DESIGN BEYOND SERVICE & PRODUCT

Educating for new vistas of design education

KONSTFACK
University of Arts, Crafts and Design
Design beyond service and product –
Educating for new vistas of design education
Final report

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SUMMARY
Konstfack has had financing from KK-stiftelsen (The Knowledge Foundation) for two years to address emerging design challenges in the increasingly complex contexts that design is engaging with. Examples are healthcare, design for sustainable development, social innovation, service design. The objective has been to explore potential expansion and supplementary developments of the currently well-functioning specialisation Individual Study Plan in Design. This has been done in the project Design, beyond service and product – educating for new vistas of design professions. People from academia, consultancy, business and the public sector have been invited to workshops, seminars and symposia in order to learn from them regarding the current situation and anticipated needs. The project has also done study visits to design schools, organisations and businesses. The report presents reflections on design competencies and a few possible ways to proceed at Konstfack.

Design is increasingly engaged in complex contexts and design is also increasingly invited into fields that never ever previously have considered asking for support from design. Examples are public policy, healthcare, design for sustainable development, social innovation, service design; contexts where challenging situations are experienced that cannot be handled well with traditional ways of working. “The contexts we are addressing can be seen as complex in the sense that the results of some action will be unpredictable, which causes uncertainty. These contexts could also be presented as messy”.

The world is in a terrible state when it comes to the environment, equality and democracy despite that countries have agreed on UN’s goals to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. Neoliberalism and capitalism are criticized for not supporting these goals.

Design is believed to be part of the solution but design discourse needs to be developed in order to contribute to sustainable development. Design’s driving forces and theoretical foundations change over the years. Its theoretical foundations, although being both artistic and creative, are still highly influenced by the research paradigm that is contemporary at the time.

The last decades we have experienced a tremendous turn in fundamental understanding of relations, matter and meaning, mostly due to the advancements of theories of design for sustainable development, feminist theory, posthumanism, post-colonial theories, ecological theories, etc. This can shift the ways we understand and refer to “things”, “interactions” and experiences in such ways that there will be a significant turn also in design discourse. We might see more of the non-dichotomical and non-representational understanding in design and talk more of relations, intra-actions, socio-material engagements and located accountabilities. Konstfack, University of Arts, Crafts and Design, engages in radically rethinking relations individual – society – environment and could very well be a significant part in this movement, turning design education to proactively engage in our contemporary world.

Konstfack has been fortunate to receive funding from KK-stiftelsen (The Knowledge Foundation) for two years to explore a possible new design specialisation aimed at designing with “complex contexts” as an expansion of the current MFA in Design. This has been conducted in the project Design, beyond service and product – educating for new vistas of design professions. The objective has been to explore potential expansion and supplementary developments of the currently well-functioning specialisation Individual Study Plan in Design. This report presents this work.

This report “The world is largely messy” and therefore we should not be “caught in an obsession with clarity, with specificity, and with the definite.”

This report tries to cover many different aspects and perspectives from many different sources and contexts. It is not possible, nor desirable, to present something this complex as something simple, and therefore you will experience this as a very heterogeneous presentation, with different worldview perhaps also with contradictory claims. It will not present things in depth, but provide some notes pointing to references to information and research on topics related so you can explore even further.

This report’s standpoint is one from Design at Konstfack, a design education on artistic foundation, and we view design as a way of engaging in, challenging, understanding and changing the world. Of course personal views have influenced this text, but there are accounts for different positions and references in order for you as reader to construct your own opinion.
DESIGN BEYOND SERVICE AND PRODUCT

BACK-

GROUND
Design is increasingly engaged in complex contexts, and design is also increasingly invited into fields that never ever previously have considered asking for support from design. Examples are public policy, healthcare, development of businesses, organisations and services, complex contexts in relation to design of sustainable development or flourishing that considers biologic, cultural and economic aspects. These are within private and public sectors, as well as volunteer and non-profit based.

In recent years several new design educations that address these fields have started internationally: Transdisciplinary design, Products of Design, Service Design, five Design Innovation programmes, the large DESIS network addressing design for social innovation and sustainability with design schools on six continents. Many of these schools are in several ways similar to Konstfack in the sense that they are on artistic foundation.

Of the students that apply to our Master programme, an increasing number are engaged in issues concerning these “larger” contexts.

Seeing this as an expansion is just a point of view stemming from increased understanding of the consequences of design. Design has always had an impact on the environment, cultures and economics but designers have not always been aware of this. “All designing is already about systems, even if the object-focus of traditional design practices has obscured this. With recent developments in the field such as service design, design for social innovation and design for policy, the need for designers to engage more seriously with the systemic nature of designing is acute.” Many people have pointed out these shortcomings during the years, already 1970 in Victor Papanek’s Miljön eller millionerna, but the awareness of the urgency is more widely acknowledged today.

Since the 70s the advancement of design knowledge obviously has been enormous and fifty years of design research has produced many generations of design methods, approaches, theories, practices, etc. Design is heavily influenced by other subject matters and of course cultures, politics, economics and environmental issues. The “development has, roughly speaking, involved a shift from design objects to design contexts and an analytical change in attention from the what of design to the how of design, from the object itself to the way in which it is treated and addressed.”

Richard Buchanan has been developing his four orders of design matrix for 25 years (see fig. 1 for a version presented in 2017.) These orders

![FIG.1](image_url)

Richard Buchanan discusses his model of the four orders of design and suggests that dialectics is a powerful way of understanding relationships, the balance between the general and the particular in one’s experience of systems. At Relating Systems Thinking and Design (RSD6) 2017 Symposium in Oslo.
should not be understood as a list of professions, but they are places of invention, places where one discovers the dimensions of design thinking by a reconsideration of problems and solutions. This means that when dealing with complex contexts for living, working, playing, and learning (i.e. the fourth order) one needs to simultaneously consider signs, things and actions.

