THE ROLE OF MENTAL IMAGERY IN CONCEPTUAL DESIGNING

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Acknowledgements

I was interested in architecture beginning with my childhood dreams, I imagined houses, and interiors, walked through them, I lived in them; each house was a new experience for me. Architecture was on my mind, but I never had a chance to put it on paper. I ended up graduating with an Engineering degree. I moved into the design area during my interdisciplinary master program in interior architecture. I found that design activity is fascinating to observe and try to understand.

From the beginning of my PhD I was curious about what architects imagine when they design, knowing that my dream buildings/interiors were mental rather than external. My associate supervisor (Assoc. Prof.) Terry Purcell was also interested in this question and he had already conducted initial blindfolded experiments with two architects. So I was lucky to take over what he started. We had so many enthusiastic conversations on imagery, psychology and sketching. Thanks Terry, I am grateful you were there whenever I needed your help and support.

I learned my supervisor’s name years before I met him. I remember many interesting articles I read initially on design research and creativity had his name, Prof. John S. Gero. One day during my masters I decided to email him and wrote about my research intentions. His reply was welcoming, and from then on his attitude has always been welcoming, eventually he became my mentor, supervisor, and the person I trust and respect the most during my overseas journey in Sydney. Living in a different country/culture and doing a PhD under John’s supervision has been the most fulfilling experience in my educational journey. I learned from him that profound works need time and patience and is created by enormous attention to details and planning. Thank you John for being consistently interesting and surprising at all our meetings, it has been a pleasure work with you.

I would like to thank to participating architects for their time, effort and mostly for their courage to be blindfolded and going through this experience.

I would like to thank my mum and dad and my sister for emotionally and mentally supporting me. During my PhD, mum and dad had to learn fast typing for our msn conversations, about junk emails, what design cognition means and why I am studying architects, why do I blindfold them and video-tape them etc. Also thanks to my friends (especially to Ceren) who prompted me to talk about my research in brief, simple and interesting terms so that anyone can understand what I am studying.

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Abstract

In design literature, how designers think and how they design have been identified as a reflection of how they interact with their sketches. Sketching in architectural design is still a central concern which shapes our understanding of the design process and the development of new tools. Sketching not only serves as a visual aid to store and retrieve conceptualisations, but as a medium to facilitate more ideas, and to revise and refine these ideas. This thesis examined how mental imagery and sketching is used in designing by conducting a protocol analysis study with six expert architects. Each architect was required to think aloud and design under two different conditions: one in which s/he had access to sketching and one in which s/he was blindfolded (s/he did not have access to sketching). At the end of the blindfold condition the architects were required to quickly sketch what they held in their minds. The architects were able to come up with satisfying design solutions and some reported that using their imagery could be another way of designing. The resulting sketches were assessed by judges and were found to have no significant differences in overall quality.

Expert architects were able to construct and maintain the design of a building without having access to sketching. The analysis of the blindfold and sketching design protocols did not demonstrate any differences in the quantity of cognitive actions in perceptual, conceptual, functional and evaluative categories. Each architect’s cognitive structure and designing behaviour in the blindfold activity mimicked her/his cognitive structure and designing behaviour in the sketching activity. The analysis of links between the design ideas demonstrated that architects’ performance in idea development was higher under the blindfold condition, compared to their sketching condition. It was also found that architects’ blindfold design performance was improved when they were more familiar with the site layout. These results imply that expert designers may not need sketching as a medium for their reflective conversation with the situation.

This study indicates that constructing internal representations can be a strong tool for designing. Future studies may show that designers may not need sketching for the generation of certain designs during the early phases of conceptual designing.
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