# Design, rhetoric, knowledge
## – Some notes on grasping, influencing and constructing the world

BY FREDRIK NILSSON
ARCHITECT SAR/MSA, PHD
CHALMERS SCHOOL OF ARCHITECTURE
SE-412 96 GÖTEBORG, SWEDEN
FREDRIK.NILSSON@CHALMERS.SE

ABSTRACT

In order to understand, grasp and gain knowledge about the often chaotic world around us the strategies that we today know as the disciplines science, art, philosophy etc. have been developed. In contemporary discussions on the relations between research, design, science and art one can be surprised of how deep the chasms has become between different fields of knowledge. The big and urgent question is how we more consciously can elucidate, raise the status for and systematically make use of all the knowledge that is produced outside of the borders of what is considered "scientific", a territory in where architecture and design mostly work.

The philosopher Mats Rosengren argues that all knowledge and truths are created by us, and he sketches another kind of theory of knowledge – a doxology. Since no truth, evidence or knowledge exists outside its human context, the rhetoric based on the good argumentation is central to all knowledge, according to Rosengren. Rhetoric can become a tool for scientific inquiries into our human knowledge. In the same way as rhetoric can say something about certain situations, the paper argues that the architectural project can be able to do so as well.

Rhetoric is of great importance within all architectural practice, you have to present good arguments for your proposal to a broad audience. Richard Buchanan has argued that a new conception of design is needed, recognizing the inherently rhetorical dimension of all design thinking.

Design and architecture as knowledge producing activities can be of many kinds. Designs and proposals can, as doxology, be a way of showing prevailing relations, norms, values, and truths in specific situation. Thereby can also unexpected solutions be shown, surprising possibilities that where not thought of before, that where "impossible", maybe "unacceptable" within the doxa, before they where given a form and presented. Here design thinking and new doxological notions of knowledge can give new ways of producing knowledge.

## INTRODUCTION

In order to understand, grasp and gain knowledge about the often chaotic world around us several strategies have been developed by humanity. These have developed into what we today know as science, art, philosophy etc., whose objectives in different ways are to help us settle down in the world and also change it to the better. New knowledges give new possibilities to act and influence.

But it is of course no linear process where understanding comes before acting; direct action, experimenting and trial of possibilities lead to new knowledge and experiences. When we confront concrete problems and situations a lot of different strategies, ways of thinking and procedures are used simultaneously to analyze, understand and handle the problems.

The borders between science, art, humanities, technology have become strong in spite of the fact that words like “technique”, “art”, “machine”, “design” actually are closely connected. These inner connections have been denied for a long time, and after the Renaissance the art world was separated from the world of technology and machines; a branch of the scientific and quantifiable where put against the spiritual and qualitative. Vilém Flusser has argued that it was in the end of the nineteenth century that the word design started to bridge between the separated domains, and became a place where art, technology and the scientific was brought together. (Flusser 2003) Design is, in the words of Flusser, to deceive nature with technology, to surpass nature with the artistic, to construct machines that in an artful way makes us free artists. Design is to productively fecundate magnificent ideas from separate fields like science, art, economy, philosophy with each other.

In contemporary discussions on the relations between research, design, science and art one can nevertheless be surprised of how deep the chasms has become between different fields of knowledge. The big and urgent question is how we more consciously can elucidate, raise the status for and systematically make use of all the knowledge that is produced outside of the borders that has been drawn around what is considered “scientific”. And this is a territory in where architecture and design mostly work. This paper is an attempt to discuss and bring in some different perspectives on this question. I argue that design could be used as a way of producing knowledge, especially if we consider knowledge as something created by us, and with rhetorical dimensions. The line of argument draws in the question of what architectural design knowledge is in relation to scientific knowledge, involving issues of different ways and notions of thinking, arguing, constructing, and forming.

