A GESTALT PERSPECTIVE ON CO-CREATION: ACTION RESEARCH IN ARCHITECTURAL PRACTICE

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Co-creation is an emerging trend in construction management research and architectural transdisciplinary practice. With action research in architectural practice, a new perspective on the act of co-creating together in the design process, was explored in the architectural design phase. Co-creation through the lens of gestalt-theory brought other solutions than the traditional design process. Findings illustrate how the Gestalt-approach to co-creation in architectural practice is different in the way that the relational is in focus. Gestalt brought a systemic perspective on forces of resistance of change, which led to the creation of a new digital tool for participatory design. The Gestalt approach was also found to be supportive of bridging fragmented knowledge perspectives into a meaningful whole and integrated design. Further, it challenged the role of the architect and the power distribution when creating. The contribution to practice was twofold: 1) an innovative design solution for urban resilience; 2) the invention of a new digital tool supporting participatory design processes. In conclusion, it was found that by engaging in transdisciplinary research, and thus changing the way we do things, we allow for different ideas and solutions to emerge. However, the paper offers only one in-depth case-study, but still provide design practice and construction management research, with insights on how to co-create in the early 'fuzzy' phase of design.

Keywords: co-creation, action research, gestalt, design practice

INTRODUCTION

Co-creation is an emerging trend in construction management research. However, one could argue that all co-creation is a collaborative practice and the interest in collaborative practices is not new. Construction management research has shown a long interest in understanding the development of collaborative practices (Walker and Jacobsson, 2014) and collaboration is encouraged across multiple disciplines as a prerequisite for sustainability. To achieve sustainability for the built environment, effective co-creation is important in the early phase as environmental sustainability thinking and planning must be incorporated in the project idea before the design is conceptualized (Ding, 2006). However, there are several challenges in order for design-teams to achieve sustainable designs: for example, interorganizational collaboration between specialists with diverse knowledges (Ding, 2006) and interprofessional engagement and communication when combining competences and professionals (Keys *et al.*, 2016). This puts pressure on the early design phase to develop and apply methods for engaging in collaboration, as collaboration and communication of the various spheres of influencers are essential to achieve

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sustainable frameworks in the designs (Shelbourn *et al*., 2007); as well as new collaborative practices that deal with the fragmentation between disciplines, lack of shared frameworks, and power-struggles (Räisänen *et al*., 2014).

The early phase: Architectural practice
In architectural practice, collaboration is a deeply embedded work method and the increased demand for sustainability asks for new methods and tools which are now rapidly transforming contemporary architecture practice (Nilsson, 2016). There is an increased emphasis by architects in the early stage, i.e. the fuzzy front end, see figure 1. Considerations of many natures come together in this increasingly critical phase: e.g. understanding of users and contexts of use; and exploration and selection of technological opportunities such as new materials and information technologies, etc. (Stappers, 2006). The multiple perspectives and competences that need to be coordinated and integrated in the early front end puts pressure on new collaborative practices of co-creating an integrated solution.
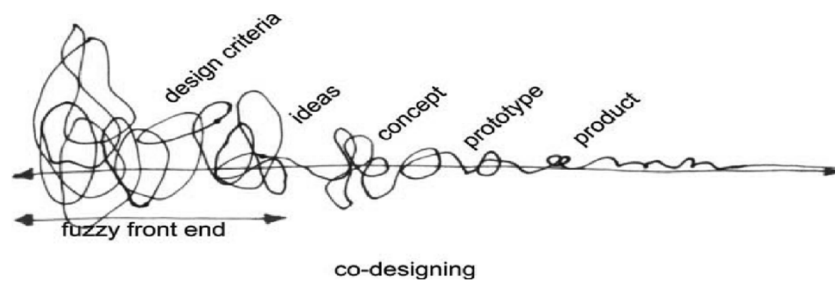

Figure 1. The front end of the design process has been growing as designers move closer to the future users of what they design (Sanders and Stappers, 2008).

