THE SOCIAL DIMENSION IN CONSTRUCTION OF DESIGNERLY KNOWING

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The reflection based on literature presented in this exploratory paper aims at understanding the special characteristics of knowing involved in design practice and particularly the yet somewhat undefined social dimension in its construction. Interpretation of the nature of design practice suggests that although designerly knowing is often the kind of knowing inseparable from the knower, it is not developed in individual isolation but as a result from social actions and active processes expanding and transcending personal and organizational limits. The understanding gained through varied social practices is seen as the basis for growth of designerly knowing.

INTRODUCTION

The term design covers a broad field of activities from the systematic processes of engineering to the artistic processes of haute couture. There are elements of design that are common to all or most of the fields of design but still we cannot assume that the term would denote equal meanings to all designers. Lawson (2001) has described designing as rather a prescriptive than descriptive job. He also emblematically states that even though he cannot offer a satisfactory definition of design he has no difficulty recognising it when encountering it. After this potentially frustrating notion of design practice as fundamentally indescribable it must be noted that there are a few commonly accepted explications about the nature of design activity.

Buchanan (2001, p.9) defines design as 'the human power of conceiving, planning, and making products that serve human beings in the accomplishment of their individual and collective purposes'. By this he suggests that designing 'is an art of invention and disposition, whose scope is universal, in the sense that it may be applied for the creation of any human-made product', comprehending the product widely as any potential object of design practice.

Design thinking seems to encompass various elements of human cognitive processes and it can be even seen to represent a particular human cognitive ability that is often dismissed in the cultures of art and science. Design practice can be indeed described as an exploratory process: Design tasks are not problems that can be answered with correct or optimum solutions. Instead the design brief is only a partial map for defining, redefining and even changing the problem in order to find the limits of the task and a suggestion for a possible solution. Design practice is considered not so much as a problem-focused but solution-focused process. (Cross 2006)

The overview of the literature in this paper is relevant to my ongoing study on the role of knowing in design competence and design practice. If we want to learn to

provide design practice with appropriate and inspiring knowledge, we must first understand not only the epistemological questions about the nature of designerly knowledge but also factors in its construction: How, where and when is the designerly specialized knowing gained and developed? What are the circumstances enabling its creation? In this paper I have tracked and highlighted an emerging aspect of designerly knowing – the social dimension in its construction. This is an element that could substantially impinge upon subsequent empirical research on the subject.

FOUNDATIONS AND WAYS FORWARD

The researchers in organizational management and economical competitiveness have a long ago discovered the value of specialized knowledge embedded in organizational processes. The special knowledge and competence (such as that of designers) can be seen as an asset for organizational strategy and innovation (Winter 1998).

In design research the quest for designerly knowing is a topic of interest in the area of design thinking research, which is already an established area in the discipline of design. Although even within the discipline there can be recognized an ongoing debate about the role of tradition and innovation in design thinking. (Buchanan 2001) Partly due this fact elements of designerly knowing have been approached from several perspectives and premised on various methods and approaches. The background of my study lies in the conception of special characteristics of designerly knowing and thinking, concept first developed by Cross (1982).

Significant impact on the conversation around nature of design practice can be credited also to Schön (1991) of his definition of design. He posed a question: '*What is the kind of knowing in which competent practitioners engage?*' and concluded to consider design as an example of reflective activity constructing knowing through practice. He found that professional activity (designing included) does not fit well into a model of rational, instrumental and systematic problem solving, where knowledge is applied to decisions. Instead he concluded that the process of reflection-in-action is central to skilful design practice; in professional practice the knowing *is* in action and develops through action.

PROBLEMS WITH KNOWLEDGE FROM SCIENTIFIC RESEARCH

Designers are more widely known to produce ideas than to use ideas from others. This sets qualifications for the information and knowledge that could be appropriate in design practice.

Even though designing as an activity is apparently complex and retreats extensive definitions there can be seen phases in design process where designer utilizes knowledge – or knowing – either consciously or unconsciously. In the era of traditional artist-designer the practice could be seen to base on the subjective knowledge and personality of designer and be typically founded on intuitive practices. In designing of complex and highly technical products designers face new types of problems that cannot be reliably solved on the basis of personal experience and intuitive practices.