## DESIGN, SCIENCE, AND FORM

Erik Stolterman has – in a simplified picture – indicated that there are two ways or strategies to deal with the reality we live in. One applies the method of *dismantling* to learn how reality functions. The other is *assembling* parts to create a changed reality. The first can be seen as the procedure of science, the second as a design effort. What Stolterman is emphasising is that the strategies are used with different purposes – the dismantling is done to create knowledge of how thing function; the assembling is done to create something that not yet exists. He argues that it is a danger both in seeing these activities as essentially different and in mixing them up to much. Either do they not communicate with each other at all, or lose their unique characters and strengths. What is needed instead is a stronger respect for the distinctive nature in both traditions, and since science has a strong tradition while there is a lack of an own intellectual tradition within design, the latter has to be developed. (Stolterman 2004)

But the question is if design thinking always is used with such a different purpose as Stolterman argues. Could not to assemble just as well be a way of trying to understand and produce knowledge? To dismantle is certainly a good way to analyse, to see what factors are involved and to understand the parts as such, but every explanatory model, every theory is an assemblage of elements that can give possibilities to understand relations and connections, to predict and influence future events. Jerker Lundequist has argued that the most important achievements of science is not inventions or discoveries but the establishment of new theories and concepts. These concepts and theories are of course constructions, assemblages and organisations of thought elements.

There are certainly different attitudes to the world one is striving to understand or shape, but to think variability and becomings has many times implied problems both for philosophy and science. Colin Rowe and Fred Koetter discussed in their famous text “Collage City” with reference to Claude Levi-Strauss two different strategies – the methods of science and of bricolage. Science is described as searching for the truths of universe while the bricoleur is directed towards a set of remains that are at hand; one is then dismantling, the other assembling. (Rowe & Koetter 1999) Rowe &

Koetter urged for the acknowledgment of both science and bricolage as relevant ways to deal with problems, and that there are great possibilities if the "civilized" thinking – full of overestimations of logical sequence – could be placed on equality with the "savage" thinking full of analogical leaps. Henri Bergson has written that to be able to understand and think reality in all its multiplicity and continuously moving change we have to install ourselves directly in it. But that is exactly what the intellect – and science – generally refuses to do since it is so used to think the mobile through the immobile. Our intellect is according to Bergson constituted in a way to primarily create distinct delimitations and to think change as transitions from one stably delimited state to next; the world is changing between relatively stable and immobile forms and bodies. "But in reality the body is changing form at every moment; or rather, there is no form, since form is immobile and the reality is movement. What is real is the continual *change of* form: *form is only a snapshot view of transition*." (Bergson 1998) Our perception manages to freeze the flowing continuity of reality to incoherent, disconnected images.

To understand and approach the moving reality one has to reinstate oneself within it. Installed within change one is able, according to Bergson, to directly grasp both the change as such and the successive states in which it could be frozen. But if these successive states is conceived from the outside as real and not as potential immobilities, one will never reach the change or movement as such no matter how small intervals that is done. Movement, dynamics and change can never be understood or created from the immobile, static or eternal. In spite of the many years that has passed since Bergson and also Rowe & Koetter formulated their exhortations, they still seem valid, urgent and important for architecture as well as research.

Form is something that is not only of great concern for designers, it is very important for science and the production of knowledge as well. All knowledge is actually about form; what we can have knowledge about has a form – or is given form in the production of knowledge. (Deleuze 1990; Deleuze 1995; Nilsson 2007) Knowledge always relates to forms, to concrete assemblages or formations of matter, words and signs. It can be environments in the form of buildings and things; texts in the form of laws, reports, programs, norms. Every historical moment, that we live in or are trying to understand, is a complex formation of things, discourses, architectures, and social mechanisms. To produce knowledge is to give form to the specific problem or situation; a situation that can seem chaotic, produced by the prevailing diagrammatic power relations.

Let us return to the strategies to grasp the world that were delineated in the introduction. Science, art and philosophy where said to be different ways to approach reality, and all these are in the eyes of Gilles Deleuze and Félix Guattari all creating and acting activities. In the book *What is Philosophy?* Deleuze & Guattari argue that philosophy is the discipline for creation of concepts, which never are given but have to be invented, fabricated, formed, created. (Deleuze & Guattari 1994) The book is an attempt to find out what philosophy actually is or is occupied with, especially in relation to other activities and ways of thinking that also tries to bring some order to our often chaotic reality. It is not an attempt to purify disciplines in order to put up walls between them, but they are in my view rather trying to make us see that different disciplines use different ways of thinking that include different kinds of thought material, different elements that are assembled in different ways. These disciplines are continuously in contact with each other, overlap and inspire to new lines of thought within the different fields. But a greater awareness of that you actually are moving between different forms of thought can give greater consistency to the actual thought or idea. This is to some extent also in line with the stronger respect for distinct natures of disciplines that Stolterman talks about.

