What makes for inspirational examples in design? The effects of example modality, distance, and familiarity.

Joel Chan
University of Pittsburgh

Katherine Fu
Carnegie-Mellon University

Christian Schunn
University of Pittsburgh

Kristin Wood
University of Texas-Austin

Jonathan Cagan
Carnegie-Mellon University

Kenneth Kotovsky
Carnegie-Mellon University

Abstract: An important question in the cognitive science of design concerns the influence of environmental input on ideation processes. Prior work has demonstrated that analogizing over examples in the environment is a double-edged sword: examples can help designers come up with innovative designs, but variations in key properties can result in negative design outcomes (e.g., fixation). We investigated the influence of variations in presentation modality, analogical distance, and familiarity of provided design examples on ideation processes. Engineering students generated solution concepts for an engineering design problem with or without provided design examples (analogy groups vs. control group). Examples in the analogy groups were fully crossed by modality (pictures vs. text), distance (near vs. far), and familiarity (familiar vs. unfamiliar). Results indicate that designers' familiarity with examples influence whether they suppress or promote innovation, regardless of modality or analogical distance.