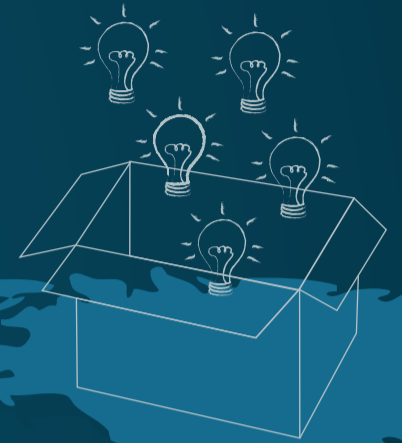


From Needs to Prototypes



Scott Klemmer

A2 Examples

Dennis Ku

User Needs

After the observations, I noted user needs that could enhance a person's experience in gaming by improving and augmenting the physical space around him and her. I sorted the user needs based on trends that I saw throughout my observations.

Phone Noise Workarounds:

1. User needs a way to pause or mute phone notifications when a game is being played on a different device to avoid constantly looking down at his or her phone
2. User needs a convenient way to reply and view phone notifications without being distracted from the game (in-game notifications)
3. User needs a convenient way to take phone calls while playing games without being distracted too much (muting the game chat and taking the call automatically)

Gaming Environment Augmentation/Detection/Changes:

4. User needs to know if the current environment is suitable to reach the full experience of the specific game
5. User needs to know if the sounds around him or her would be distracting for the game
6. User needs to know if the sounds from the game *itself* would distract from the communication between his or her teammates
7. User needs a way to automatically mute the microphone or lower its volume if excessive background noise is present
8. User needs to know if headphones or speakers are recommended to enhance the experience of the game that he or she is playing
9. User needs a way to contact remote in-game teammates quickly in case he cannot use his microphone due to technical or environmental distractions
10. User way to know if a microphone is suitable in the environment and notify all his or her teammates if he or she is not available via microphone

Minimizing External/Uncontrollable Distractions:

11. User needs a way to be notified in-game (or easily) if someone else has an urgent request or need so there is no need for the unplanned interaction
12. User needs a convenient way to remotely notify others that he or she is in the middle of playing a game to stay focused
13. User needs a way to be alerted that other people are in the vicinity and distractions are expected
14. User needs a schedule of the approximate when he or she would be engaged in a game, so his or her acquaintances can avoid distracting him or her
15. User needs to know if surrounding environment has any potential distractions for gaming (audio and visual)

Sarah Vargas

My interviews are based on people who go through anxiety attacks or are often very anxious. Since the full on attack is hard to observe I asked my participants to keep a diary of any attacks they had while I was not present. I was hoping this would help describe the exact

Scoping





Raise your hand
if you have made
a Web page

Raise your hand if
the source of other
pages helped.

James Lin

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林

Home

Research

Publications

Personal



San Francisco Bay Area

Satellite photo from www.sfbayquakes.org

I am a Ph.D. candidate in [Computer Science](#) at [UC Berkeley](#), specializing in human-computer interaction. My current research interests include end-user programming and informal tools to support the [design of user interfaces for applications that run on desktop PCs and mobile devices](#).

My advisor is [Professor James Landay](#). I am a member of the [Group for User Interface Research](#).

I graduated from the California Institute of Technology, popularly known as [Caltech](#), in 1997.



[UC Berkeley home page](#)
[CS home page](#)

Layout last modified on October 24, 2002



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Home

Research

Publications

Teaching



I am an Associate Professor in [Computer Science & Engineering](#) at the [University of Washington](#), specializing in human-computer interaction. My current research interests include Automated Usability Evaluation, Demonstrational Interfaces, Ubiquitous Computing, User Interface Design Tools, and Web Design.

I was previously the Laboratory Director of [Intel Research Seattle](#), a university affiliated research lab that is exploring the new usage models, applications, and technology for ubiquitous computing.

I am a founding member of the University of Washington [Design:Use:Build \(DUB\) Center](#), a cross-campus interdisciplinary group of HCI and Design researchers.

I received my B.S. in EECS from [UC Berkeley](#) in 1990 and my M.S. and Ph.D. in CS from [Carnegie Mellon University](#) in 1993 and 1996, respectively. My Ph.D. dissertation was the first to demonstrate the use of sketching in user interface design tools. I was also the chief scientist and co-founder of [NetRaker](#), which was acquired by KeyNote Systems in 2004.

[My DUB Blog](#)

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Members (5)



[University of Washington home page](#)
[CSE home page](#)

Layout last modified on January 12, 2009



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Home

Research

Teaching

Positions

Service

Personal

RESEARCH

I am interested in techniques to improve the design of computer systems with respect to their usefulness and usability. To that end, I have investigated the effectiveness and usability of several HCI techniques (e.g., think-aloud usability studies, Cognitive Walkthrough, GOMS) and produced new techniques for bringing usability concerns to the design process (e.g., CPM-GOMS and software architecture evaluation for usability). Much of my work focuses on cognitive modeling, where I work within a unified theory of cognition to develop models of human performance that produce quantitative predictions of performance with less effort than prototyping and user testing. I also work on bridging the gap between HCI and software engineering, specifically including usability concerns in software architecture design.

Two active research projects have their own websites.

[Usability and Software Architecture \(U&SA\)](#)

[The CogTool Project: a Tool for Cognitive Modeling](#)

TEACHING

I teach courses in HCI design and evaluation methods. I was the Director of the [Master of Human-Computer Interaction Program](#) for almost a dozen years, stepping down in January 2009.

[FULL CURRICULUM VITA \(.pdf\)](#)

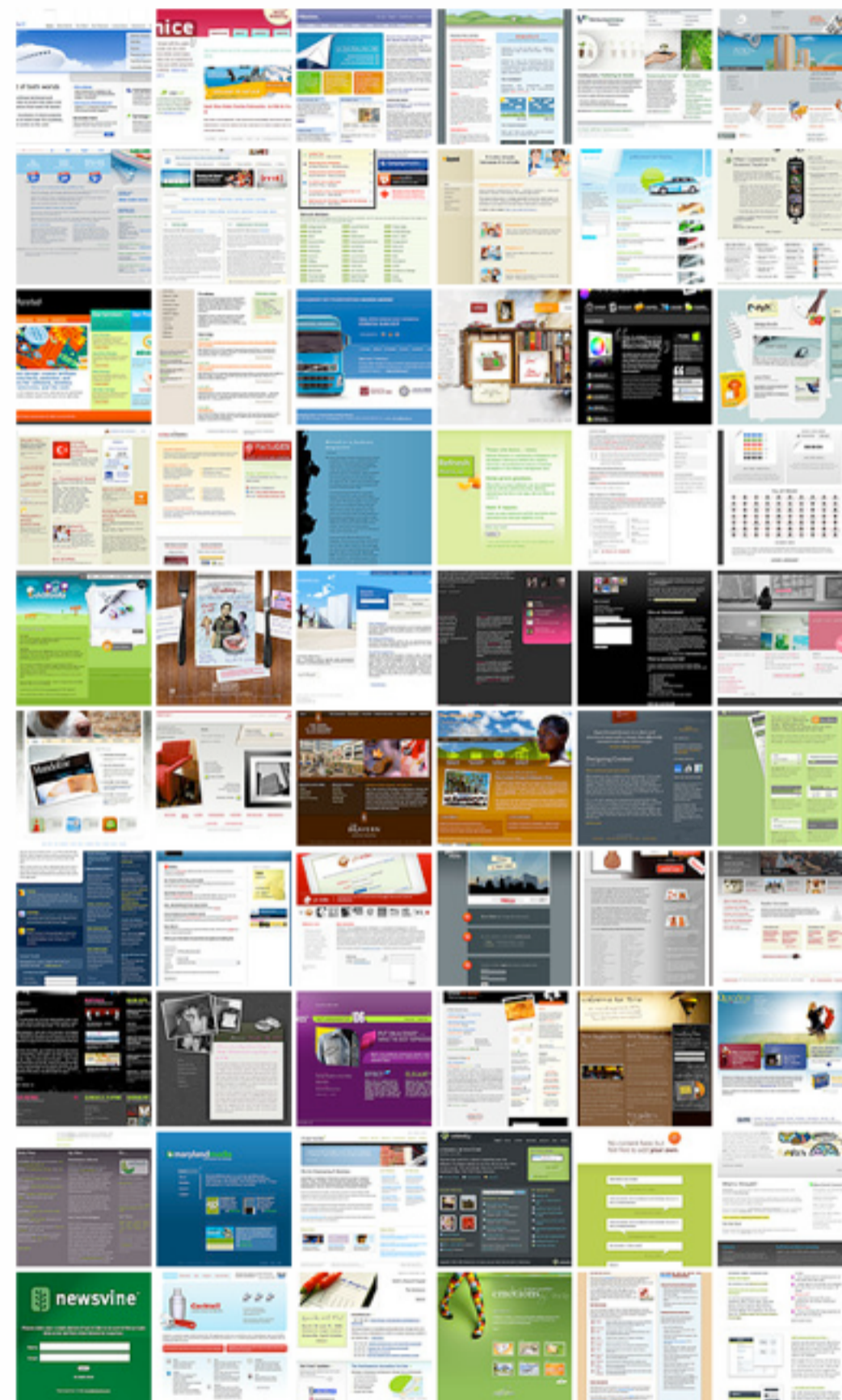


Great design on the web that I'm archiving here for inspiration and recognition. Idea first pioneered by [Lisa McMillan](#).