Philosophy's exclusive right to create concept does not, according to Deleuze & Guattari, give it some priority or privilege since there are other ways of thinking and creating, other ways of getting ideas, that not have to go through concepts. Deleuze & Guattari delineate the three main forms of thought as philosophy, science and art. What they all have in common is that they always confront chaos; they put out a plane or throw a net over chaos but in different ways. Philosophy works with concepts that are put together in consistent planes; science works with functions put together on planes of references or systems; art works with composite emotions – "blocks of sensations" – on planes of composition. All these strategies appear, in the view of Deleuze & Guattari, as most pragmatic and constructing with an obvious design attitude.

The most important difference between science and philosophy is their different attitudes to chaos, argue Deleuze & Guattari. Chaos is rather change, appearance and disappearance of forms, transitions between different kinds of orders in an infinitely high speed, than being

just disorder. “Chaos is an infinite speed of birth and disappearance.” Science approaches chaos by trying to slow down speeds, freeze changing situations in order to understand and produce knowledge, which then attempts to be generally valid, static knowledge. Other kinds of strategies, in their case philosophy, instead try to create consistent, coherent thinking but with retained speed and mobility – primarily within thought, the free, exploring thought – to be able to create new lines, new ways to look at, understand and assemble reality. It is a matter of finding ways to give possibility for becomings of new assemblages, new understandings and knowledges about the world, which could be said to be knowledge of a more dynamic kind in continuous movement.

We all, as human beings, are always constructing our tools, models, metaphors, images and notions to help us handle and predict the changing world around us. By building more and more knowledge about the material world, we have also been able to distance us from it; it has become an object ruled by laws independent from ourself. But is there any knowledge really independent of us?

## KNOWLEDGE AND RHETORIC

The starting point in a discussion about knowledge and rhetoric is for the Swedish philosopher Mats Rosengren the fact that all the knowledge we as human beings have – from theoretical understandings to practical attainments – are our human knowledge. By talking about “our human knowledge”, all dreams about the stability and ground of knowledge are abandoned. Rosengren shifts the valuation of the terms in the classical opposition between *doxa* – what we believe about the world and ourselves – and *episteme* – how thing really are. Rosengren argues that all knowledge is doxical and he tries to sketch another kind of theory of knowledge – a *doxology*. (Rosengren 2002) A doxology has to consider both the practical and theoretical aspects of knowledge, as well as the condition that it is people with different interests and possibilities that carries the knowledge, creates the practices and formulate the theories. The basic thought in this doxology is that what we traditionally see as knowledge, truth, and objectively set quantities to check our human endeavours against, actually are human – by human beings created – measures. Thereby these measures are changeable and formable. (Rosengren 2006)

We have to do a theoretical turn away from the given epistemological certainty, accept that no clear and sharp border between true knowledge and pure beliefs can be drawn, and see the conditioned, assumed and biased knowledge. Since no truth, evidence or knowledge exists outside or beyond its human context, the rhetoric, with its relativistic view of knowledge, is central to all knowledge, according to Rosengren. The basis for knowledge is the good arguments and not the incontestable proofs. What counts is the arguments that are *regarded* as good in a specific historical situation, a particular society, group or scientific discipline. Rosengren argues that doxology is about situated, changing and interested knowledge. He argues that criteria for knowledge not should be “true” or “objective” in the way of corresponding to a non-human, objective and neutral reality, but interesting in relation to the specific knowledge situation.

Rosengren takes the meaning of doxa in his doxology from the ancient contrast between *episteme*, knowledge, and *doxa,* what you believe is true, opinions. Doxa delineates the network of convictions, habits, practices, traditions and models of thought that surround us all. Doxa is what we hold as true, our beliefs, prejudices, opinions that are prevailing within a society or group of people. He argues that the opposition between *episteme* and *doxa*, the difference between knowledge and opinions is a chimera that is based on a misunderstanding of the roles and status of opinions in our production of knowledge.

