesses are companies that have the objective to overcome poverty or other problems that threaten people in society. The goal of the company is not profit maximization. Investors in Social Businesses invest their money in business activities without receiving any dividends. Instead, the profit of a Social Business stays within the company and is solely used to reinforce the social goal of the business. Furthermore, Social Businesses pay market wage, and act in environmentally consciously manner. The Grameen Bank, the mother of Social Business, has distributed 8,7 Billion US$ in small loans with a 98% loan recovery, taking out no profit and empowering hundreds of thousands of people to overcome poverty and illiteracy in the second generation.

In Social Business, design plays a major role, if we take Simon's definition, of design 'design is revising existing situations into preferred ones,' seriously. From this perspective, each business creation is a design activity; each generation of new product or service is a design activity. Therefore, the question of design within the context of Social Business is manifold and interesting. As it seems, Yunus's main activities regarding design have been focused on the designing aspect of the business activity, which we could call business design, probably because he is an economic expert.

But there has to be more to it, since there is a growing awareness that environmental sustainability needs to be considered as a further important aspect of the design activity. Looking at many of the established products in the top tier of the wealth pyramid, it seems that the way products and services are designed today cannot be the future solution and cannot be sustained. We cannot generate the same carbon footprint for the world inhabitants as we do in the Western economies. We cannot use up the same amount of water resources in the upcoming economies as we still do in the Western countries.

Therefore, Social Business that has the goal of overcoming poverty must be accompanied with conscious design activities, considering the half-life of all products, the limited resources of the poorest, different lifestyles, the education of the consumer, and the limited resources of this planet.

Exemplary topics include

- How should design be reframed to serve Social Business?

- How can the design discourse be enhanced in order to match Social Business ideas?

- How to design appropriate 'solutions' for Social Business?

- How to rethink design within the Social Business context?

- How to design business and the necessary products and services for Social Business?

- How to design models supporting Social Business?

- Which frameworks can support the design process for Social Business?

Place, Carrying Organization, Media access

Design for Social Business

Conference and Interactive Designing Workshop, October 2010.

Participation only by invitation

Milan Istituto Europeo di Design seat, Via Bezzecca 5

Opening networking event: Sunday 17th of October, 19:30 p.m.

All documents, provocations, statements, as well as videos and images from the conference, are available at the following website:

http://www.designforsocialbusinessconference.org

Responsible chairs as well as the organizing people

Prof. Jurgen Faust - IED Group Academic Director and Dean at MHMK Munich

Eng. Carlo Valerio - IED Group, COO

Steering Committee

Dr. Richard Boland, Elizabeth M. and William C. Treuhaft Professor of Design in Management, Cleveland, Ohio , Professor and Chair of Information Systems, Professor of Cognitive Science, Case Western Reserve University, Cleveland, Ohio

Prof. Dr. Ken Friedman, Dean of Design at Swinburne University, Melbourne, Australia

Participants

Amura Salvatore

Auricchio Valentina

Avital Michel

Berto Daniela

Beucker Nicolas

Bill Amanda

Bodei Remo

Boland Richard

Borghi Nicolò

Bosisio Federico

Brugnoli Gianluca

Bruysten Annika

Buchanan Richard

Buchanan Tooming Kaja

Caccamo Samantha

Capuani Michele

Carbonaro Simonetta

Cho Dong-sung

Collina Luisa

Colombo Alessandro

Corte-Real Eduardo

Cugusi Massimo

Cutolo Giovanni

De Kerckhove Derrick

Di Liberto Fabio

Diehl Jan Carel

Ezechieli Eric

Faust Jurgen

Fischnaller Franz

Forcolini Carlo

Friedman Ken

Furlan Silvestri Daniele

Glanville Ranulph

Gonick Lev

Gregory Judith

Iacovoni Alberto

Jarauta Francisco

Jonas Wolfgang

Junginger Sabine

Justice Lorraine

Kolo Castulus

Lorenzi Marco

Love Terence

Maes Rik

Mafai Ariel

Mager Birgit

Manetti Alessandro

Mendoza César

Molineri Giuliano

Nima Leonhard

Osorio Carlos

Randone Massimo

Ranjan M P

Reitz Hans

Rocchi Simona

Salustri Filippo

Schmitt-Fumian Tanja Katharina

Schneider Jean

Siena Massimo

Soldini Emanuele

Tellefsen Brynjulf

Triggs Teal

Valerio Carlo

Yunus Muhammad

Agenda and its composition

Sunday 17th of October (Place: Via Bezecca 5, Milano)

19:30 p.m. Opening and network evening D4SB conference

Welcome: Carlo Forcolini

Prof. Mohammed Yunus

Monday 18th of October

8:00 a.m.	Registration and coffee
8:55	Greetings Carlo Forcolini, CEO, IED
9:05	Presentation of agenda, Carlo Valerio
9:15	What is Social Business: Prof. Mohammed Yunus
9: 45	D4SB-Conference-Setting the stage: Prof. Jurgen Faust
10:00	Provocation statement: Prof. Richard Buchanan: *Design and Social Business*
10:15	Coffee break
10:30	Breakout session (8 groups) *Objectives: Design for SB/Designing Social Business, what needs to change?*
12:00	Coffee break
12:15	Plenum: report and presentations from the break-out sessions
13:15	Summary Prof. Michel Avital
13:30	Lunch break (delivered in plenum)
14:30	Coffee and networking
14:45	Provocations: Prof. Richard Boland and Prof. Jan Carel Diehl *Can Design enhance Social Business?*
15:15	Breakout sessions Objectives: Define core issues to be addressed and important topics to write an agenda: D4SB
16:45	Coffee break
17:00	Plenum report and presentations from the break-out session
18:00	Summary Dr. Lev Gonick
18:30	Plenum discussion, directed by Prof. Simonetta Carbonaro: *What is obvious and what is needed?*
19:30	End
20:00	Networking dinner with participants

Tuesday 19th of October

9:00 a.m.	Transition: Prof. Jurgen Faust, Hans Reitz (D4SB case presentation)
9:15	Provocations: Prof. Ken Friedman and Dr. Sabine Junginger
	Design for social business (d4sb) - limitations and opportunities
9:45 a.m.	Coffee break
10:15 a.m.	Breakout session (8 groups) *Objectives: The next steps to bring the D4SB agenda alive?*
11:30 a.m.	Plenum: report and presentations from the breakout sessions
11:45 a.m.	Summary: Prof. Richard Boland and Prof. Ken Friedman
12:15	(Plenum discussion) Prof. Richard Boland and Prof. Jurgen Faust *The future?!*
13:15	Lunch and networking (delivered in plenum)

Workgroups/breakout sessions

The breakout sessions have been determined by the problem areas various people selected based on their statement and background, as well as their personal interests. The breakout sessions have been working as a platform, where a moderator has been maintaining the discussions and exchanges between the participants. Presenters have been able to give a short introduction of their provocation submitted to the conference. This has been used as the base to discursively elaborate the problem area of the breakout group.

Day 1: Composition of workgroups:

Group 1 (8): Dr. Lev Gonick, Prof. Carlos Osorio, Prof. Dr. Remo Bodei, Barry Daved, Dr. Valentina Auricchio, Federico Bosisio, Salvatore Amura, Dr. Simona Rocchi

Group 2 (8): Prof. Dr. Michel Avital, Prof. Dr. Glanville, Prof. Kaja Tooming Buchanan, Prof. Nikolas Beucker, Prof. Tellefsen Brynjulf, Michele Capuani, Giovanni Cutolo, Hans Reitz

Group 3 (9): Prof Richard Boland, Prof. Jonas, Prof. Rik Maes, Prof. Simonetta Carbonaro, Massimo Siena, Ezechieli Eric, Judith Gregory, Mendoza César,

Group 4 (8): Prof. Richard Buchanan, Prof. Teal Triggs, Prof. Castulus Kolo, Carlo Valerio, Alessandro Colombo, Annika Bruysten, Randone Massimo

Group 5 (8): Prof. Diehl Jan Carel, Dr. Terence Love, Prof. Lorraine Justice, Prof. Bill Amanda, Carlo Forcolini, César Mendoza, Giuliano Molineri, Di Liberto Fabio

Group 6 (9): Dr. Sabine Junginger, Prof. Ranjan M P, Prof. Jurgen Faust, Prof. Filippo Salustri, Corte-Real Eduardo, Alessandro Manetti, Massimo Cugusi, Borghi Nicolò,

Group 7(8): Prof Dong-sung Cho, Prof. Jean Schneider, Prof. Tanja Katharina Schmitt-Fumian, Prof. Meisiek Stefan, Brugnoli Gianluca, Emanuele Soldini, Cugusi Massimo, Shanmugalingam Cynthia

Group 8 (7): Prof. Ken Friedman, Prof. Birgit Mager, Prof. Stephen Smith, Collina Luisa, Alberto Iacovoni, Ariel Mafai, Marco Lorenzi, De Kerchove Derrick

Day 2: Composition of workgroups:

Group 1 (8): Dr. Lev Gonick, Prof. Birgit Mager, Prof. Tellefsen Brynjulf, Barry Daved, Dr. Valentina Auricchio, Federico Bosisio, Salvatore Amura

Group 2 (9): Prof Richard Boland, Prof. Jonas, Dr. Ranulph Glanville, Prof. Carlos Osorio Prof. Kaja Tooming Buchanan, Prof. Nikolas Beucker, Michele Capuani, Giovanni Cutolo, Hans Reitz, Dr. Simona Rocchi

Group 3 (8): Prof. Dr. Michel Avital, Prof. Lorraine Justice, Prof. Rik Maes, Prof. Simonetta Carbonaro, Massimo Siena, Ezechieli Eric, Judith Gregory, Mendoza César

Group 4 (7): Prof. Ken Friedman, Prof. Teal Triggs, Carlo Forcolini, Prof. Castulus Kolo, Alessandro Colombo, Annika Bruysten, Randone Massimo

Group 5 (8): Prof. Diehl Jan Carel, Prof. Ranjan M, Dr. Terence Love, Prof. Bill Amanda, César Mendoza, Giuliano Molineri, Di Liberto Fabio, Carlo Valerio

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Group 7(6): Prof Dong-sung Cho, Prof. Jean Schneider, Prof. Tanja Katharina Schmitt-Fumian, Brugnoli Gianluca, Emanuele Soldini, Cugusi Massimo

Group 8 (8): Prof. Richard Buchanan, Prof. Corte-Real Eduardo, Prof. Dr. Remo Bodei, Prof. Meisiek Stefan, Prof. Stephen Smith, Collina Luisa, Alberto Iacovoni, Ariel Mafai, Marco Lorenzi

Discursive summary of the Design for Social Business Conference 2010

Design for Social Business Discourse - A Trial

We have initiated the D4SB conference (Design for Social Business) with the intention of writing a design for a Social Business agenda. We have been looking through the conference discussions and the various statements to find an adequate response, not only in a sense of what we had been looking for, what we expected or we might want to hear and to see. The initiated discourse about Design for Social Business does not allow one to only to look for similarities. As Foucault stated, *'it is not about the link that we can make between disparate events, and the causal analysis that can be established between them, it is about the strata, which should be isolated from others; it is about the system of relations, hierarchy, dominance, stratifications, univocal determination and circular causality'* (Foucault 1972, p.3-4).

It is also about the detection of incidences and interruptions. Therefore, these reviews of the conference will not focus on putting together, but rather upon the strata that can be isolated. Using this approach, we may be able to find a system of relationships.

The entire workshop was established from the beginning to initiate a discourse about design, specifically Designs for Social Business. In his introduction of the conference, Carlo Valerio (2004) stated that we, those from the IED group, hoped that we could confront Yunus about his ideas concerning the design world. He was referring to the best design thinkers, design researchers and the best innovators, adjacent to such an emerging field.