John Heskett also identifies that design practice includes an increasingly larger scope, from giving form to single artefacts to shaping strategies and to becoming central in recent marketing value creation paradigms such as service dominant logic. It has found its way into business management and through the concept of “design thinking” attracted attention from both business managers and scholars. Even though the latter has been increasingly criticised from a design perspective for omitting prior research on design activity and designerly knowing, and by this emphasizing thinking above doing.

The central place of human beings in design practice has been seen as a major tenet and even a first principle, many times at odds with traditional innovation practices driven by technological opportunities and the innovator’s perspective, as expressed by Heskett:

“Economic theory tightly focuses on how innovations contribute to growth and profitability from the standpoint of producers. A crucial feature of design practice, however, is shaping technological opportunity into tangible artefacts or information in the form of coded procedures, that is intended to better satisfy user needs, which has led to the evolution of specific methods and approaches under the general rubric of ‘user-centred’ design.”

Most often other values than purely economic values become apparent, such as health and social values. From prior understanding of design’s role as ‘adding value’, through e.g. brand extension and styling, increasing aspects such as identity, recognition and profit. When design acts as a key of value creation, design contributes to a reformulation of the relevant market to act on, and even the creation of new markets. Thus the focus of design practice changes from adding value to objects, to co-creating new value systems, and the role of the designer changes from a form-giver to a value enabler. In line with Heskett, it is argued that service dominant logic with a ‘new’ perspective on value creation increases the understanding for how design practice can become strategic and structural: “design can be an integral element in contributing to innovation and competitiveness... [since it proposes]... that knowledge of and ideas for users be considered alongside knowledge and ideas about technology as fundamental factors of production, thus positioning this concern at the early stages of any process of how a company functions. Knowledge of users thus becomes an integral element in how capability of any firm is defined. It also posits users as the ultimate focus for the outcomes of the whole sequence of production, delivery and purchase. By linking earliest considerations in internal terms to ultimate uses in external terms, design becomes integrated as vital and necessary dimension of how any company functions”.

Philips Design developed a framework for strategic reflection over value creation that presents an overview over what they identify as four paradigms for value creation, or four different roots of economies, dominant in the west over the last 100 years. They expect that the industrial, experience and knowledge economies will be replaced by the emerging transformation economy. One conclusion is that “embracing the emerging economic value creation paradigms will mean businesses have to reconsider the meaning of some of the most basic concepts of our business vocabulary,” which requires “a high level of stakeholder participation” and “continuous experimentation rather than top-down visions and planning”.

But the anthropocentric approach presented above is currently highly criticized:

“Since at least the mid-1980s, design has been dominated by a human-centered and user-centered paradigm. Currently, the implications of technological and environmental transformations are challenging designers to focus on complex socio-technical sys-
tems.” “Posthumanism, … actor-network theory (ANT), feminist new materialism, object-oriented ontology, non-representational theory, and transhumanism [can] inform the development of new methodologies and practices in the field of design.”

Rosi Braidotti argues “the binary opposition between the given and the constructed, is currently being replaced by a non-dualistic understanding of nature–culture interaction … which rejects dualism, especially the opposition nature–culture and stresses instead the self-organizing (or auto-poietic) force of living matter. … social theory needs to take stock of the transformation of concepts, methods and political practices brought about by this change of paradigm.”

"Design's peculiar, fluid position as a discipline capable of benefiting from both humanistic and scientific knowledge has long been one of its most distinctive traits. This innate ability for combining distinct fields of knowledge has recently led to increased interest in developing theoretical discourse that supports design as a method of research in its own right. As part of this, speculative and critical design … have been gaining momentum as strategies to think critically about the essential role of objects within society.”

What also is prominent when design engages in these complex systems is the need for an increasing awareness of the potential of the design work per se. In this line aesthetic disruption’s is one of many other approaches that research sees as promising articulating the transformational potential of participating in design work (see fig. 2 of stethoscope enabling critical reflections of power relations in contexts for care.)
WAYS OF WORKING IN THE PROJECT
In the project we have made study visits, arranged discussions and workshops, invited guest lecturers, arranged seminars and a symposium in order to create understanding of what “new” activities design engages in in society, what changes are taking place in design educations in the west and also how Konstfack could relate to all this.

We have also read numerous articles, books and explored web sites.

And after analysis and discussions developed a few proposals.

Study visits
We have visited design schools in London, Helsinki, Glasgow and New York in order to learn how they do their teaching and also to discuss in which ways design educations are changing.

Most of these programmes encourage students to engage with society, some more with business and others more with the public. They tend to both emphasize the creation of proposals as well as well-argued verbal accounts when it came to thesis work. Besides design subjects, subjects from humanities, social science, politics, economics and concerning the environment and other contemporary issues were common in the curriculum. A common denominator was that the programs were taught on artistic foundation, however some of them had opened up acceptance of students with non-designer background.

Design education does traditionally rest on studio based education, with a high focus on development of practical skills in various physical materials. This is related both to traditional design skills in formgiving, but even more to how designers use materiality for exploration of possible solutions during e.g. prototyping, and artefacts’ roles in relations. Most schools had workshops although some were very small, given their location in large urban cities. All had 3D printers and many also equipment to experiment with electronics (fig. 3). We noticed a lack of well-defined form and three dimensional representations in some of the master students’ project presentations, most likely due to the lack of sufficient access to workshops and workshop training.

We discussed issues of contemporary and emerging education with a lot of faculty and students. At the Collaborative and Industrial Design Master programme at Aalto University we participated in a panel discussing Visions of design futures together with other faculty and students. At the Transdisciplinary Design (MFA) at The New School, Parsons, we participated in another panel: Designing the Invisible a reflection on what changing capacities are needed as design practice gains new terrains and address pressing social issues and the complex challenges of a global culture (see fig.4). We also learned about their ideation matrix which supports students to cover different dimensions in their thesis work (see fig. 5–6).
FIG. 4
The seminar Designing the Invisible at the New School, Parsons. Cameron Tonkinwise, Katarina Wetter-Edman, Lara Penin and Clive Dilnot reflected on changing capacities needed as design practice address pressing social issues and complex challenges of a global culture.