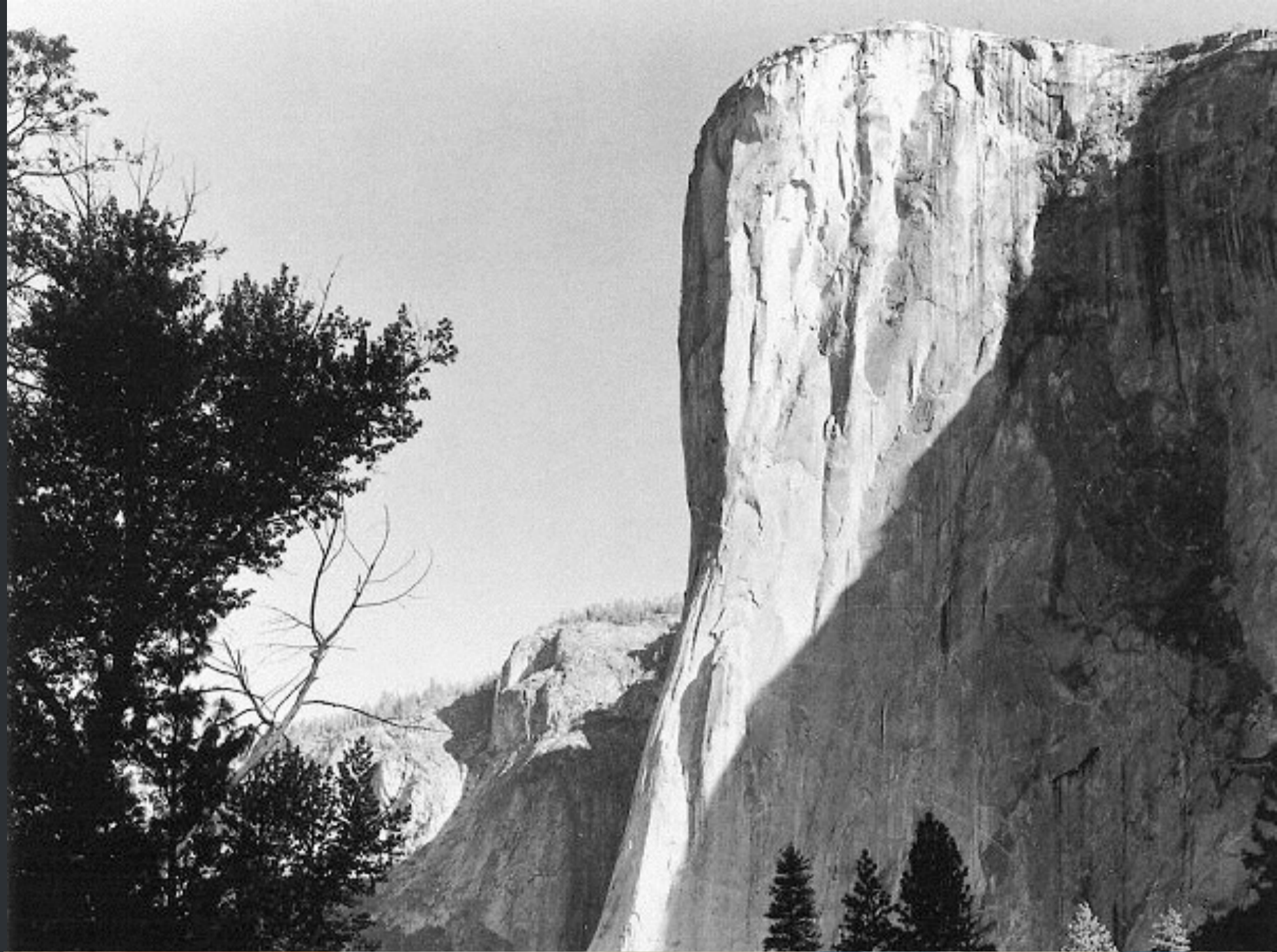
Read more about [this Web Design Inspiration set](#) on Flickr

450 photos | 753,631 views | [Add a comment?](#)

items are from between 19 Sep 2005 & 05 Dec 2005.



Examples provide context, implementation, and composition



When it comes to HIV, everyone is a victim. **FACE AIDS**
A student campaign to fight AIDS in Africa.

REAL FACES. REAL FEARS. REAL HOPE. **FACE AIDS**
A student campaign to fight AIDS in Africa.

