INTRODUCTION

Designerly thinking manifests itself in a variety of modes of approaching design tasks, among them reasoning, intuition, commonsense, art, science, drawing, problem-solving and experience. Designerly thinking tends to explore what works within a particular context and is less concerned with formal criteria as they apply to other fields of study. In this way, designers can handle, and even seek, paradox, ignorance, ambiguity and even destruction just as they can handle and seek clarity, explicit knowledge, logic and formal rigour. This chapter aims to chart a new direction in what Schneiderman (2000) describes as “inspirationalist” approach to supporting creativity. This approach encourages creativity through strategies encouraging free association, play, divergence or lateral thinking in order to offer new ways of perceiving design tasks (DeBono 1973). Creativity support developed from this perspective often employs visual techniques which can assist in reimagining that which is presented. Goldschmidt (2003) has suggested that sketching aids designers in...
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creative exploration by providing opportunities to “see again” that was initially expressed visually in drawings. Sketching thus allows designers to interpret drawings and “ascribe meaning” (Goldschmidt 2003, p. 83) to the unintended consequences of their drawings. Goldschmidt (1991) describes the experiences of drawing designers as dynamic exchanges between designers and their sketches and characterizes sketches as “interactive imagery”. Sketching enables designers to transcend the realm of the representational by inviting or evoking new ways of seeing and thinking. While the links between creative thinking and sketching in the design-related professions have been examined in numerous studies over the past twenty years, in particular within the ongoing discourse in the journal *Design Studies* (see for example Schön 1988, Schön & Wiggins 1992, Suwa & Tversky 1997, Purcell & Gero 1998), research on diagrams has primarily been carried out in the fields of cognitive science, psychology and artificial intelligence. Studies originating from these fields have tended to focus on the role of diagrams in multi-modal reasoning and in visual forms of rational problem-solving through logical inference (see for example Glasgow, Narayanan & Chandrasekaran 2005). From this viewpoint, diagrams are defined as: “A diagram D is a set of labeled 2D objects all located clearly inside (i.e., no intersection or touching) a common region (or bounding box) B. The objects are of three types - points, curves, regions” (Chandrasekaran et al. 2005). This definition emphasizes the distinguishing and demarcating function of diagrams denoting clear formal relationships where diagrams serve a representational purpose, but refer to symbolically encoded contents. Even a more general definition of diagrams as given by Kamps (1999) emphasizes their role as devices to “visually represent factual knowledge”. This view of diagrams is common in the context of digitally supported designing, since it allows the translation of diagrams into formats that can be handled digitally. In the context of architectural designing, however, diagrams may also be understood and employed in yet different ways. When describing the role of diagrams in architectural design processes, in particular in communication between architects and clients, Szalapaj (2005) critically comments on the way diagrammatic reasoning is treated in artificial intelligence research. He argues that treating diagrams as mere inputs to computer systems based on an information-processing approach “completely misses the point of diagrammatic reasoning in architectural design” (ibid., p. 222). In the context of design processes, he emphasizes, diagrams may more productively be thought of as supporting creative thinking by influencing and expanding visual thinking processes. Both diagrams and sketches can function as abstract and ambiguous types of representations that encourage design exploration by enabling multiple interpretations (Goel 1995). This study approaches diagrams and diagramming similarly to sketches and sketching and focuses particularly on the use of evocative diagrams to support creative processes in the educational context of the design studio. In this role, diagrams do not merely function as symbolic representation or visualization tools, but as interactive imagery supporting creative thinking processes as described by Goldschmidt (1991). Szalapaj’s (2005) critical comments on the information-processing viewpoint may be extended to the notion of “diagrammatic reasoning” itself, which seems to limit the scope of visual thinking processes to the realm of the rational. When designing, architects may not only reason rationally but for example seek productivity through maintaining ambiguity (Goel 1995) and by relying on emotion and intuition. Depending on their intentions, architects may thus create diagrams as tools enabling clear communication, or as media enabling creativity, or as anything in between. Accordingly, diagrams may conform to, (mis)appropriate or transform established visual codes that allow for symbolic forms of representation. Accordingly, Mark Garcia (2010), from an architectural viewpoint, characterizes diagrams...
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