Design Process

Zhaowen Zou / Sean Hamilton
Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy

Zhaowen Zou
Goals

• Understand the how to raise hypothesis
• Understand and explore the measurements used to evaluate design work
• Explore the reason why parallel prototyping can produce better results than serial prototyping
What is prototyping?

- A **prototype** is an early sample, model, or release of a product built to test a concept or process or to act as a thing to be replicated or learned from.
Parallel vs. Serial Prototyping
IDEO Shopping cart mockups
Obama campaign website
Hypothesis

• Feedback comparison and produces higher quality designs.
• More divergent concepts.
• Greater increase in design task-specific self-efficacy.
Discussion

What is the hypothesis of your course project and where does it come from?
Measurements

- Performance
  - Click through rates
  - Visitors, time spent and page visited on client Web site
  - Judged by magazine editors and ad professionals
- Divergence
  - Rates recruited from Mechanical Turk
  - Rate pairwise similarity on scale from 1 to 7
- Self-efficacy
  - Pre- and post-test questionnaires
  - Rate ability
Advertisement click-through
Discussion

Do you think the evaluation of divergence is objective or subjective?
From your commentaries...

- I think this is a subjective measure since there is no standardized criteria to quantify similarity. Raters evaluate the similarity for each prototype based on their own judgements. -- Xindi

- The measure of diversity ended up being objective in nature. -- Calvin

- Their measure of diversity was definitely subjective, but I believe that the authors tried (in their best ability) to make this measurement as objective as possible. -- Ariana
Discussion

Are the measurements of the performance of the ad (CTR, Google Analytics measurements, editors and experts rating) reasonable? Why?
Discussion

What other measurements you can think of to evaluate the design of the ad banners?
Can good design be measured?

- Think holistically
- Measure objectively
- Seek meaning
- Use multiple data sources
- Don’t make it all or nothing

Pamela Pavliscak, Founder of Change Sciences
Result

- Greater CTR
- More time spent on client website per visitor
- Higher rating from editors and experts
- Less similarity
- Designers gained more self-efficacy
Discussion

Why parallel prototyping outperforms serial prototyping?
Why parallel outperforms serial?

- Comparison helps learn design principles
- More generative thinking and reduces fixation
- Separate ego from artifact
Insight in other domain

Gentner, Loewenstein, Thomson, 2003
Insight in education
Experienced vs. Novice

Fig. 10. Novice participants in the parallel condition reported an increase in self-efficacy from pre- to post-design task; self-efficacy for novices in serial decreased.
Discussion

Why compare between experienced and novice designers?
Discussion

What is an example when serial prototyping can outperform parallel prototyping?
From your commentaries...

- On a similar note I also thought it was pretty cool how this problem aligns with the algorithm challenges that AI systems face in terms of exploration vs exploitation.  
  -- Tushar

- For instance, software development usually follows an iteration of planning, implementation, testing and evaluation. This resembles serial prototyping and works well in software engineering.  
  -- Xindi

- Having chosen an inherently ‘creative’ field such as web-ad design, instead of a more rigorous, mathematical field such as engineering design...  
  -- Brahm
Discussion

How can you apply the conclusion of the paper into the research project?
Demonstration of Google AdWords
Design-oriented Human—Computer Interaction

Sean Hamilton
Goals

Understand

- perspectives of design
- design-oriented research vs Research-oriented design
- design-oriented research in HCI
Definitions

**Design**, *verb*: to create, fashion, execute, or construct according to plan: *devise, contrive* design a system for tracking inventory (Merriam-Webster)

“To design, again not unlike carpentry, is to consciously aim to create and give form to previously nonexistent artifacts.” (Fallman)
Perspectives

Conservative: as a scientific or engineering endeavor
  - Requirements driven
  - Optimization
  - Narrow-minded view of design

Examples:
  - System and
  - Software Engineering
  - Commercial Product Development
Perspectives

**Pragmatic:** design is a reaction to a context
- A Socratic process
- Conversation driven
- Non-linear progression
- Iterative

*Examples:*
Design by whiteboard
Sketching
Perspectives

Romantic: “imaginative masterminds equipped with almost magical abilities of creation”

• An ideal approach, not realistic
• Not really for the real-world

Examples

• A marketer's Design process
• Design method of a company named after a fruit, perhaps?
Discussion

Are these three perspectives of design all-encompassing? Can you think of any more views that are orthogonal to those Fallman outlines?
Discussion

Are the conservative and pragmatic views even orthogonal to one another?
Design-Oriented Research

• Contributes truth or knowledge to a field of study
• Prototype or model required to obtain the outcome of the research

_Examples:_

Looking back on the papers we studied, I see how many of them (such as the MIT Media Lab work, and Skinput) can be categorized as design-oriented research.

- *Gabriel Ibagon*

An example of this kind of research is the Foldit game discussed before where the game is actually a means to study complex protein structures.  - *Tahereh Masoumi*
Research-Oriented Design

- Provides an artifact that is a solution to a problem
- Research used ...
  - to better understand the problem, i.e. analysis phase of design
  - in synthesizing the parts of a solution
  - evaluating a solution

Examples:

"Design a user interface that could improve users' efficiency when searching." - Enhao Cui

"Industry research efforts can be thought of as an example research-oriented design, because the motivation is the evolution of a solution to address a problem" - Kandarp Khandwala
Discussion

Are design and research really different activities? Or are they like how the electric and magnetic forces are the same phenomenon observed from different contexts?
HCI is distinct from natural or social sciences: its methodology is based in design. Rarely can interaction with a computer be studied without a prototype design.
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