THINK GLOBALLY, ACT LOCALLY. **FACE AIDS TODAY**
Click to Learn More

Flex Development - AIRTest/src/AIRTest.mx



*AIRTest.mxml

Source Design

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <mx:WindowedApplication xmlns:mx="http://www.adobe.com/2006/08/mxml"
3   <mx:Script>
4     <![CDATA[
```



**“There are no rules of
composition in
photography, there are
only good photographs”**

-Ansel Adams

ANSEL ADAMS

The Camera



THE ANSEL ADAMS PHOTOGRAPHY SERIES 1

ANSEL ADAMS

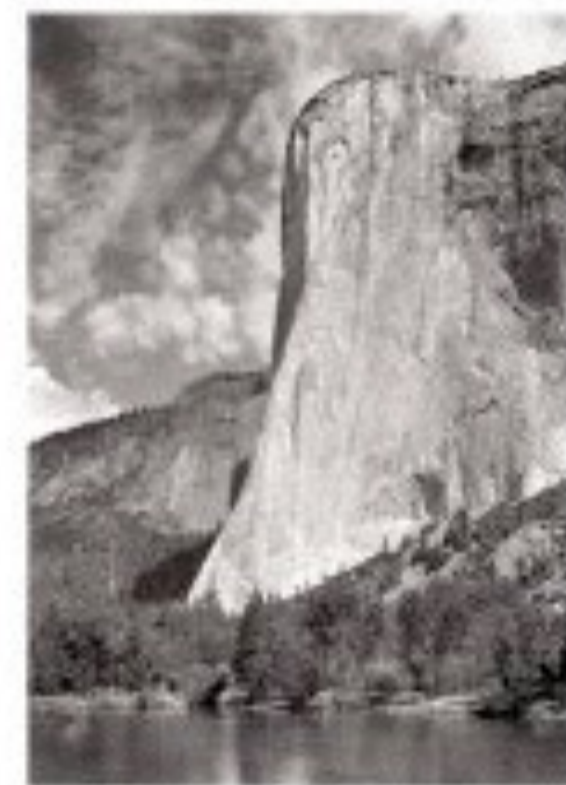
The Negative



THE ANSEL ADAMS PHOTOGRAPHY SERIES 2

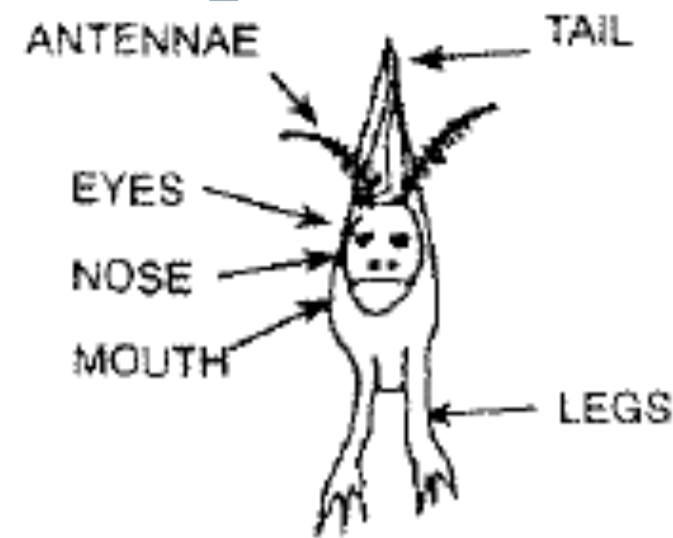
ANSEL ADAMS

The Print

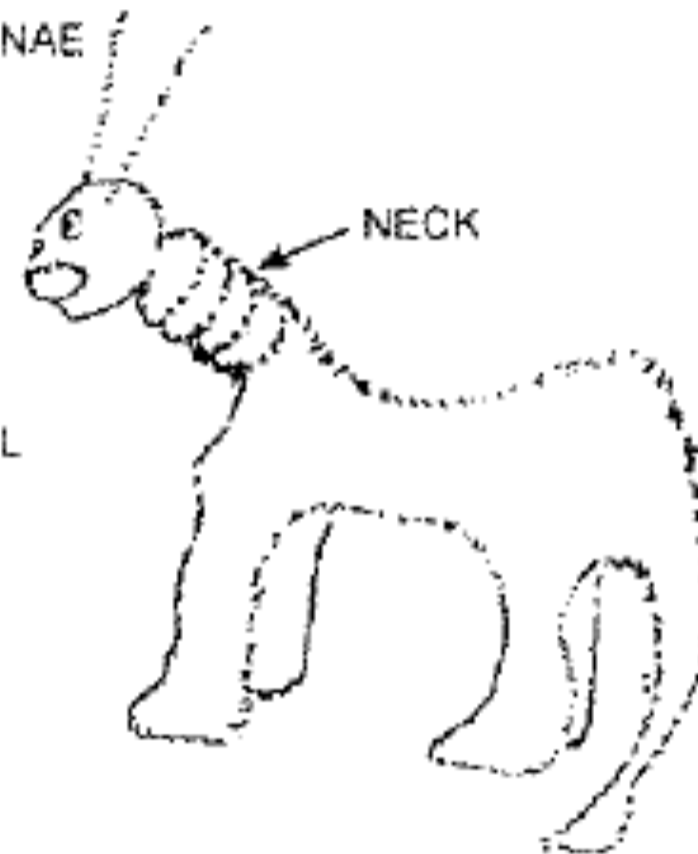
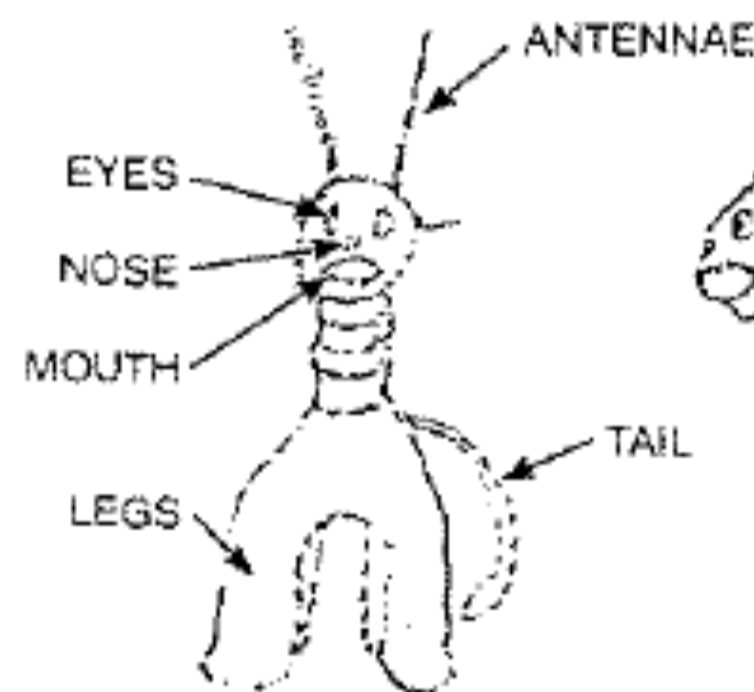


THE ANSEL ADAMS PHOTOGRAPHY SERIES 3

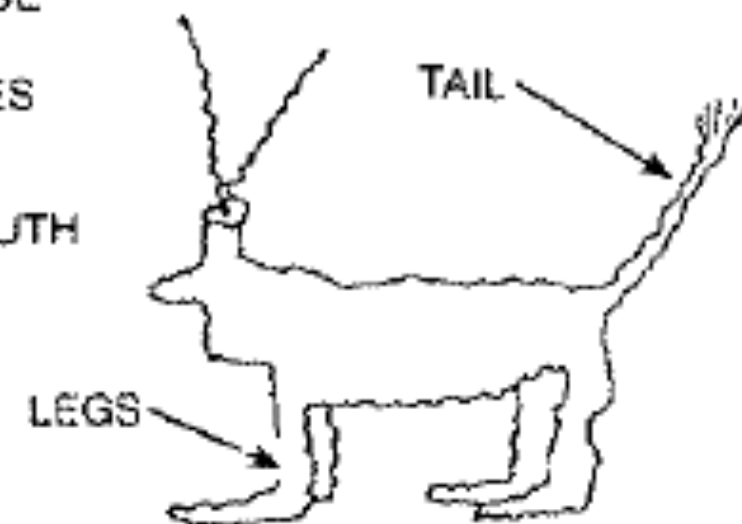
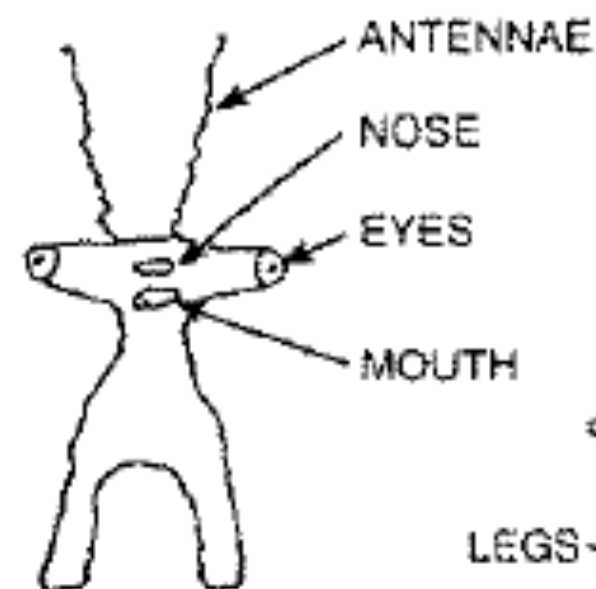
Examples *can* increase



This creature can walk on land and swim in water very well.



A very funny creature, it is so soft that it makes no noise when it walks.

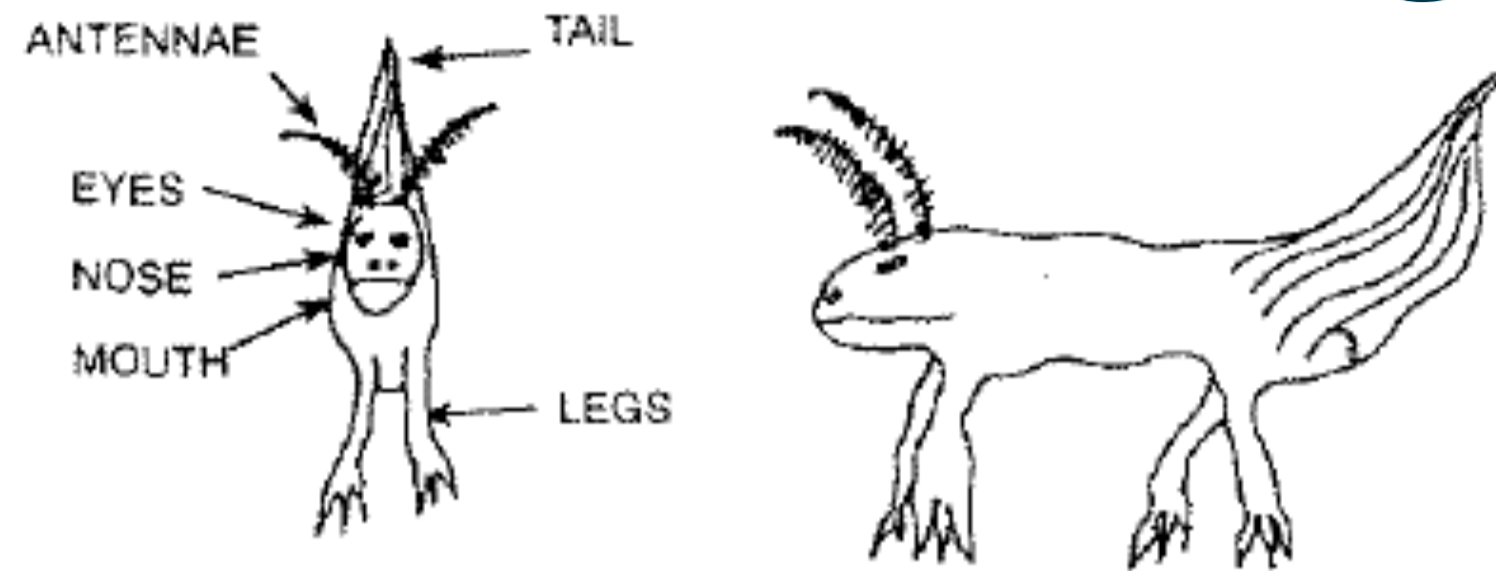


This is a blue-green creature that is very wrinkled but gentle.