Explanatory or evidence-based design is an attempt to find more argued reasons for design decisions (Saariluoma 2005). Nevertheless, utilisation of scientific evidence as grounds for design is not necessarily as unproblematic as could be expected. First of all it would trivialize design to confine it into a simple process of decision-making. Another reason may be found in the even conflicting motives and orientations of science and design, as Lawson (2001, p.113) states: 'Unlike scientists who describe how the world is, designers suggest how it might be'.

Nelson and Stolterman (2003b) state that even though science is essential to any designer it can only assist us in our design process. Science cannot provide insight into what should be designed. Overly interpreted or simplified findings from research data may lack the inspiring or even necessary deviations and unique descriptions that could be the source for designerly insight.

However, a very cogent reason for the sometimes problematic utilisation of scientific knowledge in designing is in the very nature of designerly knowing. Knowledge based on research is supposed to be 'applied to problem' in order to make grounded decisions. This contradicts with the understanding of designing as a reflective practice where central knowing is reflected, and developed through action. The knowledge needed in the process also often becomes apparent only as the designer is trying to demarcate the task through developing potential solutions.

Scientific research may still help designers make informed choices in different stages of design tasks, but it cannot provide all the knowledge necessary for designing. The practice of designing cannot be reduced to choosing between alternatives or systematic decision-making. In designing there is always room for elements that do not conform to consistent and logical thinking.

FROM KNOWLEDGE TO KNOWING

The social dimension in the development of designerly knowing has been unheeded in many empirical studies exploring design activity. The reasons for this are easily discovered: either the studies are focused on individual designers or the approach employs artificial settings where the designer is isolated from natural interactions and practices which are encountered in authentic practice.

Lawson (2004) has observed that designers seem to rely heavily on knowledge that is not so much theoretical or semantic but more of experiential or episodic origin. Accordingly not only designers but people in general tend to rely more likely to person for information than to an impersonal source. Social contacts are not only critical to obtaining information but also in learning and problem solving.

Nelson and Stolterman (2003a) propose that judgement is a key dimension in the process of design. They define judgement as a form of decision-making that is not dependent on rules of logic found within rational systems of inquiry. They still indicate that judgement is not irrational because it follows its own form of dialectic and that the capacity to judge can be designerly learned, practised and applied. According to them, judgement is best understood *not* within the contexts of intuition, opinion or belief but within the context of knowledge, knowing and the knower.

Nelson and Stolterman (2003a) put it simply that judgement *is* knowing, based on knowledge that is inseparable from the knower. Judgements are based on accessing knowledge generated in the uniqueness of a situation. One of the determinant differences between decision-making based on rational analysis and judgement based on situational knowledge is that the first creates options whereas the latter is a convergent process bringing diversity into focus.

Traditional conceptions of knowledge do not fit well into discussion about designerly knowing. It is in fact more appropriate to talk about the process of knowing than of knowledge with its connotations as abstract, formal, disembodied and individual. Blackler's (1995) analysis of knowing in organizational settings presents many similarities to conceptions of designerly knowing. He proposes that knowing is situated, distributed and material. The situated nature of knowledge emphasizes contextual nature of knowing. Interpretation is always related to the context in which designer acts.

Blackler (1995) refers to Engeström whose work with activity theory could be of interest also in the research on design activity. Engeström (1999) defines activity as social practice oriented at object. He does not categorize knowledge separate from activity but defines knowing and learning as constantly evolving as the activity unfolds. Central to Engeström's theory is that the unit of analysis is a socially distributed activity system where participants generate actions employing their situated knowledge in a process that is in constant transformation.

According to Orlikowski (2002) knowing and different human capabilities neither are internal human attributes nor incorporated in external objects or systems. Instead they emerge from situated and ongoing interrelationships of activity, context, intentions, actions and structure. She defines knowing as a continuous social accomplishment which is constituted and reconstituted in everyday practice. Orlikowski (2002, p.253) continues to define also competence on these grounds: 'People's ongoing engagement in social practices, and thus their reproduction of the knowing generated in those practices, is how they reconstitute knowledgeability over time and across contexts. Continuity of competence, of skilful practice, is thus achieved not given. It is a recurrently but nevertheless situated and enacted accomplishment which cannot simply be presumed'.

