Design Process

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Prototyping

A prototype is a draft version of a product that allows you to explore your ideas and show the intention behind a feature or the overall design concept to users before investing time and money into development.

usability.gov

Prototyping

- Low-fidelity Prototypes
- High-fidelity Prototypes (Discussed in the paper)

VIDEO

WATCH

Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy

Serial Prototyping vs Parallel Prototyping

Serial Prototyping vs Parallel Prototyping

Parallel Prototyping

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Parallel Prototyping

Obama Raised $60 Million by Running a Simple Experiment.

[Discuss]

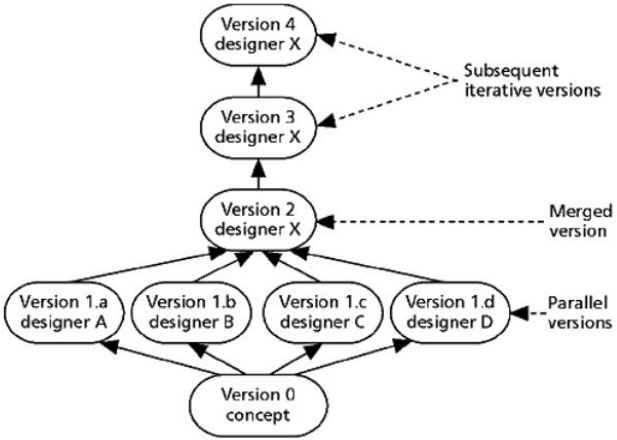
- Under what conditions will serial prototyping be preferred over parallel prototyping? Give examples.

Exploration vs Exploitation

- Exploitation narrows the vision of the designer.
- Exploration comes at cost of time, money and effort.

Do we always have to choose one over the other?

Hybrid Model



Improving System Usability Through Parallel Design, Jakob Nielsen

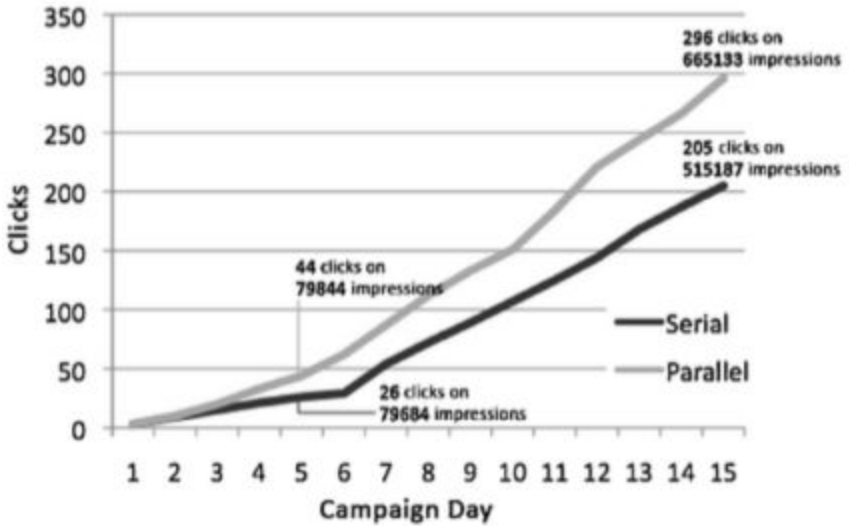
Hypotheses

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

Key Performance Indicators

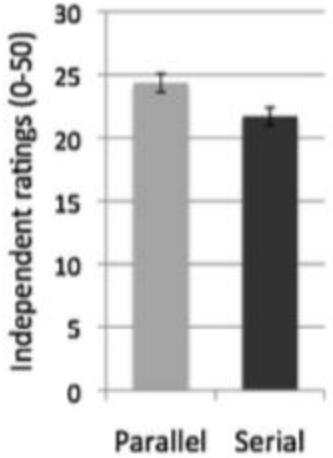
- Improved click-through rate
- Time spent on the target client web site
- Ratings by clients and professionals
- Divergence in participant’s prototypes
- Improved self-efficacy

Improved Click-through rate



Ratings by independent experts

Tamara: “it’s not just about driving traffic to the website, but also about impressing the editors and creating effective ads”