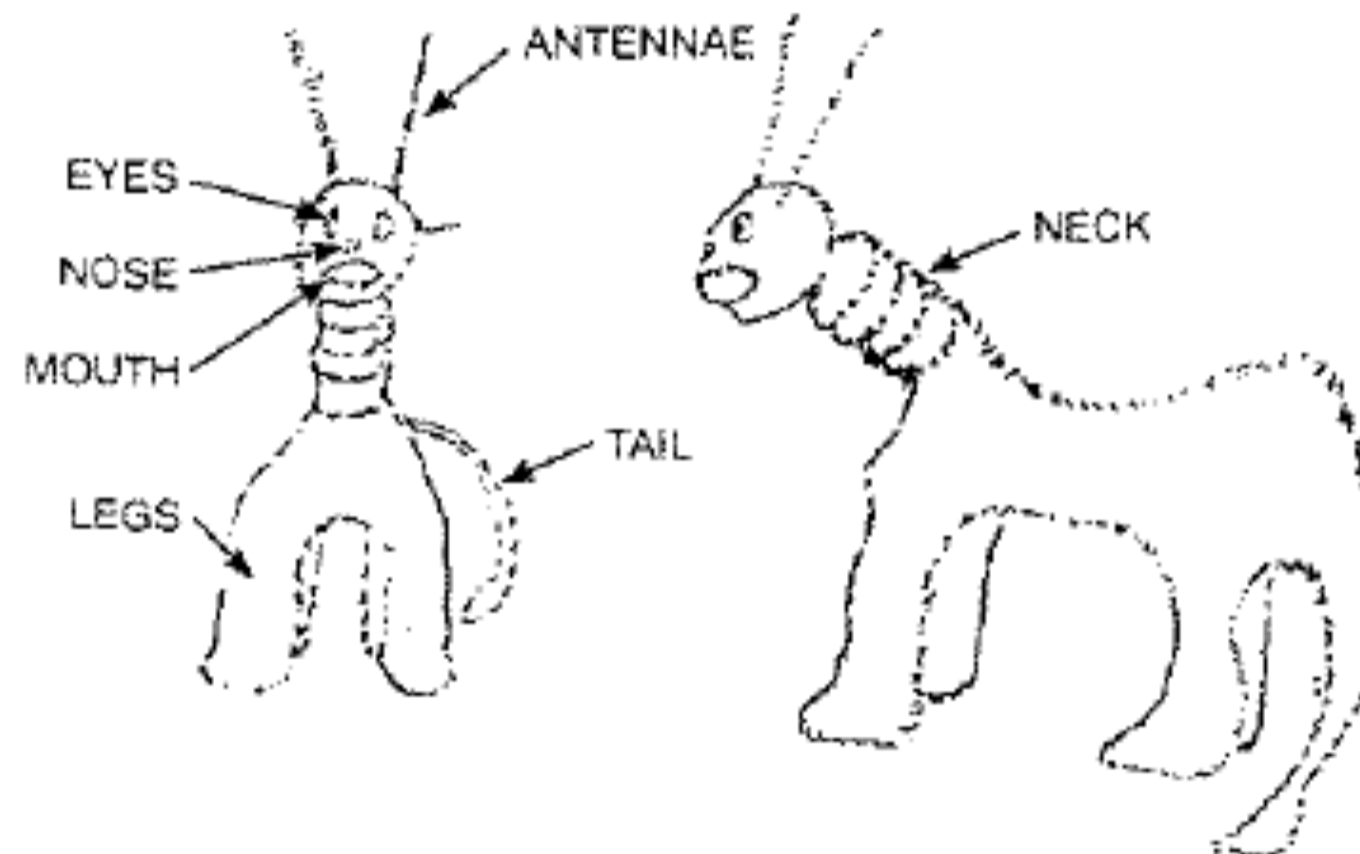
Smith et al. 1993

**Will nothing new
ever be created?**

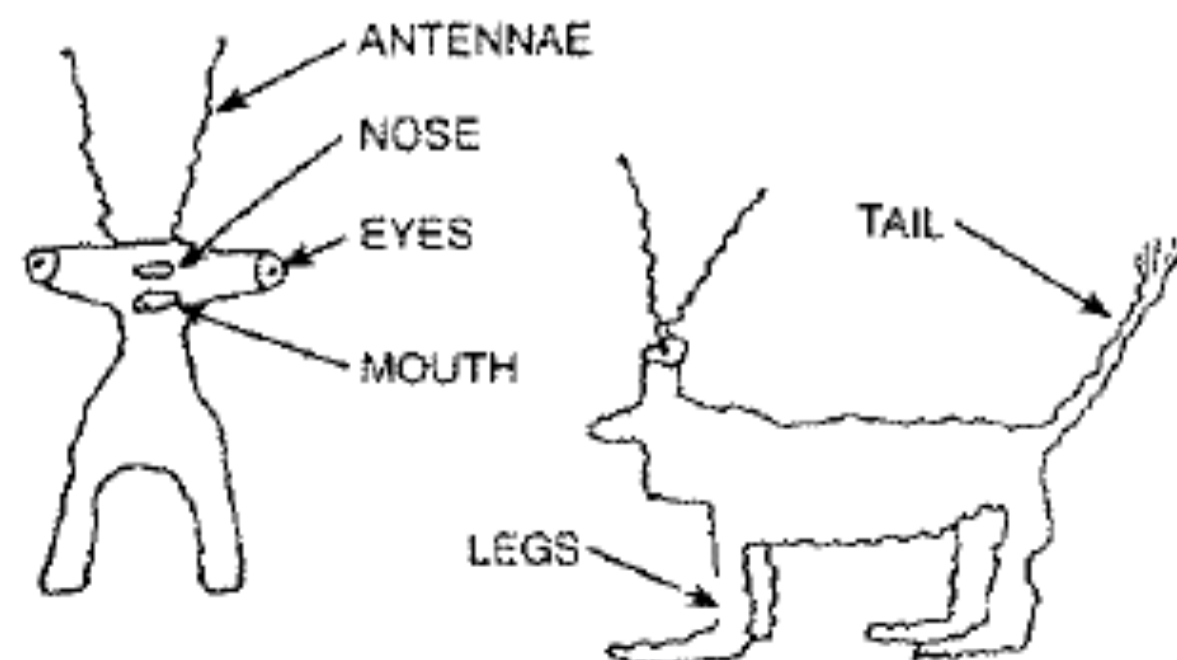
...without reducing novelty



This creature can walk on land and swim in water very well.



A very funny creature, it is so soft that it makes no noise when it walks.



This is a blue-green creature that is very wrinkled but gentle.

Marsh et al. 1996

Just for Small Innovations?

“By ... metaphors and analogies we try to link the new to the old, the novel to the familiar. Under sufficiently slow and in the case of a sharp discontinuity, however, the method breaks down ... our past experience is no longer relevant, the analogies become too shallow, and the metaphors become



Les Demoiselles d'Avignon

John Richardson, *A Life of Picasso: The Cubist Rebel, 1907-1916*



“Good artists borrow, great artists steal”



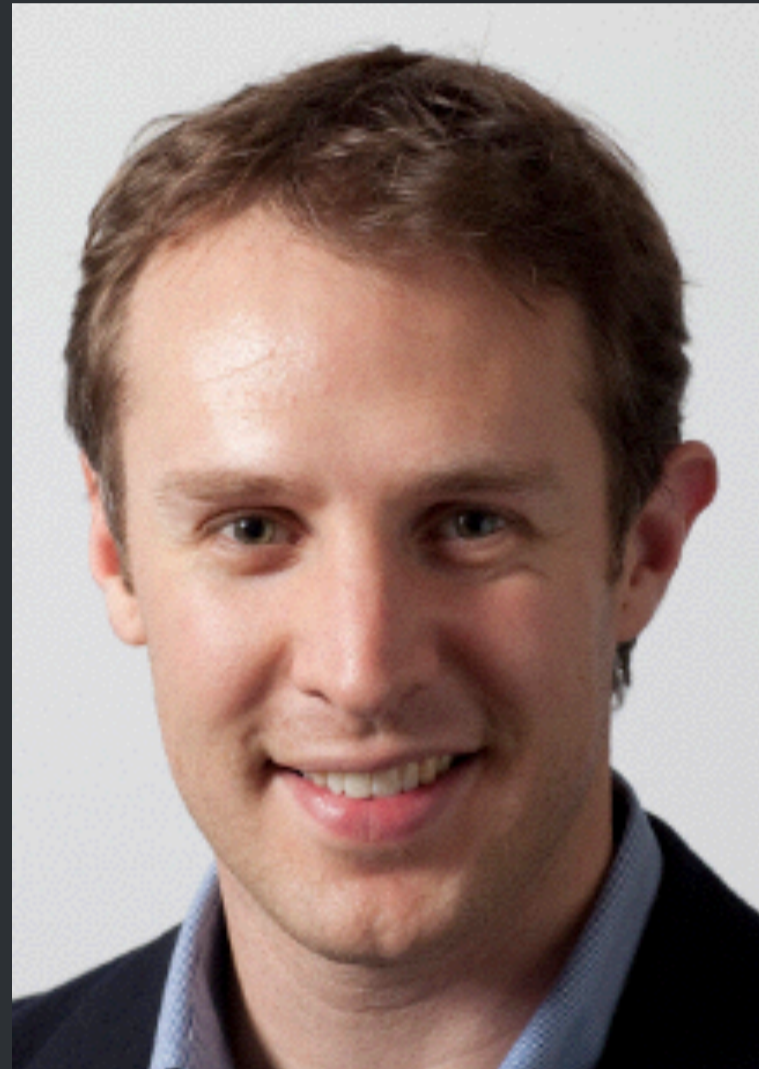
Les Demoiselles d'Avignon



19th century Fang sculpture

(How) can we
measure creative
results?

Design Process at Large



Steven Dow *et al.*

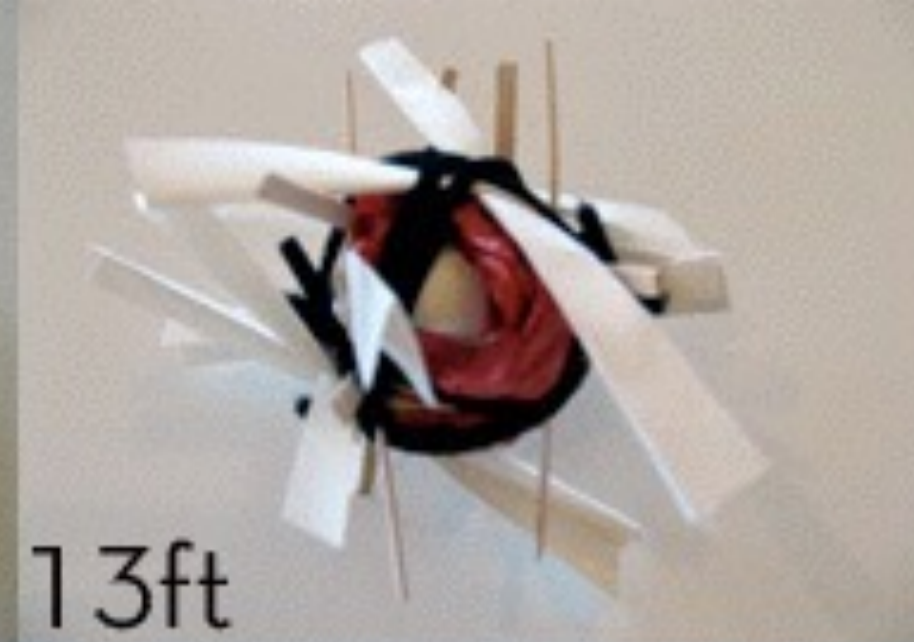