What does this mean for the conference, the setting, as well as the outcome?

From the very beginning, when initiating the conference, there had been several voices at our table. Several participants had been focusing on a concrete output, determining, or trying to determine, the results or the frame where the results should have been found. From Foucault's perspective, there had been forces within the discussion, and preparation, to prevent disparity and try to unify the group as much as possible.

There was another force and frame, which is represented in Foucault's approach to inquiry and knowledge. On purpose, many representatives taking part at the conference were arriving from different fields, locations and positions, all representing different events. Therefore, the leading question throughout the conference, and which was interrupted many times, should also be visible from the conference outcomes. These are distributed in various ways, online from the website, which contains various statements (designforsocialbusiness.org; last retrieved, March 21, 2011) and also a collection of various videos from the plenary sessions. Thus, the question will be: When we look at all this material, what kind of strata can be isolated from studying the material given? Not to be dishonest, but the collected material it also contains gaps, especially since the final wrap up session, a public dialogue between Richard Boland and Ken Friedman, was not completely recorded due to technical problems.

The unity of any discourse is actually a dispersion of elements. Therefore, we might not have to question that a discourse about design for Social Business actually took place, since we will realize some dispersion. Thus, the task of any discursive analysis is to discover the rules, according to which this disunity of objects, forms, concepts, and theoretical options is present (Foucault 1972).

Following this assignment - to not look for continuity rather, to focus on the discontinuity and on the dispersion of elements that contributed to the conference - it will be interesting to see what we find. In order to analyze the discursive elements, it is important to discover the rules, according to which, the disunity of objects, concepts and theoretical options is present. Therefore, it is important to prevent pre-existing assumptions of continuity. The conditions for the unity of discursive statements may also be conditions for disunity (Ibid). The discursive statement, which may have any order, correlation, position, or function, is determined by this disunity. A discursive formation is thus, a system of dispersion, according to Foucault (Ibid).

Moreover, some external conditions are necessary for the appearance of objects, form, concepts, or themes of discourse. External conditions, thus, govern the rules on the formation of discourse. The rules of formation are the object and themes of the discourse. Discourse relations (i.e., relations between discursive statements) are not internal to a discursive formation. Instead, they explain its limits. To be more precise, the external conditions have been set by the organizers, who put the conference together, who have set the agenda, who have prepared the working groups and their themes, who have invited certain people and not others and, finally, who are, at this very moment, searching for a way that leads towards the outcome (Ibid).

So, why are these theoretical explanations and statements necessary at the beginning? Because it is clear that a human desire is to look for coherence between statements during and after such an event; to look for repetition in order to state, that there is an emerging pattern. In other words, these are the analog elements that continue to appear; therefore, we can draw the line.

Still, if we are looking for discontinuity, we might also find it on several occasions. This might give us a more comprehensive insight into design for Social Business.

The entire conference started with several statements delivered by Prof. Yunus (2011). Social Business appeared in Bangladesh, growing out of micro banking, when Mohammad Yunus realized that helping poor people can be radically different. He started with the notion that poor people are actually not poor because they do not have skills. As Mohammad Yunus realized from working with poor people, these people are creative, since creativity keeps them alive and keep surviving. The fact that they keep surviving in the most unusual of environments is actually a sign of their creativity (Ibid).

From the start, there was only a selection of people for this conference who would agree with what Prof. Yunus was stating.

There had even been concerns raised by the first individual we spoke to, when we started to conduct interviews with people, that criticism might not be welcome within this context. In addition, during the evaluation of provocative statements, there had been discussions between responsible people, as to whether some statements might be too harsh or might miss the point, since one of the main points is eliminating poverty and such a task might not allow any critical perspective.

At the same time, the people and participants came together, because of the success of the Grameen Bank and the presence of the founder and peace Nobel Laureate Winner Prof. Yunus. The success of Social Business is impressive and therefore, many people want to understand and expand on it (Yunus 2010).

The key point is also that, if Mohammad Yunus is correct, and we do indeed want to help the poor, then we have to build upon their skills instead of bringing our skills to them. Hence, the little money within the micro-banking area is actually helping these people to work and improve their lives. Mohammed Yunus further stated: '**Poverty is not created by poor people. Poorness is not the result of a lack of skills in the poor. Poor people are as well creative, risk-takers and entrepreneurs, may be even more than**

anybody else.' So, from Mohammad Yunus's perspective, poverty comes from outside, from the environment. ***'Poverty is created by the system and not by the people'*** (Ibid, p.130). Poverty is imposed by the system, it is an external aspect. Therefore, 'if we want to change the system,' according to Mohammad Yunus, *'we need to change the system, the institutions we build, the concepts we have created, and the policies we have been pursuing'* (Ibid).

Sen, the great economist, demonstrated long ago, that **the poor do not create poverty, systems, or the policy decisions that create poverty**. Sen demonstrated that most of the great famines in history were not created by the lack of food, but by poor economic policies, concerning distribution opportunities and access (Friedman 2011).

Some of these statements led to questions that had been asked at the conference, especially within the discussion: **What is poverty?** Is it the equivalent of $3 per day? If so, it would be equivalent to 4 to 5.5 billion people in the world (Valerio 2011). **Is it related to the conditions of the basic survival needs of the poor, like food, shelter and health, or is it some level of well-being?** Or is poorness something we can see, when people have their basic needs fulfilled? Therefore, we need to be aware of the situation, in which the disparity of notions is a given condition and needs to be accepted as well. We can measure and define poverty. Whatever standards we set, the quantified metrics of poverty appear to be objective. Still, poverty is not an objective condition of the external world (Friedman 2011).

Yunus stated, that one thing we have changed, regarding the system, is the micro credit environment. Two thirds of the world's population has no access to the financial system. Poor people do not qualify for credit. So, the design question was raised, how can we build banking institutions that serve the people, who were once poor and those who need to be served? (Yunus 2011)

So when we look at the theme, in design for Social Business, it is not clear and cannot be fully clarified who the targets we are designing for are, and which poorness we refer to. (Valerio 2011)

The question is even more delicate, since it is more complex. **Are we designing the institutions, the business and the Social Business by themselves, or are we designing products and services for the poor, which we will then execute by Social Business enterprises?**

Boland provoked with phrases, such as 'Design for Social Business is a misnomer' (Boland 2011), because, research indicates that Social Business is seldom just designed, it is a process of recurring redesign. Regarding Marx, business has at least one root contradiction, as it is simultaneously relying on a private appropriation of capital, as well as a social process of production. Social Business has another contradiction in that it is simultaneously conducting a business for profit, as well as providing a social need that is valued apart from its business dealings. The two objectives may, fortuitously, be connected, but often they are not. In fact, in our research experience, they are usually disconnected (Boland 2011).

There is also the fact that, **Social Business is not currently as well researched as it would be appropriate**. Nevertheless, there are many aspects that are intriguing, and Prof Yunus has been outlining several of them. For instance, do we have to match the institutions? Or do we design institutions to match us? Can we design our products in a way that shows, when we use this product, that it is not harmful to other people? The fundamental issue is thus, how do we design our lives, so that we can have a safe planet? (Yunus 2011)

Social Businesses create goods and services with social goals as their main focus. This involves three principles. **First, every business can be a Social Business, if we ask the right questions and follow the answers to which these questions lead us. Second, business will work better for us, and work better for the world, if we work to make meaning, as well as seeking to make money, as the consequence of what we do. Third, we must create more value than we can capture** (Friedman 2011).

'But how can we design institutions and organizations if we have never have designed something beyond object?' That is what Richard Buchanan had explored in his provocation during the conference (Buchanan 2011). How is this doable? Buchanan stated that, when we teach our students graphics and information display, we also teach them to create excellent artefacts (things). Yet, the students do not understand how to integrate that in a social process, how to integrate these in the lives of people, into a collective action, when they do not understand organizations, so says Buchanan. About 1/3 of the students have the ability, and the desire, to move into this new kind of practice. The notion of interaction and design is important, but this does not happen on the computer screen, it happens between people. The screens happen to be a mediating quality. We are designing actions, but what are the implications? We need to talk about processes, about surfaces and services. **The biggest challenge appears when we speak about the design of organizations. This is the intersection to the theme of the D4SB** and the mission, as Buchanan understands it, is a new philosophy (a new mission) for design (Buchanan 2011).

This statement is complementary to Yunus, when he said: 'why do not we teach our young people to make a commitment, for instance, so that we hand over this planet as a safe planet, Just as we have found it? After all, each generation is handing this planet over to the next generation.'

Yunus addresses the problem by asking, how have we treated the world and business? He notes, We have run the world with a policy that business is there to make more and more money. But the purpose of life is not to make more money, for yourself or for the shareholders. Human beings are not money making robots; their purpose is creating and sharing, to make the world better' (Yunus 2011).

How might this be possible? Richard Buchanan sees **the design profession moving through four orders of design thinking and work**. First, there is mass production, graphic design and industrial design. The development of interactive design in the sixties and seventies, at first around computers, is only a small part of interactive design. The third order design is much broader. It focuses on how people relate each other, and how products reflect that. Essentially, we are designing the interactions. The fourth order design is about systems, environments, organizations and how we design the wholes, the totalities of our lives. Here, there is still the problem of how we can teach students to design an organization a new kind of product. In his understanding, **it begins with interaction between individuals, it is important that we visualize this. We need to be teaching students to prototype and conduct user research. We also need them to learn from their failures of design, design facilitation, proper describing, and programming**. This has little to do with creativity; this word is a problem by itself. But we can teach people to be inventive. It is a practice, a habit, we teach this as an art (Buchanan 2011).

Connected with this shift, there is also a substantial paradigm shift toward considering the design process as a collective process, whereby it is as important to design ways of talking to each other, and being together, as it is to design smart services, posters and products. When focusing on driving the dialogue, two points emerge - need to manage the effectiveness of the dialogue, and to ensure that the dialogue and the decision process are bonded. There are too many consultations that are merely top-down information gathering merely, seeking consent (Schneider 2011).

In today's complex organizational environments, 'design thinking' as a problem-solving, and innovation enabling process is valued for its input into profitable business decisions. **These co-design approaches, which bring people together to develop creative solutions, are now being used within the public sector to help bring about social innovation'** (Bill 2011).

But design thinking has its problems. According to Jonas (2011) said, '*Design thinking' is promoted as the new hyped approach to managing, what is fuzzily labeled, the 'great transformation'* (P.125). Though coming from traditional design contexts (such as IDEO), design thinking as propagated by HPI (Stanford, Potsdam) has abandoned these narrow origins and claims the potential as a 'General Problem Solver' for

the big problems of the world. The processes, which they describe as 'design thinking', are typical design processes, but the subjects are 'bigger, ranging from food production, for the poor via sustainable mobility, to climate change.' He further complains that **we need to get rid of the narrow concept of form-giving in design and devise a more appropriate concept of forms** (Ibid).

The importance of opposites, so Buchanan argues when referring to Yunus's example, is another important method. To create the opposites, or look at the opposites, Buchanan stated that we need to create topics, and a topic is different from a category. Categories fix the meaning, whereas topics are the tools to melt down the categories (Buchanan 2011).

For example, you go to a bank but the bank does not come to you (Yunus 2011, Buchanan 2011). Buchanan's model, of the four orders, is not in contradiction to other model, which presents similar changes in design that describe a similar scenario. Helmut Krippendorff defines his trajectory of artificiality in several steps: from products, to identities, interfaces, networks, projects to discourse (Krippendorff 2006). *'Discourses reside in communities of people who collaborate in enacting what constitutes their community, performing it (so to speak) and thereby creating everything that matters to the members of a community'* (Krippendorff 2006, p.12-13).

