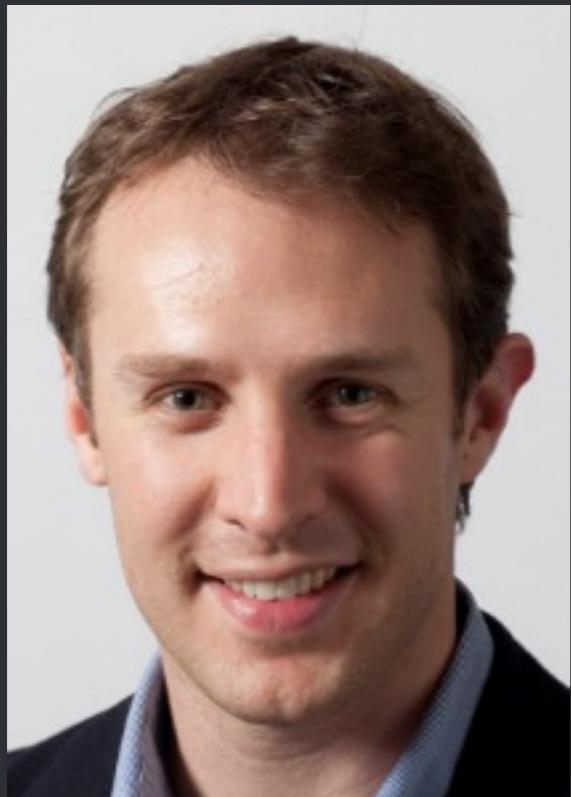


# CREATING AND COMPARING ALTERNATIVES

Scott Klemmer

[www.hci-class.org](http://www.hci-class.org)

# Creating and Comparing Alternatives



Steven Dow *et al.*

**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

**The Efficacy of Prototyping Under Time Constraints**, Steven P. Dow, Kate Heddleston, Scott R Klemmer. *Creativity & Cognition*, 2009

# Quantity v. Quality?



Bayles and Orland, 2001

# Quantity v. 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”

# Design an Egg Drop Device





# Participants picked their concept early



INTERACTION  
PARTICIPANT

"This is all the time I have left so I have to make it as good as I can as quickly as possible... I don't see any other