Early and Repeated Exposure to Examples Improves Creative Work, Chinmay Kulkarni, Steven P Dow, Scott R Klemmer. *Cognitive Science*, 2012.

Prototyping Dynamics: Sharing Multiple Designs Improves Exploration, Group Rapport, and Results, Steven P Dow, Julie Fortuna, Dan Schwartz, Beth Altringer, Daniel L Schwartz, and Scott R Klemmer. *CHI: ACM Conference on Human Factors in Computing Systems*, 2011.

Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy, Steven P Dow, Alana Glassco, Jonathan Kass, Melissa Schwarz, Daniel Schwartz, Scott R Klemmer. *ACM Transactions on Computer-Human Interaction*, 2010



15ft



13ft



7ft



7ft



Participants picked their concept



"I was first thinking they were going to be like a box that you put things in, but then I thought it should be a platform and then as good of cushion as possible... I don't see any other

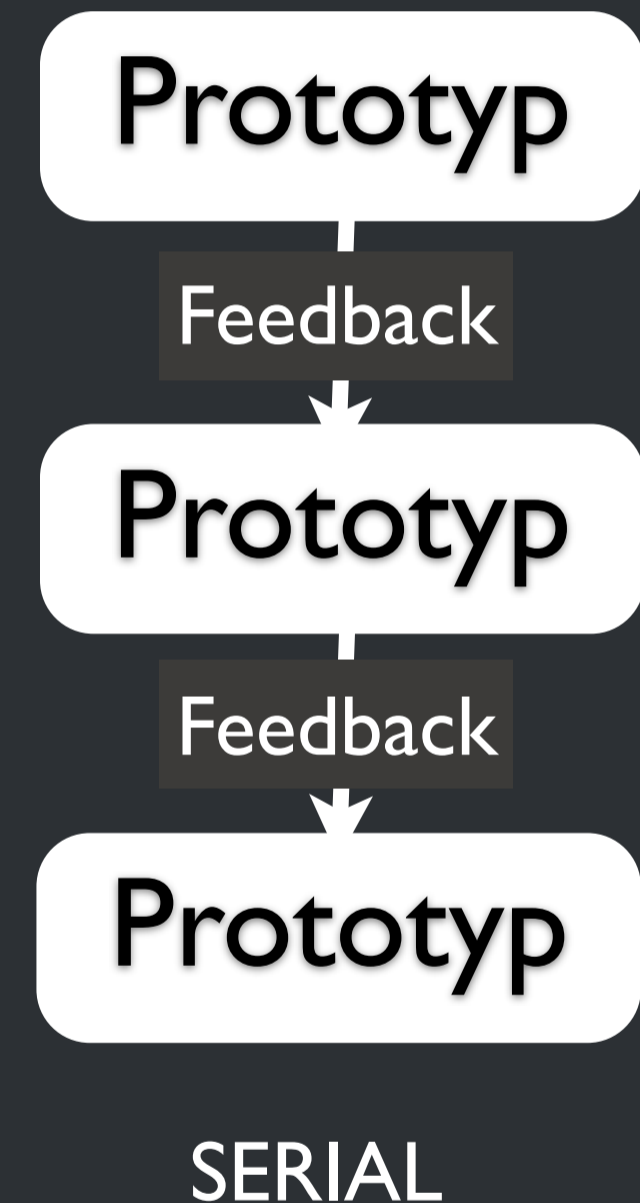
Functional Fixation



Duncker, 1945

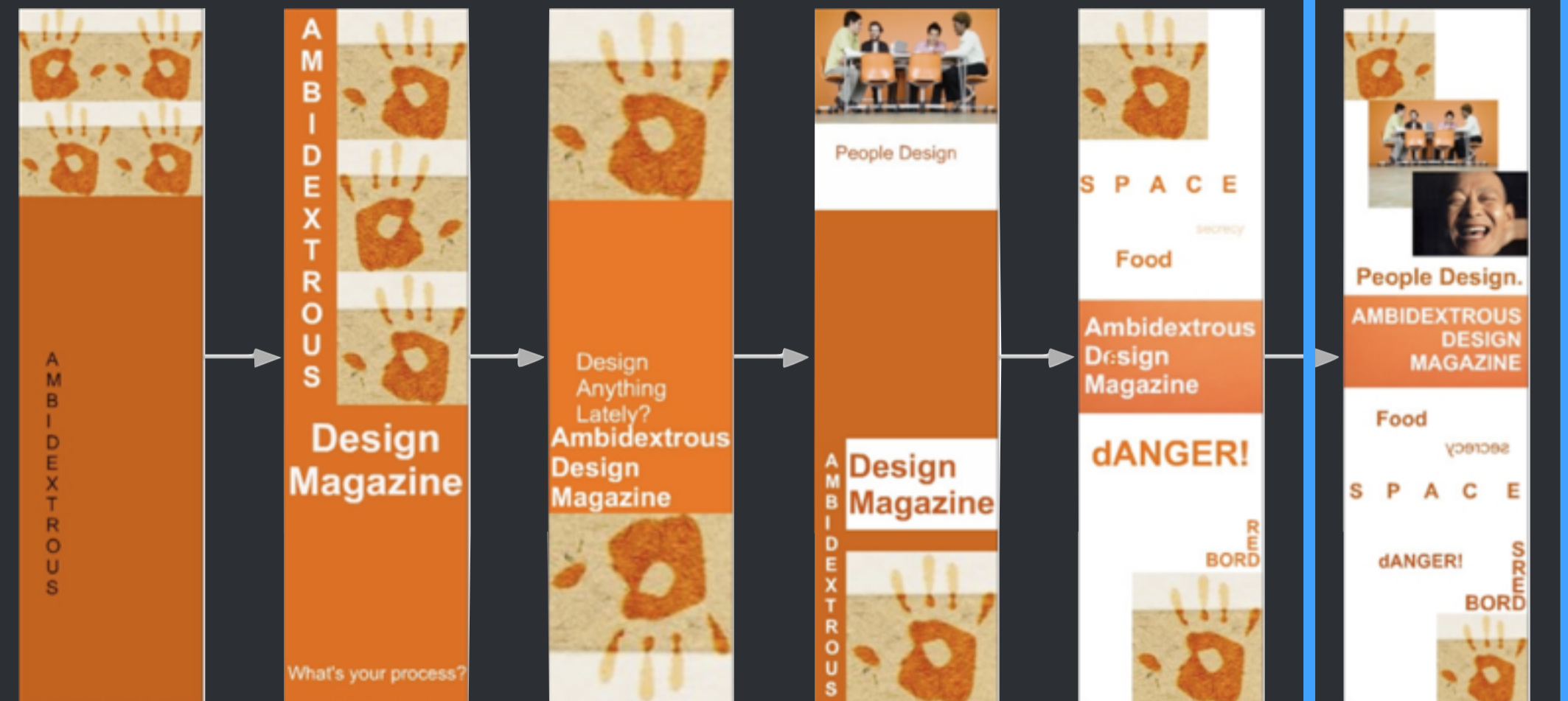
DESIGN AT LARGE

Can process
offer a fixation
antidote?



Task: Design a Web Ad (N=33) FINAL

serial
prototyping



parallel
prototyping



