



Design Process

COGS 230/ CSE 216
Jingchun Zhou/ Xinyi Wang



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

Xinyi Wang

Learning Goals



- Two different structures of the prototyping process (parallel prototyping VS serial prototyping)
- Different aspects of the outcomes & Ways to measure them.
- Reasons of the outcomes: why does parallel design lead to such benefits?

Learning Goals (cont...)

- What are three Accounts of Design?
- How are research and Design related?
- Design-oriented Research and Research-oriented Design
- Into the future: design education





Fig. 1. The experiment manipulates when participants receive feedback during a design process: in serial after each design (top) versus in parallel on three, then two (bottom).

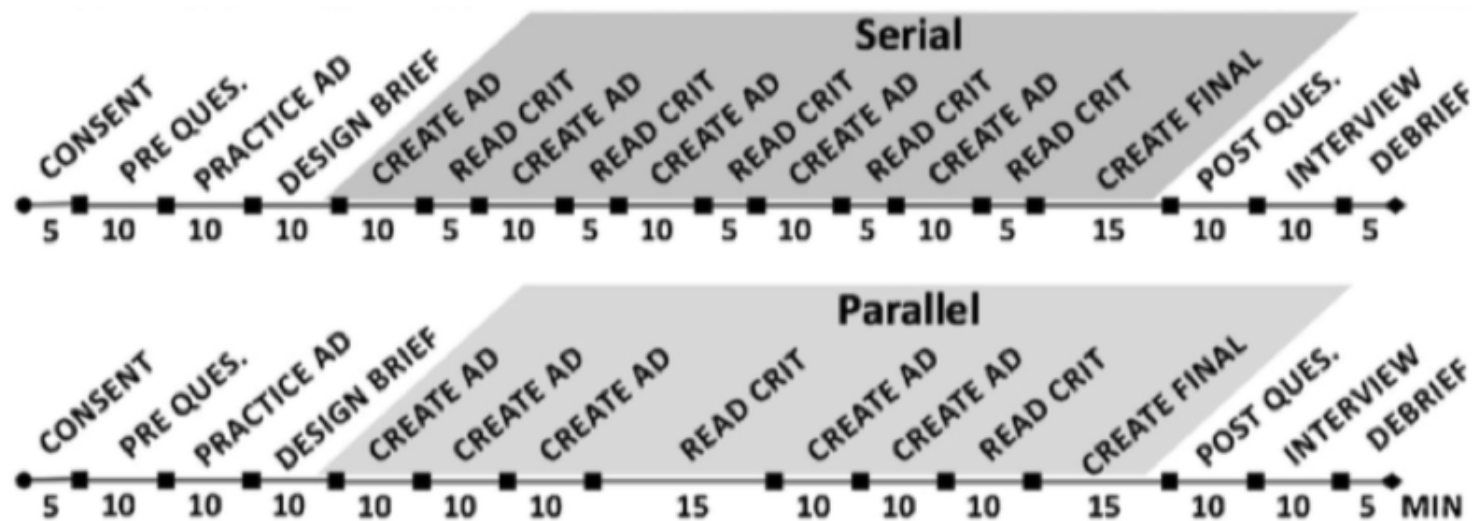


Fig. 5. Procedure for serial and parallel conditions, with timing.

Three hypothesis



Hypothesis 1. Parallel prototyping leads to feedback comparison and produces higher quality designs.

Hypothesis 2. Parallel prototyping results in more divergent concepts.

Hypothesis 3. Parallel prototyping leads to a greater increase in design task-specific self-efficacy.

Key words: higher quality design, more divergent concepts, higher self-efficacy



Activity

- Performance, diversity and self-efficacy can be measured objectively or subjectively. How do researchers measure these qualities in this paper?
- “...design results can be objectively measured through real-world analytics and subjectively assessed through crowdsourced and stakeholder ratings. ”



Activity

	Objective Measure	Subjective Measure
Performance		
Self-efficiency		



Activity

	Objective Measure	Subjective Measure
Performance	Online click-through rates & Visitor behavior	Independent expert ratings
Self-efficiency	/	difference between the pre- and post-task self-report

From your commentaries...