FIG. 5
Exploring how a few projects at Konstfack could be better balanced with the help of the ideation matrix.

FIG. 6
Ideation matrix used in the Transdisciplinary Design programme at Parsons in order to support students when configuring their thesis project. It is necessary to create a balance and include particular as well as general aspects and also to work both concrete and abstract.
At the School of Visual Arts in New York, we met with people heading the MFA Design for Social Innovation, and MFA in Products of Design as well as some students. They claim to host the “most multidisciplinary design program imaginable.” And having emphasis primarily on mess, connection to industry and prototyping.

**Workshops and seminars**

Early in the project we held three workshops with different groups of stakeholders; design consultants, representatives from business and representatives from public sector. These workshops provided us with how these stakeholders currently express their understanding of their needs and views of emerging issues.

We have had meetings with our Advisory Board and people with established experience and knowledge relevant for this project: Clive Dilnot (fig. 7), Eduardo Staszowski, Guy Julier, Jocelyn Bailey, John Thackara, Lara Penin, Liz Sanders and Marco Steinberg.

The faculty has also occasionally gathered and engaged in development work regarding the masters education.
**Symposium**

We conducted a very rewarding symposium at Konstfack 2016-12-12. During the morning session invited speakers presented their views and during the afternoon, about 40 knowledgeable, experienced and curious people engaged in group work concerning the issues that this project examines. The participants were from business, both manufacturing and consultants, the public sector, from higher education and also some students.

During the presentations of the group work, a large number of relevant aspects and issues were identified, described below. They are presented thematically along with reflections to other meetings and research. Here you find some accounts for the core skills that designers have, and which are assets for work in complex social contexts. However, the symposium’s participants also identified a great deal of things that the designers generally lack for work in complex contexts. The perhaps most interesting insight is that there are design methods and cultures in the traditional design process that must be changed in order to work well in the new complexities. One question is whether these proposed changes can be successful also in “traditional” design projects? I.e. if these aspects could be seen as desirable for all design work. Finally, many suggestions were presented about how future design education can be arranged.

**Research conferences**

In addition to the planned project activities, we have written a contribution to a conference promoting publication and dissemination of design research in education. The contribution was accepted and presented at EAD12, (European Academy of Design) on 2017-04-13. The title is *Dealing with wicked problems, in messy contexts, through prototyping* and discusses learnings from the project.

We have also participated in several other conferences which has supported this inquiry: DRS 2016, PDC 2016, Nordes 2017 and RSD6.

**Development of course syllabi**

All the five course syllabi for the current specialisation of the two year master programme in design, *Individual Study Plan in Design* have been developed and reformulated. Especially interesting for this report is the clarification of the second semester’s syllabus where the students’ projects are conducted within professional practice or other context outside of Konstfack in order to explore how design can contribute to the development of this specific context. The student needs to work together with other disciplines and explore issues together with others and also reflect on the responsibility this entails.
DESIGN—REFLECTIONS ON DESIGN COMPETENCIES
Below a few reflections on design work in relation to complex contexts and entanglements are presented. In the section Designers’ core competencies we present aspects of designer’s work, aspects that are present in basically all design work. Many of these are well acknowledged, while some are more seldom presented. The concept core competencies is not precise since “design” is not always easy to separate from other activities. Ideally core competencies should be: rare, inimitable, valuable and unsubstitutable. It is interesting to think of these in relation to other professionals’ competencies, i.e. what should designers contribute with.

During our inquiry we have also encountered presentations of shortcomings of designers and the need for designers to advance their knowledge on them. These are presented in Skills, knowledge, capacities needed to engage successfully in complex contexts (that should be added).

Finally, in Designers’ skills, knowledge, capacities, cultures that need to be changed we touch on what might be the most difficult to deal with if design shall be able to make important contributions to these “new complex settings”; design culture and practice that seems to work badly in these contexts.
Designers’ core competencies
(necessary for all design work)

Designers’ core competencies that seem to have importance for an expansion of design to even more complex contexts and entanglements:

They are experienced in dealing with AMBIGUITY and high complexity – this is exceptional and is perhaps the most important core strength/competence together with sensibility regarding and can FORM TANGIBLE, PHYSICAL MATERIAL. Design of physical and virtual things and the interaction, taking into account the AESTHETICS in several ways; in the creation as well as in the experience of “use”.

“One of designers’ most underrated abilities is pulling tangible stuff together for deadlines,” to resolve, complete and craft into tangible well-formulated and persistent PROPOSALS (arguments). These proposals are both real and prefigurative and have the form “this!?”, which enables people to have an experience and to negotiate understandings.

Designers have the ability to work with “everybody else”, and are “absolute uncanny fearless of other people” which supports “cross-silo communication”.

Designers fully understand that “every wicked problem is unique” and fully embrace the “art of not knowing too early” what proposal should be tried out. “Staying with the trouble” in order to get at more promising understandings and proposals. Design can be seen as a form of reasoning where CO-EVOLUTION is one of design’s core activities, the co-evolution of understanding the “problem frame” and the “solution frame”.