A
M
B

AMBIDEXTROUS

JOURNAL OF DESIGN



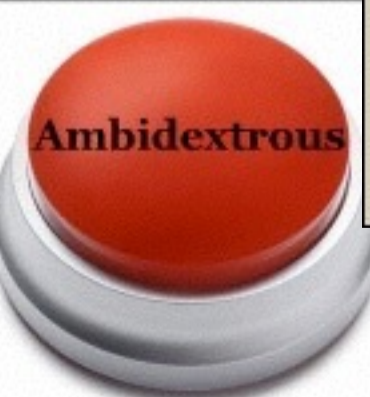
CULTURAL FOODS

THOUGHT FOR FOOD
AND COMICS

DESIGN PROCESS
FOR ANYTHING

RESEARCH LABS

WRITER'S CRITICISM
ON TODAY'S
TECHNOLOGY



Who can I meet?



AMBIDEXTROUS

practice,

ford University
Journal of Design

IDEXTROUS

ished quarter
bidextrous is
magazine that
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is mostly driv
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issue offers a
topic. Previous
s include: Sec
The Future,
er, Developing
ers & Interface

Spring 200

Space



What we learned
something from



Thinking.
Processing.
Designing.



Ambidextrous

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in
DESIGN?

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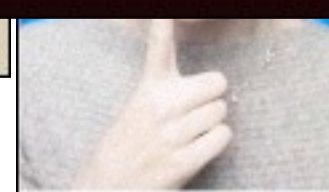
Stanford University's
premier
design

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We are looking for
designers not just
have created
how the



DES



AMBIDEXTROUS
A creative magazine

with
AMBIDEXTROUS
Design

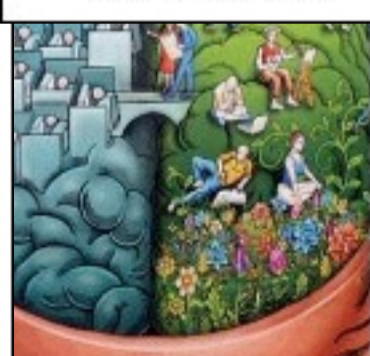


light me

Design
and the
INTER

