Designing in the absence of sight: Design cognition re-articulated

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Starting from the study of an architect who designs in the absence of sight, we question to what extent prevailing notions of design may be complemented with alternative articulations. In doing so, we point to the cognitivist understanding of human cognition underlying design researchers' strong attention to 'visual thinking', and contrast this with more situated understandings of human cognition. The ontological and epistemological differences between both raise questions about how design research is produced, and consequently what design can *also* be. *By accounting for how a blind architect re-articulates prevailing notions of design, we invite researchers to keep the discussion open and call for an ontological and epistemological re-articulation in design research.*

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Designers are particularly visually sensitive, using models and representations heavily reliant on graphic images. This has led to a view that the form of cognition known as 'visual thinking' is key to design ability. In designing architecture, for instance, the visual is so important that architecture students have been dubbed 'the vis kids of architecture' (Goldschmidt, 1994). Even authors arguing that 'visual thinking' in design is a philosophical construct which can be dispensed with acknowledge that this does not undermine the significance of the visual dimension (Moore, 2003).

Given the central role of 'visual thinking' in design, it is hard to imagine that someone can design in the absence of sight. Blindness seems at odds with the visual modes of thinking and communicating considered to be at the core of design ability. More so, designing might even seem *impossible* without sight given its heavy reliance on sketching.

Numerous studies on the role of sketching have all emphasised its inherent power as design aid. Some (*e.g.*, Suwa & Tversky, 1997) have tried to further articulate why sketching is so powerful and essential for crystallising design ideas, by examining what information architects think of and read off from their own free-hand sketches, and how they perceptually interact with and benefit from them. Overall, these studies conclude that '[t]he key 'tool' to assist

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design cognition remains the traditional sketch. It seems to support and facilitate the uncertain, ambiguous and exploratory nature of conceptual design activity' (Cross, 2006).[1] Sketching is found to be tied-in closely with generating and exploring tentative concepts, and recognising emergent features (*e.g.*, Cross, 2006; Goel, 1995; Goldschmidt, 1991). Besides studies on traditional sketches, these findings also have triggered research on new computational technologies to advance sketch-based design tools (Yang & Burak Kara, 2012).

In the absence of sight, making a sketch may still be possible to some extent, yet reading off information from it and recognising emergent features in it is certainly not. Nevertheless, this article builds upon a study of an architect who continues designing after having lost his sight. His work offers an interesting opportunity to expand our understanding of design and design research. The fact that someone designs in the absence of sight raises questions as to what extent 'visual thinking' and its support by free-hand sketching—or other prevailing notions of design ability, for that matter—may be complemented with alternative articulations of design.

Therefore, this article starts by investigating where design researchers' outspoken attention for these aspects comes from, and indicates how it ties in with a particular, cognitivist understanding of human cognition. Compared to other understandings, we point out, cognivitism comes with an ontological and epistemological disarticulation, which in turn raises questions as to how design research is being produced. Finally we present, by way of example, a study that allows for and enacts alternative design realities, by accounting for how a blind architect re-articulates, and makes us, researchers, re-articulate prevailing notions of design.

Traditionally, the word 'articulation' means 'the action of putting into words ideas or feelings'. For anthropologist of science and technology Bruno Latour, however, articulation is not so much a feature of human language, but rather an 'ontological property of the universe' (1999: p. 323). For Latour, '[a]n inarticulate subject is someone who whatever the other says or acts always feels, acts and says the same thing […]. In contrast, an articulate subject is someone that learns to be affected by the others—*not by itself*' (2004: p. 210, emphasis in original). He explains that 'a subject only becomes interesting, deep, profound, worthwhile when it resonates with others, is effected, moved, put into motion by new entities whose differences are registered in new and unexpected ways.' The decisive advantage of articulation is that there is no end to it where there is an end to accuracy: whereas validation of the correspondence between a statement and the state of affairs is the end of the story, 'articulation […] does not expect accounts to *converge* into one single version that will *close* the discussion with a statement that would be nothing but a mere replication of the original.' Transposed to this article, articulation thus does not expect to converge