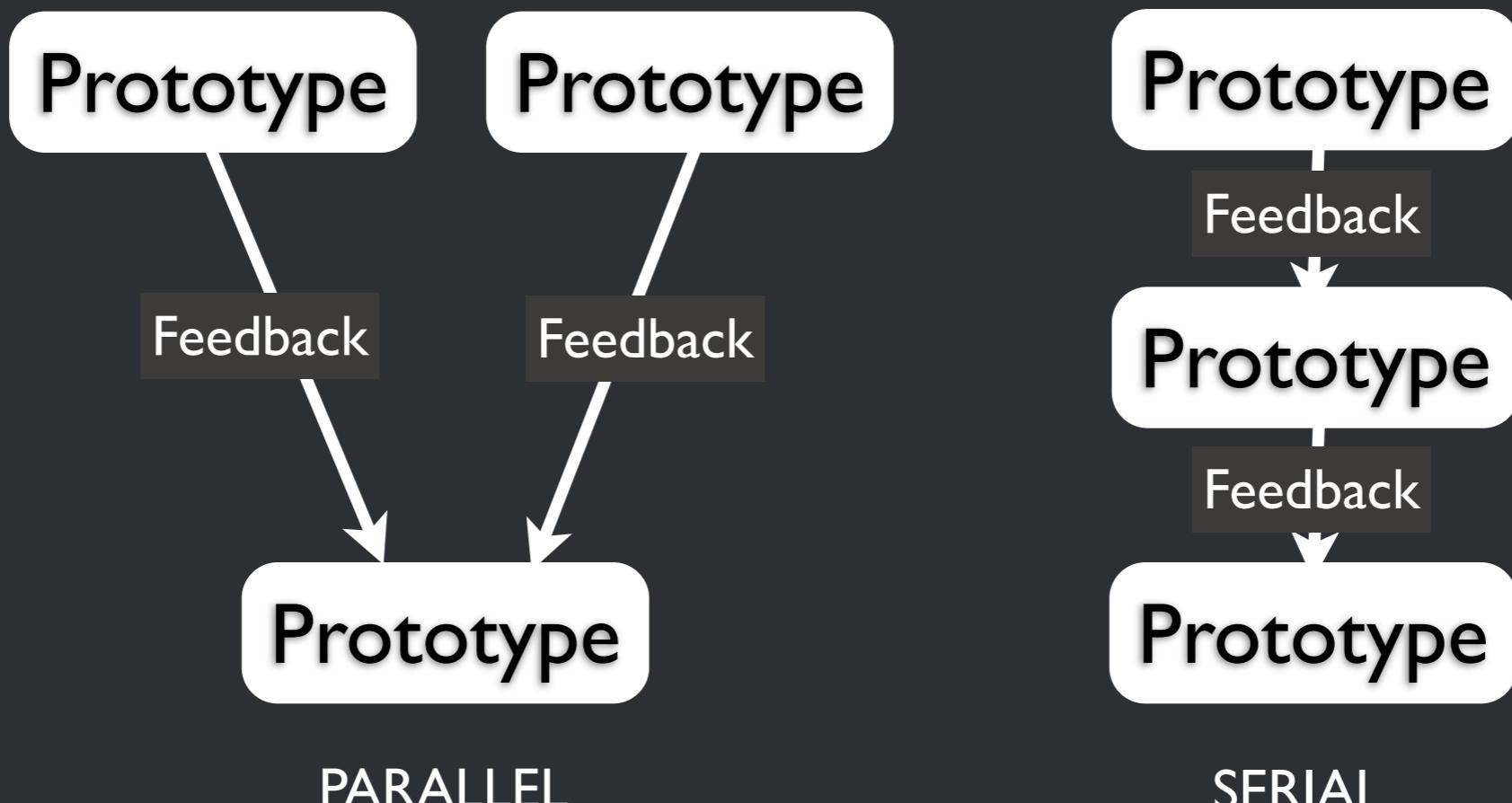
# Functional Fixation



Duncker, 1945

# Research question

How does parallel design  
– rather than a serial approach –  
affect performance?



# Task: design an advertisement

The advertisement features a large, textured orange title "AMBIDEXTROUS" at the top. Below it is a navigation bar with links: "subscribe", "issues", "blog", "store", and "contact us". To the left is a thumbnail image of the magazine cover, which shows a textured, abstract pattern and the word "SPACE" at the bottom. The main text on the right reads "issue 11" and "Spring 2009: Space". A descriptive paragraph follows: "As children some of you may have dreamed of becoming astronauts, or at least vied for a spot in Space Camp. Maybe you were inspired by the worlds of Flash Gordon or those created by Frank Lloyd Wright. In this issue of *Ambidextrous*, we tackle space and beyond in all of its frontiers." At the bottom right is a small image of a bookshelf and a link to "An Ode to White Space" by Ellen Lupton.

**AMBIDEXTROUS**  
STANFORD UNIVERSITY'S JOURNAL OF DESIGN  
EDITOR: EILEEN SCHAFFNER SPRING 2009  
\$15 USD

SPACE

**issue 11**

**Spring 2009: Space**

As children some of you may have dreamed of becoming astronauts, or at least vied for a spot in Space Camp. Maybe you were inspired by the worlds of Flash Gordon or those created by Frank Lloyd Wright. In this issue of *Ambidextrous*, we tackle space and beyond in all of its frontiers.