If we take Protagoras’ statement “man is the measure for everything” seriously, than it has vast consequences for what traditionally has been considered truth and knowledge, Rosengren argues. More than just meaning that all knowledge and truths are human because it we that possess them, it means that we never can know anything in the way Plato and all the Western scientific thinking strive for. It tells us that every notion of an objective, neutral, given and uninterested knowledge is an illusion. But we do not need to abandon concepts like knowledge, truth, facts, objectivity, we rather have to understand them as immanent, valid only within the framework of our human measurements.

When Rosengren talks about rhetoric, and the opinions that rhetoric takes as a point of departure, it is with the intention to get away from the Platonic dichotomies and not to install rhetoric in the place of philosophy. He argues that rhetoric is a more adequate point of departure when trying to understand ourselves, our knowledge as well as creations. Rhetoric does not yield a more true or better description of reality, but it makes possible an other, different and, for contemporary problems in

politics and science, more relevant view on truth, knowledge and value.

Science and philosophy have developed methods to separate the true from the false, the real from the illusionary – *episteme* from *doxa.* "Rhetoric do not discover truths, it creates the truths that are needed for the moment. Or, if you would like, it creates *doxa*, but never *episteme*." (Rosengren 2006:79)

Rosengren states that we are never discovering or finding truths, values or facts – we are always creating them. But this does not mean that we can create without limitation or just everything. Our acts of creation are not free, it is limited, but not determined, predestined or reduceable. Rosengren is deeply influenced by Cornelius Castoriadis and his notion of *autonomy*, meaning that we ourselves create the laws of the world (*auto nomos*), they are not given, but all stem from us. Opposed to autonomy is *heteronomy* (*hetero nomos* – laws coming from outside), and heteronomous thinking has dominated Western thought in religion, politics, history and philosophy. Every attempt to base our human world in something outside of or beyond this world is a thought of heteronomy. The doxology that Rosengren is arguing for is a way of trying to think autonomy, to take away the myths of pure reason and the neutral objectivity of science. All knowledge, all facts are interested, meaning that they are always produced in a specific context as an answer to a particular strive for knowledge. "We have ourselves created, and are continuously creating, all our knowledge, all our politics and our world – so the question is first and foremost *how* we create and not *if* this creation of ours is corresponding, or not corresponding, to something 'out there'." (Rosengren 2006:21)

A rhetorical theory of knowledge sees all knowledge, all facts, values and truths as contained within one or another doxa. It means they can be considered as a point of departure for an argumentation. If we accept that truth and facts are based on good arguments, but never on incontestable proofs, the rhetoric approach will be as most effective, Rosengren argues. By emphasising the social character of all knowledge, by not accepting some scientific or philosophical notion of objective or uninterested production of knowledge, then will the rhetorical philosophy, according to Rosengren, be able to show that even what we have considered to be epistemic knowledge always has been doxa.

Doxology sees knowledge as localised and produced *in and through action* – the practices that produce and maintain knowledge is inseparable from knowledge itself. Rosengren sees rhetoric as a thought-organ, a *organon*, that is something that you use to create as well as act. Rhetoric can become a tool for scientific inquiries into our human knowledge. (Rosengren 2002) It is done by shifting the role of rhetoric from showing how to influence a certain person or audience at a certain occasion to instead being an instrument to show what this person or audience believe, value and know in a specific context and moment.

The way Rosengren describe elements in rhetoric – how to make an inventory of the topic, arrange and deliver your arguments based on reason, emotions, confidence etc – has apparent similarities with central parts of architectural practice and design activities. In the same way as Rosengren means that rhetoric can say something about the *doxa* and knowledges of the situation, the *architectural project* or *design proposal* could be able to do so as well – show what is possible to do or imagine, what values that are prevailing, what conceptions and knowledges that are accepted, and who has the privilege of formulating the problem.

## RHETORIC AND DESIGN

Rhetoric is of great importance within all architectural practice, you have to present good arguments for your proposal and be able to communicate it with a broad audience. Within architectural competitions the importance of rhetoric is especially obvious, and Elisabeth Tostrup has studied this specific field of design practice. (Tostrup 1999; Tostrup 2007) The winner of an architectural competition is not the most objective presentation, but the designer who is able to create a proposal based on the best arguments. Tostrup states that the material of the competition expresses the *hegemonic* architecture of its time – the network of political, economic and social relations where some actors have a dominating position – and the proposals are trying to communicate its arguments within the field of prevailing values, thoughts and ideas. The rhetoric of architectural competitions – and most of all designers' proposals one might add – works with a three folded rhetoric, Tostrup argues; through the physical *architecture* of the proposal, through the *visual* presentation of drawings, images, models, and through the *text* material including the program as well as the description of the proposal. By studying different competitions she tries to analyse what is valued as "the best architecture" in the given situation, what ways of thinking, ideals and prejudices that is hidden beneath the rhetoric of the designs.