Hence, it is important to follow the entire discourse, as it happened at the conference, following the statements from the various contributors, or event participants, as well as looking for a design discourse, which could be useful for the topic.

To elaborate on the opposites, Yunus stated that we have two natures - a selfish and a selflessness one. Business build upon the selflessness in Social Business (Ibid) as it is about designing to make life worth living (Yunus 2011).

The entire conference was organized around this idea, based on the statement that **design can contribute to the Social Business idea and can even enhance Social Business, because dealing with opposites is a design practice.** The conference was structured as a two-day event, where about 60 designers (designforsocialbusinessconference.org) were invited to participate in a dialogue and discourse around the idea of how design relates to Social Business. The conference initiators required from the participants to submit statements prior to arriving at the conference, so as to initiate and prepare for the discussion and brainstorming during the two days in Milan. The conference was structured as a design charrette. The word 'charrette' usually refers to a collaborative session, in which a group of designers drafts a solution to a design problem. In an online dictionary, we can find that charrette is defined as 'a final, intensive effort to finish a project, esp. an architectural design project, before a deadline.' Usually, in such a session the group divides into sub-groups. Each sub-group then presents its work to the full group as material for future dialogue (Webster's Online Dictionary 2012).

The discourse that we have initiated was intended, as this is a designing event, to design the agenda for 'design for Social Business'. Whatever agenda means, here within this context, it is seen as a program, which has a philosophy a method and a timeline.

The framework for designing the conference needed to be introduced as well (Faust 2011). Firstly, when looking at the problem-solving process, we see that designers and managers are problem solvers, but also that **managers can be designers as well. Designers have moved into designing actions and environments.** The question for this discourse at D4SB is, What would designing look like if we take managing not as a default but if we would take designing seriously, as if the design attitude would drive the business development? The second question, about designing within the Social Business arena, is how to design products and services for Social Business. Here we need to keep in mind the wicked situation, when we look at the problems of the poor. Are we really able to frame the problem, are we able to frame the problem when we have actually found a solution (Ibid)?

A further aspect is reasoning. We observe, as we collect data, but we cannot draw from observation; instead, the solution might come from a logical leap in our mind, which Pierce has called wondering, or abductive, reasoning (Peirce 1958).

There is another strong argument as to why designing fails. Friedman pointed out that it is the lack of a method and absence of systematic inquiry and comprehensive understanding that leads to failure. This involves gaps in knowledge and preparation. **Research and theory plays a big role** (Friedman 2003).

So, in addition, we need to deal with the involvement of the stakeholders, whereby **we need to focus on co-imagination and co-creation. We need to build on shared commitment and personal relationships, co-design and co-creation.** But this is not easy, if we follow Schneider, who notes that *'in the driving dialogue there are two points here. The first is to manage the effectiveness of the dialogue; the second is to ensure that the dialogue and the decision process are bonded. There are too many consultations that are merely top-down information seeking consent'* (Schneider 2011, p.126).

The last question stated here is, **if we are designing product and services for business, with a social intention, can we fundamentally make a difference between the BoP clients and the Social Business clients? Or, is such a question even useful, since we are able to differentiate between a client's problem focus, a BoP approach and the business model approach, meaning Social Business** (Faust 2011)?

Is it necessary to have a client-focused approach, if it comes to designing for the BoP? Moreover, is it appropriate to have a business model approach, if we design for Social Business? Then, there is another intention we had to discuss when we initiated the conference. We wanted to make sure that designers contributed to knowledge creation in design. BoP design, and designing for Social Business, can be catalytic in the design profession. The design profession does not happen by default, it cannot be left to others who are invading the design profession space. Design thinkers are responsible for the evolution of design and the redesign of the profession. The intention of gathering was to discuss the redesign of the design discourse - a discourse about design and through design. Design needs to be designed and redesigned; this is possible through a discourse about, into and through design, all of which implies a need for conceiving interaction between stakeholders. There is a way to say it and a way to see (Faust 2008) Discourse and Evidence (Foucault 1972). At first, this is a common approach for a designer, as we create a document, in drawings, texts, sketches and afterwards we create the monuments. Therefore, such a designing and redesigning of design process needs to start with a discourse, such as the one we have initiated through the conference (Faust 2011). One of the documents you will find within this publication and online (designforsocialbusiness.org) in the videos or in the statements, we have called provocation.

According to Buchanan (2011), '*It is in the change from third to fourth order design that we design the wholes, the totalities of our lives'* (P.125). It has to do with the notion of purpose. **We must understand the new subject matter, before moving on to the process, visualization, facilitation, prototyping, and invention theory. The final step has to be to complete in regards of the purpose. This is also the nature of profit in economics and management theory.** The purpose of an organization is not to make profit; rather, its purpose is to provide goods and services. Profit is the means to achieve an end. Designers have been thinking a lot about purposes, such as, satisfying needs and utilities. We have to ask, are these useful (Ibid)?

Gonick (2010) reported, from his breakout group during the conference, that the focus on justice and the design of justice is very much of interest in discussing the meaning of justice in the context of new education. The three diodes Gonick presented are a trinity we need o think about—a condition, an opposition and the notion of discovery - i.e., conformity and acceptance as a received condition in contrast of the value of curiosity. This means that, as well as receiving the condition of apathy, there is

the opposition of the notion of engagement, which needs to change, this is the mind-set, which need to be adjusted (Gonick 2010).

This statement connects with Friedman's reference to John Rawls's position on justice and fairness. Rawls described this as a veil of ignorance, and he believed, reasonably, that **we would make better laws and design better societies if we did not know whether we are among one group or another, rich or poor, healthy or disposed to illness, members of a favoured social class or members of a less fortunate group** (Friedman 2011).

Gonick also reported that the discussion of the conception of poverty and economics needs to broaden the concept of culture and poverty, since some of these we are born into, some of them happen to you, as a kind of scale as, some happen through events and catastrophes, requiring an awareness of the continuum and an explicit understanding of your condition with a tacit understanding of the conditions you are in (Ibid).

Boland then reduced the problem of D4SB to Design and Business and the problem of putting them both together. The difference is that design is finishing the projects to the end, and business people fall in love with their ideas. Designers are able to avoid falling in love so quickly, because of their iteration and prototyping tradition. This concept of prototyping is more familiar in the design world then in the business world (Boland 2011). Business people who fall in love with the idea never finish the design. So what do we need to do? We need to make sure that businesses people do not fall in love with the first idea that comes along, and designers need to realize that, even if they have iterated, redesigned etc., many times, what they have in mind, their design is not finished. So, these are the two aspects we need to bring together when we bring together design and business (Ibid).

Boland also reported from a study of social media, such as Facebook and Friendster, focusing on design, sustainability and systems, asking why one has succeeded and not the other. The research concerned the functions of the software and the environment. What was discovered is that it does not have anything to do with the features of the system. The findings suggest that the difference is found in the designing attitude (Ibid). If you think that you have it, like Friendster, then you lose, even if you have the better system. Facebook was the more sustainable system, because of their attitude to redesign. They didn't fall in love with any particular feature they had developed; they changed, redesigned and adjusted (Ibid).

Two other projects corroborated what Boland had presented, indicating that you fail if you stick with your design and redesigning is crucial (Ibid). A successful project shows evidence of redesign and the need for continuously redesigning; the reason being that the profit mode for the social entrepreneur and the social need provided for the social aspect are pretty much continuously in conflict. This is particularly the case if the project is oriented to the world, as then the social need requires collaborating openly. The business needs require the company to compete with other firms. If you compete with other firms and develop a good way to produce and distribute your product, then you keep them secret. It becomes a part of your intellectual property and the last thing you want is to share it with somebody, especially with somebody with whom you are competing. But for the social service, the opposite is true - they have to collaborate, to extend their network as fast as they can (Ibid). The study also showed that, within the development of the organization, one has to flip from one side to the other, vacillating their business and strategy from an open sharing and collaborative organization to a secret organization. This cannot be planned in advance; however, it requires the entrepreneur to reorient, reorganize and redesign the very basic idea of how you deliver the service and the nature of the service (Boland 2010).

To summarize, the metaphorical aspects Boland brought into the discussion are that **design needs to be understood as redesign,** which is the key for success and is also a basic aspect of the D4SB agenda. Another important aspect for D4SB is the fact of **the conflicts within the profit mode, for the social**

entrepreneur and the social need, provide the social aspect, which appears to be unsolvable. Only the design and redesign seem to be the currently available solutions and there is a need to flip from the social need phase of collaboration to the profit mode and the competing attitude. However, x it is not clear when this needs to happen (Ibid).

Friedman spoke about the crucial issues of our time, ethical and profound issues, arguing that the human race will not survive if we do not solve them. James Lolock has predicted global warming and catastrophic climate change over this next century. He is estimating that 90% of the human species will die by the end of the century. That means more than 6 billion people will cease to exist (Ibid).

Carbonaro (2011) put the concept of dystopia into the center the infinite growth of material, claiming that *'stuff is a dystopia. What we urgently need today is not only the design of new economic, political and environmental policies, but above all, the design of new cultural models that can take up, can profoundly and quickly change people's habits and ethos, life styles and even thinking styles'* (Ibid, p.128).

As an example, Ranjan's story can be used. When he spoke about the Tata Nano as a wonderful engineering product, he saw it as a wonderful resolution of cost. 'But the inventors didn't think about the context. In Bangalore, for example, it is hard to travel 40 km in three hours because of the traffic and nobody following the rules. So what is missing? The strategy for transportation and the context is missing. Therefore, he favored a concept of ecology, which focuses on the one-foot of land you are standing on. The question is, can you do something with this one square food of land you are standing on? This economy is about soil, it is an organic by-product, with humans on the surface. It is the leaves, the atmosphere, the water. So, what do I leave on this planet when I go, have I created more soil? This is value, not profit. We need to find a new metric. Social Business gives us this new metric' (Ranjan 2011, p.128).

We can start to reverse changes with every other activity or business we run; by using less input, we are able to improve, to reduce waste, to serve more people more effectively and more efficiently. An example of this activity, for Friedman, is the **Grameen Bank arguing that it has done a brilliant job, because of its genuine participatory design, which allows people choosing to place resources in the hands of people, to let them develop lives.** Frankl, the great psychiatrist, said that what matters is not what we asked of life, but what life asks of us, and what is great about micro-credit is, it helps to give people the answer (Friedman 2011).

That is Social Business, business with social goals and every business can be a Social Business. The key is to derive meaning not only from money.

People who find a meaning in their lives can survive almost anything, in line with the Ranjan's proposal of focusing on a square foot. We should nourish protect and restore the earth, living up to responsibility of steward-ship (Friedman 2011).

Buchanan spoke about justice, fairness and ethics, with dial-ethics as a trademark. American philosophy is connected with pragmatics, the dial, which measures the progress of the days, through the understanding of what it is to live an ordinary life. When we talk about justice as fairness, there are two principles: each person must have the same claim of equal basic rights and liberties and that the social and economic wealth are open to all with fair and equal opportunity (Buchanan 2011).

Therefore, fourth order design is crucial due to externalities, **if we can shift the profit ratios by shifting the burden of externalities to those who create them, it will be solved** (Friedman 2011).

A simple example can be seen in the way we manufacture a widget. This is highly toxic, but we can ship our toxic waste to some other countries where they have to deal with it. Therefore, we can milk the

profits with no costs. If we can change the roles of externalities, the way people milk the system, it will make Social Business more profitable, by addressing the true nature of values. Moreover, it will make bad business less profitable by forcing it to pay full costs (Friedman 2011).