**An Ode to White Space**  
*Ellen Lupton*

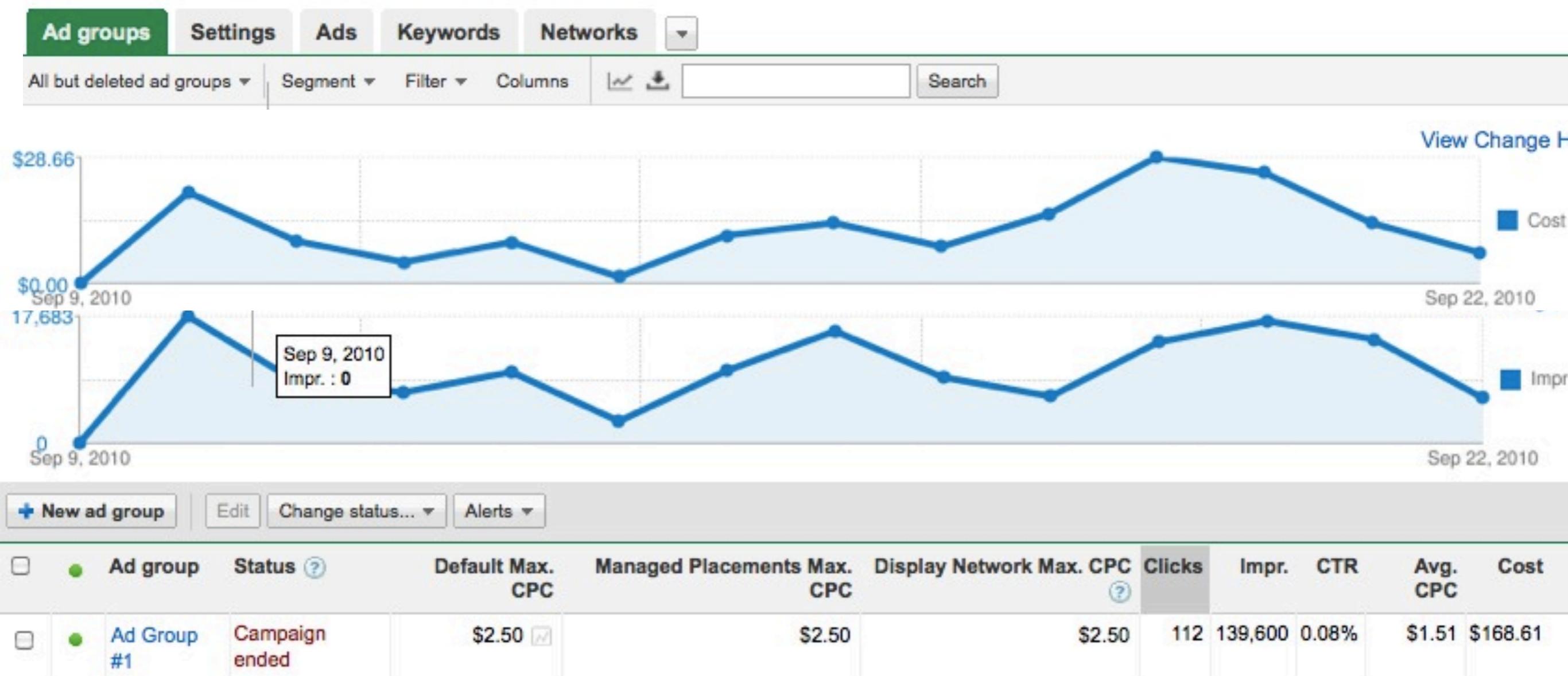
# Procedure (N=33)