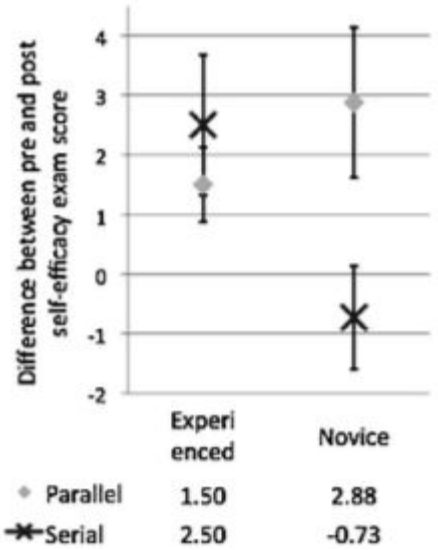
Divergence in Prototypes

- Use of Amazon Mechanical Turk to study divergence between serial and parallel prototypes.
- Sounds subjective? They are not experts by any means. Any alternative approaches?

[Discuss]

Brings joy to **people** and frustration to **designers**!

Self-efficacy (My favorite part of paper!)



Your comments...

Tiphaine: “ I followed this type of process during one of my HCI classes and applying this methodology helped my team discuss and look for new innovative ideas, not focusing on **ego** nor fixating on a very early idea. ”

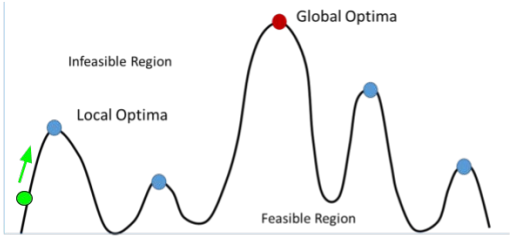
Joseph: “Because each prototype was given feedback in serial, the participant usually took the feedback as negative because any feedback would be seen as **insulting** their work in some way so the participant's attitude was more directly affected”

[Discuss] Self-efficacy

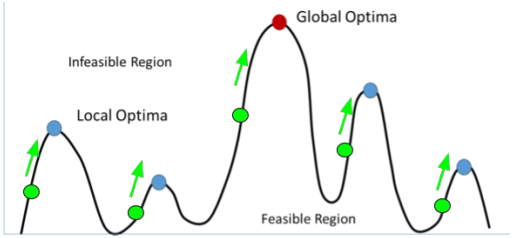
- What were the reasons that parallel prototyping improved self-efficacy?
- Any personal experience where you felt your self-efficacy reduced after receiving a feedback?

Parallel outperforms serial. But why?

Serial



Parallel



Parallel outperforms serial. But why?

- The chances of striking gold increases when the ideas are in abundance.

Ruth: “As an individual, I feel the need to make the work I have done **count**, even if it is **stupid**. This means that I iterate on terrible ideas sometimes, or try to **force them to fit** research projects which would have been cleaner without them.. ” (ruthlessly honest in opinion!)

Parallel outperforms serial. But why?

- Designers can be their own critique. Always have examples to compare.

Madhuri: “By the nature of parallel prototyping, we are recording diverse ideas and comparing them against each other, thus in the future if people had to ever look back to what was decided, they have a better history to refer to. ”

Parallel outperforms serial. But why?

- The designer is less emotionally attached to one idea. Focuses on the process.

Swathi: “Parallel prototyping fosters design confidence - This is mainly true because when you present more than one the criticism will be focused on all and hence might not feel too harsh. This might motivate or encourage one and hence build one's confidence.”

Any other view??

From Student Commentaries...

Aishma: “To me, the most fascinating result described in this paper is the relative divergences between the novices' and experienced's final prototypes…….Perhaps with increasing experience, we all begin to conform to set of rules about design and layout.”

[Discuss]

The prototypes created by experienced participants less diverse than novices.

Does this imply experienced participants are unlikely to come up with innovative designs?

This course

We are experimenting with the idea of parallel prototyping in this class.

Parallel prototyping for my project.

- Anyone wants to briefly explain how they are using parallel prototyping?

Design-oriented Human—Computer Interaction

Design

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

Seeking Answers to..

- What design “is”?
- How is design related to HCI?

Design Thinking

Design thinking refers to creative strategies designers use during the process of designing. It has also been developed as an approach to resolve issues outside of professional design practice, such as in business and social contexts.

