Parallel Prototyping

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What we expect prototyping to be:

Idea → Product
What prototyping is:

Idea

Product
Idea: Wandering Interface
What were the novel concepts?
Every new concept is a risk. Every risk needs to be prototyped.
To test an new concept, you have to instantiate it.
What new risks were learned from instantiation?
Drift: How do you think the prototypers felt?
What prototyping feels like to me:

- Idea
- Latency
- Drift
- Battery
Iterative Design

Idea

Observations

Instantiation
What prototyping is:

Idea → Observation → Instantiation → Observation → Instantiation → Observation → Instantiation → Product

new concept new concept new concept
What are key concepts in Parable of the Polygons?
How could we prototype them?
Every new concept is a risk. Every risk needs to be instantiated.
Dark Horse Ideas
Observation:
People are frustrated with technology.

What is the need?
How might we... make technology less frustrating?
Why are people frustrated with technology?
Why are people frustrated with technology?

“Too many buttons”
Why are people frustrated with technology?

“Too few buttons to do anything powerful”
Why are people frustrated with technology?

“Too many buttons” < “Too many choices”
2004 - 2008
The winner in the smartphone market:
2004 - 2008
The winner in the smartphone market:
“How might we reduce the burden of choices?”
“How might we reduce the burden of choices?”

one hard button

all other choices in the app
Dark horse idea: one button
Dark horse idea: one button
What are the risks?

one button
Dark Horse Idea #1

- Problem: Devices give users the wrong choices for their tasks
- Idea: one physical button, all other choices in-app

- What is a risk?
- How might we test it?
Dark Horse Idea #2

- Problem: “How to alleviate poverty world wide?”
- Brainstormed solution:
  - Build online education to improve people’s skills
  - Build wells for clean water
  - Volunteer Red Cross Doctors to treat ill people
  - Job Training
  - Microloans
Dark Horse Idea #2

- Problem: “How to alleviate poverty world wide?”
- Dark horse idea: “Give people money”
Dark Horse Idea #2

- Problem: “How to alleviate poverty worldwide?”
- Dark horse idea: “Give people money”

- What’s the risky element of this design?
- How to answer that question?
Dark Horse Idea #3

• Problem: “How might we discourage people from wasting time online?”

• Brainstormed ideas:
  • Block Facebook
  • Limit time on Facebook
  • Tell you how long you spend on Facebook
  • Have a contest with your friends to see who can spend the least time on Facebook (and post the winner on Facebook?)
Dark Horse Idea #3

• Problem: “How might we discourage people from wasting time online?”
• Dark horse idea:
  • A chrome extension that insults you.
Dark Horse Idea #3

- Problem: “How might we discourage people from wasting time online?”
- Dark horse idea:
  - A chrome extension that insults you.

- What’s risky about this?
- What might we prototype?
5 min Break
Design process

- Visit hci.st/247stepzero
- Click “Get Started” at the bottom
- Create an account or use the account:
  - cs247@cs.stanford.edu / hcirocks
- Click through the tutorial
- Wait.
Design a poster for learning to code

50-minute activity
Brainstorm Messages

10 minute group activity
Process

- (5 min) Make a poster for one idea
- (5 min) Make a poster for another idea
- (5 min) Make a poster for a dark horse idea
- (4 min) Feedback on all your designs - partner 1
- (4 min) Feedback on all your designs - partner 2
- (5 min) Chose one design and iterate on it
Design poster one

5 minutes hci.st/247stepone
Design poster two

5 minutes hci.st/247stepone
Design a dark horse idea poster

5 minutes hci.st/247stepone
Find a critique partner.
Critique for person one.

4 minutes
Swap! Second partner critique now.

4 minutes
Pick a poster and iterate

5 minutes - Complete **one final** draft of your poster

hci.st/247stepone
Download your final poster as an image or take a screenshot. Upload it to: hci.st/247learntocode
How did you do?
Prototype science

Or, why I always ask you to generate a ton of observations, ideas, and prototypes.
Quantity or Quality?

Bayles and Orland, 2001
Quantity or Quality?

“While the quantity group was busily churning out piles of work—and learning from their mistakes—the quality group had sat theorizing about perfection, and in the end had little more to show for their efforts than grandiose theories and a pile of dead clay”

Bayles and Orland, 2001
Get better feedback, too

- Having alternatives lessens the pressure to be nice
Does creating parallel prototypes improve the final design?

Dow et al., TOCHI 2010
Task: design an advertisement

Submit to: hci.st/247learntocode
Procedure

serial prototyping condition

parallel prototyping condition
Web advertising analytics

Graph showing cost and impression changes from Sep 9, 2010 to Sep 22, 2010.

- Ad Group #1: Campaign ended
  - Default Max. CPC: $2.50
  - Managed Placements Max. CPC: $2.50
  - Display Network Max. CPC: $2.50
  - Clicks: 112
  - Impressions: 139,600
  - CTR: 0.08%
  - Avg. CPC: $1.51
  - Cost: $169.61
  - Avg. Pos.: 1.2

Note: Sep 9, 2010, Impr.: 0
Parallel design $\rightarrow$ more clicks

F(1,30)=4.227, $p<.05$
Trend toward more time on site

Parallel

Serial

Average time on client site per visitor (seconds)

F(1,493)=3.172, p=0.076
Higher expert ratings

Parallel 24.4
Serial 21.7

\[ F(1, 5) = 7.948, \ p < 0.05 \]
More diverse designs

Parallel: 2.78
Serial: 3.18

0 = not at all similar, 7 = highly similar

F=182, p<0.001
Comparison aids learning

Serial case
- case 1: “Describe the solution.”
- case 2: “Describe the solution.”

Parallel case
- case 1
- case 2: “Describe the parallels of these solutions.”

Face-to-face negotiation

>3x more likely to transfer the technique from training

Gentner, Loewenstein, & Thomson, 2000
Get better feedback, too

- Having alternatives lessens the pressure to be nice