To all these theories mentioned, there is a common denominator: inseparability of knowing from *social practise*. The concept of practice connotes doing in a context that gives structure and meaning to what is done. It includes both explicit and tacit; things that are represented and things that are assumed. Practice includes for instance explicit tools, symbols, roles, procedures and regulations as well as implicit relations, tacit conventions, embodied understandings, underlying assumptions and shared world views – just to mention a few examples. (Wenger 1998)

THE UNOFFICIAL COMMUNITIES OF KNOWLEDGE CREATION

On the grounds of reviewed literature it is relatively safe to say that although designerly knowing is often the kind of knowing inseparable from the knower, it is not developed in individual isolation. Designerly knowing does not limit itself in the organizational boundaries either. Process of designing is itself a social practice of learning to design. It is in fact *the* social practice that is essential to building designerly knowing.

Interdependence between the individual [designer] and the social practice [of designing] can be seen as the basis for 'knowing in practice' (Billet 2001). Engagement in the practice of designing is essentially social – the participation of individual designer in the community of practice is indispensable for individual development of competence.

The engagement in the practice of designing is still not the only active process constructing designerly knowing. In design practice the task sets the directions where the expertise of designer must reach. Design competence constitutes of much more than only skills and knowing how to design. Many of the addressed domains of knowledge in design tasks may be essentially formed on the grounds of understanding developed through interaction, and then constituted and reconstituted over time and across contexts through design practice. (cf. Orlikowski 2002)

Designerly knowing is gained, developed and cultivated also in surprising settings, such as communities around mutual interests and hobbies. Specialized communities generate specialized knowledge which can be utilized in product development for example to understand the users, markets and contexts of use. (cf. Kotro 2005) These unofficial social processes that are part of the construction of designerly knowing have resemblance to concepts such as 'communities of practice' and 'communities of creation'. These shared practices can be also identified in different levels of social commitment, for example on the level of individuals, teams, organizations and finally on the cultural level.

MECHANISMS OF KNOWING IN DESIGN PRACTICE

The origins of designerly knowing cannot be identified unless one is also able to point out the existence and function of designerly knowing in practice. This relates also very much to generation of original ideas. Moments of creative leap, sudden insight or illumination are stereotypically familiar to any creative practice (Cross 2006). These moments in designing hint that knowing related to the task at hand is not always perceivable even during the process or consciously retrievable. These moments are sometimes characterized as radical shifts of perspective (Koestler 1964).

However, Cross (2006, p.57) has pointed out that creativity in designing comes more often in the form of bridging than leaping. The process of designing often proceeds 'by oscillating between sub-solution and sub-problem areas, as well as by decomposing the problem and combining sub-solutions'. This means that in practice problem and possible solutions are constructed simultaneously. Cross (ibid.) uses the concept of bridging to refer to recognition of a concept that embodies relationships between problem and solution thus illuminating the crucial factor for the task at hand. Lawson (2004) has also noted that expert designers are able to apply ideas from other domains into current design task and combine solution ideas that appear to originate from apparently distinct sources.

Lawson (ibid.) forms his arguments mainly based on analysis of experienced architects' practices. In 'new product development' for example the requirements are however different and designers cannot rely as much on their precedents, guiding principles and gambits. Instead in search for novel design concepts the process is more effectively supported by combining and integrating *varying* pools of knowledge and ideas. This is well asserted through protocol studies where designers are in laboratory outset given the same task and information to start with – it is not surprising that they all come up with the same 'original' idea (Dorst and Cross 2001).

So far there are only few empirical studies that have offered any evidence of social mechanisms of constructing knowing in design practice. One study is worth to mention here in this context. Kotro's (2005) research in her doctoral dissertation is very much an example of social construction of designerly knowing. She studied how members of a product development team 'make sense about the markets and the users of their product in the product development process'. The study exemplifies how personal involvements and also leisure-time interactions of company personnel can be seen as a crucial factor in the product development process.

Kotro (ibid.) proposed a theoretical concept: *hobbyist knowing* to describe how fundamental knowing for product development is created by team members' personal participation in particular social activities and communities – in her case sports.