The notion that design is neutral needs to be revised and, according to Forcolini (2011), *'certainly is not new. But to state that today, there exists a historical background very favorable to the centrality of design as a discipline which gives 'form' to the world, seems to be an objective fact*' (Ibid, p.154).

In addition, there needs to be a focus on the kind of technology following the discussion and the statements: *'The typology of technologies that should be used and transferred to communities within these projects has also been an important topic of discussion lead by the pioneers of design knowledge transfer actions: V. Papanek's belief in the use of 'autochthonous technologies'; G. Bonsiepe's theory on 'intermediate technologies vs. appropriate technologies'; and K. Schumacher's attempt to apply 'intermediate technologies' and develop 'vernacular solutions'* (Auricchio 2011, p.128).

When we think that creating a policy is an act of designing, which incorporates the entire concept from thought to action - designing, we see that there is a need for a manager to understand designing (Junginger 2011).

In this field, we have traditionally had no design training. Welfare agencies are very concerned about doing the best for their constituency, providing services to help people, but they are often not trained for that, as they often have a background in economics, law or maybe a little bit of a management training, but very rarely do they have design training (Ibid). Here, designing has a role and managing a design can have impacts and limits. Designing can also, actually, be used in a counterproductive way. For instance, we can reduce health care costs by design systems where the diagnosing and treating is done by yourself (Junginger 2011).

Roughly, that is an overview of what was discussed, at least what was publicly discussed, since many exchanges had been conducted in informal sessions in the breaks and at breakfast and dinners. Still, it is not complete and cannot satisfy the expectation to present the entire discussion and discourse or sub-discourse, which happened. It is a further document driven by gaps. But, as a document, it will have a value within the design process. Therefore, to fulfill the promise to come up with a summary, or an agenda, I have tried to highlight some strong statements in the text above and here I compile it into a list.

Remember, the goal was to put various communities together to see how they would interact and see what the synergy would generate. Here are the statements, which could be seen as an agenda:

1.Poor people do not create poverty. Poorness is not the result of a lack of skills in the poor. Poor people are creative, risk-takers and entrepreneurs, maybe even more than anybody else.

2. Poverty is created by the system and not by the people.

3. The poor do not create poverty; systems, policy decision create poverty.

4. What is poverty? Is it the conditions of basic survival needs, like food, shelter, health, or some level of well-being?

5. Are we designing the institutions, the business and the Social Business by themselves, or are we designing products and services for the poor, which we will execute by Social Business enterprises?

6. Currently, Social Business is not as well researched, as it would be appropriate.

7. First, every business can be a Social Business if we ask the right questions and follow the answers to which these questions lead us. Second, business will work better for us, and work better for the world, if

we work to create a meaning, as well as seeking to make money, as the consequence of what we do. Third, we must create more value than we can capture.

8. But how can we design institutions and organizations if we have never have designed something beyond an object?

9. The biggest challenge appears when we speak about the design of organizations. This is the intersection to the theme of the D4SB.

10. The design profession is moving through four orders of design thinking and work.

11. It begins with interaction between individuals, it is important that we visualize this. We need to be teaching students to prototype and conduct user research. We also need them to learn from their failures of design, design facilitation, proper describing, and programming.

12. Connected with this shift, there is also a substantial paradigm shift toward considering the design process as a collective process. It is as important to design ways of talking to each other, and being together, as it is to design smart services, posters and products.

13. These co-design approaches, which bring people together to develop creative solutions, are now being used within the public sector to help bring about social innovation.

14. We need to get rid of the narrow concept of form-giving in design and devise a more appropriate concept of forms.

15. Design can contribute to the Social Business idea and can even enhance Social Business, because dealing with opposites is a design practice.

16. Managers can be designers as well. Designers have moved into designing actions and environments.

17. Research and theory plays a big role.

18. We need to focus on co-imagination and co-creation. We need to build on shared commitment and personal relationships, co-design and co-creation.

19. If we are designing product and services for business, with a social intention, can we fundamentally make a difference between the BoP clients and the Social Business clients? Or, is such a question even useful, since we are able to differentiate between a client's problem focus, a BoP approach and the business model approach meaning Social Business?

20. We must understand the new subject matter, before addressing the process, visualization, facilitation, prototyping, invention theory. The final step has to be complete with respect to purpose. This is also the nature of profit in economics and management theory.

21. The purpose of an organization is to provide goods and services. Profit is only the means to achieve an end.

22. We would make better laws and design better societies if we did not know whether we are among one group or another, rich or poor, healthy or disposed to illness, members of a favored social class or members of a less fortunate group.

23. Design needs to be understood as redesign, redesign and redesign.

24. The conflicts within the profit mode, for the social entrepreneur and the social need, provide the social aspect, which appears to be unsolvable. Only the design and redesign seem to be the currently

available solution. Moreover, there is a need to flip from the social need phase of collaboration to the profit mode and the competing attitude, but it is not clear when this needs to happen.

25. Grameen Bank is arguing that it has done a brilliant job, because of its genuine participatory design, which allows people choosing to place resources in the hands of people, to let them develop lives.

26. If we can shift the profit ratios, by shifting the burden of externalities to those who create them, it will be solved.

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E.3. Designing Business

Designing Business Conference 2011, Barcelona, Spain

November 17th and 18th

Mission and History

In 2010, we held a conference on Design for Social Business in Milan. Under the guidance of Nobel Laureate Prof. Mohammad Yunus and several world-renowned experts in design and business, we undertook explorations and research into design for Social Business. We realize the need to broaden the scope of the theme to understand designing business as an important topic. To examine and explain the premise of design for Social Business, we will specify several sub-themes, which came out of the conference on Design for Social Business.

Over the past decade, several conferences and interactive workshops have focused on managing as designing, on design management, and on changing the decision paradigm within the management field. Design theory is taught to management students at several design schools, including the Stanford D-School, the Illinois Institute of Technology Institute of Design, and the Swinburne University of Technology Faculty of Design, and Aalto University Design factory. Several business schools also teach design theory, including the Weatherhead School of Management at Case Western, Harvard Business School, and Rotman School of Management at University of Toronto. Other schools, such as Imperial College and the Royal College of Art, are collaborating on a new scale to fulfil the premise of enhancing management through design, while encouraging designers to think and conduct research on a new level.

'*Business people will have to become more 'masters of heuristics' than 'managers of algorithms',* says Prof. Roger Martin, Dean of Toronto's Rotman School. The goal is to develop the next generation of business innovators and designer entrepreneurs who can act as agents of change in the organizations they join and the new ventures they establish.

In Martin's view, the concept of design thinking can potentially address many of the criticisms currently being levelled at MBA programs. This goes hand in hand with the ideas of Nobel Laureate Herbert Simon, who called for a rigorous body of knowledge about the design process as a means of dealing with management problems. For many, design is the next competitive advantage.

In 2010, sixty scholars and design practitioners from around the world focused on design for Social Business. Following three days of intense discussions and workshops, we concluded that we must focus on two main perspectives: designing business models for Social Business and designing products and services for Social Business.

These findings are the starting point for a follow up conference to advance these two main themes. We are holding the second conference in Barcelona this November, with a focus on the following topics:

- Design thinking versus designing

- Processes and models of designing business

- Potentials and limits of design thinking

- Managing designing: what works and what does not

- Educational frameworks for designing business

- Do we need designing managers or managing designers?

- Designing Social Business and the difference to designing business

This text was sent to many individuals as a call for participation. The six questions, as well as the problem statements, were offered to participants, have been invited to contribute their views on the topics.

Place, Carrying Organization

Designing Business

Interactive Designing Workshop, November 2011

Participation only by invitation

Barcelona, Istituto Europeo di Design

Opening networking event: 16th of November

Closing event: IED advisory meeting, public summary of Interactive Designing workshop

Responsible chairs as well as the organizing people

Prof. Jurgen Faust

Prof. Dr. Ken Friedman

Prof. Richard Boland

Participants

Aldo de Jong

Auricchio Valentina

Avital Michel

Barry Daved

Beucker Nicolas

Bruysten Annika

Buccolo Sam

Buchanan Richard

Buchanan Tooming Kaja

Burnette Charles

Capuani Michele

Cho Dong-sung

Collina Luisa

Cugusi Massimo

Cutolo Giovanni

De Kerckhove Derrick

De Lera Eva

Di Liberto Fabio

Diehl Jan Carel

Faust Jurgen

Forcolini Carlo

Glanville Ranulph

Gonick Lev

Guerrero Jose Antonio

Hollern Matthew

Hugentobler Hans Kaspar

Iacovoni Alberto

Jachna Timothy

Jonas Wolfgang

Junginger Sabine

Kolo Castulus

Mafai Ariel

Maffei Stefano

Manetti Alessandro

Meisiek Stefan

Meroni Anna

Molineri Giuliano

Neu Bettina

Nijs Diana

Nima Leonhard

Randone Massimo

Ranjan M P

Reitz Hans

Rimassa Alessandro

Rusk Michele

Russo Peter

Rylander Anna

Salenbacher Jürgen

Salustri Filippo

Schneider Jean

Siena Massimo

Soldini Emanuele

Szasz Oliver

Trainor Greg

Teal Triggs

Tellefsen Brynjulf

Tognazzi Alberto

Valerio Carlo

Wrigley Cara

Yoo Youngjin

Zidulka Amy

Peter Roach

Guido Rachinelli

Agenda and its composition:

Design Business Conference 2011, Barcelona schedule

Wednesday November 16th: 19.30 Welcome cocktail at hotel site
HOTEL TRYP APOLO, AV. PARAL-LEL, 57-59 BARCELONA

Thursday 17th of November 2011
Location: IED Barcelona, Calle Biada 11, Barcelona

08:00	a.m.	Registration and coffee		
08:00		Welcome	Alessandro Manetti (Director IED Barcelona)	
09:00		Greetings	Carlo Forcolini (CEO, IED Group)	
09:20		Presentation of Agenda	Carlo Valerio (IED Group)	
09:30		Design Business-Conference-Setting the stage	Prof. Jurgen Faust	
09:50		Designing Business provocations	Prof. Dr. Richard Buchanan	
10:20		Designing Business provocations	Prof. Dr. Daved Barry	
10:50		Coffee break		
11:10		Breakout session (5 groups)	Moderator	presenter
Group No.	1	- Processes and models of designing business	Manetti	Neu
	2	- Limits of design thinking/design thinking versus designing	Aurricchio	Trainor
	3	- Educational frameworks for designing business	Hollern	Kolo
	4	- Do we need designing managers or managing designers?	Junginger	Diehl
	5	- Designing social business and the difference to designing business	Di Liberto	Carbonaro
12:10	p.m.	Coffee break		
12:30		Plenum: report and presentations from the break-out sessions	Presenters from breakout sessions	
13:15		Summary	Sabine Junginger	
13:30		Lunch break (delivered in plenum)		
14:30		Coffee break		
14:45		Provocations: Designing Business - design thinking	Dr. Charles Burnette and Prof.Dr. Dong Song Dscho	
15:15		Breakout session (5 groups)	Moderator	presenter
Group No.	1	- Processes and models of designing business	Yoo	Glanville
	2	- Limits of design thinking/design thinking versus designing	Szasz	Hugentobler
	3	- Educational frameworks for designing business	Salenbacher	Triggs
	4	- Do we need designing managers or managing designers?	Collina	Russo
	5	- Designing social business and the difference to designing business	Reitz	Ranjan M P
16:45		Coffee break		
17:00		Plenum: report and presentations from the break-out sessions	Presenters from breakout sessions	
18:00		Summary first day and Plenum discussion	Moderator Lev Gonick	
19:00		End of first day		
20:00		Networking Dinner		