Richard Buchanan has stated that a new conception of design is needed, a new conception of the discipline as a humanistic enterprise, recognising the inherently rhetorical dimension of all design thinking. (Buchanan 1995) The subject matter of design is here important, where there are tendencies to reduce design to a form of science which has a fixed or determinate subject matter that is given to the designer. But the subject matter of design is not given, it is created through the activities of invention and planning. There could be said to be a determinacy in natural science – *discoveries* to be made of something constantly available – and the goal of inquiry is knowledge of properties and predictability of processes. "There is no similar determinacy in the activity of designing. The subject matter is radically indeterminate, open to alternative resolutions *even with the same methodology.*" (Buchanan 1995:24)

There is a specific indeterminateness of design and design thinking – that the subject matter of design is indeterminate in relation to other disciplines – since it is applied to new and changing situations, limited only by the inventiveness of the designer or team. Then the most important is not the products as such, but the art of conceiving and planning products, Buchanan argues. "In other words, the *poetics* of products – the study of products as they are – is different from the *rhetoric* of products – the study of how products come to be as vehicles of argument and persuasion about the desirable qualities of private and public life." From this perspective, design history, theory, and criticism should balance any discussion of products with the particular conceptions that stand behind the product in its historical context.

The characteristic indeterminacy of subject matter makes design a discipline fundamentally concerned with matters that admit alternative resolutions; solutions and understandings that are created rather than discovered. Designers deal with matters of choice – with things that may be other than they are – and the essential nature of design calls for both the process and the results of designing to be open to debate and disagreement. Designers deal with possible worlds and with opinions about what the human environment should be, and any design decision is open to questioning and debate.

Buchanan describes all making as an integrative, synthetic activity, and with reference to Aristotle he stresses the importance of distinguishing the element of forethought from the specific considerations and activities relevant to each kind of making. "Forethought is an 'architectonic' or 'master' art, concerned with discovery and invention, argument and planning, and the purposes or ends that guide the activities of the subordinate arts and crafts." (Buchanan 1995:31) The element of forethought in making is what subsequently came to be known as design. Already in the ancient world, the core art of rhetoric served as a basis for systematic forethought in the forms of making in words, providing the organization of thought in narrative and argument as well as the composition and arrangement of words in style.

Rhetoric has exerted powerful influences on arts of making in other materials than words, and has often provided a way of connecting ethics, politics, and the theoretical sciences with the activities of making. Buchanan shows the complex relations between rhetoric and making, and from the Renaissance, the practical arts of making were distinguished from the fine arts as well as from the theoretical sciences and rhetoric. Design, separated from making as well as the intellectual and fine arts, were in many ways left without an intellectual foundation of its own. "Therefore, instead of becoming a unifying discipline directed toward the new productive capabilities and scientific understanding of the modern world, design diminished in importance and fragmented into the specializations of different types of production, leaving its connection with other human enterprises and bodies of knowledge vague and uncertain." (Buchanan 1995:34)

Buchanan points at the similarities between the problems identified by Herbert Simon and problems discussed by Aristotle. He sees Simon's proposed solution of a science of design as having features that are both rhetorical – an emphasis on deliberation and decision making – and poetic, in the sense that all human made products could be analysed and understood from the activity of making. A science of the artificial could be seen as interested in the elements of forethought – and thereby the rhetoric – operating behind all arts of making.

The themes of rhetoric have, according to Buchanan, during the last century emerged in design because they provide the integrative connections that are needed in an age of technology. The pattern of rhetoric in recent design builds upon distinctions which were established in rhetorical theory and developed to meet changing circumstances. The traditional divisions of rhetoric are by Buchanan described as *invention, judgement, disposition* (planning the sequence of argument), *delivery* (choosing the appropriate vehicle for presenting

arguments to different audiences) , and *expression* (choosing the appropriate stylistic embodiment of arguments).