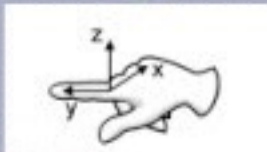
AMBIDEXTROUS

stanford university's
journal of design



DESIGN?

There's no right...



(or left)



People

ng

H sides

our brain

Are you
AMBIDEXTROUS

A journal about
**DESIGNING
THE FUTURE**



both hands
at a time

STANFORD
UNIVERSITY'S
JOURNAL
OF DESIGN:

written, illustrated,
photographed, and
edited by volunteers



AMBIDEXTROUS

Fall 2008
Lucky Issue

voke on a new
venture...

Come read
the joy of
through all
Perspectives

Come share
talents
Disciplinary

Come get
Hands



ambi dext rous

magazine

a forum for design
researchers,
professionals,
and thinkers



Read
Ambidextrous

the journal
where you'll learn
how to design
using your

other hand



AMBIDEXTROUS

AMBIDEXTROUS

Fifth Issue

**DESIGNERS
WANTED**

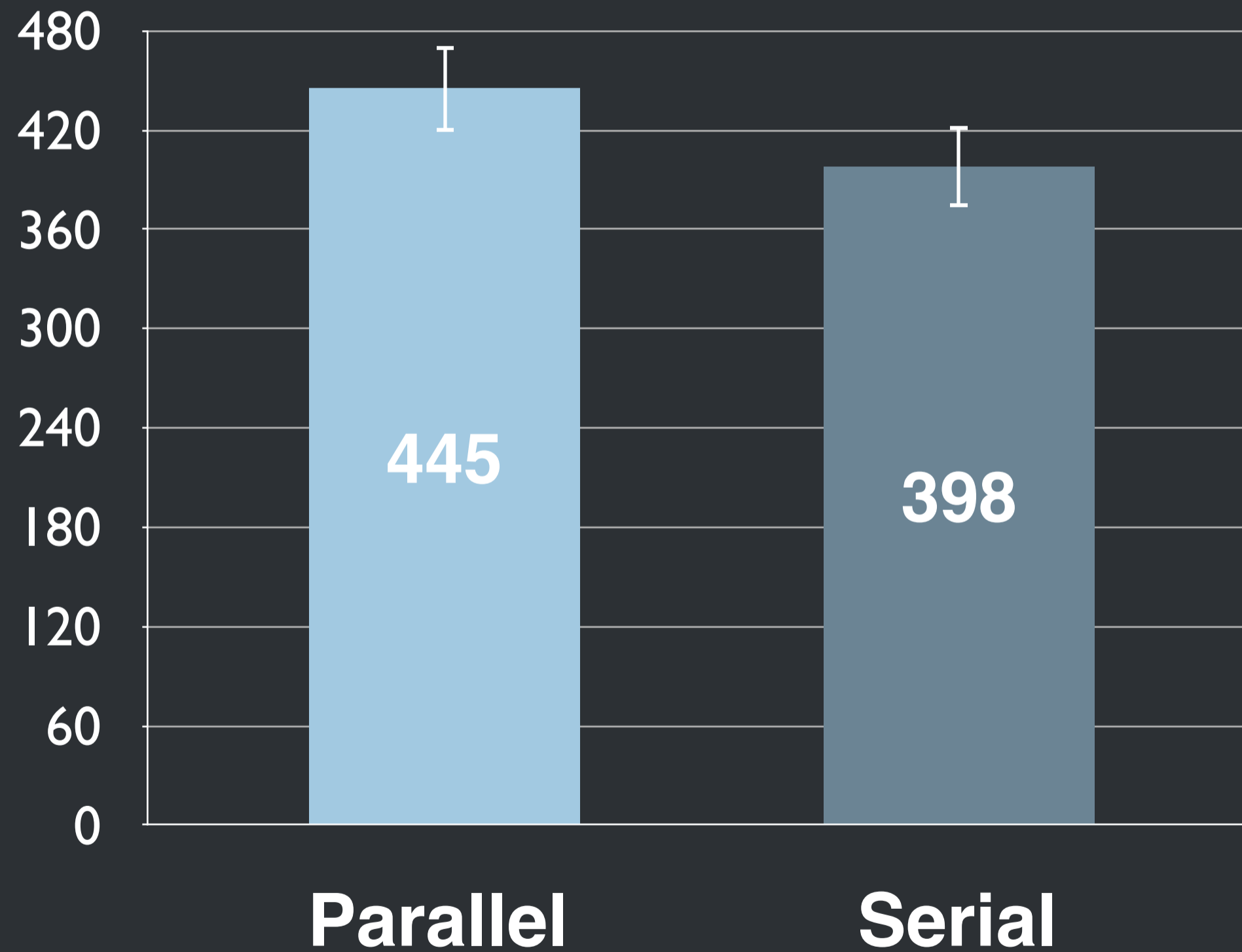


Perspectives for
the next decade!

Where are we going?

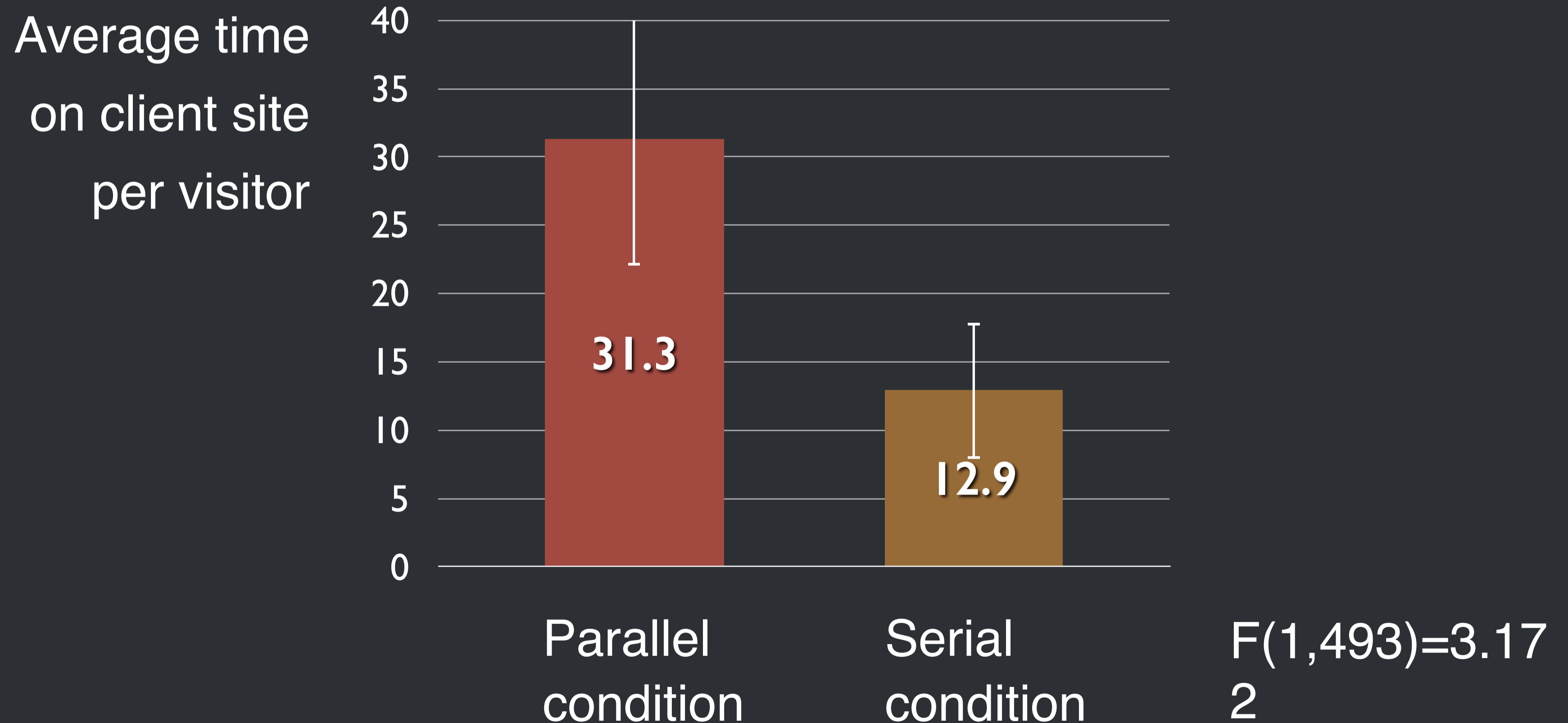
Parallel design -> more clicks

Clicks per
million
impressions

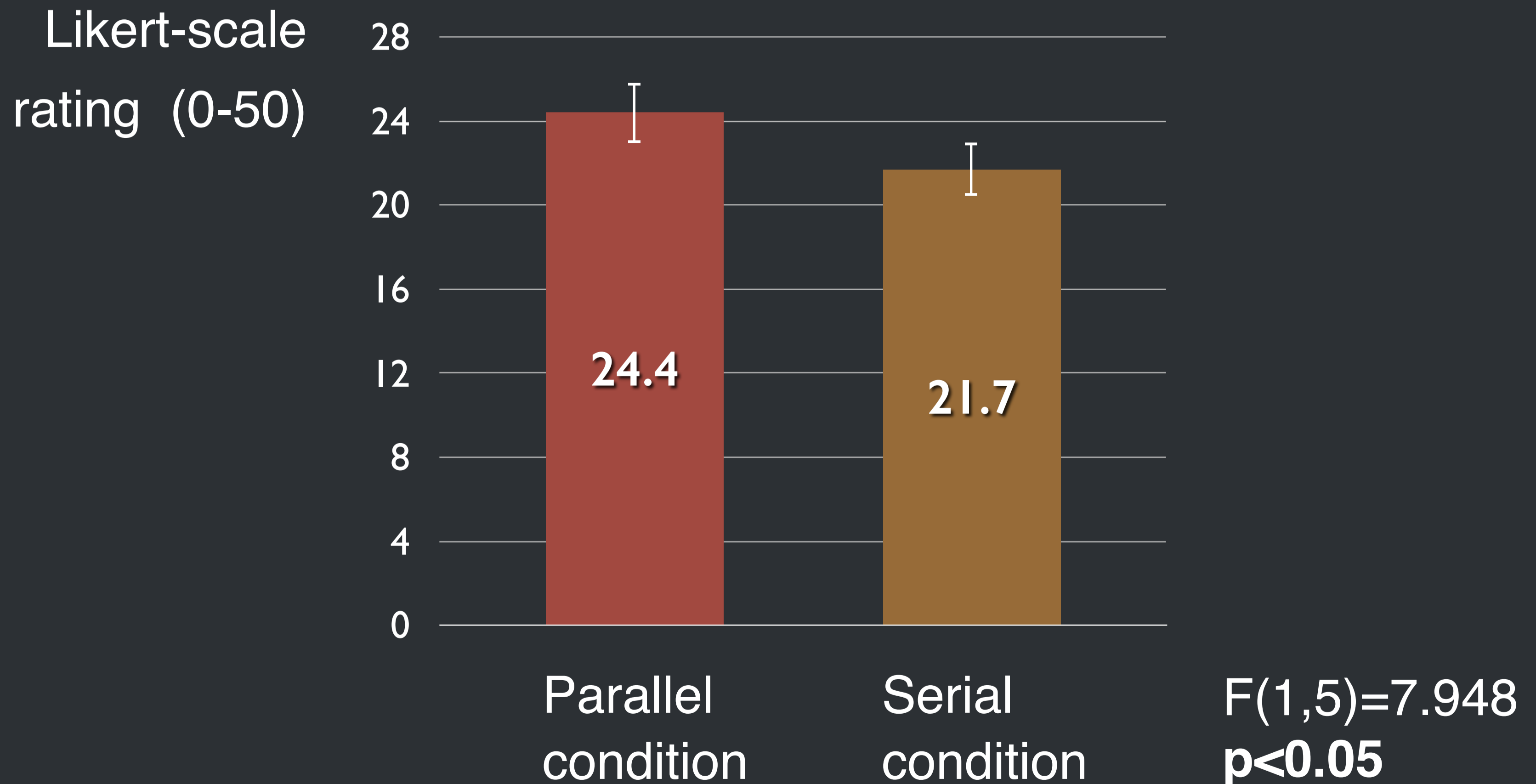


$F(1,30)=4.227$
 $p<.05$

...and more time on the site

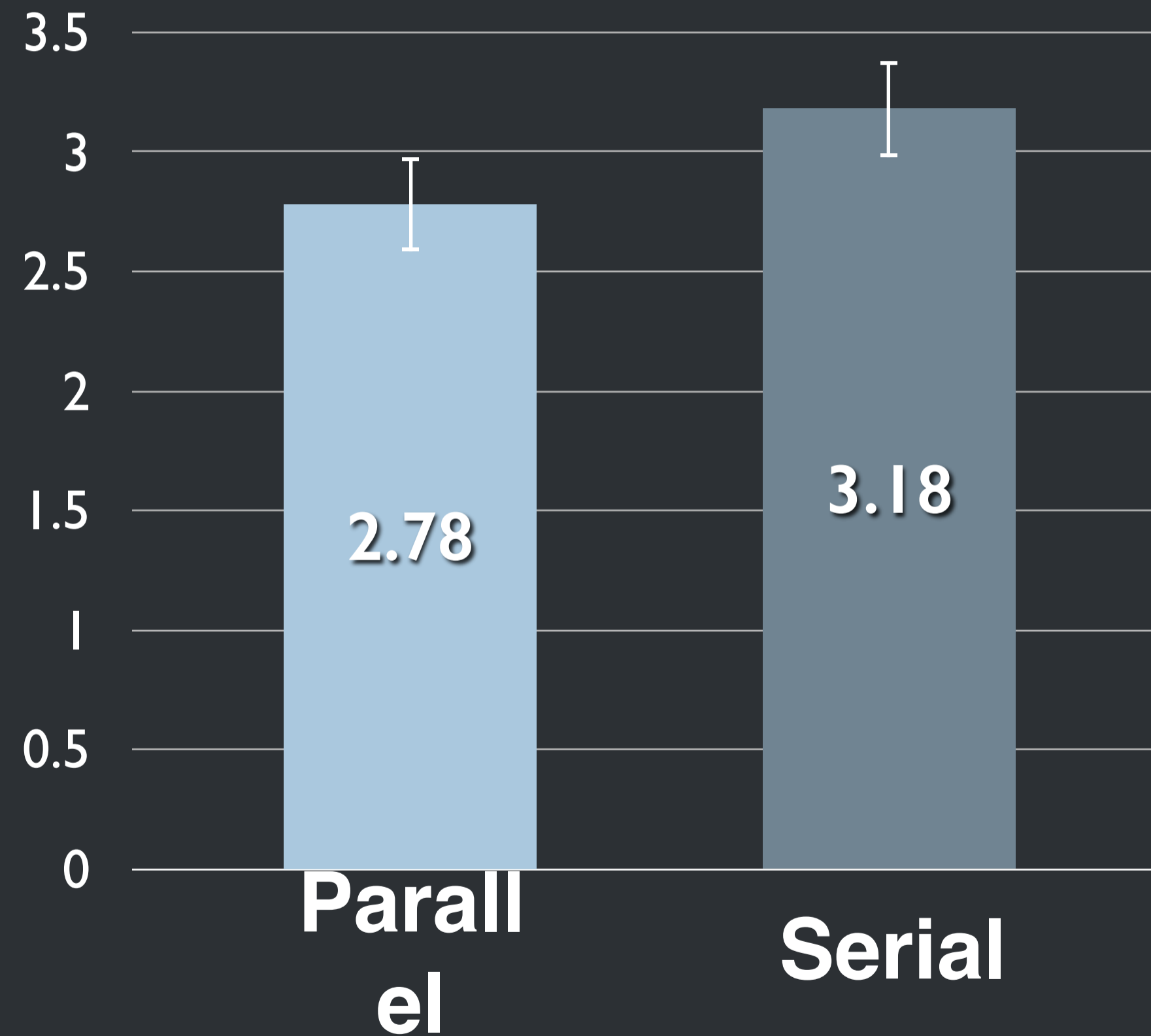