- The measurement itself can be considered objective in proportion to the number of reviewers. --*Jasmine Roberts*
- It's subjective as it's based off of our judgement system. --*Yasmine Kotturi*
- Individually per turk, the measure of similarity has more of a subjective edge to it. However, when aggregated across a mass of these turks, the data become a lot more empirical with numbers and thus has a more objective edge to it. I think the tipping point to considering this measurement objective is that the metric being measured is inherently subjective (humans comparing similarity) but the measurement itself of many instances of that metric definitively produces objective results about the distribution of that metric. --
Jesse Qin

Activity

- Besides the measures mentioned in the paper, are there any other measures you think the researchers could have included?
- What measures are you planning on having for your own project?

Outcome

The study supported all three hypotheses. Participants in the parallel condition produced higher quality designs (better click-through rates and higher subjective ratings) and more divergent prototypes. They also reported a greater increase in task-specific self-efficacy. Participants with prior experience in ad or graphic design outperformed complete novices, however, the prototypes created by experienced participants were less diverse than novices.

Outcome

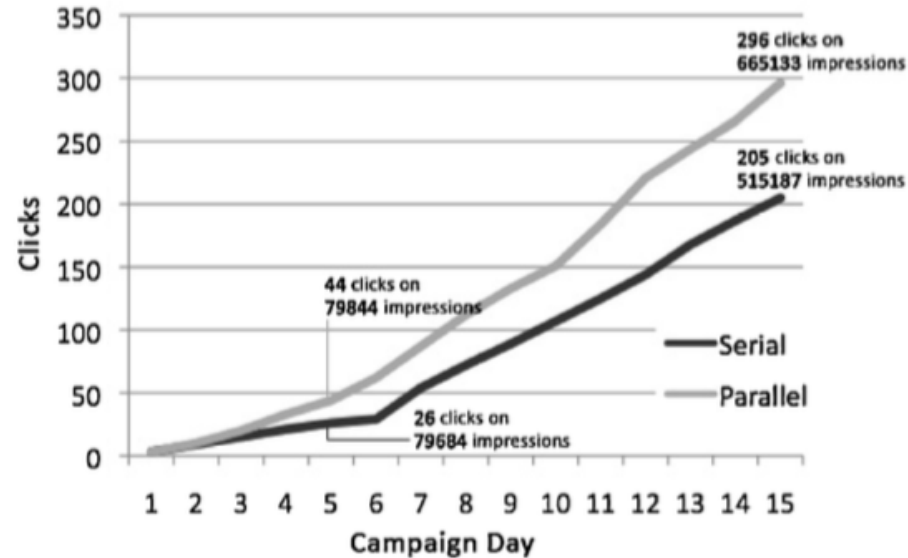


Fig. 7. Parallel ads received more clicks—and more clicks per impression—than serial ads during a 15-day campaign.

Outcome

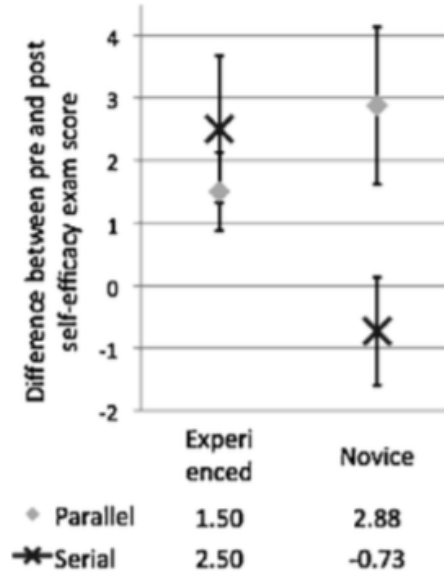


Fig. 10. Novice participants in the parallel condition reported an increase in self-efficacy from pre- to post-design task; self-efficacy for novices in serial decreased.