Friday 18th of November
Location: IED Barcelona, Calle Biada 11, Barcelona

08:30	a.m.	Coffee		
09:00		Provocations: Designing Business and Social Business	Prof. Dr. Ken Friedmann and Prof. Dr. Jan Carel Diehl	
09:40		Coffee Break		
10:00		Breakout session (5 groups)	Moderator	presenter
Group No.	1	- Processes and models of designing business	Buchanan	Rusk
	2	- Limits of design thinking/design thinking versus designing	Hollern	Szasz
	3	- Educational frameworks for designing business	Barry	Meisiek
	4	- Do we need designing managers or managing designers?	Schneider	Avital
	5	- Designing social business and the difference to designing business	Buccolo	Rylander
11:00		Plenum: report and presentations from the break-out sessions	Presenters from breakout sessions	
12:00		Final discussion	Moderators: Ken Friedman and Richard Buchanan	
		End of conference!	Prof. Jurgen Faust	
			Carlo Forcolini (CEO, IED group)	
13:00		Lunch and networking (delivered in plenum)		

Saturday November 19th
Location: IED Barcelona, Calle Biada 11, Barcelona
11:30 a.m.IED advisory board meeting, open to the public:
Prof. Mohammad Yunus, Prof. Richard Buchanan, Prof. Ken Friedman,
Prof. Derrick de Kerkhoeve, Prof. Francisco Jarauta

Bright blue color indicates statements delivered, all provications will be presented within breakout session (5-7 min)

Participants														
Faust	Burnette	Glanville	Yoo	De Jong	Rusk	Friedmann	Diaz-Kommoni	Maffei	Rimassa	Siena	Rachinelli	Fischnaller
Szasz	Salustri	Hugentobler	Nijs	Roach	Gonick	Buchanan	Forcolini	Rancati	Avital	Tognazzi	de Pereda	
Barry	Meisiek	Triggs	Battiston	Valerio	Beucker	Capuani	Rodrigues	Randone	Salenbacher	Maccagnani	Marchesi	Leveratto
Collina	Schneider	Dscho	Tellefsen	Jung	Jachna	Zidulka	Guerrero	Iacavoni	Buchanan/T	Russo	Smith	Holland
Jonas	De Lera	De Kerkhoeve	Buccolo	Soldini	Rylander	Reitz	Handschuh	Wrigley	Ranjan M P	Bruysten	Meroni	Nima

First session presenter each 5-7 min

2nd session presenter each 5-7 min

3rd session presenter each 5-7 min

Participants														
Faust	Roach	Siena	Rachinelli	Neu	Rusk	Buchanan	Iacavoni	Di Liberto	Manetti	Rimassa	Bruysten			
Salustri	Barry	Burnette	Hollern	Trainor	Gonick	Avital	Zidulka	Guerrero	Nijs	Tognazzi	de Pereda	Holland		
Friedmann	Meisiek	Battiston	Aurrichio	Valerio	Kolo	Capuani	Rodrigues	Randone	Beucker	Maccagnani	Marchesi	Fischnaller		
Tellefsen	De kerkhoeve	Dscho	Junginger	Jung	Diehl	Forcolini	Rancati	Diaz-Kommonen	Buchanan/T	Jachna	Smith	Leveratto		
Jonas	De Lera	Schneider	Buccolo	Soldini	Rylander	Carbonaro	Handschuh	Maffei	Wrigley	De Jong	Meroni	Nima		

Participants														
Junginger	Burnette	Salustri	Tellefsen	Jung	Rimassa	Yoo	Diaz-Kommoni	Maffei	Rachinelli	Bruysten	Tognazzi	Leveratto		
Friedmann	Glanville	Roach	Triggs	Trainor	Dscho	Nijs	Zidulka	Rancati	Aurrichio	Siena	Soldini	Holland		
Rodrigues	Beucker	Jachna	Hugentobler	Gonick	Manetti	Jonas	Guerrero	Buchanan/T	Battiston	Maccagnani	Meroni			
Faust	Kolo	Valerio	Collina	Neu	Diehl	Forcolini	Randone	Iacavoni	Salenbacher	Smith	Fischnaller			
Capuani	De Lera	De Kerkhoeve	Wrigley	de Pereda	Nima	Carbonaro	Handschuh	Di Liberto	De Jong	Ranjan M P	Marchesi			

The problem areas have determined the breakout sessions and various participants were selected based on their statement and background, as well as interests. The breakout sessions have been working as a platform where a moderator had been maintaining the discussions and exchanges between the participants. Presenters have been able to give a short introduction of their provocation submitted to the conference. This has served as a base to discursively elaborate the problem area of the breakout group.

Discursive Summary of the Designing Business Conference 2011

Following the event held in Milan in 2010, with the focus on Design for Social Business, we (the author of this report and the key participants) understood the need to broaden the scope of the theme 'designing business' as the important topic. In our view, in order to examine and explain the premise of 'Design for Social Business', me must explore the general issue of designing business, as this will provide a clarification of the themes 'design' and 'management'.
In order to emphasize that this task would not be easy, in his provocation statement, Glanville focused on. The problem is not understood until after the formulation of a solution (Glanville 2013). Does this mean that we do not understand the problem we have been working on?
Glanville, citing Rittel (Ibid), makes this statement indicating ways in which problems (especially those associated with the activity of designing) are not generally solved using traditional implied methods. The question, therefore, is - did we try to address this issue by applying traditional problem - solving techniques? And is the area of designing business a unique, yet social field, since business is located within social activities?
In the words of Glanville, such problems can be seen as 'wicked'. He notes:
'In the case of Wicked Problems, the solution defines the problem, making Wicked Problems insoluble using problem-solving techniques, because they depend for their solution on defining the problem in order to generate the solution' (Ibid, p.100).
'The notion of the Wicked Problem, which in essence contains structural contradictions and necessarily poor definitions, seems to provide a description of many problems we face in the real world, including business and business problems, which are complicated, confusing, imprecise and seemingly insoluble, complex. Wicked problems can, however, be solved - as designers demonstrate on a daily basis' (Ibid).
'Wicked problems are examples of an older, wider class of problem: undecidables. Undecidable problems are closely related to undecidable questions, which can be undecidable for any number of reasons,' according to Glanville (2013, p.100). Glanville makes the case, indicating that the question might be the reason. The designer acting is the center of designing, holding a (metaphorical) conversation with oneself through the medium of (metaphorical) paper and pencil (Ibid), or holding a conversation, in our case, with others to create solutions to problems, even if we have not defined them. In other words, what is needed in our case is discursive action.
According to Glanville, '*The cybernetician, Heinz von Foerster composed two Imperatives. The more famous is the Ethical Imperative: Act always so as to increase the number of choices. The less famous is the Aesthetical Imperative, which summarizes the argument I have made: If you desire to see, learn how to act'* (Ibid, p.102).
Clearly, according to Glanville, design can have advantages and is an alternative way of problem solving, and the biological metaphor of diversity seems to be an advantage for design as well. **Increasing the number of choices** implies that we cannot rely on an ideology, or a set of fixed ideas. Rather, if we want to see, to obtain the image, we need to make statements and discuss positions that would lead to the creation of a number of documents.
If we frame our discursive area of formation within such a condition, we probably need to expect to understand that the answers will generate a different question; i.e. after having evolved the discourse, a new problem will emerge.

With respect to the questions raised, Jonas makes ten remarks pertaining to the difficulty of social discourse, which can be normative or descriptive (Jonas 2013). He also makes the case that differentiation has split the social and generated subsystems: *'This led to an immense increase in internal complexity and efficiency, but also to rigid structures and autopoietic closure'* (Ibid, p.174).
However, design has never become such a subsystem. '*The result is that design, which has never been modern (Latour), faces the highly specialized, highly efficient and autonomous modern system business: an asymmetric relation'* (Ibid). The problem we are facing is twofold - devising change or saving the world. Thus, we need both the competence to organize and perform change processes, and the competence to decide what is preferable or good. Design is aiming at intervention strategies regarding desired outcomes and cannot define these purposes (Ibid, p.174). Moreover, it must be understood that designers are no better humans. **Moral is private. Design is amoral,** according to Jonas (Ibid).
Humanistic attitude is not convincing, since it destroys complexity. Responsibility can occur in design teams only if we do not fix moral positions. '*Normativity should be replaced by teleology (purpose orientation) and effectiveness'* (Jonas 2013, p.174).
'Transdisciplinarity as epistemological and methodological paradigm can be considered as the operationalization of this ethical stance. Design as a transdiscipline enables the transgression of disciplinary boundaries. Design does not have the task to guarantee a morally correct solution, but design facilitates the formulation of a systemic goal. Ethics remains implicit and therefore more powerful' (Ibid).
As explicit morality is counterproductive, if we are lucky, the business results will be a social change. The shift from designing with social aims to designing for business gains requires a step forward towards moral disarmament, towards efficiency of the design outcome and towards maturity of the design profession (Jonas 2013).
The position seems to clearly state that the result of the conference cannot be a set of rules -normative ethical rules - which we should follow. It cannot be a set of moral statements that should guide business design either. Was it intended? Not at all; yet, there is always a danger within such an activity, as we can end up with some normative stands.
Therefore, a rethinking and reframing of these questions seems to be always adequate. Such a set of questions, even if not answerable, is an important context within which a designer can act. There are so many changes on the way - the economic changes and challenges worldwide - that make it even more necessary to generate new ideas and models, as well as theories that can guide our actions.
These changes are framed from various standpoints, some of which are shared below.
For instance, Collina and Meroni speak about the rapid changes in our societies and productive systems, noting that everything is in flux (Collina and Meroni 2013). Thus, designers also have to change. The contemporary designer has to be **a design activist and a community coach,** which requires both product-service design competences and social intelligence. The collaborative effort needs to focus on communities; i.e., designers must be community competent (Ibid).
In a similar direction, Maffei sees the changes, whereby the model for production challenges the designer and consumption, from the system that designs them, through the system that makes them to the system that distributes them. This also changes the nature of the profession, since the industry no longer exists in the way it used to (Maffei 2013). Outsourcing has changed the Italian production system. Therefore, designers have to face different forms of creativity, peculiar business models. Maffei (2013) sees **the solution in self-production, a solution towards artisan**. According to Gonick (2013), design thinking is a catalyst for the changes in deeply structured organizations. He sees the need for these changes, as the societies move from traditional charismatic and bureaucratic forms of leadership into *'laws lend themselves to deliberate and explicit forms of constraints that bind elements within an organization or society.'* He is calling such a new organization driven by design thinking **explicit disruptive** (Ibid, p.72).
Radka and DeJong (2013) have pointed out the crisis of our systems, noting that we will not restore them or go back.

Soldini is pondering on the crisis and the world casino since 2008, and the business models that are used, which seem very week and contribute to the difficult situation. In the times when entire countries are on the edge, where can the solution be? Social Business seems to be the only way forward, as there needs to be always something social in each design action (Soldini 2013).
Carbonaro (2013, p.72) proposes that *'what is needed is a design discourse and practice that is based on systemic change to solve the inherent conflicts involved in providing water, food, shelter, clothing and prosperity to humanity and therefore* ***decoupling design from destructive growth-based economics.****'* The reason is that sustainability efforts, environmental responsibility, economic health, social equity, and cultural vitality are not radical enough.
Liberto (2013) makes the case that **we design for people, not for companies,** and that needs to be done through empathy. Moreover, as the value of democracy is that we promote the welfare of people, this is only possible if we work on people-centered, social-centered innovation (Ibid).
The conference goal was to develop the concept and education ideas of next generation of business innovators and designer entrepreneurs who can act as agents of change in the organizations they join and the new ventures they establish.
Therefore, the following problem fields, better questions, and intended areas of discursive action, have been indicated at the forefront:
- How can we differentiate design thinking from designing? Is there a difference?
- How can we understand the processes and models of designing business? What needs to change if we design business?
- Where are the potentials and limits of design thinking, since knowing the limits is an important aspect of acting in a responsible manner?
- Looking back at the movement initiated in 2004 conference on Managing as Designing, what works and what does not, can we recapture some experiences?
- In the context of educational frameworks for designing business, what needs to change in education?
- What might be the goal; do we need designing managers or managing designers?
- What are the differences between designing Social Business and designing business? Is there even a difference?

