

Approaching the architectural native: a graphical transcription method to capture sketching and gesture activity



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As a research team without architectural training, we approached a total of 22 experienced architects and designers in order to investigate architectural design practice with an emphasis on human wayfinding. For the main study, eight informers developed circulation systems for a number of case studies. Our graphical transcription method allowed us to systematically investigate the sketching and gesture activity as is typical in design practice. Our analysis reveals the early design decisions of our informers and links them to priorities and the resulting design solutions. Regarding our method we can conclude that it is possible to gain insight into the concepts and work practices of a visual domain or profession, even for researchers untrained in that domain.

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The present work grew out of a research project investigating the question *why people get lost in buildings, despite the fact that buildings are made by humans, for humans*. The initial user-centred question immediately provoked its designerly complement: *How does architectural design practice address navigability and circulation issues?* A number of scholars address spatial cognition aspects specifically in relation to environmental design and spatial planning (e.g., Appleyard, 1969; Weisman, 1989; Werner & Long, 2003). Most importantly, Passini's (1996) *Wayfinding Design* is explicitly intended to guide planners in their projects; Marquardt (2007) specifically addresses planning for users with dementia. In order to integrate our spatial cognition methods into a practical design context we needed a thorough understanding of how architects address issues of building navigability.

On the one hand it was our intention to make buildings 'better' by applying our spatial cognition methods to 'real-world' design projects. On the other hand we realised that integrating our approaches into design practice would hinder a fluent and swift development of design solutions. Applying our methods in a direct way would produce sound results but also turn the design activity into a slow and tiring process of making changes to a design in a systematic way, testing variants under laboratory conditions, revise the designs,

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and so on. Put another way, our results could pin down usability issues in existing or planned buildings. However, even in smaller case studies we struggled to establish a productive connection to practitioners. In order to gain an understanding of the architectural design process itself design cognition and design studies appeared a natural point of departure.

The design thinking movement has brought (architectural) design into the realm of empirical research: Design is now a human activity broadly studied, both within the design professions themselves and in scientific disciplines. Gregory's (1966) *design method* assumes universal properties underlying all design activity. *Evidence-based design*, often with a strong orientation towards experimental psychology (Philip, 1996), has grown in the context of health care management and aims to optimise design solutions based on empirical evidence, scientific research, and other available information (e.g., Marquardt, 2007). The ultimate goal is to gain an understanding of how architects and designers develop their solutions and to develop a general model of the underlying mechanisms in design thinking (e.g., Kruger & Cross, 2006).

Expertise research aims at the general investigation and modelling of human problem-solving competence and domain-specific knowledge. Duncker and de Groot are pioneers in asking participants to “think aloud” (cf. Ericsson, Charness, Feltovich, & Hoffman, 2006, p. 41). The method later became a standard approach in usability studies (Strube, 1996) but also for video-recording and subsequent coding and analysis of design sessions (Suwa, Purcell, & Gero, 1998). *Expertise modelling* (Feltovich, Prietula, & Ericsson, 2006) and *knowledge engineering* (Buchanan, Davis, & Feigenbaum, 2006) recommend informal interviews to allow researchers to get into a domain's structure and terminology. Formal approaches then identify concepts, tasks and procedures to be formalised as taxonomies, ontologies, reasoning mechanisms and the like (Hoffman & Lintern, 2006; Hölscher & Strube, 2006; Meuser & Nagel, 1991; Stefik, 1995).

Architects often claim to easily imagine an immersed scenic view (that of a user) while working in plan. Luck (2014) points out that “Designers routinely discuss and imagine situations that do not yet exist”. Werner and Long (2003) argue that a floor plan does not provide direct access to the immersed view of a spatial configuration. Nevertheless, it is theoretically possible to anticipate visibility relations based on plan view alone, without a scenic visualisation; for example based on straight lines and their intersections with solid obstacles in a plan (cf. Benedikt, 1979; Turner, Doxa, O'Sullivan, & Penn, 2001). In general, *user anticipation* refers to putting oneself in the users' shoes and *anticipating* their thoughts or information requirements for solving a wayfinding task (cf. Fussell & Krauss, 1992). It must be noted that the underlying cognitive mechanisms remain subject to further investigation including visual aspects (e.g., Keysar, Barr, Balin, & Brauner, 2000).

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