serial  
prototyping  
condition

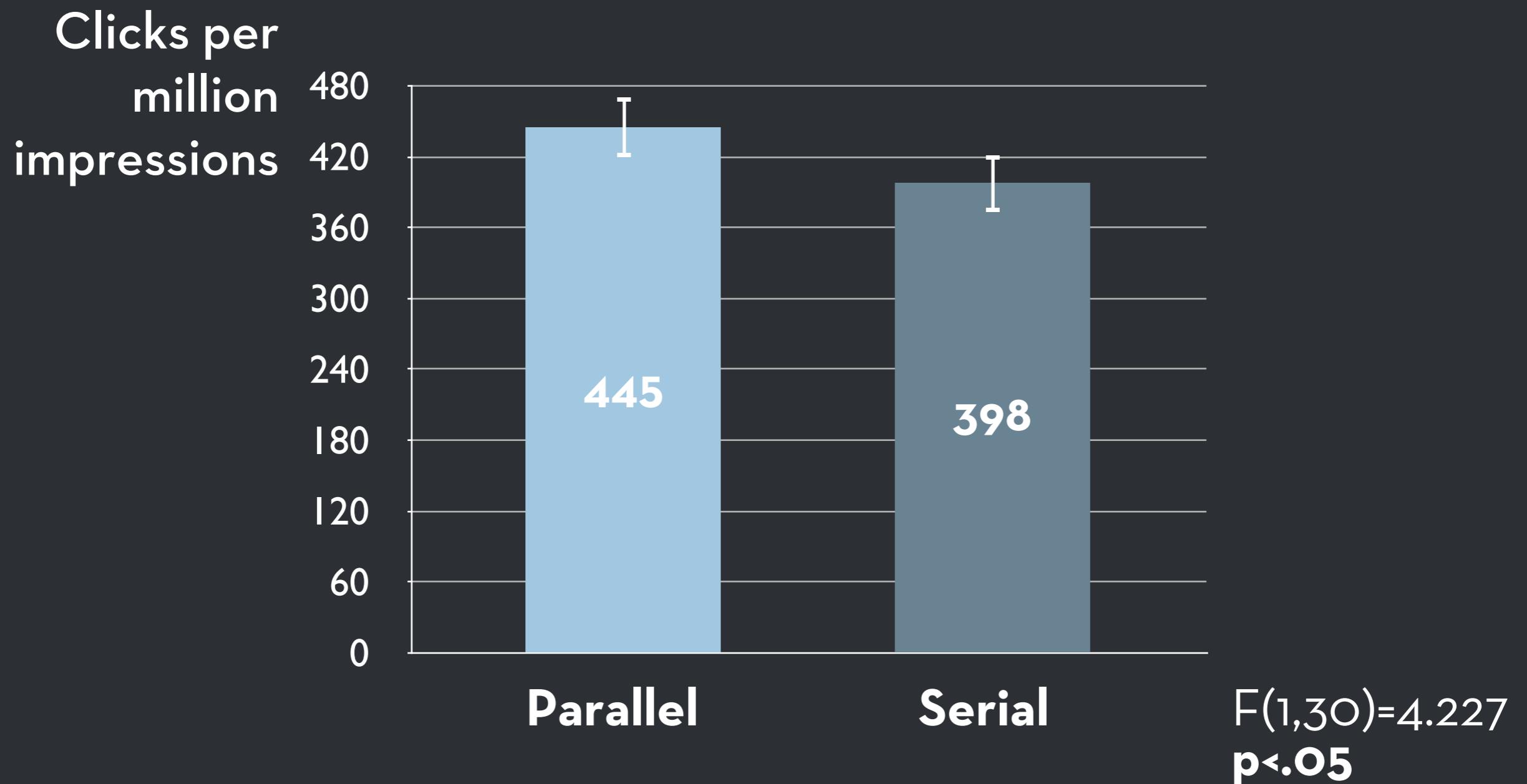




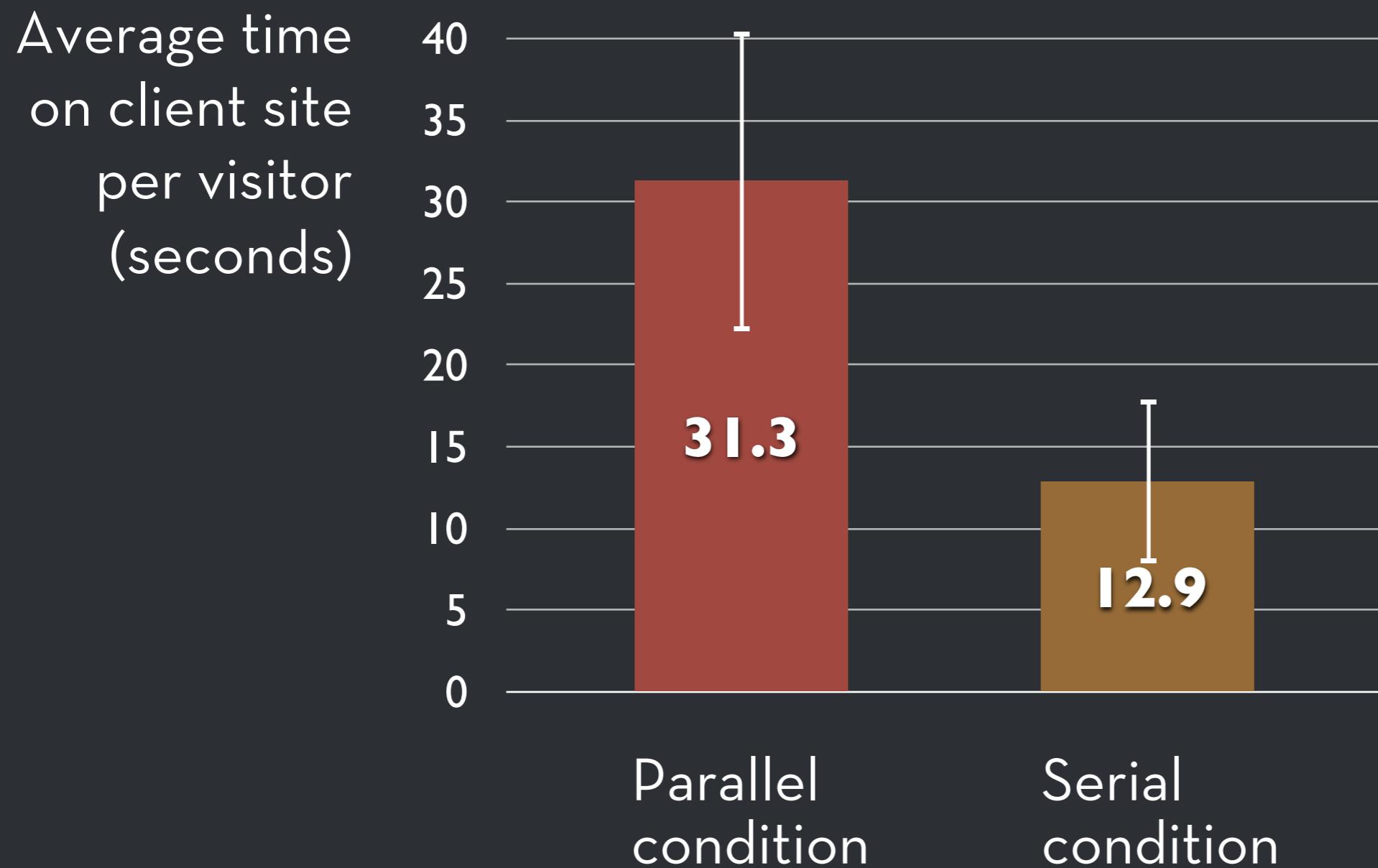
# Web advertising analytics



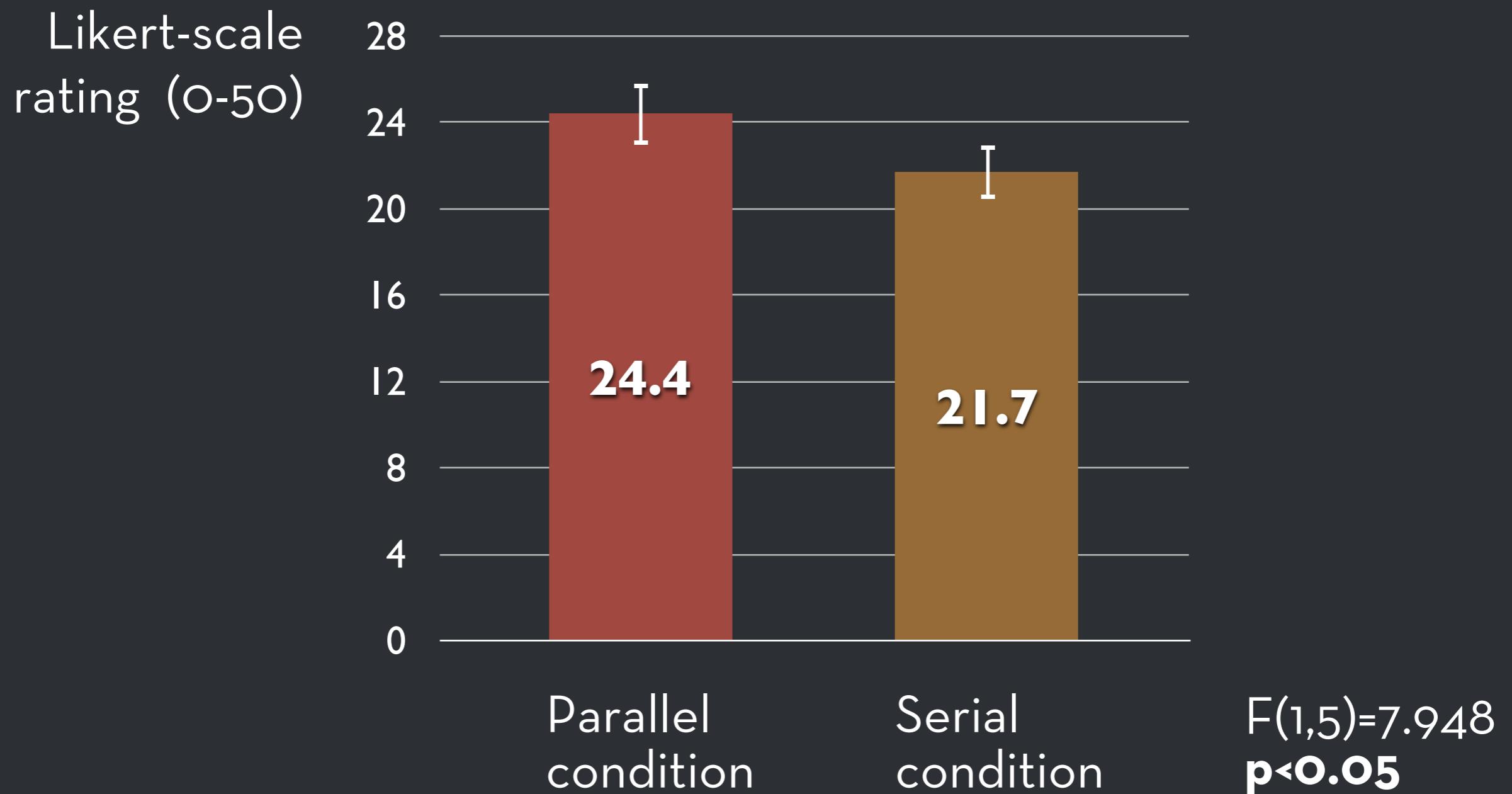
# Parallel design → more clicks



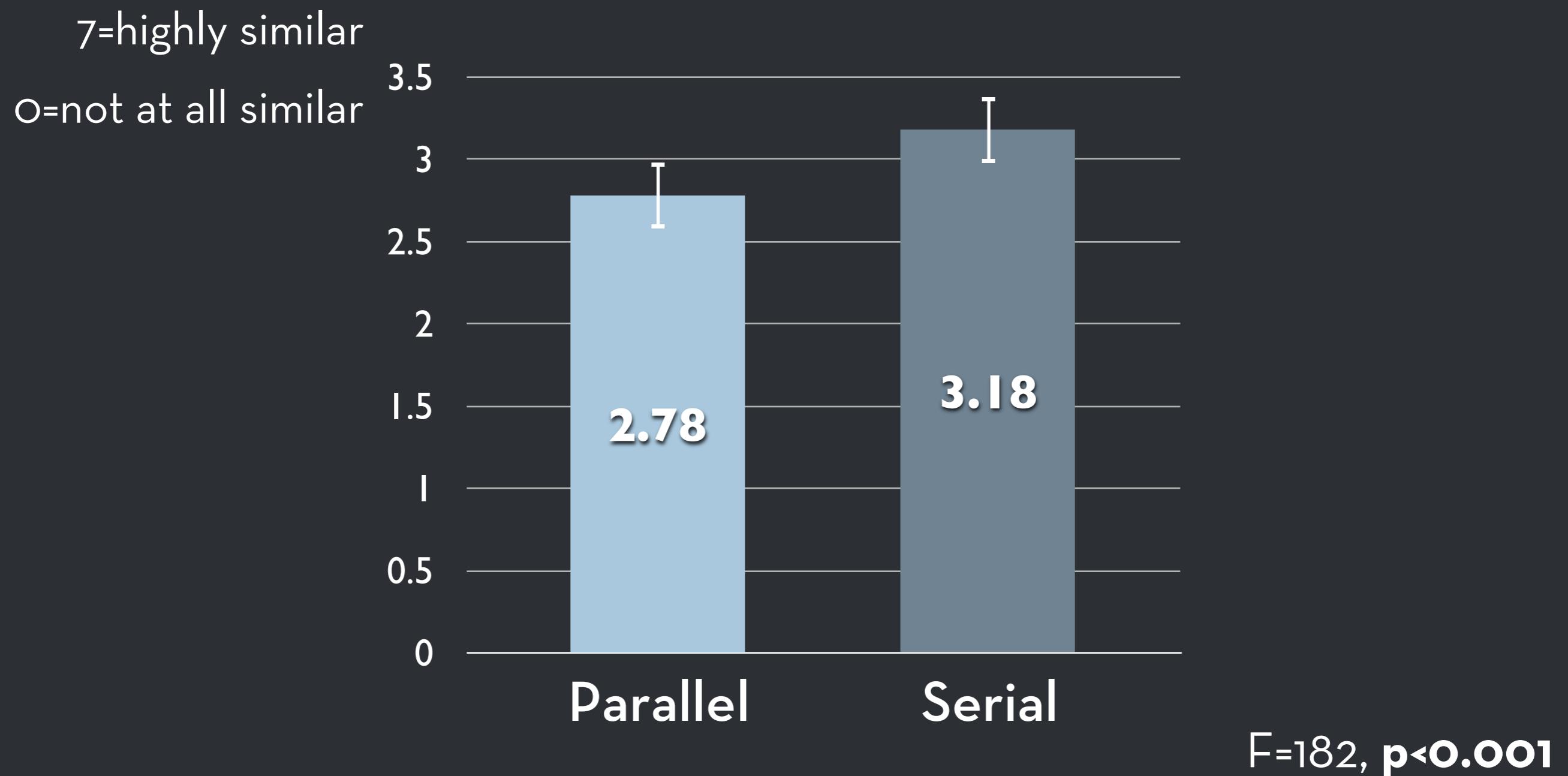
# ...and more time on the site



# ...and higher expert ratings



# ...and more diverse designs



*Why* does a parallel  
approach yield  
better results?

Separating *Ego*

from *Artifact*

Parallel encourages  
comparison and  
transfer

# 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

Does sharing multiple  
prototypes improve  
design results?

# Three Conditions (n=84)

- Share Multiple
- Share Best
- Share One



