Background and Motivation

Creativity is crucial to the success of the new product design process and is a driving factor in innovation and long-term economic viability. Prior work has shown that effectual modes of thinking, that is, leveraging existing resources to develop an innovative solution, can lead to more creative outcomes. A new web interface was developed to empirically test the impact of effectual thinking on the creativity of early phase design idea generation. A pilot study was conducted using this interface to investigate novice designers’ click-level behaviors with effectual and causal information.

Web Interface Development

A web interface was developed with 8 clickable elements that contained pieces of information that were developed by the researchers to help participants understand the problem space.

Causal elements: Information primarily concerned with the end goal, or market opportunity found in the design problem.

Effectual elements: Information primarily concerned with the resources and skills presumed available to the designer in this hypothetical design situation.

Pilot Study

8 students attended a design session in the laboratory and generated low-fidelity sketches to the design problem. Participants’ click-level interactions with the web-interface were captured and analyzed.

Conclusion

The results of this project have resulted in an empirically tested web interface for investigating how novice designers utilize effectual and causal information during early-phase design activities. This interface will allow for the research team to study the influence of utilizing different kinds of information in a controlled laboratory setting. The results of this line of research will shed light on the cognitive factors that lead to creative design outcomes in student designers.

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