Design has become an art of deliberation essential for making in all phases of human activity. It applies to making of theories which attempt to explain the natural operations of the world, just as much as it applies to making policies and institutions, and the making of objects. “Deliberation in design yields arguments: the plans, proposals, sketches, models, and prototypes which are presented by designers as the basis for understanding, practical action, or production. Design is the art of shaping arguments about the artificial or human-made world, arguments which may be carried forward in the concrete activities of production in each of theses areas, with objective results ultimately judged by individuals, groups, and society.” (Buchanan 1995:46)

Here rhetoric and design – as well as the rhetoric of design – can be important means to produce knowledge, especially by further developing the architectural and design disciplines in relation to the notions brought forth by doxology.

## DESIGN AND RESEARCH

Design, and especially architectural design, has possibilities to become a more conscious tool for thought other than merely be for the production of products and buildings. Sanford Kwinter has argued that architecture no longer is the usual devotion to objects, but is becoming an organon, that is a means to gain knowledge, a system of inquiry, innovation and technique. (Kwinter 1998) The produced formations of architectural projects, the assemblages of matter, discourses and functions, could be objects of knowledge. Architectural design as a practice of formation, of material organisation, of giving form to elusive and contradictory forces of the project embedded in a complex society has a great capacity to produce knowledge. As Peter Downton writes: “Once in the world of things and ideas, a design can be seen as a repository of knowledge and interrogated to reveal the knowledge its designers have both intentionally and unintentionally embodied there.” (Downton 2003) The realised material form could inform us about the conditions and governing forces producing them.

Sanford Kwinter has also argued for what he calls an extended “true formalism” instead of the “poor formalisms” that are limited by a conflation of the notion of “form” with that of “object”. The problems of form are, according to Kwinter, rather about the mechanisms of *formation*, about processes in which discernable patterns are emerging out of a less finely-ordered field. Form is in this perspective *ordering action*, a logic deployed while the object is merely a resulting image of that process. Kwinter writes that true formalism refers to any method that diagrams the proliferation of fundamental resonances between the form of the object (or the form of expression) and the form of the content that produces the object, and demonstrates how these accumulate into figures of order and shape. In a line of arguments that seems to owe a lot to Foucault, Kwinter argues that true formalism offers the possibility for “a pragmatic description of historical emergence (why this object, institution or configuration here, in this place, at this time, and not that?)”. (Foucault 1972; Kwinter 2003)

Formalism in Kwinters view demonstrates that form is resonance and expression of embedded forces, and the best local formalisms show that these embedded forces are themselves organised and have a pre-concrete, logical form of their own. It is about peering into the object towards its rules of formation and the dynamic relation between these two levels of form. The manifest form that appears is the result of a computational interaction between internal rules and external pressures that, themselves, originate in other adjacent forms, according to Kwinter. But I would argue that many of the forces of the external (as well as internal) pressures are more of a diagrammatic, formless kind, that the forming action of the architectural project actually gives form to them as well, and thereby presents a possibility for knowledge about them. This formalism of Kwinters also have connections to or could be further developed in relation to rhetoric and a doxological view of knowledge.

Design and architecture as knowledge producing activities can be of many kinds. It can be done by using a repertoire of historically known solutions and apply them in a context so patterns emerge more clearly or that these solutions give rise to new functions and new ways of looking at situations. It can be by using architectural tools and imagination to grasp and freeze conditions, influencing factors, demands and dreams in a specific situation and give it visual, material form that can be a point of departure for understanding and gaining knowledge about the situation and the included elements. Designs and proposals can, as doxology, be a way of showing prevailing relations, norms, values, and truths in specific situation. Thereby can also unexpected solutions be shown, surprising possibilities that where not thought of before, that where “impossible”, maybe “unacceptable” within the current doxa, before they

where given a form and presented. Here design thinking and new doxological notions of knowledge can give new ways of producing knowledge.

