

The social production of design space



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The production of design space refers to the activity of an individual or a group of individuals considering alternatives and possibilities for a design brief. Design studies often consider constraints to be a major determinant of design space, yet this paper introduces the notion of contradiction to underscore a dialectical determination of design space. The intention here is to characterise the production of design space as a socio-material rather than a cognitive process. This is accomplished through an in-depth look at a medical imaging centre project and an experiment with design students about the same project. In comparison to the original project, the students' activity reproduced the same contradictions faced by practitioners.

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Keywords: design activity, parametric design, architectural design, design space, case study

Previously seen as an outcome of design (especially in architectural design), space is being increasingly studied as a locus where design happens. The available studies can be divided into two streams: one that focuses on the interactions of designers, clients and users as it happens in offices and elsewhere (Botero, 2010; Luck, 2014; Sharrock & Anderson, 1994; Westerlund, 2009) and another that studies the cognitive activity of designers exploring and redefining an abstract space of possibilities (Gero & Kumar, 2006; Goldschmidt, 1997; MacLean, Young, Bellotti, & Moran, 1991; Mose Biskjaer & Halskov, 2013). This paper brings the perspective of the first stream — in particular, historical analysis (Engeström, 2015; Lefebvre, 1991) — to study the research object of the second stream — design space. The goal is to look at the social production of design space, the contradictions faced by its multiple producers and the attempts to overcome those contradictions.

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www.elsevier.com/locate/destud
0142-694X *Design Studies* 46 (2016) 199–225
<http://dx.doi.org/10.1016/j.destud.2016.06.002>
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In design studies, design space is a term vaguely used to the many possibilities a project has to produce an object. When taken seriously as a research object, design space has been considered a definite (Gero & Kumar, 2006) or indefinite (Goldschmidt, 1997) set of shapes and functions for a particular object or kind of objects. Since these shapes and functions sometimes are considered to solve a problem, design space is sometimes split into problem space and solution space (Biskjaer, Dalsgaard, & Halskov, 2014; Dorst & Cross, 2001; Goel & Pirolli, 1992). These spaces change according to the activity of an individual designer transforming an object or, in a broader sense, with collective designers sharing a tradition with the same kind of object.

From this, it is possible to say that design space has a dialectic relationship with design activity. Design space is produced by design actions — such as imagining, sketching, visualising, weighting, generating or rejecting, but design actions are also restricted by design space. This restriction has been attributed so far to constraints, which are explicit definitions of criteria, requirements, needs and other limitations imposed by the conditions for production (Gross, Ervin, Anderson, & Fleisher, 1988; Lawson, 2005; Mose Biskjaer & Halskov, 2013). Constraints are considered the determinants of design space for this pragmatic function, but their origins and transformations are rarely investigated. Previous studies have looked either at design space determining design activity or design activity determining design space, yet none have taken them in a dialectical relationship. To unravel this dialectics between design activity and design space, it is necessary to look at what is behind constraints.

Constraints rise in design space because design activity is a social activity connected to many others in society (Dilnot, 1982). Design activity has to respond to management, marketing, distribution and others involved with the production of the object and also to the diverse activities that use the object once it is produced. The relationships among these activities are not necessarily coherent and explicit. Quite to the contrary; they are often incongruent and implicit. The unfair, unbalanced and awkward relationships harbour contradictions, which are systemic tensions that accumulate along the history of an activity (Engeström, 2015; Foot & Groleau, 2011). Previous research has identified contradictions of design activity (Blau, 1984; Cuff, 1992; Ehn, 1988), but little has been done to identify contradictions of design space.

This paper experiments with the notion of contradiction as a driving force behind the social production of design space. This goes deeper than the notion of constraints as determinants of design space. Constraints, issues, problems, solutions and other cognitive notions approach contradictions from one of their sides. The aim of this paper is to ground these abstract components of design space to the concrete social process that produces them. This is expected to contribute to design studies by expanding the scope of research on design space to the underlying production of design space.

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