The definition of hobbyist knowing as active knowing embodied and embedded in action is similar to the Schönian view of design practice, but in Kotro's (ibid.) case the content and focus of knowing are not in designing but in the potential users and contexts for product use. This may suggest that the case could represent a more general model of designerly knowing construction and not just a particular situation or circumstances. This still remains to be studied. However it is very plausible that what designers are passionate and enthusiastic about in their private life follows easily to work building sensitivity and understanding towards their concern also in design assignments.

WORKING THE KNOWING INTO DESIGN PROCESS

On the basis of reviewed research literature I propose an interpretation that the understanding developed through designers' engagement in social practices in various contexts and in different levels of social commitment evolves into designerly knowing as it is worked into design task and solution.

The designer brings into every task components of personal life and social networks. Often all these ingredients are not traceable to designers themselves – much less to an outside observer. Knowing is not always composed consistently so that the knowledge of the users would originate from the social processes in the context of use. Fragments of information and understanding from designer's experiential and social circles conflate and merge into the process.
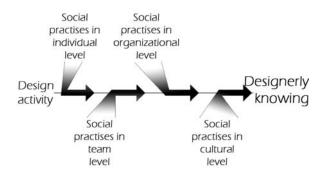

Fig. 1. Hypothesis of the process of working and constructing the designerly knowing from social practices through design activity

Although the social practices are presented here as separate, many of them may conflate each other and intertwine so that they cannot be separated into distinct processes. Also the figure does not aim to illustrate the proportion different practices may have in the process. In some tasks there may be a practice that dominates overall knowledge building, whereas in some tasks the knowing could be seen to originate rather equally from different practices.

Interpretation of design practice and construction of designerly knowing as fundamentally social activities resembles also current perspectives on user studies where the focus has turned into interaction, environments and human systems (cf. Buchanan 2001). In fact it is only consistent that if we consider users of design products to be situated in social and cultural environments that affect their product experience, we see the designers practising design likewise in similar environments. This view of design practice is also congruent with the view of 'design as a discipline that integrates knowledge for practical action' (Buchanan 2001, p.19).

DANGERS OF CONFIDENCE IN COMPETENCE

The sense of competence acquired through designerly understanding and knowing has its own flaws as well. Designer may feel that there is no need for questioning the knowledge, although the process could benefit from a fresh perspective. A healthy dose of suspicion and questioning makes sure that the designerly knowing does not become a fortress for defensive routines and reasoning that inhibit learning and innovation. (cf. Argyris 2004).

Formed social networks and communities can also become a limiting factor if they manage to become entrenched and an outside perspective is missing. From this follows that not only emerging and deepening but also questioning and evolving of different social networks and communities can have major influence on development of designerly knowing.

CONCLUSION AND POTENTIAL IMPLICATIONS

The brief outlining and hypothesis of the social dimension in construction of designerly knowing are elaborated on the basis of theoretical and conceptual reflection based on the research literature of design discipline and relating research. The suggested interpretations yet have to be further examined through

empirical research on the subject, but some grounding implications for further actions can be already gathered here.

The designerly creativity and innovations can be encouraged and enabled but not deliberately produced or manipulated. What seems to be crucial to the development of designerly knowing is its nature as a social and active process transcending and expanding both personal and organizational limits.

I suggest an interpretation that the sudden insights or illuminations that are essential to innovation may be grounded on combination of knowing and understanding from various social actions. The diverse social practices where the designer participates both privately and on duty may be an important reference in design practice and therefore serve as a notable basis for the growth of designerly knowing.

Implications for the methodological approach in research on design activity are also evident. The most widely utilized method in the study of design activity is protocol analysis which often requires an artificial and controlled setting, a laboratory-like outset. This has obviously severe limitations if we want to study authentic design processes that extend far spatially and temporally – and also naturally involve social interaction. Studies from artificial settings cannot encompass any evidence of construction of knowing outside the controlled environment and therefore the approach is not of much practical use in search for social origins of designerly knowing.

If we want to study design practice as it takes place in realistic settings we cannot force the activity into limitations of our methods. Instead we must find methods that fit into real life situations and enable recording and examination of broader connections in actual contexts. From this premise approaches based on for example activity theory or ethnographic origins utilizing data gathering methods such as interviews and audiovisual data from authentic settings may offer valuable evidence of where, when and how the designerly knowing in reality is constructed.

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