Designers ask all kinds of questions and have a CRITICAL approach, often questioning “the obvious” and are seldom satisfied with the first proposals. Designers re-think the taken-for-granted and are good at creating understandings of other’s needs, often with a humble approach.
To draw this together, some of designers’ core activities and abilities are to explore situations by making tentative proposals that stakeholders can experience and relate to aesthetically; a proposal that supports further imagination and raises questions; and also stay in this ambiguity for as long as it takes to learn about consequences, affordances and create a well-articulated proposal that has been debated and negotiated between actors and situations through joint imagination.
Overall these different identified areas below are related to the increased social aspects and embeddedness of design and the designer. Designers need **Fundamental Knowledge** about politics, economics, legislations, organisations, democracy, policy, moral and ethics. This is needed to be able to co-design with others that have deep knowledge in relevant fields.

Social systems are constituted through relations of **Power** but designers normally have too little knowledge in this field. Hilal Bugali and Sue Fairburn⁴⁶ argue for the importance that designers master methods for understanding the power that always is exercised in social relations. They emphasise that design for social innovation “is more than practicing design in a social context. Understanding social good, and evaluating the state of affairs are both relevant and imperative actions for design practitioners before they embark on projects, which may influence the society in unforeseen ways. We […] encourage you to ask more questions and to create a process for resistance. A critical and reflective practice is needed to ensure that it does not support a hidden agenda of exploitation.”⁴⁷

Designers need the ability to **Understand and Position Themselves within a Context** or system, whether that is a political system or an economic system, in order to connect with others. Including an awareness of the bigger strategic economic context in which you are designing, and making purposeful decisions regarding what kind of work you want to be doing in this system. What kind of trade-offs am I going to have to make around that? There is also a need to identify the limits of design. Design is not always part of the solution.

Further the relationship between the designer and the brief, becomes more prominent when the brief might concern how to realise legislation or other structural changes. What kind of power do the designers have over adjustments and who is paying for the project quite dictates much of the constraints and freedom.

Designers need **Models, Theories, Experience**, and more advanced understanding/knowledge of how to engage with and make sense of these complex entangled contexts. During the discussions the importance of seeing these contexts as ecologies, in a micro – macro perspectives, as systems, as well as a Latourian flat actor-network were raised. When visiting Konstfack Clive Dilnot developed a model that accounts for both historical development as well as a way to understand
the entanglement of different aspects and contexts of design (see fig. 11).

Understanding these complex contexts as **SYSTEMS** is explored by many designers in academia and also commercially. 49 “Zooming out to look at the world in terms of “systems”—how things are linked rather than how they are separated—frees specialists of all kinds to look at challenges afresh.” Broadbent even suggests that the next generation of design methodology will be “Evolutionary Systems Thinking”. 50

John Law warns us not to simplify, but to consider that “system” is a metaphor for entanglements over time and space of humans and non-humans that actually are unbounded. 51 Systems cannot be treated as a whole in isolation, but must be explored in their context in relation to other systems.

Perhaps the most relevant designerly way forward is an **ECOLOGICAL** approach since this emphasizes the entanglement and unboundedness of the situations we are discussing in this report. Joanna Boehnert writes “ecological literacy provides an integrated foundation for the understanding of environmental problems and potential solutions.” It is desperately needed in the disciplines responsible for the design of sustainable futures. 52 Here the concept of **CO-EVOLUTION** can be expanded to include forms of biocentrism, alternative tools, methods, and strategies developed to avoid short-term and short-sighted anthropocentrism.

What of this that should be taught in an education is not given. We need to develop a sense of what is relevant to a design profession in these contexts. To draw this together we see that designers need to think in larger contexts, or areas of design in order to explore how things co-evolve while at the same time focus on the situated particular situation, both centring and decentring. 53

**FIG. 11**

This is the table being sketched in Fig. 7 by Clive Dilnot. We see how engagements in increasing complexity at the same time increasingly involves other disciplines. Collaborating on transdisciplinary teams seems to be the way to deal with complexity. Loosely the percentages reflect the work done by professional designer-maker in relation to others on the team. But it must be noted that all making does affect all “systems”.

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**“Crafts”** | **“Design”** | **“Interaction”** | **“Situation”** | **“System”**
--- | --- | --- | --- | ---
Visual communication | Digital | Service | Healthcare systems | Sustainability
Industrial design | | | Infrastructure design | Economy

1900’s | 1945’s | 1990’s | 2000’s | 2020’s

100% | 100–80% | 80–60% | 60–40% | 40%

Climate systems
Skills, knowledge, capacities, cultures that need to be changed (radically rethink design practices)

Designers’ legacy from industrialism is still performed in professional practice as well as in education. The underlying mind-sets are often anthropocentric, problem-solution oriented, and built on the idea of cause and effect where the solution often is the proposal for a product. Lucy Suchman acknowledges this and emphasises the need to **RETHINK OUR UNDERSTANDING OF DESIGN FROM THAT OF “DISCRETE DEVICES” TO THAT OF “NETWORKS OF WORKING RELATIONS”**.54

This increased complexity emphasises the problem with **CAUSALITY** (cause-effect) as a mind-set. It is not mentioned often, but is supported in the literature: “designers aim at futures which are neither causally determined nor observable when proposed. […] What was observed in the past may be taken into account but cannot explain design decisions in view of desirable futures.”55 The arguments and critical reflections regarding a proposal should not come from its creation, but from its prospective affordances and impact on things, non-humans and humans within the ecologies it will affect.