Outcome

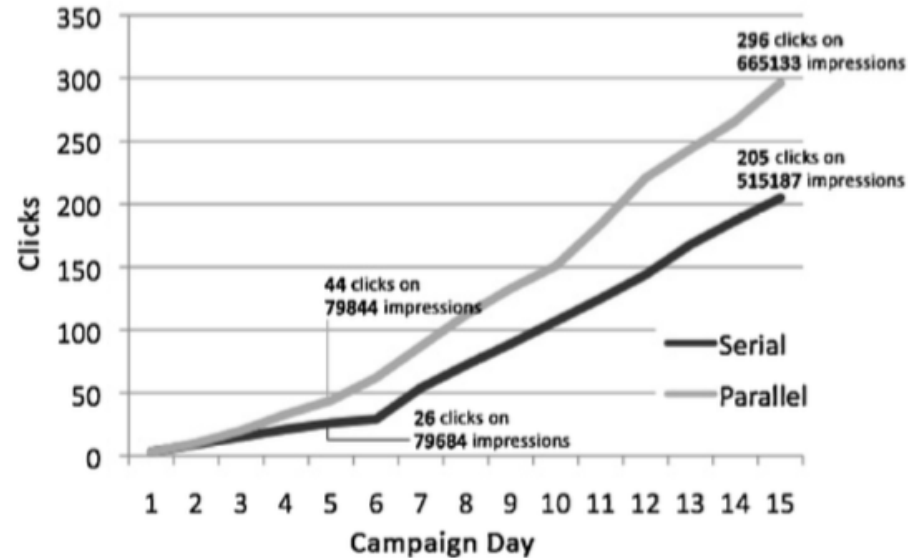


Fig. 7. Parallel ads received more clicks—and more clicks per impression—than serial ads during a 15-day campaign.

Question



- why does parallel design lead to such benefits?

Did parallel participants gain more confidence in their ad-design ability?

Activity

- What is an example of a situation where parallel prototyping will work better than serial prototyping?
Why?
- What is an example of a situation where serial prototyping will work better than parallel prototyping?
Why?

A demo of Google Adwords



- adwords.google.com





Design-oriented human-computer interaction

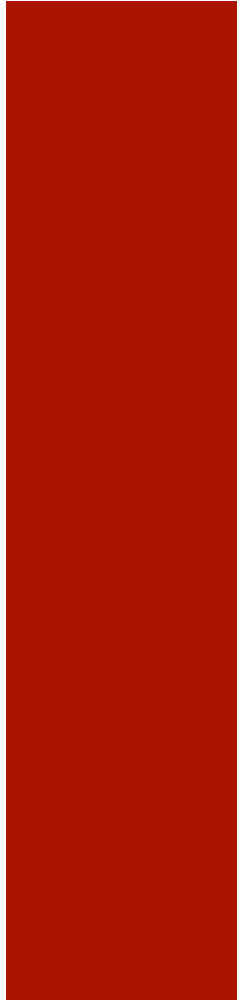
Jingchun Zhou

The Design-oriented Attitude



- “To design, again not unlike carpentry, is to consciously aim to create and give form to previously nonexistent artifacts [8, 20, 27, 36].”
- “design- orientation is about being proactive in one’s research; it is to take an active stance and to bring about intentional change.”