Wikipedia

Design Thinking

“To design, again not unlike carpentry, is to **consciously** aim to create and give form to previously **nonexistent** artifacts.” **- Daniel Fallman**

Perspectives in Design Theory

- Conservative
- Romantic
- Pragmatic

Conservative

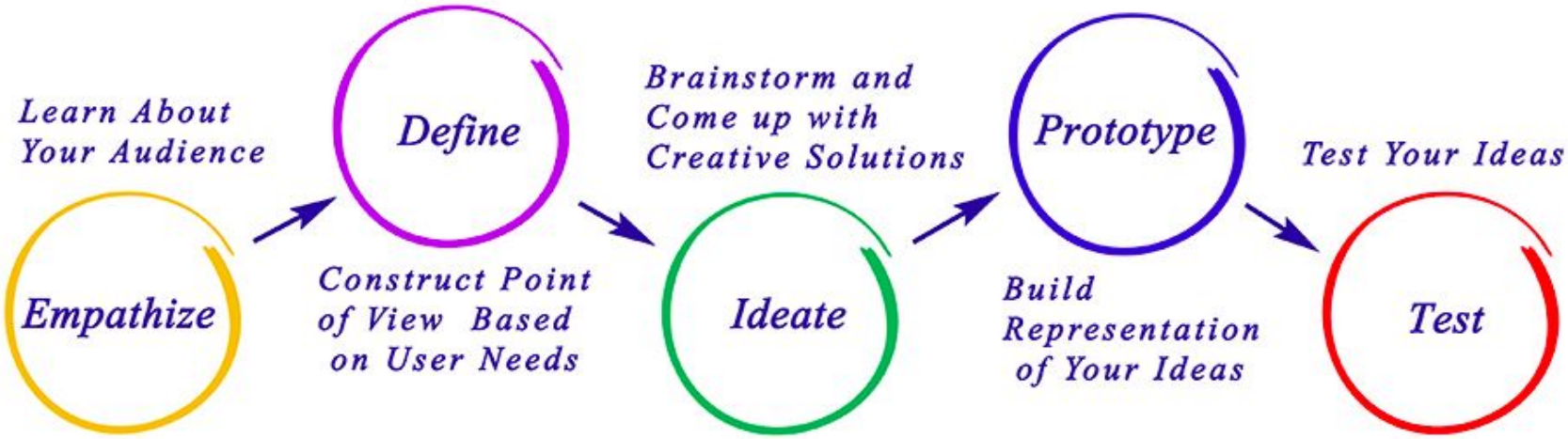
- Scientific or engineering driven
- Methodology and structure drive design process
- From abstract requirement to concrete artifacts

Divide and Conquer

Step 1: Breaking the ill-defined and unstructured problem into manageable constituents -- Analysis (Divide)

Step 2: Build upwards towards a solutions by solving each part of smaller problem -- Synthesis (Conquer)

Design Thinking Leads to Design Process



Think 360 Studio

Romantic

- Contrary to the conservative account.
- “imaginative masterminds equipped with almost magical abilities of creation”
- Imagination over abstract reasoning and creativity over rational problem solving
- I solved it but I don’t know how?!!

Ends with: “Design is related to art: It is not just about the creation of useful artifacts:is is equally about the creation of beautiful artifacts”

Your thoughts...

Soheil: **On Romantic Perspective**: “It is stated that the designers should be compared with painters, composers, and poets, rather than with scientists or engineers. This opinion to me is **completely invalid**, I think the designers are both in some sense, ... Art is more about an individual or a group of artist desire to express themselves and what they make does not need to make sense or qualify any standards whereas a design purpose is to be intuitive for people. ”

Pragmatic

- At any point in time operate from the available means.
- Conversation-driven (Dialogue)
- Schön suggests that “reflection-in-action ... is central to the ‘art’ by which practitioners sometimes deal well with situations of uncertainty, instability, uniqueness, and value conflict”
- Designer is a “self-organizing system”

Discuss

Are these three perspectives disjoint or do you see some overlap between them?

Are these three perspectives sufficient in defining design?

Limitations of Design as a Transparent Process

- Design methodology movement advocated structured design methods. But, **fail** to focus on people, product and content. (limits Conservative approach)
- If the design decision seem to be focused on specific design situation, it must be **forgetful** of content that would seem of **limited value.** (limits Pragmatic approach).
- No discussion about the Romantic approach!

Interesting Ideas...