The terms co-creation and co-design are often confused and/or treated synonymously with one another (Sanders and Stappers, 2008). In this paper, co-creation is used in the broader sense to refer to the creativity of designers and people not trained in design working together in the design development process, or as described in the Journal of co-design: The practice of collective creativity in the design process. Co-design and participatory design are more commonly used in architecture to describe a collective collaborative practice with a user centred design approach. Some of the key components of participatory- and co-design in architectural research are briefly described in section; Co-creation in architectural practice. 'Design Participation' in architectural practice is however not new. It was introduced as a concept in 1971 (at the Design Research Society conference in England). The need for new design approaches was already emphasized; There is certainly a need for new approaches to design if we are to arrest the escalating problems of the man-made world, and citizen participation in decision making could possibly provide a necessary reorientation. (Conference book edited by Nigel Cross, 11). The application of participatory design practices to very large scale problems has since then been growing and is projected to change design and may change the world (Sanders *et al*., 2008). Nevertheless, there is also an implicit assumption that co-creation is inherently a good thing. There is, for instance, a growing body of scholarships in e.g. the service marketing literature that suggests that co-creation can also destroy value.

The aim of this study is to explore a new perspective on co-creation in early design phases - the process to collectively create together in the early design phase in architectural practice. What new approach to co-creation, tools and methods, can be applied in the design process? What effect can it have on the design outputs? What values are created that are relevant to practice?

Practice-based research: New perspective on co-creation
The changing shape of practice is not only in regard to new design processes with emphasis on the fuzzy front end. Currently, more research initiatives are embedded in architectural practice around Europe. (Nilsson, 2016; Nordic Built, 2018). Indeed, there are several practice-based-research initiatives for urban transformation and knowledge clusters, for example cross-sector university collaborations, 'Co-creation for sustainability', which is also driving sustainable urban transformations (Trencher *et al.*, 2012). The designer as researcher, or the researcher as facilitator of design processes, has in co-design research been highlighted as of extra importance. Such co-designing should be a close collaboration between all the stakeholders in the design development process together with a variety of professionals having hybrid design/research skills (Sanders *et al.*, 2008).

Although research has been done in architectural practice on BIM and computational design, there are less studies on the multi-disciplinary co-creation process with focus on the activities in the workshops and its correlation to the design output. There are even fewer studies with an action research approach, which is notable considering the increasing number of practice-based research and especially, the demand for new methods, tools and approaches.

Action research (AR) is a collaborative and practice-based approach, aiming at achieving relevant change in practice. Such change, or output, comes from increased and shared awareness of a problem, co-created in the AR-process. The AR process consists of iterations of activities with researcher and practitioners, co-creating knowledge. The activities are lined up in iterations with structured documentation and self-reflection to provide rigour. This research approach is in this way different to traditional research approaches and has shown to give novel results, especially relevant to practice. There is a wide recognition that no single actor or organisation possesses the knowledge, resources or capacity to solve complex, interwoven sustainability problems on their own (Klein *et al.*, 2001; Sehested, 2003). At the core of action research is the co-creation of knowledge in action.

With AR, a new perspective to co-creation was explored in early design. A return to the origins of AR (and organization) - Gestalt management tools and methods were applied to the co-creation of a city innovation project. The findings in this paper are analysed through the lens of Gestalt theory and discussed in relevance to practice. Table 2 shows three essential gestalt features that has been applied in the design process and as theoretical framework: 1) The relational focus, 2) Figure and ground, 3) and the inter-relational field of forces for change and resistance to change within a group (Lewin, 1946).

Co-Creation in Architectural Practice and Gestalt

Architectural practice: Dialogue and user-centric design
New methods and tools are currently emerging and changing the shape of architectural practice (Nilsson, 2016). One such example is how new digital tools, e.g. BIM, simulations and computational design processes, informs design processes (Nordic Built, 2018). Another change is the use of dialogue processes (Ranhagen *et al.*, 2017), where digital tools have been more scarcely used, but are now starting to emerge, e.g. to support dialogue in collaborative workshops (Grosse and Karrbom Gustavsson, 2017). Main features of these emerging practices are that they are collaborative, iterative and process-based and described as a creative and trustful collaboration, often among many stakeholders (Ranhagen *et al.*, 2017).

The term Participatory design incorporates a larger spectrum of participants into the design process, and have different levels of participation (Arnstein, 2007). The DIAD-theory (Innes and Booher, 2010) conditions for a collaborative planning process in a design-driven dialogue. First, a diversity of independent stakeholders must be allowed to participate in planning. Secondly, authentic dialogue characterized by reciprocity, relationships, learning and creativity and a shared understanding, gradually building knowledge through own reflections (i.e. new heuristics), cultivating innovation and innovative thinking.