We need to disrupt “solutionism”56 that is short-sighted and prevents designers from engaging in more exploratory approaches where the situation or context itself is explored through co-evolutionary processes.57 In these complex contexts “provisional” solutions with precautionary principles can be more humble approaches, and enable reflections on what the effects might be. Ezio Manzini suggests “design initiatives that produce infrastructure, standards, and regulations; knowledge; visions; and shared values that together can increase the probability that new solutions will emerge and can help them develop in greater synergy.”58

One risk with a studio-based education is that the students adopt the dominating norms.59 Having a brief as an approach is historically very connected to a client that also sets the constraints of the project and thereby limits the design space and possible results. This approach may be re-enacted by teachers in design education so students do not get experience in conducting inquiries in complex contexts.
Finally and probably most important are to improve **DESIGNERLY WAYS OF WORKING** with stakeholders in cross-silo settings where **SOCIO-MATERIAL ENGAGEMENTS** are put to work. It is not enough to just practice design work and use tool-kits, probes and prototypes, etc. in complex contexts. The current obsession with design research methods books are not helping here. Lucy Kimbell and Jocelyn Bailey acknowledge prototyping as a relevant approach which “enables organisational learning” and “can co-constitute a situated understanding of issues and how policies might play out”⁶⁰ but they warn us that “prototyping may also serve to reinforce existing power structures and elites.”⁶¹

Designers will need to learn how to play new roles in order to be able to most effectively and more proactively use their abilities in those engagements where stakeholders from many different disciplines come together. There are also many stakeholders, more than human and others that need to be considered although they may not be represented. We do not see designers as just being members of these teams. We see designers using their integrative skills and experience to change how these engagements work. Designers are the ones best able to put pieces and arguments of the complex situation together and propose representations⁶² of what the team has co-created. These proposals enable ongoing advanced reflection on intended as well as unintended consequences, and enable open negotiations as the proposals are continuously developed.

Perhaps are these aspects that need to be changed in order to work in complex contexts, also out-dated for “traditional” design work, and could be implemented in all design education? We now understand that all design work fundamentally engages complex contexts. Things⁶³ do not exist in isolation.
Legitimacy for design

We have seen that designers already enact many of the core competencies and knowledge needed to engage in the type of complex socio-material contexts and activities that we are discussing here. We have also seen that there is a need for specific knowledge, skills, and ability to make judgments, as well as a re-configuration of the understanding of design processes. All this is needed to address in order to create legitimacy for design among the stakeholders that now have power and control over these contexts. A recent paper identifies several “barriers and enablers” that seem important to address when the “growing scale and complexity of design problems has engendered a move towards more open and collective design activity where multiple stakeholders, particularly the end users but also professionals from other fields, are included as equal partners in the design process.”

We must acknowledge that management consultants and others undertake a large amount of “design work” today, without having a design education, conducting “Design Thinking” and similar step-by-step approaches. No doubt that a lot of this work leads to meaningful solutions. But it is suggested that ‘Design thinking’ is a simplified version of the ‘designerly thinking’ that professional designers engage in. The latter also have competence to deal with non-verbal aspects of the situation. There is a huge potential here to educate more designers with the knowledge to successfully engage in contemporary complex socio-material contexts and creating even more appropriate proposals, as well as increasing the legitimacy for design.

It seems important for design to develop a more proactive approach. “With new epistemologies and ontologies to help make sense of the current conditions, it is likely that design practices will also need to evolve in order to stay relevant and to cope with new problems and questions.” We will continue to present some of the suggestions for a design education where the aim is for students to become better prepared for engaging in these complex contexts.

Education for design in complex contexts

We have seen above that there is a possibility to design an education where the students prepare themselves for complex unexpected situations. We have also understood that this must be done in dialogue with emerging and contemporary social sciences, etc..

Design collides with other ways of knowing, both more rigid, evidence-based approaches, and also anthropocentric and eurocentric ones. Since designers need to be able to both argue for their proposals as well as understand others’ arguments, students need to learn to think through several different ways of knowing and be acquainted with theories from several fields and paradigms. Ek and Edeholt suggest that designers should have thorough understanding of at least one other theoretical field beside design to support engagements with people that have different theoretical backgrounds and ontological approaches. Science and technology studies (STS) seems to be a very relevant candidate as a complement to design knowledge.

It is important to encourage and support interaction with others in settings where the complexity is more or less explicit in order for the students to get first-hand experience of the contexts. Thereby students get comfortable with “spending time with people, watching them live their lives, and building an empathetic connection with their worldview.” This embodied experience combined with different kinds of interactions with everyday things, probes, tool kits and prototypes support the student in their explorations and framing. When interacting with others they are not all alone in their decision-making, they are supported.

The material and its form that is brought into these contexts are crucial. This is probably where the greatest leverage is with a Design MFA. The importance of both being very skilled and comfortable with making things, materializing, as well as embracing ambiguity is fundamental and these aspects and experiences during the education must be sought for. These are some of the fundamental aspects of successful design work and it would be counterproductive to diminish these activities.
during the education, instead this needs to be well integrated in the education.

Instead of the critiqued problem-solution and brief-oriented approach/mind-set/paradigm perhaps talking about inquiring or navigating could support understanding something that is **CONTINUING AND ONGOING, EXPLORATIONS OF ECologies**. Flipping from the project based view on the design education that is so inherent, to more long-term on-going explorations/inquiries. We need to prepare students for new roles such as orchestrating and catalysing collaboration, integrating vast quantities of information, knowledge and experience into material proposals that can be experienced and further debated.

There is a need to embed the education more into the social space and see the school more as a space for reflection. Short projects are not enough for gaining an iterative experience. There need to be enough space and time for reflection, and experiential learning.

Interacting with wicked problems we need to have the time to see our own failures and how our own solution fails and play with that iteratively back and forth over time. It is important to practice ethical dilemmas, and be exposed to different cultures.

One cannot design “the macro”, but it is crucial to be aware of the impact, the effects of the particular, to have the ability to jump back and forth between the particular and scale this up, and create examples of how things could be. And show how the smaller scales affect the larger. Students need to develop **AWARENESS OF THAT THERE IS THIS BIGGER STRATEGIC ECONOMIC CONTEXT** in which they are designing. They have to make decisions around what kind of work they want to be doing in this system.

Students need to spend more time on **REFLECTION**, do retrospectives, explore what could have been done differently, think more about stakeholder identification – find them and engage with them. But time is not enough, they also need experience of different methods and approaches of reflexivity, acknowledging that all methods make some aspects present and some absent, but it is almost impossible to spot what is Othered. Othering is absence that is not acknowledged, “everything that is being repressed for one reason or another”.

