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Framing between openness and rigidity –the role of design requirements in creative design

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Abstract

In this paper we discuss the role of requirements in the design process, and the relationship between requirements and creativity. Starting with a brief outline concerning the different notions of the requirements and constraints that frame the creative design process, we propose an aporetic discussion scheme that points out the dialectical character of design requirements and constraints enabling creativity between openness and rigidity. Based on that model we discuss the possibilities and necessities designers face when trying to bridge the outlined polarities in their daily work. The concluding remarks are pointing out some questions and theses for further discussion.

In both the design and related literature, a lot of different terms are used to describe the frames introduced and applied in the design process. In this paper we discuss such requirements and constraints on three different levels; principal constraints, design requirements and desired properties. Requirements are considered as a highly important part of the design process (Holtzblatt 1995), within software design this has even led to the emergence of the research field Requirements Engineering (Ceng & Atlee 2007). The subject of requirements are linked to important elements as cost (Walz 1993), uncertainty (Herbsleb 1993) and creativity (Amabile 1996, Dorst & Cross 2001, Stokes 2005).

When it comes to the relation between creativity and requirements, these writers present conflicting views on the properties of the relationship. One line of argument argues, that imposing constraints leads to diminished creativity (e.g. Amabile 1996), the other claims that without any constraints creative work is impossible resp. that changing the set of requirements is a creative act in itself (e.g. Stokes 2005). The arising paradox can be related to what Hyysalo (2002) points out as the two divergent traditions describing design: The “rational problem solving” proposed by Simon (1996), and the “reflective practitioner”-approach presented by Schön (1983). If we take both lines of theory and the observations that lead to their formulation seriously, it looks like, that bridging these seemingly paradox realms is what designers obviously do every day in their real world working environments!

In the paper we propose a mapping of the main polarities around the issue of enabling creativity through working with requirements and constraints. We discuss the dialectical relationship around the notion of requirements framing a design task as an aporia between openness and rigidity following the Socratic rhetorical figure (Plato 1999) and newer proposals for their application to contemporary issues (Pietschmann 2002). By that we become able to investigate the puzzlement about the observation that both opposites seem

to be involved and necessary to come up with creative design solutions. The framework is used to discuss some current findings and prospective research questions in the area of design research.

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