The focus on dialogue is not entirely new, but steadily growing in Scandinavian architectural practice, especially in terms of sustainability in city planning. Current academic examples are transdisciplinary initiatives such as: SGBC Action Lab; Design Dialogen (Ranhagen *et al*.,) Södertörnsmodellen (Vinnova), The Royal Seaport development (NDS), Mistra Urban Futures (Chalmers) and several Living Labs. These initiatives have focused on the need to collaborate across multiple disciplines, and often with triple/quadruple helix stakeholders.

The Gestalt Framework: Co-Creating Meaning through Dialogue

The systemic relational focus and 'figure and ground' formation.
As mentioned in the introduction, co-creation of knowledge is at the core of AR. Kurt Lewin, who first used the term AR (1946), was a social-psychologist and Gestalt practitioner. Lewin has much influenced theory on group-dynamics and organizational studies. According to Lewin and Gestalt, a group, i.e. human system, consists of relationships. To understand a human system, a sociogram - map of inter-relationships within the human system, is a powerful tool to understand the group. Further, a practice-based research approach is required where knowledge is generated together with practitioners, in the setting where change should occur.

In Gestalt, this notion of co-creating knowledge goes even further and has an existential approach to humans and co-creation, linking it intimately with dialogue. Martin Buber, the famous Gestalt philosopher describes how we experience our true humanity when we co-create meaning through authentic dialogue with one another (Ich and Du, 1923). Humans constantly create and re-create a meaningful whole (a gestalt or figure) in the interaction with others to organize ourselves in the world. In the 1920-ties, Wertheimer, Köhler and Koffka - the founders of Gestalt psychology, discovered this unconscious process called the 'figure-ground' organization; we visually and psychologically attempt to make order out of chaos and look for meaning based on context and on our background references. We add to disconnected bits of information into a whole, i.e. 'gestalt', to create harmony or structure (Malmgren, 2014). When a gestalt is clear, it serves both as a 'roadmap' for how we can navigate and as a source of energy that motivates further actions (the Gestalt formation or energy-cycle) and so humans collaborate and self-organize beyond management of control and command. This insight, that order can emerge in systems without anyone controlling the parts, is outside the Gestalt community fairly recent. It first became part of established knowledge during the 1980´s when chaos theory or complexity theory was developed (Malmgren, 2014). Further, Gestalt theory on visual perception has gained a newly waken interest in neuro-science, design practices such as interactive media design and screen design where Gestalt factors influence the responses of the user.

Field theory rule
Kurt Lewin's field theory rule (1946) helps scholarly practitioners of organisational development and change to 'start the analysis with the situation as a whole'. Using the field theory rule displays the psychological field of forces and counter forces in the social system. Patterns of forces helping or hindering a goal, illustrate points of intervention. Thus, increased awareness of existing forces offer possibilities to counteract repetitive solutions that don't work. In table 1, the Gestalt framework and how it was applied in the design process, is presented.

METHOD

The Action Research Empirical Arena

In the context of understanding and improving the transfer and diffusion of academic knowledge in practice, an AR methodology was applied. This aims at adapting and integrating AR in design management to ensure rigor and relevance of research. The AR builds on previous work done by the researcher (ARCOM, 2017) of doing action research in the own organization (Coghlan and Brannick, 2000, 2004, 2009, 2014) and builds on the general AR cycle of; planning; acting, observing and reflecting (Coghlan *et al.*, 2010). The empirical arena is a large Scandinavian architecture office where the action researcher works as an architect and sustainability advisor, facilitating processes to increase sustainability in projects. The AR cycles evolves mainly around collaborative workshops, se figure 2.

Background: The Eco-canopy case
The study is conducted around a single case: The eco-canopy concept as city-innovation in Linköping. The case had received R&D funding aimed at increasing innovation of advanced systems and techniques for sustainable city-innovation. The project was in 'fuzzy end' of design practice, in which a multitude of actors from different disciplines got involved and co-created a solution. The case had a trans-disciplinary approach with quadruple helix actors, adapting learnings from each cycle.