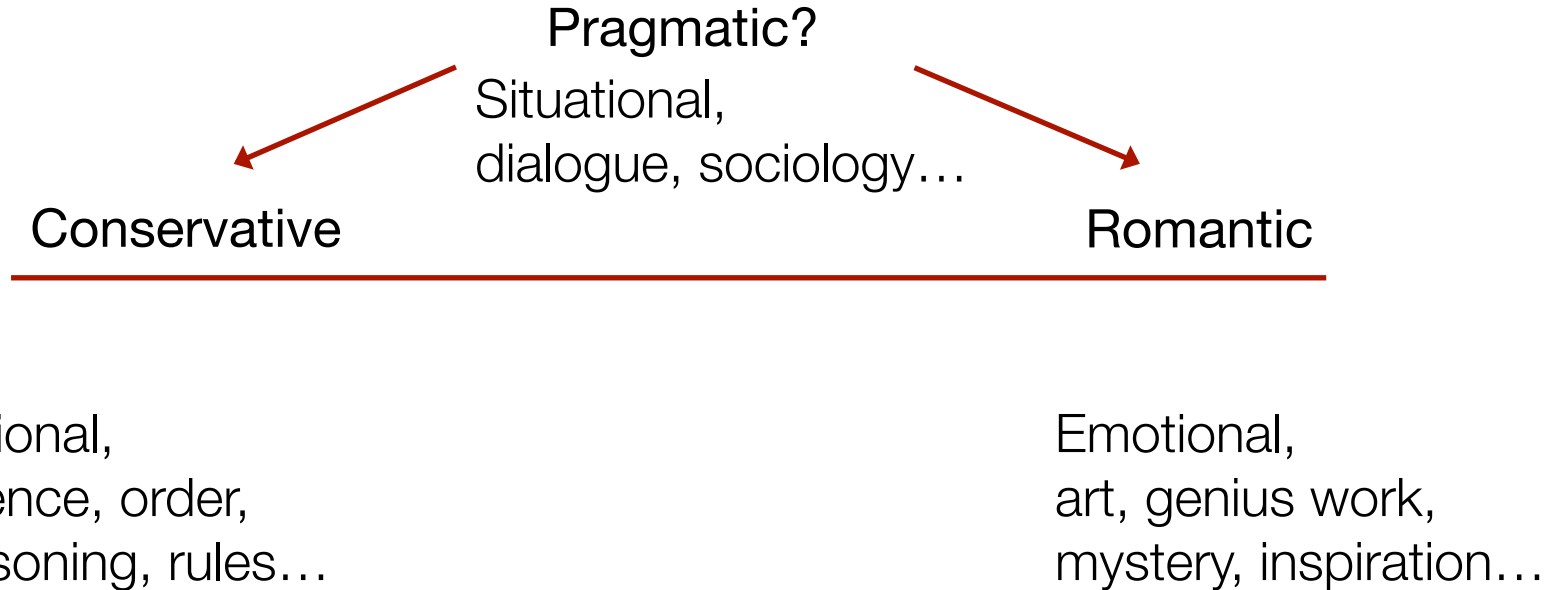
Three Accounts of What “is” Design





	Conservative Account	Pragmatic Account	Romantic Account
Process	Transparent Structured	Reflective dialogue	Mystical
Product	Result of the process	Outcome of the dialogue	Art
Knowledge	Guidelines, methods, laws	Experience	Creativity, imagination
Role model	Natural science, engineering	Human science, sociology	Art, music

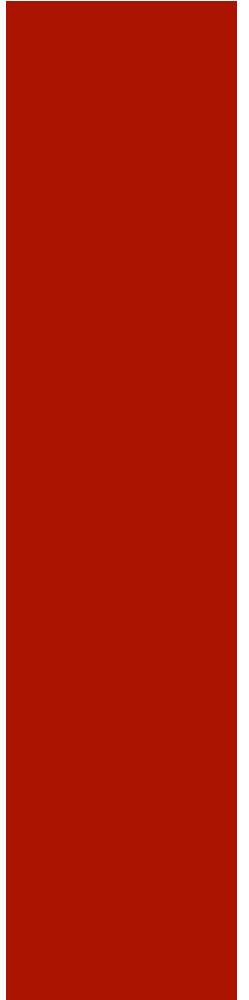
Relationship



Activity

- Role-play debate: group in 3, now each of you are an expert in one account of design
- If you are teaching your design class, how would you design your classroom?
- 3 - 4 minutes

Relationship between Research and Design



Limit of Design...



- ...as Science
 - Drift away from the goal: create artificial
 - Contradicting Herb Simon
- ...as Transparent process
 - Analyzing, synthesizing and evaluating (structured)
 - Failure in practice
 - Learn the method and be situational (iteration)

Sketching



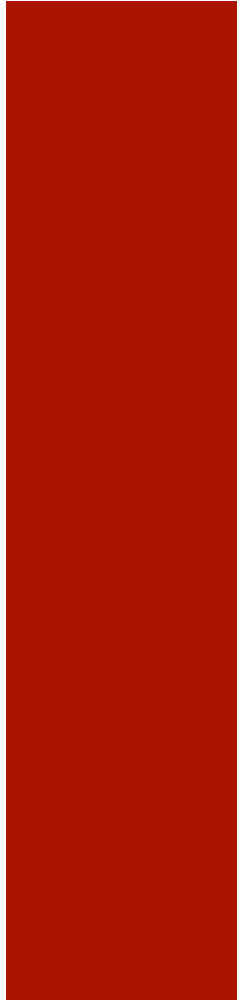
- As design-thinking
 - Tool for communication, or...
 - It's what design all about! “externalizing ideas and interpreting external representations as ideas”
- Prototyping: HCI Sketching
 - Neither about tech nor environment, but the vital dialogue
 - Parallel Prototyping

Activity

- Rapid Sketching: In group of 2, sketch out your ideal worktable and talk about your design idea with your peer.
- Note: Don't worry about your drawing!
- 3 - 4 minutes



Design-oriented Research vs. Research- oriented Design (DOR vs. ROD)