Here students need to learn how to engage with stakeholders in “ongoing processes of debate”.

Since intuition is a learned thing and develops from repetition, the students need to have experience of a repertoire of ways of working in different contexts and settings. And engage with risk, ethical consequences and uncertainty to support finding their own gut-feeling, their reflection-in-action.

What value system underpins the work? What unintended consequences might the proposal cause? Short-term as well as long-term? The education should really embrace complex issues.

Other issues are the importance of collaborations with other schools. Konstfack is part of the Stockholm School of Entrepreneurship (SSES) together with the other of Stockholm’s leading universities KI, KTH, SSE, and SU. It is also important to figure out how to use the Electives, and potentially integrate internships as a compulsory part of the programme.

We must take care not to add too much new things to the education. It is especially important to take away out-dated and normative approaches that make the students need to re-learn ways of working in complex contexts.

We can’t prepare students for all kinds of situations. Therefore we need to teach students to collaborate on transdisciplinary teams since this seems to be the way to deal with complexity. What different **NEW ROLES** can designers play in these teams? Facilitator? Integrator? Catalyst? Provocateur? Conductor?

**The need for more design education (educating more designers)**

There seems to be a great shortage of designers, at least in Sweden and therefore many “design activities” are conducted by people without a design education. They may be management consultants, civil servants or others using step-by-step procedures like “Design Thinking” or other guides. This is
supported by SVID and other organisations with the argument that there is a need for so much design work to be done and a shortage of educated designers. Another argument is that the people engaged often already have knowledge from the context.

The design schools we mention have applicants, fill their classes and the students are employed after their education. It is the same with Konstfack’s MFA in Design. We have sufficient amounts of applicants and they engage in related activities after graduating; some get employed, others start their own businesses and a few others get scholarships, work with teaching etc.

Linköping University recently started a new master programme in design (2017) addressing Sustainable Futures and Transformative Services. This education is on scientific foundation. Linnaeus University is planning a Design + Change master.

During the work with this project, we have noticed a great interest for these questions and we anticipate that there is an unquestionable need for designers capable of working in “complex contexts”. One further example of this is a conference that claims that design needs reimagine itself as practice that approaches the world from within, and not as an anthropocentric, omnipotent problem-solver. It takes place during the spring 2018.77

To DRAW THIS TOGETHER we see not only a need for more designers, but a great potential for a design education on artistic foundation that can radically re-think itself in designerly ways.

We can only imagine what fantastic results there would be if there also were people educated as designers participating together with the people with the knowledge of the complex context. ■
FIG. 12
Reflections on design competencies from one of the work-shop groups in the symposium. At the top a discussion on the ability to move to more complex contexts. In the lower part we find visual reflections on the eternal question of specialist versus generalist. And much more.
WHAT WOULD BE RELEVANT FOR KONSTFACK?

COULD KONSTFACK BE EVEN MORE RELEVANT?
Konstfack values critical thinking and engages explicitly in societal and environmental issues with an artistic foundation and radical rethinking of the relationship individual-society-environment as approach. Konstfack is also devoted to creating and materializing things in our large, varied and well-equipped workshops.

We believe that an “expansion” of design education to address complex contexts should take a further perspective and address the challenges facing us as a society. It is essential that the education is provided by an academic institution to ensure that students can make relevant assessments, demonstrate insight into current research and broad knowledge of underlying theories and discourses. At the same time artistic exploration, critical approach and experimentation is fundamental in order to drive the development of the area forward. The students must explore diverse ways of making and be confident in experiencing ambiguity.

We see three main ways to implement this proposed new educational direction, two integrated with the master education, and the third proposition is supplementary training. The specialisation:

1 runs within the current specialisation Individual Study Plan in Design where the students follow a specific study plan assembled of specified studies. This only needs interested students and support from faculty and guest lecturers.
2 is a (third) specialisation in Design besides the two current ones, with a specified number of positions for students. This could either be done through allocating student positions from other directions or courses within Konstfack, or to apply from the Ministry of Education and Research for mission to educate an increased number of students for this third specialisation.
3 is offered as supplementary training, and directed towards practitioners and would then be a professional course.
Within current specialisation

The Master’s Program in Design with the specialisation Individual Study Plan in Design already enables many of the suggestions presented above. Students can work on the same question for a long time in order to deepen their experience and knowledge. They are encouraged to cooperate with external stakeholders, especially during the second term, as these are explicit learning goals in the new syllabus. They engage in reflecting on different working methods, their background and position. Students become well acquainted with current research in design and relevant related areas.

The faculty has developed a range of pedagogical tools that support students in their development. Two of special interest here are the ATLAS and the Individual Study Plan (ISP). The ATLAS is an annotated portfolio or workbook that supports reflection and positioning. It presents meaningful things the student has experienced. The Individual Study Plan presents where the student wants to head towards in the long run, and what the student needs to experience and learn in the short run.

The first semester

The students are already now introduced to the diversity of design fields, design theories, emerging issues. We introduce Actor-Network theory which emphasises and supports exploration of relations, and also acknowledges the importance of not only humans in these relations, but also things, other species, etc.

Students that would want to specialize in design for “complex contexts” can choose to orient themselves further in this direction during the module Orientations through reading, study visits, guest lectures, seminars, etc. They could also choose to conduct the project during the modules Exploration 1 and 2 in relation to a relevant context or issue.

During the second semester

During the major part of the semester, Explorations 3 and 4, the students’ projects are conducted within professional practice or other workplace operations outside of Konstfack in order to explore how design can contribute to the development of this situation and also reflect on the responsibility this entails. In the module Outlooks that runs in parallel, the students learn to manage and collaborate in, with and for organisations and similar situations. The students strengthen their critical, analytical and artistic approach and are also introduced to systems design, strategic design, business models, and other relevant theories, methods and techniques.