Data collection and validation
Gestalt management tools and methods was applied to the co-creation process, se figure 2 and table 1. Reflection-in-action (Schön, 1991) were ongoing and challenged with feedback from project-participants, which was collected after each session verbally and through digital inquiry. The experiences and outcomes of the sessions (learnings) and further planning of next iteration (action) were analysed through the support of a Gestalt management-group. The Gestalt management-sessions ran parallel to the design process, and thus impacted the design process, se figure 2. In the final analysis session, the process with the learnings and outcomes, was illustrated in text as well as a 6m long drawing and reflected upon together with the gestalt specialists. The case findings are described and analysed through the framework of gestalt theory, and the compromised findings are presented in figure 2 and table 1. Semi-constructed interviews with the core-project participants were recorded around the final workshop and transcribed to insure relevance of the findings. Questions addressed issues like: Their experience of the process of co-creation; how they experienced the process compared to other projects; their reflection on engagement; and on fragmentation of knowledge perspectives; weather an innovative and sustainable design solution was achieved. Further, in a research seminar with 7 industrial peer scholars at the architectural firm, the definition of co-creation and how it might be different to collaboration was addressed. Finally, the conclusions and

implications for further research will be reflected upon in a real-time co-creation experiment at the ARCOM conference (if accepted).
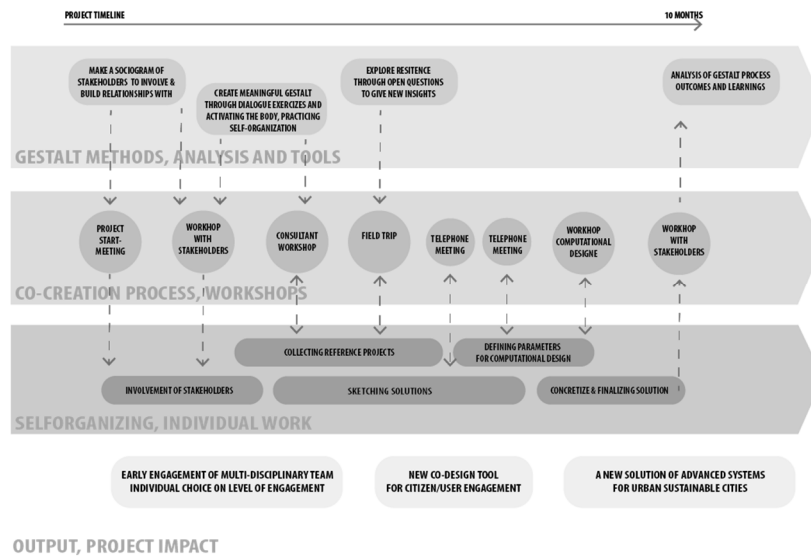
FINDINGS

Figure 2: The main co-creation activities and the self-organized work in the design process. The Gestalt management-sessions ran parallel to the design process and thus impacted the design process in mainly three ways.

In conclusion, the solution was presented to the real-estate owner group (consisting of genitors, business developers, communicators and project leaders). 9 out of 10 voted for the concept to happen in real, and 1 voted maybe. Further, exploring the feeling of resistance, through dialogue and open questions, led to the invention of the new digital participatory-design tool.

Table 1. The main theoretical features and how it was applied in the design process

Theoretical features of Gestalt	How it was applied in the design process
The relational focus Humans are social. A group consist mainly of relationships. To understand it, one needs to actively take part in changing it. It is in the authentic inter-relational activities that we can fully experience our humanity. (Buber, M.)	Sociogram - the mapping of relationships in different human systems (design group, consultant group, stakeholder group and stakeholder organizations). Active participation in meaningful meetings with genuine dialogue. Establish a receptive context, accepting and exploring different modes of thinking.
Figure and ground We constantly interpret and co-create meaning, influenced by our life experiences. We add meaning to fragmented pieces to create a meaningful whole. We are functions of our experiences and our interpretations. (Life space, Lewin)	Co-creating a shared understanding between actors by sharing individual experiences and perspectives for example on reference projects. Through dialogue, open questioning and continuously reflecting on the process, a common understanding and vision of the task and context can be co-created and shared.
Field theory rule Groups are social systems in a power field with forces for change and its equivalent counter-forces (Lewin, K). Only when we become aware and accept the forces, change can come. (the paradoxal theory of change, X)	By reflecting on the process and our experiences, we gain insight and can move forward. By exploring our 'resistance', for example through coaching open questioning, we can become aware of the underlying forces, for change or counter-change and gain insights and can find new resolutions.