The image shows a screenshot of the FACE AIDS website. At the top left, there's a white box containing the text "REAL FACES. REAL FEARS. REAL HOPE." in red, next to a small photo of a young child. To the right is the "FACE AIDS" logo in red, with the tagline "A student campaign to fight AIDS in Africa". Below this, a black box features the text "Together. Together we can. Together we can FACE AIDS." in white. In the middle section, there are two small photos: one of two young people smiling and another of a pile of colorful fabrics. To the right, the text "In 2006, young people accounted for 40% of new HIV infections." is displayed, followed by the slogan "Help us change this. FACE AIDS." at the bottom. The bottom part of the screenshot shows the footer with the "FACE AIDS" logo and the tagline "A student campaign to fight AIDS in Africa" again, along with a small photo of three young men.

REAL FACES.  
REAL FEARS.  
REAL HOPE.

FACE AIDS  
A student campaign to fight AIDS in Africa

Together.  
Together we can.  
Together we can FACE AIDS.

In 2006, young people accounted for 40% of new HIV infections.

Help us change this. FACE AIDS.

FACE AIDS | A student campaign to fight AIDS in Africa

to fight AIDS in Africa.

And we look good in red, too.



Want to help?  
Click here or visit [www.faceaids.org](http://www.faceaids.org)



Help us change this. FACE AIDS

## 1.4 Million Dollars. 150 chapters



FACE  
AIDS



Mobilizing and inspiring students to fight AIDS in Africa.

## HELP CHANGE THEIR LIVES

start a FACE AIDS chapter at your school



Make a difference in their lives.

Start a local chapter today.



FACE AIDS



Get Involved  
Make an impact

Make a difference...Face AIDS

GET INVOLVED

I applaud FACE AIDS for their leadership in engaging youth from around the world on this pandemic and am pleased that FACE AIDS is supporting my Foundation's collaboration with Partners In Health in Rwanda.

-President Bill Clinton

## Help change their lives.

Start a FACE AIDS chapter at your school and join the fight against HIV.



Take the lead and make them smile!  
FIGHT AIDS!

FACE AIDS  
A student campaign to fight AIDS in Africa



Join us

Save lives

[FaceAids.com](http://FaceAids.com)



Fight AIDS in your campus...



When it comes to HIV,  
everyone is a victim.

FACE AIDS  
A student campaign to fight AIDS in Africa



Building a movement ...

Join   
FACE AIDS

faceAIDS

A student campaign to fight AIDS in Africa

REAL FACES.  
REAL FEARS.  
REAL HOPE.