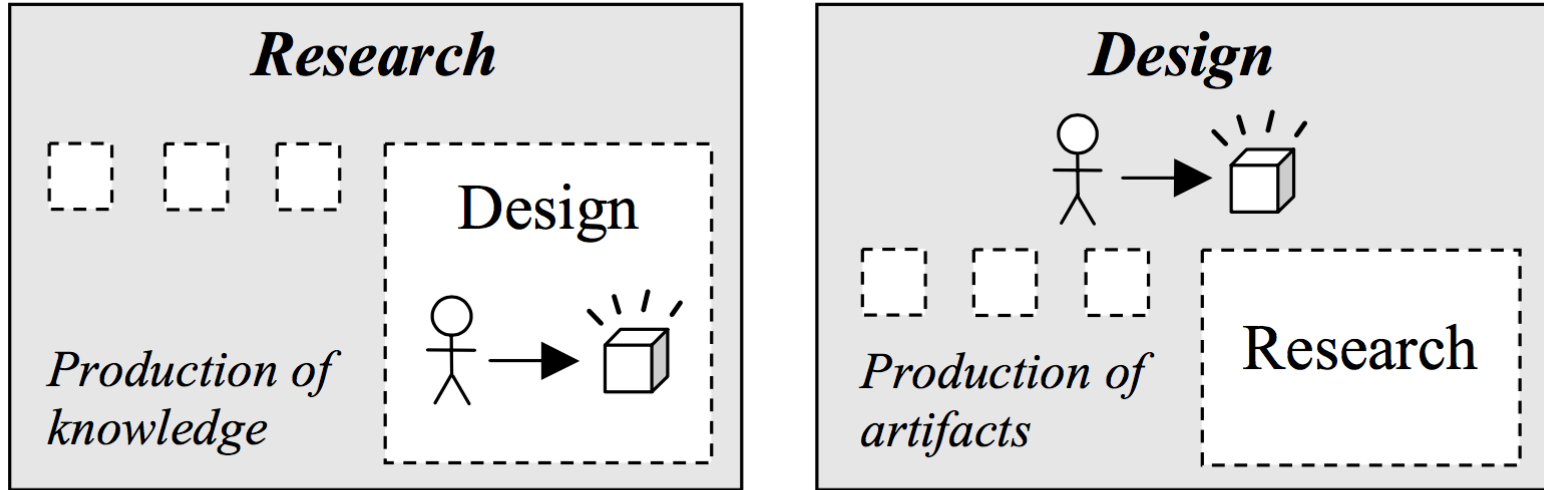


Figure 2. Design-oriented Research (left) vs. Research-oriented Design (right)

All depend on the product.

Activity

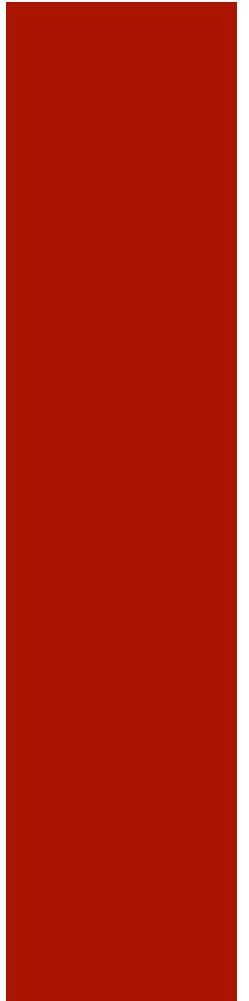
- Discuss: What would be an example for ROD and DOR, and why does it fit in that category?
- 2 minutes

From your commentaries

- the former taking place in an academic setting is more 'pure basic research' where the end result is a paper: studying the design of a information display device in a medical setting and sharing findings via a research paper. --*Yasmine Kotturi*
- Research-oriented-Design on the other hand is where the end product is an artifact, an example would be creating a mobile application (like CSE-170) which keeps track of your dietary habits. --*Jasmine Roberts*

Into the Future: Design Education

Based on:
State of Design: How Design Education Must Change
Don Norman/ Scott Klemmer



Design Education Must Change



- Uncertain Path

- “There is now great need to add more emphasis on the findings from the social sciences and engineering into the theory and practice of design.”

- New vision

- “these new programs combine learning the art and craft of beautiful, pleasurable well-crafted design with substantive courses in the social and biological sciences, in technology, mathematics and statistics, and in the understanding of experimental methods and rigorous reasoning.”

Activity

- what category from Fallman's paper does Klemmer and Norman's view fit into and why?
- What would Herb Simon say about their view?
- Above all, what do you think is the most important factor in design education?
- 2 - 3 minutes