Students that want to specialize in design for “complex contexts” have a great potential to advance their knowledge and experience during this semester. They can choose a relevant complex context where they can deeply engage and explore ways of working with. They could spend a great deal of time in the context through this engagement to get first-hand experience and knowledge.

The second year

During the second year the students have a great deal of freedom to engage in issues of their interest.

To summarize, we see that the current programme, with the new course syllabi, well supports students wanting to engage in the kind of complex contexts that this report investigates. They would need some support with the help of guest teachers and guest lectures.

A new specialisation within the current programme

This could as mentioned either be arranged through allocating student positions from other courses or directions within Konstfack, or by applying from the Ministry of Education and Research for mission to educate an increased number of students for this third specialisation.

Our exploration within this current project strongly indicates that there is both an interest from prospective students as well as from the design industry, the private and the public sectors for an ad-
ditional (third) specialisation in Design with a focus on design for complex contexts. Advantages would be more visibility for the direction, greater possibility to allocate resources and engage faculty with expertise in relevant fields. There is less risk of overloading the education with traditional approaches.

This increased continuity could also mean that the specialisation can have on-going collaborations with relevant partner organisations and have mutual contributions year after year, continuously developing experience and knowledge in the field.

The specialisation should be tightly connected to the current directions to benefit from the Konstfack heritage and share support for a multiplicity of approaches, materials, contexts, expressions, etc.

This option requires the approval from the Head of Department (prefekt) supported by the Subject Council in Design (Ämnesrådet Industridesign (ÄR)) as well as the Board for Education and Research (Utbildnings- och forskningsnämnden (UFN)). It needs to be argued for, together with accounts for our connection to research, to the Ministry of Education and Research in order to achieve permission to educate an increased number of students. We believe that the connection to relevant research will be even more important when applying to start new educations or directions. New Course Syllabi with modified learning outcomes, literature lists, schedules, etc. also need to be developed. Most of the pedagogical tools that we use today would still be appropriate.

**Facility and guest teachers**

Currently we have a faculty with a broad experience with backgrounds from consultancy, business and research. At Konstfack all Senior Lecturers and Professors have time dedicated for development of the subject (ämnesutveckling), which is necessary in order to provide a relevant education. Several of the current teachers are engaged in research that is relevant for the proposed direction. We also currently have two PhD candidates in Design that have research directions that are very relevant for the expanded design education that this project is exploring. They could, together with the faculty and some of the guest teachers that currently are engaged, support both the development of the proposals above as well as the teaching.

Konstfack believes in a constant change of faculty and this proposal should be taken into account when deciding on the direction of coming positions for employment as well as guest teachers, and guest lecturers.

To support a long term engagement with conscious development there is a need to involve more teachers with experience of relevant research and relevant practices. Swedish law also requires that the master education be taught in close connection to research in the field.79

Here is also an opportunity to share resources.

In order for the practitioners to keep working in their practice, this professional course would need to run at significant slower pace than 100%. We suggest a 50% pace in order to support participants in it to keep working in their practice.

This option requires the approval from both boards mentioned previously, ÄR, the Head of Department and the UFN. A Course Syllabus with relevant learning outcomes and literature lists needs to be developed. Some of the pedagogical tools that we use today would still be appropriate, but there would also be the need for new teaching formats.

**A professional course**

Still another opportunity is to configure and provide a professional course on the master level. There are many design professionals with an education that date 10 years or more, not having had the opportunity to keep up with the rapid development of the field. A professional course addressing design in complex contexts would most likely be a very welcome opportunity.

To integrate experienced professionals within the education would also be a great opportunity for valuable exchange with the programme students.
FIG. 13
One of many proposals for how to gradually develop and implement a design education that addresses complex contexts.
**Next steps**

The objective for this report is to present several opportunities. Decisions are made by the Head of Department (prefekt) supported by the Subject Council in Design (Ämnesrådet Industridesign) as well as the Board for Education and Research (Utbildnings- och forskningsnämnden (UFN)). Of course the faculty and students are most important to involve in the continued process.

Based on the exploration/research done throughout the past two years this report suggests:

1. **Emphasise this direction in the presentation of the specialisation Individual Study Plan in Design.** Develop a range of explorations in seminars and engage in developing contacts with interested organisations and contexts that show a relevant complexity. We already have established partnerships with the ten organisations that participate in this project. They are interested to contribute with different kinds of long term engagements: tutoring, lecturing, providing internships and other collaborations. There may be a need to establish contacts with other relevant guests and partners.

2. **Develop a professional course that could simultaneously spread the word about Konstfack’s expertise in this area as well as serve as a platform for engaging interested partners for a distinct specialisation.**

   This should be done as soon as possible and can be a good support for students in the two year master. There could be very productive exchange between these two groups.

3. **Apply for additional positions for students and create a third specialisation.** It is also possible to reformulate the current master programme with this proposal in mind, developing a more focused and specialised specialisation.

Based on the projects research, we believe that it is utterly important to keep up to date with and support research, not only in the field of design but also in adjacent fields of e.g., sustainability, transformation, public management, science and technology studies, the fundamentals of knowledge production, etc. When design acts in complex contexts the interfaces with other disciplines and knowledge areas are multiplied, and also the need for design to articulate itself in relation to these areas. Not least design’s integrative and proposing abilities.

To **SUMMARIZE**, our belief is that there is a huge potential to offer a design education that has a critical approach to complex contexts and encourages an ongoing reflective process where relevant stakeholders of all kinds participate in the co-evolution of networks of relations with the help of socio-material engagements.