- Jennifer: “I don’t necessarily agree that iteration makes this process any less valid, as the paper seems to imply. However, others may design with primarily the **creative part of their brain** without much scientific thought process . Perhaps viewing design as a dialogue is what tends to work best for most people (primarily because it’s in the middle of the two extremes and most people fall closer to average than an extreme)”

Iteration in Design

- Designer uses a **non-linear** form of iteration process, while moving between analysis, synthesis and evaluation.
- Thus, analysis, synthesis and evaluation have to be picked in unordered manner.
- Which activity should be picked becomes important (*Problem setting* is as important as *problem solving*).
- Designer should be involved in a conversation, a dialogue (Pragmatic Perspective).

Interesting ideas...

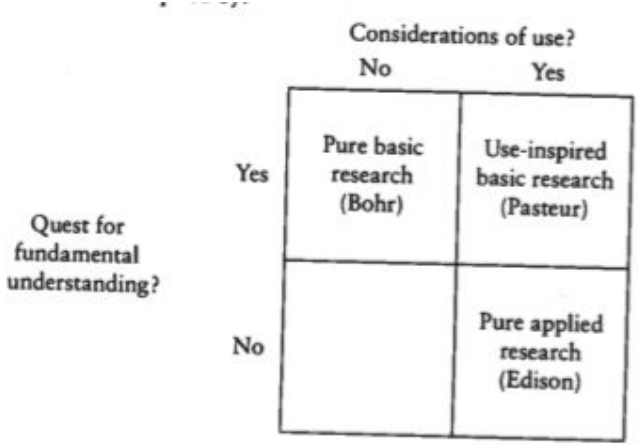
Xu: “But there is one thing in common between design in this paper and human-centered design. That is design as a thinking process but not as a final product. No one cared about specific visual designs, but we care about designing for problems.”

Design between Art and Science?

- Design requires active stance, pro-activity and reflective conversation.
- Design helps bring together individual pieces (theory, fieldwork, data) and create a coherent picture.

[Discuss] Design as a mix of Art and Science?

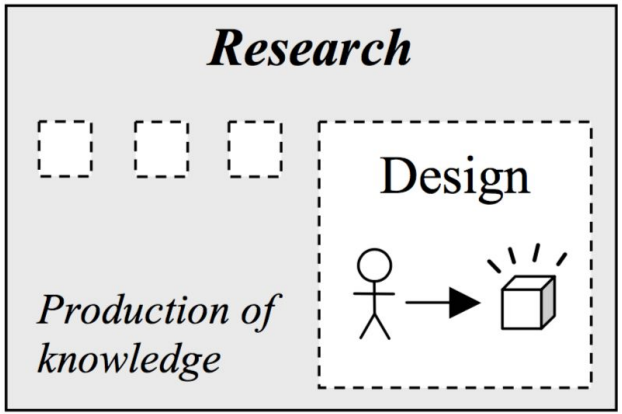
Will Design form part Pasteur's quadrant (seen in the previous class) with Art on one axis and Science on the other?



Transforming the Paradigm

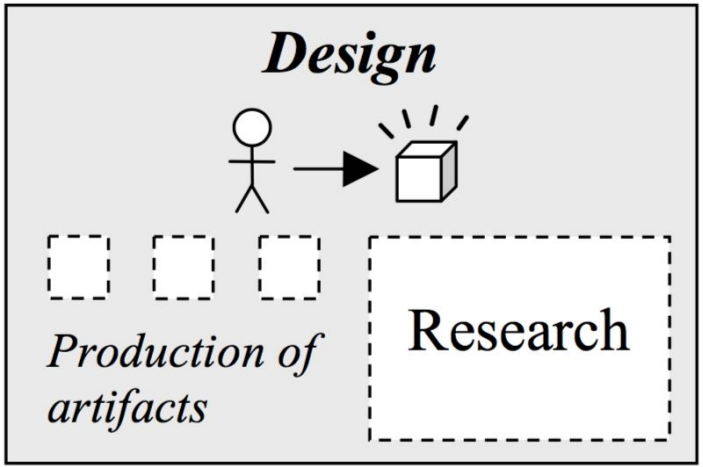
Design-oriented Research

- Production of knowledge as a resultant of design process
- Knowledge comes from studying the designed artifact or designing the artifact.
- *Problem setting* is an important part, possibility of exploring possibilities outside the current paradigm.



Research-oriented Design

- Production of artifacts as the resultant of research
- *Problem solving* becomes important (problem setting may be infeasible)
- Widely used in industry (applied researchers, UX designers)



Discuss

Come up with examples of design-oriented research and research-oriented design.

Thanks!