Justifying Design Decisions with Theory-based Design Principles

Abstract:
Although the role of theories in design research is recognized, we show that little attention has been paid on how to use theories when designing new artifacts. We introduce design principles as a new methodological approach to address this problem. Design principles extend the notion of design rationales that document how a design decision emerged. We extend the concept of design rationales by using theoretical hypotheses to support or object to design decisions. At the example of developing a new conceptual modeling grammar we demonstrate two main benefits of using design principles. First, the link between theory and design decision enables the design researcher to reason about the resulting behavior of the IT artifact prior to instantiation. Second, design principles allow deducing empirically testable hypotheses to foster the rigorous evaluation of IT artifacts.

Intellectual Contribution:
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