Finally we would like to **THANK** all the students, teachers and other professionals that have engaged themselves in our explorations as well as our ten partners and Konstfack that have supported this project and last but not least KK-stiftelsen for the funding.
Design is a debated concept that is subject to discursive struggle, meaning that there are many claims of having the “right” definition of the concept, practice and values. Design consultants tend to present successful explanations of design activities while discussions in design research tend to be more reflective.

The UK Design Council defines design as ‘the creation of a proposition in a medium, using tools as part of a process’ (https://www.designcouncil.org.uk/resources/report/designing-future-economy-report).

McKinsey writes “What is design? Like “strategy” and “analytics,” “design” is a term that suffers from misuse. Design is not just about making objects pretty. Design is the process of understanding customer needs and then creating a product or service—physical, digital, or both—that addresses their unmet needs. It sounds simple, but it’s actually a high bar: the design must simultaneously achieve functional utility, emotional connection, and ease of use, while fitting into customers’ broader experience.” (https://www.mckinsey.com/business-functions/mckinsey-design/our-insights/more-than-a-feeling-ten-design-practices-to-deliver-business-value?cid=other-eml-alt-mip-mck-oth-1712#0).

The first presentation of design lacks intention and aesthetics; the latter one while focussing on the end product lacks the process and propositional aspects. Neither one addresses culture, environment, inequalities, politics nor many other aspects. We will not attempt to define design, but still quote from our web “We view design as a way of engaging in, challenging, understanding and changing the world”.

In this text “complex contexts” can be entanglements of humans with different backgrounds, cultures, roles, power, etc. in relations with other species, laws, regulations, economy, climate, material, techniques and other aspects. These complex context are often new for design to deliberately be engaged in, but design has always affected these larger contexts, although less consciously. Complex is not the same as complicated, since in complex contexts there is no given outcome on a specific action. This calls for completely different ways of working, and to support ongoing reflection and collaboration among the different people, things and species involved is necessary.

Design work in these contexts can be called design for social innovation, design for sustainable development, service design, transdisciplinary design, strategic design, transformation design, transition design, environmental design, integrative design, etc. Kees Dorst presents these “new” contexts as “complex, open, dynamic and networked” (Kees Dorst 2015, Frame innovation: creative new thinking by design).

John Wood presents “What we refer to as context is scaleable:
• The context may be a particular issues under discussion
• The context may be designated underlying aims (e.g. money, targets)
• The context may be a given plight/situation at hand
• The context may be a general concern (social/environmental)
• The context may be the Earth and its well-being
• The context may be everything that is NOT the proposition discussed
• The context may be the Universe as a Whole” (https://met designers.org/Relational-Learning-Tool).


http://www.kks.se
14 Glasgow School of Art, http://www.gsa.ac.uk/study/graduate-degrees/design-innovation-citizenship/
16 Lucy Kimbell at https://systemic-design.net/rsd6/keynotes/
Lucy Kimbell (2011). Designing for service as one way of designing services. International Journal of Design, 5(2), and
30 Thomas Markussen (2011) The Disruptive Aesthetics of Design Activism: Enacting design between art and politics, Nordes 2011 - Making Design Matter, and
31 The Collaborative and Industrial Design Master programme focuses on design innovation. It’s about in–depth understanding of design's role in society and in the emerging fields where design activities can enhance the quality of environment and people's life. The programme teaches empathic, critical, strategic and technological skills needed in design innovation processes and encourages to explore and take over the roles unforeseen in design industry design activities can enhance the quality of environment and people's life. http://coid.aalto.fi
32 Emphasizing collaborative design-led research and a systems-oriented approach to social innovation and service design, Parsons’ Master of Fine Arts in Transdisciplinary Design program serves as an academic laboratory in New York City for graduate students seeking to define the next phase of design practice globally. The Transdisciplinary Design program was created for designers interested in developing ideas, tools, and working methods to address pressing social issues and the complex challenges of a global culture. Students work in cross-disciplinary teams, consider issues from multiple perspectives, learn from industry leaders, and emerge with a portfolio that showcases design as a process for transforming social relations and contemporary life https://www.newschool.edu/parsons/mfa-transdisciplinary-design/
33 https://productsofdesign.sva.edu/blog/14-matters
34 http://www.designfornext.org/
38 Kevin McCullagh (2010) Beyond Design Thinking Pointers on stepping-up to a more strategic role, *Design Management Review*, September 2010
41 Sabine Junginger, keynote at RSD6
42 Kevin McCullagh (2010) Beyond Design Thinking Pointers on stepping-up to a more strategic role, *Design Management Review*, September 2010
48 For example the Norwegian design consultancy Halogen, https://www.halogen.no
49 5 issues that will shape the future, according to the experts, The World Economic Forum, https://medium.com/world-economic-forum/5-issues-that-will-shape-the-future-according-to-the-experts-a5dac6411d3
54 Lucy Suchman, (2003) Located accountabilities, page 2, also quoted in Westerlund & Wetter-Edman (2017). The typographical emphasis is not original, but added by us.
56 Ezio Manzini (2016) *Design Culture and Dialogic Design*, *Design Issues*
62 According to John Law a “representation” makes some things “present” and other things deliberately made “absent”. There will also be other things made absent that one is unaware of. He calls these “Othered”. John Law (2003) ”Making a Mess with Method”, the Centre for Science Studies: Lancaster University, Lancaster.


66 http://www.svid.se/Vad-ar-design/Verktygslada/Snabbkurs-i-tjanstedesign/ and http://innovationsguiden.se


69 Ann-Charlotte Ek & Håkan Edeholt


73 Lucy Suchman (2003) Located Accountabilities in Technology Production, published by the Centre for Science Studies, Lancaster University, Lancaster

74 https://www.sses.se


76 Examples of guides http://www.svid.se/Vad-ar-design/Verktygslada/Snabbkurs-i-tjanstedesign/ and http://innovationsguiden.se


79 1kap. 3 § Högskolelag (1992:1434)

All websites accessed February 2018