Comparative Analysis of Novice and Expert Visual Communication Designers’ Thinking Processes

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Abstract

Design thinking involves divergent and convergent thinking towards a satisficing solution with issues such as rationalization, creativity and how it functions during the process with design activities. The goal of this research is to understand design activities and cognitive processes during design phases through comparative analysis of novice and expert visual communication designers under theoretical framework.

Research method for the study consists of three stages; 1) literature review, 2) experiment, and 3) analysis. After reviewing design thinking, visual communication design, and design activities and cognitive processes in design phases, a visual communication design task is performed by novice and expert designers in an experimental setting. Collected data includes concurrent self-reporting, writings, sketches, computer iterations, retrospective interview and researcher’s observational notes. Data assembled in one-minute time frames were examined by two coders for verbal and visual analyses.

For the design process, all expert designers went through the phases of problem structuring, concept generation, concept visualization, design refinement, and detailing whereas two of the novice designers jumped into visualization followed by refinement and detailing. Experts worked on detailed design in between phases instead of at the end which indicates the ability to segment and conquer design task according to confronted circumstances. In reflection to design activities, novice designers produced significantly larger number of sketches compared to expert designers. Expert designers produced small number of sketches but they made substantial progress during the process. Novice designers used graphic software as a confirmatory tool whereas expert designers started working with computer from preliminary design phase for exploratory purposes. As for cognitive processes, expert designers exhibited more divergent thinking compared to novice designers. Expert designers went through divergent to convergent thinking for concept generation, and repeated the process one more time during visualization until meeting a satisficing design solution. Novices who overlooked concept generation went through divergent to convergent thinking during sketching and visualization using computer.

The goal of this study was to investigate the thinking processes of visual communication designers during the entire design phases through comparative analysis of novice and expert designers. This study contributes to the comprehensive exploration of the design phases as most of the prior researches concentrated on the conceptual stage of design process. This sets example for examining design disciplines according to the design objectives, functions, artifacts, and how designers operate while designing. For the future research, specific issues found from the study need to be further investigated with larger number of participants for finding patterns of visual communication designers’ thinking processes.

Keyword

thinking process, visual communication design, novice and expert designers