...and higher expert ratings



...and more diverse designs

7=highly similar
0=not at all similar



$F=182,$
 $p<0.001$

Comparison aids learning

training
session

SEPARATE CASES

CASE#1

“Describe the solution.”

CASE#2

“Describe the solution.”

COMPARISON CASES

CASE#1

CASE#2

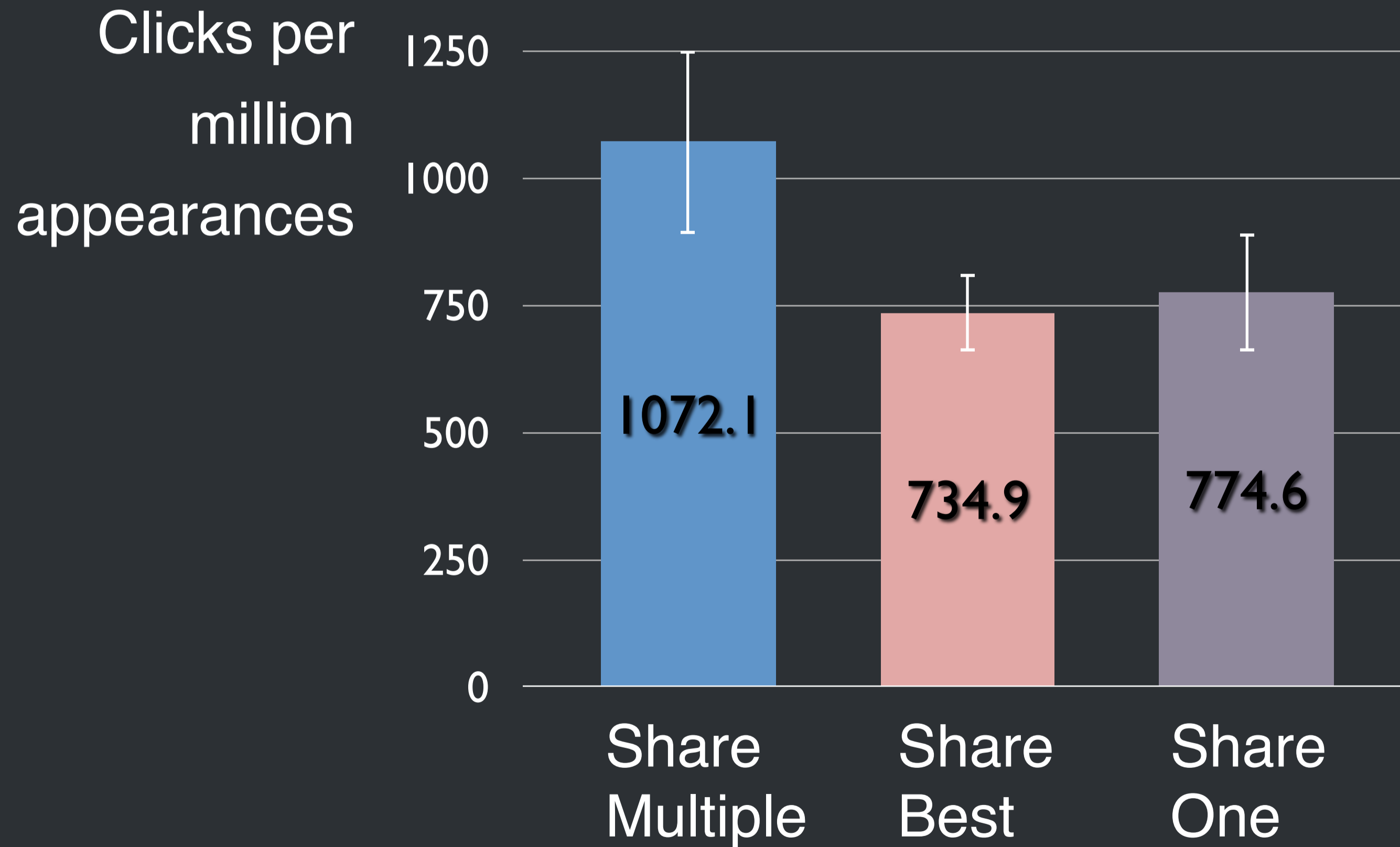
“Describe the
parallels of
these solutions”

~ 3x

learning
outcome

Solutions to a landlord-
renter lease

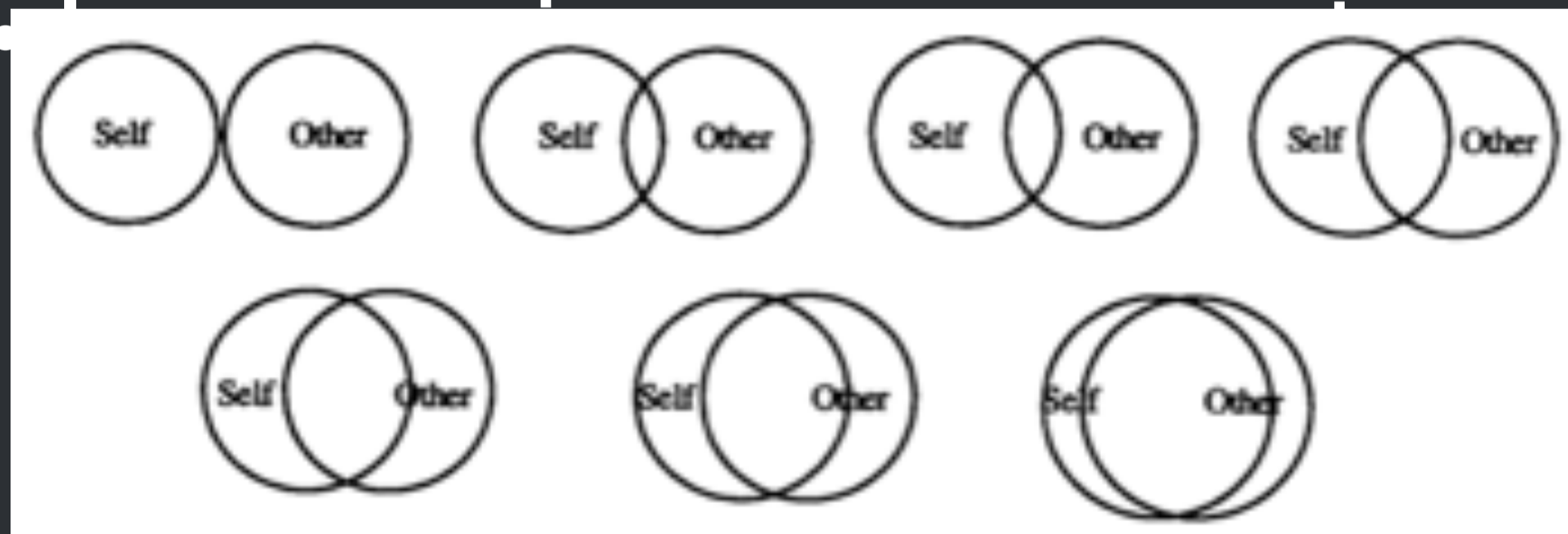
Share Multiple -> More Clicks



$\chi^2=4.72,$

Benefits of sharing multiple

- More individual exploration
- More feature sharing
- More conversational turns
- Better consensus



Storyboarding activity

- Star people
- From setting to satisfaction
- What is a need/problem/setting?
- Find the fundamental need, not surface needs
- Avoid overtravelled paths
 - Help me find a study buddy
 - I'm hungry, where's cheap to eat? (have you tried Yelp?)

Prototyping activity

Final Project Example

- Crowdsourced gift purchasing
<http://gifthub.herokuapp.com/home>

Announcements

- Quiz 2 next Tuesday
- One person submits team assignments