Whether these are the right questions and whether these are the problems we might see at the end, it remains to be seen. Whether we are able to summarize some key statements is not clear and will not be until the 'end'. Nonetheless, as a result, we had some guiding talks, which yielded the core of contributions to the conference. For example, Faust (2013) has been focusing on the issues of poverty, which is created by the system, not by the people. Poverty is the condition of basic survival needs; still, if we are designing, we need to be clear what we are designing - the products, services, or the business by itself. However, what is business designing?
We are facing a substantial paradigm shift towards design processes as collective designing. **Form giving is a hindering concept**. We need different models and theories, but theories also pose a challenge, since a theory is guiding a model, creating an image of something, and thus needs to be understood.
A theory simplifies; it reduces the number of parts to the original by only capturing relevant parts. Theory is also pragmatic; it is created for a special purpose, and this purpose is specified for certain users within a certain period of time, in reference to Stachowiak. Still, with each model, we create a huge possibility as well as blind spots. Thus, when generating models, we have two possibilities: systematically building the meaning up part by part, up to a system of reference of what we might be observing; or a metaphorical approach, whereby we look for an image that already exists, which can handle the complexity of the situation. Building new models for designing business requires perspective and expertise in many different fields - system thinking, design thinking, second order cybernetics, etc. We need design thinking, but we also need to have a strategy to follow up when we have developed these ideas (Valerio 2013).

Clearly, there needs to be a new framework, where design and management come together at their best. Thus, the question remains - is this new management, design school, or something new?
In response to these questions, Buchanan sees **management and design not as separate entities**, since there is a movement that gradually recognizes their common base. In support of this view, he provided a list of arguments (Buchanan 2013).
The second point he made pertains to the practice of management and design. There is **a new way of practicing** that has come forward; it is **a new synthesis** aimed at understanding the place of **dialectic**, **the changing place of business models** - a set of concepts that needs to be understood (Ibid).
Marketing is doing that now and accounting is offering elective courses in design. They are using their respective disciplines as a base to understand the meaning of design.
Moreover, the **practices**, the processes, how we do things, **are shifting to a rhetoric and dialectic** as the arts of communication to bring participants into the process, recognizing that there are specializations that have to be mastered.
What is **the purpose of an organization**? What is the purpose? The strategy movement asserted that profit was the purpose. Organizations exist to make a profit. That is false. **The true purpose is to provide goods and services to people,** whether it is for profit or not.
How do we look at this from the design point of view?
What is our noble purpose? It is not an analytic purpose or goal; it is actually saying, what could we do if we put aside all constraints?
It is 'a wicked problem,' which is defined as the conflicting interests and values of the participants. But the **wickedness is what designers address through conversations, through the dialectic of that interchange,** discovering a wonderful thing that can be done with a company (Buchanan 2013).
In that respect, Yoo (2013) stated, *'According to a Nobel Laureate Herbert A. Simon, we are living in the 'artificial world'. There are three different types of artefacts: products, organizations, and information'* (Yoo 2013, p.117). We shape and re-shape this clumsy world and through this process we invent and re-invent these artefacts, which are never perfectly designed. Managers find themselves thrown into this clumsy artificial world, which needs tinkering here and there, which keeps things in order, to make things better. Through that process, management can become a noble profession. Still, what is missing today is the ability *'to think otherwise and the capacity to see what is not there'* (Ibid). Still, the reality today is that a narrow economic perspective has enslaved management practice and research, as we have forgotten that **the main constituents are employees, customers and products** (Yoo 2013).
The lack of awareness about Organization Design (OD), and by extension Business Design today, is a main problem, according to Barry (2013). Why does OD seemingly shun creativity, making things from scratch, playfulness, beauty, or even interest (financial interest excluded), all of which are intrinsically linked to other design professions, he asked.
Barry, giving a short overview of the history of OD, which, according to him, starts in 1900, as he claims that, until 2004, when Boland and Collopy published their book Managing as Designing, nobody has ever looked into design. Before, OD was concerned with structure, best arrangement to achieve purpose, boss/staff ratio, product, or business function, tall, lean flat or fat organization. OD was a kind of engineering, where scientific laws governed the fundamentals. However, Boland, Collopy and Buchanan speak about decision character of OD and its diagnostics, cost-benefit analyses, and 'go/no-go' decisions.
OD has been a rational business perspective that revolves around problem-solving, contingent decision-making, and optimization with the idea that you can control ever larger organizations. The notions that emerged are: bigger is mostly better and 'tweaking' is both possible and desirable, higher production and efficiencies can be achieved by making sure that everyone has a proper place and everyone is in their place, and designing and running an organization is like flying a Boeing 747 in the dark.
Relative to this development, the biggest achievement is the formation of the international Organizational Design Community (ODC) (Barry 2013).

However, although organizational life is now mostly unpredictable, organizing has become a constant, as a result of global markets and hypercompetition. Therefore, there is a huge push for innovation and creative business solutions. Consequently, there are jumps towards IDEO's version of 'design thinking'. Many business leaders and business schools currently believe that design thinking, user-based research techniques, post-it note brainstorming, and frequent prototyping is something that any business person can do. Thus, the question is - who needs professionally trained designers?
On that note, R. Verganti has shown that user-driven focus of design thinking often leads to mediocre, incremental innovation, and that successful **radical innovation requires more arts-based design methodologies** that, in turn, require talent and years to master (Ibid).
Alexander Osterwalder's Business Model Canvas came up with an aesthetically charged version of the value chain. Buur's work on tangible business modelling has also given us more aesthetically heightened ways to represent and redesign organizations. Clearly, there is a conceptual opening for a new and more designerly approach to OD.
Analytic OD seems to be pulling itself into a tighter orbit, developing more accurate analytical and decision-making tools. What is harder to imagine, however, is that AOD-ers would incorporate designerly design methods. In a recent study, there was a comparison between designers and CEOs from SMEs to redesign Euro Disney and the result fit the stereotypes.
The designers came up with innovative, holistic, and human-centered designs. The executives created structural rearrangements and reporting relationships, cost cutting, and rethinking the product mix. In contrast, the designers perceived Disney as a social network, rather than an abstract series of cost and profit centers to be moved around. Consequently, the designers struggled enormously with the material (Ibid).
The designers responded better to this setup, and were able to get into the design process. Still, they all wanted to work with others on it, wanted much more time, and asked for more concrete information. To be successful, though, this new OD will require much more than asking executives to brainstorm, prototype, and otherwise 'get creative'. Coming up with effective organization designs that deliver, delight, and deepen will require training along the lines that designers get - years of learning how to reframe organizational problems into evocative questions, finding inspirational networks alongside solution at ones, creative and aesthetically sophisticated experimentation, and working with multiple mediums and representational forms. It will also require systematic testing over time, to see where and how these innovative designs work, and do not work. Clearly, OD is heading towards a new chapter, perhaps its most interesting and inventive one yet (Barry 2013).
It seems that Organization Design as a design discipline should be able to **tackle designerly ways of thinking and doing** and should be a design discipline as well, which it is not. Regarding such a statement, it might be interesting to look into the character of design again, noting the differences Diaz-Kommonen is indicating, pointing out five elements:
1. Design is based on a future-oriented epistemology.
2. Design research is based on an ontology, which encompasses the past present and the potential future.
3. This research is conducted in a dialogue setting between the client, the enterprise, the communities and the designer.
4. Design has its own vocabulary that constantly expands.
5. Design history finds its point of origin in the creation of the artificial (Diaz-Kommonen 2013).
The problem likely lies within these differences. Barry is focused on a science-driven discipline and the bases that were not found in design before Boland and Collopy started to include design within the area of OD, developing their own vocabulary - **a different ontology and epistemology**.
Statements as the ones we just read create new set of questions to ask about the wickedness of the problem field, indicating changes, breaks, and challenges. Clearly, the differences between design and management as entities seem to disappear, especially within the discursive positioning and stating, the group of formations, even if different in form, are obvious. Therefore, within the next chapters of these

discursive summaries, we will follow the chosen procedures, connecting, linking and looking for the relations between the statements.

'Processes and Models of Designing Business'

Neu (2013) reported that a title change is necessary, suggesting **'Emerging view points on designing business,'** as designers change their viewpoints and this change includes open-mindedness. According to Neu, **Design is an area of knowledge**. **Designers are processing things and knowledge differently** and designing business models should be about **designing systems**. It is about the purposefulness of business or **the purpose of business**. Designing of business models **is orchestrating the value, novel value, and orchestrating the value exchange of networks**. Not facing a change is the biggest challenge in business. We currently use business processes and models that are probably forty to fifty years old already. We also talk about stability, scale and measurement, but what we probably face at the moment is a very deep paradigm shift of change (Neu 2013a).

How do we **make sense of realities, in particular when it comes to the purpose of business**? The aspect of metaphors helps in addressing this issue, as we need **a set of metaphors**.

Thus, the models of dealing with this complexity and establishing metaphors or creating languages, could be probably 'communities of practice'. 'Communities of practice' need to draw from knowledge management and generate the opportunities to bring different disciplines together and to find or create somewhat like a platform, where they can interact and create knowledge.

Still, we need to ask - what is a business? According to Drucker, the answer is in a good business model. **Who is the customer? And what does the customer value?** It also answers the fundamental story every manager must ask: How do we make money in this business? What is the underlying economic logic, that explains how we can deliver or to define various elements. It is a conceptual tool that contains a set of elements: customers, customer value, architecture, network of partners for creating, marketing, delivering this value, profit formula, relationship capital and revenue streams. It is a system and, when we design it, we design system. However, designing in system is complicated since **observer and observed in a business cannot be separated**. Thus, the result is a negotiation between the various stakeholders. Designing business (models) within existing business is always a participatory act, where **designers need to include stakeholder as designers in an ongoing discourse** (Ibid).

Nonetheless, according to Burnette (2013), there is a fit between business models and models of design thinking. Company structures typically address the same domains of information as design thinking. Until this conceptual integration occurs, Design Thinking will exist in corporations as an isolated process implemented primarily by external consultants, not as a set of processes that operate at every level and in every domain of corporate activity.

The domains of information underlying Purposeful Thought, Design Thinking, and Creative Thinking are recognizable to business as Managing, Information Gathering, Modelling and Analysis, Planning and Communication, Production, Assessment and Support, and Knowledge Management.

Monitoring the processing and exchange of information between components in such computational systems would facilitate research on design thinking, as well as each function in a business. The exchange of information between members of a team, each acting through computational components, would also provide access to interdisciplinary work flow and could be used to improve collaborative work, where each component is an integral part of the system as a whole (Burnette 2013).

Instead, Neu asked, why should design be occupied with questions of how to renew the complex world of doing business specifically from the perspective of an isolated part of the world? She also asks whether such a perspective is needed in a globalized world, or does globalization no longer require any cultural differences and distinctions?

Neu (2013) voices her fear that, by adopting the rules of existing business models, design is now at risk of losing its forward thinking ability and ending up merely as marketing hype.