DISCUSSION

This paper articulates that when we change the way we do things, we allow for different ideas and solutions to emerge. Through AR, new approaches to co-creation was explored and analysed with a Gestalt framework. The feedback below is extracted from semi-conducted interviews with the core participant group and the peer-research group, around the time of the final workshop.

There are several learnings drawn from this AR. First, the relational focus and the use of a sociogram, helped pin-point the necessary stakeholder-group and supported the

engagement of the right organizations and competences from early on (Ding, 2006). "In other projects, there is only the common consultants, such as; plumbing, energy and architect. Not like in this project where we have specialists in very special areas such as Björn (aquaponics specialist) and the IT-AI specialist" (HVAC consultant). The sociogram also created awareness of existing or non-existing relationships. For example, the urgency of establishing contact with the building regulation plan official at the municipality. Second, time and resources were invested to cultivate the relationships and communication amongst the multi-disciplinary stakeholder group in collaborative workshops (Grosse *et al.*, 2017). A considerable amount of time was spent on 'figure/ground', creating a meaningful gestalt through activating the body, sketching, field-trip, dialogue exercises and open-ended questions. This supported the interprofessional communication and engagement (Keys *et al.*, 2016) illustrated in the interviews; "The meetings we had and how we discussed, and study visits were very interesting, and it is very rare in regular projects. (In meetings) usually a project leader keeps track of various points we talk about, which is not the same as here. It has been a lot more fun to attend these meetings…"I've been engaged all the time and trying to get what I think is important, wrote so much and shown pictures and tried to make them understand the difference in operating energy" (HVAC consultant)". The shared understanding and gradually building knowledge through own and group reflection, is also highlighted in the literature (Innes and Booher, 2010; Shelbourn *et al.*, 2007) and relates to notions of 'sense-making', 'shared frameworks' and 'boundary objects' translating meaning in inter-disciplinary collaboration.

Third, although chaos and fuzziness were experienced in the process, the final output was a surprisingly well integrated and new design solution "I was very surprised how it all fit together so nicely at the end" (handling architect), incorporating an advanced system based on the multi-disciplinary competences and experiences of the stakeholder group. "In collaboration projects we have our solutions here, the other consultant has theirs. Here (the eco-canopy project) we (consultants) have been much earlier involved. Nobody knew what it would look like before we sat down and talked about it. And we get a different solution from the traditional" (HVAC Consultant). The co-creation process helped bridge fragmented knowledges and perspectives "Most often, the architect comes with a draft and we should project the ventilation. In this case, we are very early (meeting all the consultants) and we had quite different views on how the results would look". Addressing issues of fragmentation in the interviews the topic of innovation came up; "(Innovation) is based on contact with other people who are not just like ourselves, it (innovation) does not happen very much when you have the same world view." (Eco-system specialist). "Innovation is difficult to do without creating together. But if you are doing, for example maintenance, were there is an exciting system that is already in play and working, maybe it is better to collaborate" (Computational design, Architect, LIC.). The integrated design solution that came out of the project was a new urban sustainable typology. "If we can pull through with what we propose, it will be very innovative and interesting." (HVAC Consultant). The new solution gained acceptance not only in the client-group. The process evoked engagement reaching outside the project-group through the new participatory-design tool and attracted another client to engage with the eco-canopy concept in another city planning. However, the case had R&D funding. If a project is funded entirely by the client, it can be difficult to convince the client to make a larger investment in the fuzzy early phase, as clients tend to want to minimize cost in the early phases. The fifth and essential learning was how the Gestalt perspective challenged the role of the architects as the omnipotent designers. With AR, and

especially with a Gestalt perspective on co-creation, the distribution of power was essential. This can feel frustrating and requires the architect in charge to have faith in the process.