Since a couple of years the discussions in science theory is expanding its scope to incorporate or make use of other ways of working, where a design attitude, practice and contexts of application have come to be in a focus of interest. (Gibbons et al. 1994) Here architecture, with its ramifications into, its bringing together (and many times dependence) of different disciplines, could be a palpable field for production of knowledge about the realities and societies that are dealt with. But an active work is of course needed to show, articulate and develop new ways to produce knowledge in a field and profession that often appears as vague regarding what knowledge that is possessed and contributed. (Nilsson 2004) There is anyhow a chance to turn the work with vague, anexact concepts in problematic, elusive situations characteristic for architecture and design disciplines, into an asset of tools and trained abilities to deal with complexity, chaos and change. A further development of design disciplines based on rhetoric and doxology is here of great importance for making design thinking important in knowledge production.

Science and production of knowledge have always a difficult tightrope to walk. There is a need for inner consistency, adaptation to the inner demands concerning what is regarded as science, and a certain distance to the objects of study. At the same time, there is a need for an openness to the outer world one is striving to explain and understand, where really descending into reality or pull in new things, notions, changed material and social conditions can lead to the opening of new ways for productions of knowledge. Here are constantly two poles of on the one hand systematisation, limitation, drawing of borders, and on the other messiness, liberation, transgression. We need them both when trying to understand the chaotic reality, and constructing a graspable world – a world of things, societies, truths, and knowledges, that is created, and designed, by ourselves.

REFERENCES


Bergson, H. (1998), *Creative Evolution*, Mineola: Dover Publications.

Buchanan, R. (1995), "Rhetoric, Humanism, and Design", in R. Buchanan & V. Margolin (eds.) *Discovering Design. Explorations in Design Studies*, Chicago: The University of Chicago Press.

DeLanda, M. (2001), "Philosophies of Design. The Case of Modeling Software", in A. Ferré, M. Gausa, J. Salazar, T. Sakamoto & A. Tetas (eds.) *Verb Processing*, Barcelona: Actar.

Deleuze, G. (1990), *Foucault*, Stockholm: Symposion.

Deleuze, G. & Guattari, F. (1994), *What is Philosophy?*, London: Verso.

Deleuze, G. (1995), *Negotiations. 1972-1990*, New York: Columbia University Press.

Downton, P. (2003), *Design Research*, Melbourne: RMIT University Press.

Flusser, V. (2003), "Om sakernas tillstånd", in T. Weimarck (ed.) *Design och konst - texter om överskridanden [2]*, Stockholm: Raster.

Foucault, M. (1972), *The Archaeology of Knowledge & The Discourse on Language*, New York: Pantheon Books.

Gibbons, M., Limoges, C., Nowotny, H. et al. (1994), *The New Production of Knowledge. The dynamics of science and research in contemporary societies*, London: Sage Publications.

Kwinter, S. (1998), "Leap in the Void: A New Organon?", in C. C. Davidson (ed.) *Anyhow*, Cambridge, Mass: The MIT Press.

Kwinter, S. (2003), "Who's Afraid of Formalism?", in M. Kubo, A. Ferré & FOA (eds.) *Phylogenesis. FOA's ark*, Barcelona: Actar.

Nilsson, F. (2004), "Transdisciplinarity and Architectural Design. On Knowledge Production through the Practice of Architecture", in H. Dunin-Woyseth & L. M. Nielsen (eds.) *Discussing Transdisciplinarity: Making Professions and the New Mode of Knowledge Production*, Oslo: AHO.

Nilsson, F. (2007), "Forming Knowledge - On Architectural Knowledge and the Practice of its Production", in *The Unthinkable Doctorate*, Bruxelles: La Lettre Volée.

Rosengren, M. (2002), *Doxologi. En essä om kunskap*, Åstorp: Rhetor förlag.

Rosengren, M. (2006), *För en dödlig som ni vet är största faran säkerhet. Doxologiska essäer*, Åstorp: Rhetor.

Rowe, C. & Koetter, F. (1999), "Kollagestaden", in S. Wallenstein (ed.) *Arkitekturteorier*, Stockholm: Raster.

Stolterman, E. (2004), "Att sätta ihop och plocka isär", in M. Koblanck & L. Åberg (eds.) *Designmedvetenskap*, Stockholm: Vetenskapsrådet.

Tostrup, E. (1999), *Architecture and Rhetoric: Text and Design in Architectural Competitions*, London: Andreas Papadakis Publishers.

Tostrup, E. (2007), "Troverdighet og forførelse. Arkitektkonkurransens retorikk i fire eksempler", in M. Rönn (ed.) *En fråga om kvalitet*, Stockholm: Santérus förlag.