Rusk also sees a change, since the traditional business setups in the 50s are failing within a globalized world. Thus, she questions the new role of design, noting that changes, creativity and innovation are highly demanded. She also claims that there is a need within education to adjust to globalized philosophies. But this demand does not only concern universities, it pertains to other educational entities as well.
Design is in demand, since it provides all these requirements and *'**design can be viewed as a metaskill,** the enabler that makes tangible the possible, while design thinking as the cognitive aid to dealing with the flux of events and adapting accordingly'* (Rusk 2013, p.114)

The Limits of Design Thinking and Design Thinking versus Designing
Trainor (2013) notes that it is difficult to figure out what design thinking actually is. Design thinking needs to be discovered.
Is design thinking is gymnastics for the brain, using a design thinking process?
If the answer is 'yes', the entire process must relate to purpose, the role in organization. There are four common aspects of design thinking and understanding - **a cognitive process, visioning, the narrative and particularity of the discipline** (Ibid).
There might be limits to how we can present that information, and how the marketplace accepts it. The limits are limiting in terms of what the boundaries are and what works within or around them. Design managers, instead, are facilitators installing and following the process on behalf of a business, bringing different disciplines together. Design thinking is being used as a 'Trojan horse' to tie the discipline, the approach and the purpose into an organization.
Design thinking vs. designing - is it the same or is there a difference? The question might be inappropriate, or even simply wrong, since the language and the mode of communication is important, and since there might be some shared values around design thinking.
We might be talking about **design thinking as a delivered disruptive organizational capacity**. Does design thinking enable organizations to prevent actual emergency situations? If so, is that a holistic thinking? Moreover, can design thinking contribute to organizations or the culture of organizations, which, in emergency situations, enables ideas **to leave preconceived solutions to non-known problems** (Trainor 2013)?
Regarding the difference between design thinking and designing, Salustri raises the question of where the difference between a designer and a designing person might be, since everybody designs. He sees the difference in a cognitive style, substantially different from scientific and artistic thinking. Whilst scientific thinking aims to explain and artistic thinking is synthetic, design thinking is progressive - it seeks to improve. Salustri also makes the case that, although there are other styles of thinking, cognitive style is most important. For Salustri, the **best designers are also the best design thinkers**, since mimicking the design behaviours does not capture design thinking (Salustri 2013).
The paradigm shift, which is currently moving away from design to a design thinking approach, including human-centered methods, is Szasz's concern (Szasz 2013). He sees **design thinking as a methodology that utilizes strategies that can be applied by professionals of all disciplines**, not necessarily by designers. He makes the case that, only a century ago, we had a comparable paradigm shift when craft was separated from art and design. It brought us the idea that there is a sort of mental attribute, named 'creativity', which is separated from knowing how to make things (Ibid). The result is that we ended up with less richness in the product range. Szasz thus sees similarity within the two paradigm shifts. Craft design requires mainly from tacit knowledge. Design thinking is also a cognitive quality development by designer within design thinking teams. Therefore, is **the design facilitator new and emerging role for designers**? Moreover, what does it mean for the design education of the future (Ibid)?
Hollern (2013) speaks about design thinking models as a plural, which he explores within this activity. He also makes the case that *'in order to design innovation, we must innovate design'* (Ibid). He finds

exactly these changes within the field of electronics, moving the craft away from fixed static and limited manifestations to limitless and dynamic expressions. *'Design is conscience, a force to transcend boundaries of material and technology, and to address substantive and meaningful needs of community, society, humanity, and the planet'* (Hollern 2013, p.78).

Hugentobler proposes a link between the concepts of the 'psychology of the utopian personality' (Progoff, 89) that links personality and utopia by means of transformation, with one that links the 'designer' and the ideal by means of design thinking (Hugentobler 2013). Within the learning environment, he notes that *'Extrapolating learning to become over and over again – with 'to become' signifying 'to come into existence', or 'to undergo change or development' (Merriam Webster) - means to consider the interrelationship of an inner and an outer consciousness in order for the individual to successfully transition 'tensions of time' at specific points in the movement of one's life'* (Ibid, p.78). *'The new role of the designer as a design facilitator might imply that designing is an integral part of design thinking, rather than being separated from design thinking'* (Szasz 2013, p.78)!

Nijs and Van Engelen (2013) see imagination as an important, yet often neglected, element within the academia. Dealing with complexity, contradictions and chaos, creativity and imagination is the only tool. The authors have coined the term 'imagineering', which they call designing in the narrative mode, *a practice known from the creative industries, which has the potential to open the imagination of the stakeholders involved in solving the problem at stake* (Ibid). Here, they also present an understanding of design thinking, since design thinking is rooted in closed system thinking, which is adequate for the material world. In the social world, however, open system thinking is adequate, which is what imagineering is meant to refer to - design thinking in the narrative mode. *'While design is about changing an existing situation in a more desired one,* ***imagineering is about designing and using an imaginative narrative in 'seeding the future'*** (Ibid, p.139).

Design culture and design thinking is Auricchio's perspective (Auricchio 2013) on the history of design thinking. Since the 80s, engineers and architects have mostly used design process. In Italy, since the beginning a 'design thinking' that is called the 'cultura del progetto', Auricchio notes the emergence of the culture of designing. She thinks that this culture of designing can thus help understand design thinking as a mindset, gymnastics for the brain. However, in order to apply design thinking in the right way, a design manager must be a part of a team, since the teamwork is important (Auricchio 2013).

Trainor (2013, p.79) asks, is design thinking a new development strategy, or is it just another interesting business trend? This question is not easy to answer, but some successful examples can be reported. *'Design Thinking empowers executives to create the future by using new tools, methodologies and approaches to*

- *'pull apart' existing norms,*
- *look at many and varied opportunities creatively,*
- *adopt a customer lens into and across the business and*
- *trial success and failure as a means to creating a valuable strategy for future direction'* (Trainor 2013, p.)

Zidulka (2013) makes the case that design thinking does not work (for management students, since there '*is nothing intrinsically superior about design thinking strategies like ethnographic research or prototyping that allow them to yield results that plain old analytical thinking could not*' (Zidulka 2013, p.79). Her experience teaching management students proves her right when she teaches a Creative Problem Solving (CPS) process - a systemic process that breaks the creative process into a series of divergent and convergent steps (Puccio et al. 2011). Zidulka claims that this is because CPS allows management students to build on the analytical skills they already have.

CPS enables working managers to insert innovation in subtle, yet important, ways without asking their colleagues to adopt the paradigm shift that design thinking seems to require.

The imbalance of the analytical and the synthetic is the focus of Avital's (2013) work: *'Our cognitive activity is both analytic and synthetic in nature. Moving between the analytic and synthetic processes is one core dynamic capability of human intelligence, and falling short of either one is likely to cripple the*

other. The two are interdependent, complementary and reinforce one another. The proliferation of design thinking just helps to correct the longstanding ***artificial imbalance between analytic and synthetic processes in management practices****'* (Ibid, P.79).

Although design thinking is a fuzzy term (Faust 2013), the topic is very contemporary and is discussed and used everywhere, since the current business world looks for new concepts to rely upon when solving problems. The history of design thinking is also unclear, as Herbert Simon might be the first one that used this term in his 'Sciences of the Artificial'. He also made the case that *'The intellectual activities that produce material artefacts are no different fundamentally from the one that prescribes remedies for a social welfare policy for a state. Design, so construed, is the core of all professional training; it is the principal mark that distinguishes the professions from the sciences*' (Simon 1996, p.111).

There is no difference within the intellectual activities required when designing material artefacts and designing some social structures, which guides us to the current design thinking hype.

Buchanan (1992) noted, *'There is no area of contemporary life where design - the plan, project, or working hypothesis, which constitutes the 'intention' in intentional operations - is not a significant human activity; thus, it plays an important role in shaping human experiences'* (ibid, P.9). He puts design thinking into the focus by stating the following: *'The challenge is to get a deeper understanding of design thinking, so that more cooperation and mutual benefit is possible between those who apply design thinking to remarkable different problems and subjects matters'* (Ibid).

Whether this challenge has already been met is a quite difficult question to answer; however, there has been extensive research on this topic in recent years. Moreover, there had been much hybridization and variations of the concept of design thinking since then. Faste sees design thinking in reference to Piaget's view that it is rooted in a problem-solving: *'When* ***problem-solving becomes blocked at the symbolic level,*** *humans must revert to the right brained abilities associated with these previous stages.' Here, he makes reference to the visual level. For that reason, he developed the course out of* ***visual thinking - Ambidextrous Thinking'*** (Faste 1994, p.1).

Tischler (2009) summarizes the development over the last 20 years with the following statement from Kelley: *'We moved from thinking of ourselves as designers to thinking of ourselves as design thinkers. We have a methodology that enables us to come up with a solution that nobody has found before'* (ibid, P.1).

In addition, Terrey gives a list of key attributes required for design success of non-designers:

1. Strong visualization skills
2. Ability to work with complexity
3. Ability to think strategically from a user perspective to change
4. Ability to engage and drive collaborative dialogue
5. Ability to problem-solve through inquiry
6. Ability to prototype changed experience

From the author's perspective, a design thinker must be able to engage in, and produce, a design discourse. He must be able to co-design in teams, maintain dialogues with objects and through objects and artefacts, in order to overcome limitations of imagination, prototypes and forms, as well as language and theories (Faust 2009).

So what does this mean for educational frameworks?

Educational Frameworks for Designing Business

Kolo (2013) states that there is some rethinking towards specialization and generalism. Thus, the question is - what kind of silos a design school perspective requires? Who would you invite to participate in these settings and for what purpose?

What happens if you put managers into these studios and let them work in a designerly way? What does the term 'designerly way' mean? Does the polarization of managers vs. designers still exist?

Designerly way of doing things does not start with the specific problem. It is the language and the way of teaching, of bringing people together in small groups, letting them work for not just hours, but days on the same space. The role of space also makes a difference, i.e. whether you bring them together in a classroom, or in a fast-food restaurant. That is the issue of culture. The community of practices is another important topic. Finally, there is the issue of **entrepreneurship, of taking risks, which may lead to a solution of bridging the gap**. The sheer complexity of designing programs is clear, whether it is in a business school or a design school (Ibid).

There is only a list of questions that arise either from observation or provocations. It is **a polarity.** Hence, do we part ourselves on that timeline as educators or designers?

We have art and design institutions at one end, and then we have business and management at the other side. Is it right brain thinking or is it left brain thinking?

Do we trigger these changes at a very early age, or are we looking at more mature age in terms of a student body and education? Are we looking at changing one or many individuals, reaching to the collective? Risk taking, innovation and creativity are all vitally important, whatever route we take.

Finally, the purpose and what it means for student or a graduator in terms of job prospects and career choices must be addressed. How do we define the added value in relationship to the educational framework? In other words, where is that purpose leading us and our graduators (Ibid)? What kind of student might this be? Where are they coming from? What is their background? What is their profile? What kinds of curriculum and models can be used for their education? In different countries and institutions, is there one common shared model in terms of an educational framework? That leads us to asking what kind of competencies, what kind of skills do we actually need to help that student? Do we need to change our own viewpoints as educators? Then there is the time period for this educational framework. What is a designer, what is a stylist, what is an entrepreneur? What is a businessman? What is business management?

So, perhaps, the design for Social Business is one model - one way of thinking about things in terms of a broader educational framework (Ibid).

Barry (2013) makes the case that many executives use design thinking methods that are oversimplified, as they are familiar with post-it note brainstorming and other designerly methods and have seen the IDEO videos. Putting designerly cloaks on executives will not work. Organization design clearly needs to change; however, we need an organization design practices that enable executives to develop a practice that introduces delight - organizational designs (Barry 2013).