The difference between collaboration and co-creation addressed the distribution of power and responsibility? "Co-creation is a more flat organization. Collaboration is more of a hierarchy with a project leader who says; do this assignment and deliver it in 3 weeks. In co-creation we would meet, talk and work in an iterative process, sharing responsibility" (Computational design, Architect, LIC.) "In co-creation the architects share this power (to create) and invite others to participate in the act of creation. You share the responsibility." (Head of R&D, Architect, Ph.D.). Usually we are not there to create something new, just to accomplish, to follow these rules in the shortest possible time for no cost. This (eco-canopy project) has been a completely different process and it has been very interesting" (HVAC Consultant).

Other comments connected engagement to the ability to impact solutions "it is a condition for engagement, not just to give your input and ideas and somebody else does the creation." (Head of R&D, Ph.D.), emphasizing the different levels of participation (Arnstein, 2007). One participant said that his engagement was pre-conditioned in the concept of the eco-canopy "but your facilitation was protecting us as a guiding spirit" (Eco-system specialist). The stresses the crucial role of the facilitator/researcher-designer (Sanders *et al.*, 2008) which was one and the same throughout the process and limits the generalizing of results. Further, the study only provides one in-depth case which is another limitation. Sixth, the level of engagement was also much self-regulated.

An exercise in the first stakeholder workshop, where participants chose their individual level of engagement visible and in relation to whole group. A reflection-in-action was that this self-regulated approach was fruitful for longitude engagement, because it was voluntary chosen on the individual level. In between session, the participants self-organized their work, taking responsibility of the whole content, instead of just fragmented aspects of project deliverances. "Here, the eco-canopy project has discussed all disciplines and done the work of the architect. When we collaborate in a project, normally we just add to what has already been created." (HVAC consultant). Seventh, exploring the feeling of resistance, through dialogue and open questions, led to the invention of a new digital participatory-design tool used to create a wider engagement with possible future users. How digital tools can be designed to support the co-creative process is an area of great possibilities and raises questions of democracy and power distribution. The application of participatory design practices to very largescale problems will change design and may change the world (Sanders *et al.*, 2008).

These findings are in line with the current trends in architectural practice and policies for urban sustainable development in the Scandinavian context. However, in the hunt for efficiency and the increased belief in measurability, companies today are often governed by a 'control and command' philosophy where employers are seen as human resources rather than human beings (made to collaborate and co-create meaning). What if much of the inefficiency we have in organizations today is due to ineffective collaboration and bad conversational cultures that have their root in the lack of trust for one another and 'the battle' between different competences? If we can identify the rules or guidelines that help us to self-organize, we might accomplish three things: First, allow for people to take more responsibility for their own work as well as for the

common goal; secondly, create more integrated and holistic solutions; and third, have effective organizations in the knowledge-economy that are fulfilling places to work in as employers co-create meaning and value.

CONCLUSIONS

In the context of understanding and improving the transfer and diffusion of academic knowledge in practice, an Action Research methodology was applied. The aim was to explore co-creation in early design phase from a new perspective. This paper presents the findings from one case study, exploring co-creation through a Gestalt framework. Three Gestalt-tools/approaches are in focus; 1. The relational focus; 2. Figure and ground; 3. The field theory rule, and the study aimed to combine their strengths with the design process. Findings illustrate how co-creation from a Gestalt perspective challenges the power distribution and adds the relational focus to the process. This supported the early engagement of key stakeholders and competences. Using Gestalt tools, the architect had to resign from the omnipotent designer role in favour of facilitating collectively creative process (Sanders *et al*., 2008).

Team members collectively created a shared framework, hence a meaningful gestalt ('figure and ground'), through dialogue exercises in collaborative workshops (Grosse *et al*., 2017). Field theory (Lewin, 1946) - the investigation of 'resistance', led to the creation of a new digital participatory-design tool. The output was an integrated design of a new urban sustainable solution which was positively rated by the clients. Indeed, the solution even attracted a new client to use the eco-canopy concept. Findings illustrate how a Gestalt framework; can bridge fragmentation of different competences, achieving an integrated design solution. Findings also support engagement and self-organization. However, even though co-creation with a Gestalt approach offered better possibilities for engagement, more factors are in play, such as timing, funding and personal values regards to definition of task. The study also has limitations. The paper only provides one in-depth case-study from a Swedish context. The presented and experienced methodology can provide design- and construction management practice and research, with insights on how to co-create.

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