Meisiek (2013) has tried to put studio pedagogies into the business education to promote experiential, problem-based learning pertaining to business issues and techniques, but sees studios not exclusively reserved for design. For instance, many studio arts have taught their apprentices and experiment with techniques and processes. Studios cannot depend only on design thinking (Ibid).

According to Triggs (2013), a paradigm shift - driven by economic necessity - took place over the last decade. Employability and economically viable courses are in increasing demand by administration. The danger of such approach is the potential loss of design identity. Thus, the question for an educator shall be - how do we maintain **a focus for knowledge sake?** (Ibid)

Kolo (2013) focuses on innovation management, the creative industries (particularly the media), design thinking, and their relationship, since innovation is the key factor - the holy grail of today. But there are different positions to innovations; some think that disruptive innovation requires some genius. What is undisputed is the need for a creative class, as Florida (2002) maintains that, *'every company wants innovation, but few have developed methods for managing the process. That's because the normal rules for rational management do not apply … If It is creativity you want, you should encourage people to ignore and defy superiors - and, while you're at it - get them to fight among themselves'* (Ibid, p.83). The media industries are particularly challenged to manage their creative talent. And if we apply design thinking within environments, it should tap much more into this existing body of knowledge (Ibid).

Valerio sees the biggest challenge to creativity is a mental activity, which is a part of a system model and systemic approach. However, **design thinking must be followed by design management, knowing the rules of business and the knowledge of design strategy and design leadership** (Valerio 2013). He also asks whether it is better to teach 'business thinking' to designers in art courses and design schools or teaching design to business students in a business school. The best solution is likely teaching design business thinking to a whole new breed of young students before they become designers or managers in a design business school' (Ibid).

Designing Social Business and the Difference to Designing Business

The discussion was centered on the question of whether every business should be a Social Business in the sense that it should have a purpose. It was noted that the purpose of the Social Businesses is always to solve a social problem (Nima 2013). The purpose of businesses is the key; thus, businesses must have a purpose, or do they just have targets that are transforming to purpose?

But how can designers influence the in-between, and do we really need to differentiate between Social Business and traditional business?

Another provocation pointed to the challenge that people do not have a purpose. Therefore, Social Business could be interesting for such people, as it helps people to find their purpose. We briefly talked about the difference between designing a traditional business and designing Social Business. Maybe, from a business point of view, a designer might focus on what people want now and in the future, whereas, from the Social Business point of view, the focus is on what people actually need.

Purpose is something that has really emerged in every discussion and the business literature has seen three types of main purposes:

- creating roles for the owners

- providing value for society

- survival of the business, i.e. institutional purpose

However, the purpose of killing the business does not exist, even though we know that only about twenty per cent of the businesses survive for more than two years.

So far, we had been dealing with designing Social Business vs. designing business. However, we need shifting the focus to sustainability. How can we create a sustainable business and industry within a certain subset, finding support and funding in very early stages of creating micro and very small businesses? Other issues that were discussed cover the terms 'Social Business', 'eco-friendly', 'doing good', as all of those get adopted by business very quickly.

Therefore, new terms, such as 'white washing' and 'green washing' have emerged; and maybe we have now a new term - 'social washing'.

Designers will soon be the social activists and the lexicon will have some new terms. However, does the reality follow this assumption? Clearly, such terms do not indicate Social Business. Social Business could not focus on, for example, tobacco and consumption of intoxicants (Ibid).

In the discussion on the above topics, the designable characteristics that emerged included transparency, as well as good public mechanisms **for moderation, self-moderation or self-regulation.** It is important for those concepts to be embedded into a constitution and the way in which the business proposition is drafted and implemented.

Open source movement was also addressed and the issue of who owns the society.

Ownership and power is an important aspect in any business and must be well defined. Power must also be defined in Social Business. Who has the power and who is the owner? Some of the younger members of the group made the statement that designing a public domain may constitute something that we need to inspire for Social Businesses. Design for the good governance could also lead to some of these ideas.

We are faced with impossible choices that we can call 'wicked choices' - not wicked problems, but really wicked choices.

Regarding the process of designing businesses, the boundaries between the community views and the organization are breaking down. The customers can be inside the organization, which can also be outside the boundaries. Therefore, user experience, empathy, and the values driving the purpose are also important (Ibid).
The organizations were historically designed for a certain scale and they are no longer adequate for the scale they must presently serve.
Modern technology is more complex and the world we live in has become more complex, with rules, laws and requirements. There are three alternatives, one of which is the **disciplinary approach**. Whether the discipline is the discipline of management education, as it has been in the past, or a discipline of design or some incorporation, it must include practice that has form and shape and does not depend just on a personality of the individual, but really has a part of knowledge to support.
There is also a **'visionary' approach**, because we prepare people to act as powerful agents in the world, whereby they might be required to be more creative.
The third alternative is **inquiry**. This is a way of designing businesses based on inquiry itself.
It is also the notion of preparing people with agency and power, **the inquiry of ideas - sceptic and dialectic**. Do we need managing designers or designing managers? Or, do we need **'designagers'**, embodying design and managers (Russo 2013)?
Where does the idea of an organization come? Whatever the answer might be, it ends up with the same organizational design. In other words, even a Social Business that initially helped people to professionalize embeds professional systems and processes and becomes a professional company.
Thus, what is started with passion with love, ends up with interest, with excel sheets.
Could this work? Could the business be successful over long time if it requires losing its passion, and simply living with tools, Excel sheets, and profit and loss balance sheets?
No company or business can successfully exist without passion and rational aspects. Can we really embed both passion and interest?
Is there a perfect designer who is at the same a perfect manager? But are the terms 'design' and 'manager' really clear? Do we need to recognize the T- shaped model?
Designers, entrepreneurs, administrators and leaders all have to contribute to create long-term value for business. The profile of a specialist within various environments changed over the course of years dramatically. Disciplines are no longer silos; thus, we need generalists - we need the leaders to keep this wheel rolling.
What we need is a framework where we can put all the puzzle pieces together to educate collaborators with mastery of specific technical disciplines (Russo 2013).
Although Rylander (2013) focused on designing Social Business using design thinking, she also recognizes that there is no difference between designing business and Social Business, as both require the same type of design thinking practice. In other words, we should not worry about constraints, but rather start questioning the usual ways of doing things, using a great deal of imagination and passion to develop new approaches to doing things. This, however, requires an approach of experimentation and prototyping - improvising and learning by trial and error. It also requires a great deal of empathy, immersing in the role of the 'user' (Rylander 2013).
According to Junginger (2011), there is the discussion about institutional isomorphism and collective rationality. Despite their origin at a point, **through interaction,** institutions arrive at the same **organizational structure**, which also **shapes their behaviour.** This creates hope that all institutions will eventually arrive at a Social Business concept. But the interesting point is, when you look at business with a social cause, they strive on passion, which shapes over time. However, when they get more professional, they become driven by quantitative data, whereby the passion turns into interests. Any interest can be self-interest, since I can be focused on my career path while striving to meet business goals. Many managers assume a leadership position for the position's sake and the power it endows, the respect it may generate and the financial rewards it may provide.

Still, passion alone does not solve this issue either, since passion has a religious underpinning. The terms 'interest' and 'passion' reflect the separation between the rational and the emotional.
Schneider (2013) recalled the term 'cold war' and what it meant for him - red phone and fire code. Although we are in the midst of a financial crisis, we do not see such a crisis as the end of the world. But there is a commonality between these events, they could have been predicted, since the problem was embedded in the very management and design of the system (Ibid). When a state cannot be distinguished from its police, is it any different from a machine or a business (Ibid)? The result is that such organizations see the employees as human capital, measured only in terms of their skills as assets, risks as losses, users as consumers and project management as Gantt charts, etc. Such businesses are antisocial entities. The problem of management for designers must not be overlooked, since there is no designer that does not need to manage their own day, life and work; therefore, designers need to be always managers as well (Ibid).
Buccolo and Wrighley (2013) challenge the notion that small firms do not have the resources to gain from design led innovation. Through a structured approach, small firms can gain strategic value of a design-led innovation approach. Therefore, social innovation enterprises should be motivated to think 'large' from the outset of their projects in order to ensure their ideas scale through the developed value proposition and business model, which is required to translate their technology to the broader community (Ibid).

A Meta Perspective

We have seen two different arches of conversations. The first conversation focused on continuing evolution of a discipline that is trying to understand its boundaries, trying to understand actually what are the intersections in the boundaries and, in fact, is trying to extend the boundaries of the conversation. That is the fact Gonick (2013) finds absolutely fascinating.
A second arch of conversation is a sort of arch **of being relevant** - being relevant to the social content, being relevant to a global crisis, being relevant to social disunity or unrest, to the environmental crisis, that we were facing. It also pertains to human communication, trying to make sure that we remain the arch of conversation.
We have seen something like that in other disciplines, such as international political economy, where, for twenty years, we have been trying to create a body of theory that will explain the intersections between those new areas (Ibid).
This can be seen, for instance, within the fall of the Soviet Union and the fall of the Berlin Wall in 1989, when the world foreign affairs changed dramatically. The crisis that ensued is still present. Then, **a theory to remain relevant essentially became incrusted in all debates about trying to find boundaries**.
How to remain relevant is the question, which refers to the dynamics of creating arches of conversation on these disciplines, **in this moment in human history**.
We can address this issue using various tools, reflective practices, knowledge basis, but we also have our interest in doing, which is something I take from the designing community, to be a sort of cardinal truth (Ibid).

Discursive Summary

When designing a business, the approach must be an extension of the current general design understanding, because designing business was never considered in the professional design community. Therefore, launching a conference with this topic already indicates a reframing the purpose of design. Still, there are other premises of importance. Firstly, we need to make sure that our design understanding results in an increased number of choices. Moreover, design within the business environment needs to be explicit and interruptive. The foundation, therefore, is in design thinking delivered in its disruptive organizational capacity that forms a hindering concept.

We can say that this design practice is shifting to a rhetoric and dialectic; it is the changing place of business modelling. Since we deal with wickedness within the designing business environment, designers can solve the designing problem only through conversations - through the dialectic of that interchange.
This shift requires designerly ways of thinking and doing, which is in the field of business and calls for a radical innovation, requiring more arts-based design methodologies. It is a new way of practicing a new synthesis, a cognitive process, visioning the narrative and particularity of the discipline. It is also overcoming of the artificial imbalance between analytical and synthetic processes in management practices. The problem solving blocked at the symbolic level can be eased through visual thinking. 'Ambidextrous Thinking', Imagineering (which is about designing and using an imaginative narrative in 'seeding the future') must be an addition to design thinking.
Still, designing business requires a different thinking on several levels. Management and design are not separate entities, since design is an underlying foundational aspect. Therefore, we need a different ontology and epistemology that capture both.
We need to rethink the concept of purpose in business with at least three purposes:
- creating roles for the owners
- providing value for society
- survival of the business, or the institutional purpose
Such a purposeful thinking requires decoupling design from the destructive growth-based economics because, in taking designing business from a radical perspective, we design for people, not for companies. Our main constituents are employees, customers and products. Our purpose can be seen as the orchestrating of the novel value within the exchange in networks.
How do we make sense when it comes to the purpose of business? Who is the customer? And what does the customer value mean in this new paradigm?
Within such a setting, the observer and observed in such a business environment cannot be separated, since we are designing systems. The importance is that designers need to include stakeholders as designers in an ongoing discourse, to moderate, self-moderate and self-regulate, shaping the behaviour through interaction within the same organizational structure.

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