A student campaign to fight AIDS in Africa

FACE AIDS

inspire HOPE

students for the right of health

A student campaign to fight AIDS in Africa



CLICK HERE

FACE AIDS NOW BEFORE AIDS FACE YOU



FACE AIDS  
[Click here to REACH OUT!](#)

Give hope, love,  
and smiles.

GET INVOLVED



Get  
Involved

FACE AIDS  
A student campaign to fight AIDS in Africa

Save Lives

FACE AIDS  
A student campaign to fight AIDS in Africa

Meet our pinmakers, meet our inspiration.



Together  
We Can Make A Difference  
Be Part Of A Movement

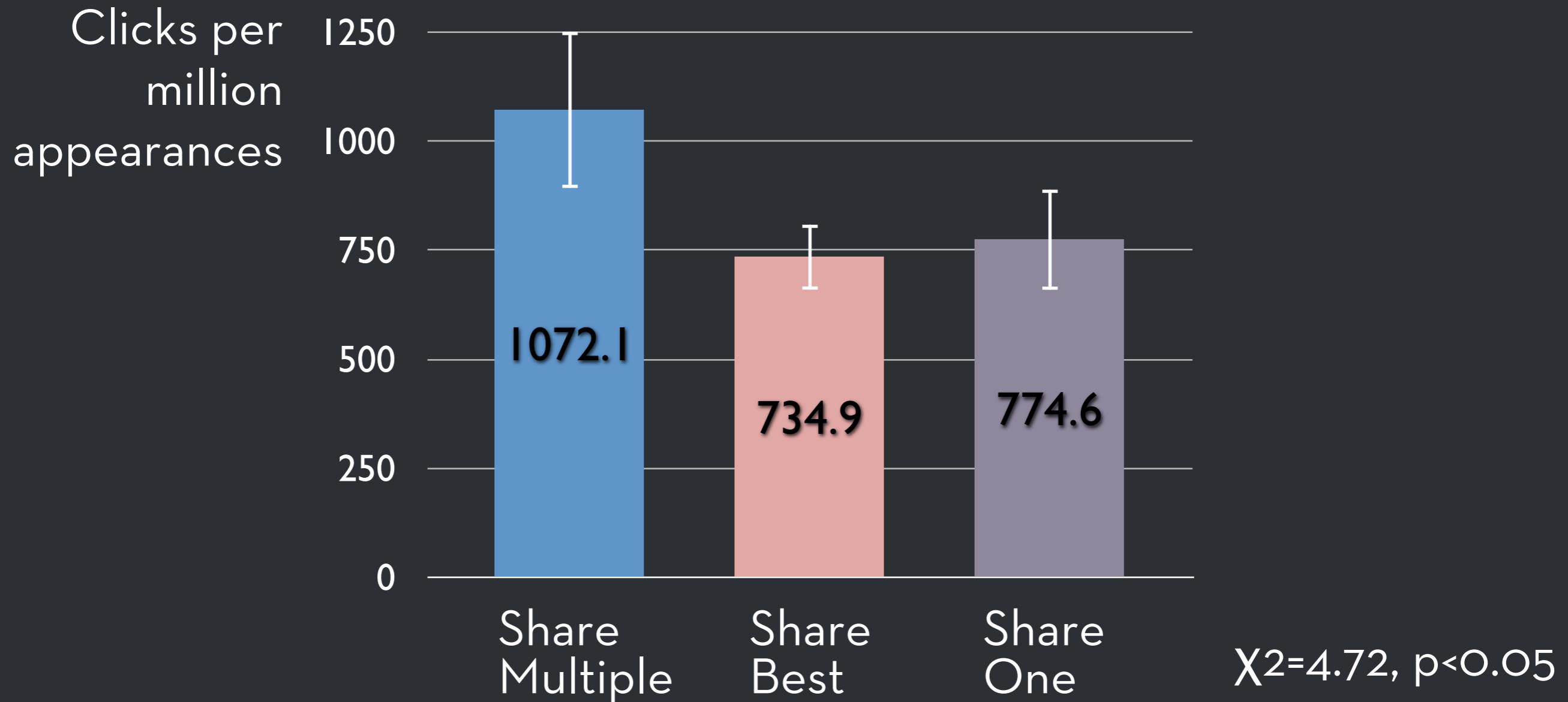


Building a movement means...

Building a future. Building hope.

Join us. FACE AIDS

# Share Multiple → More Clicks

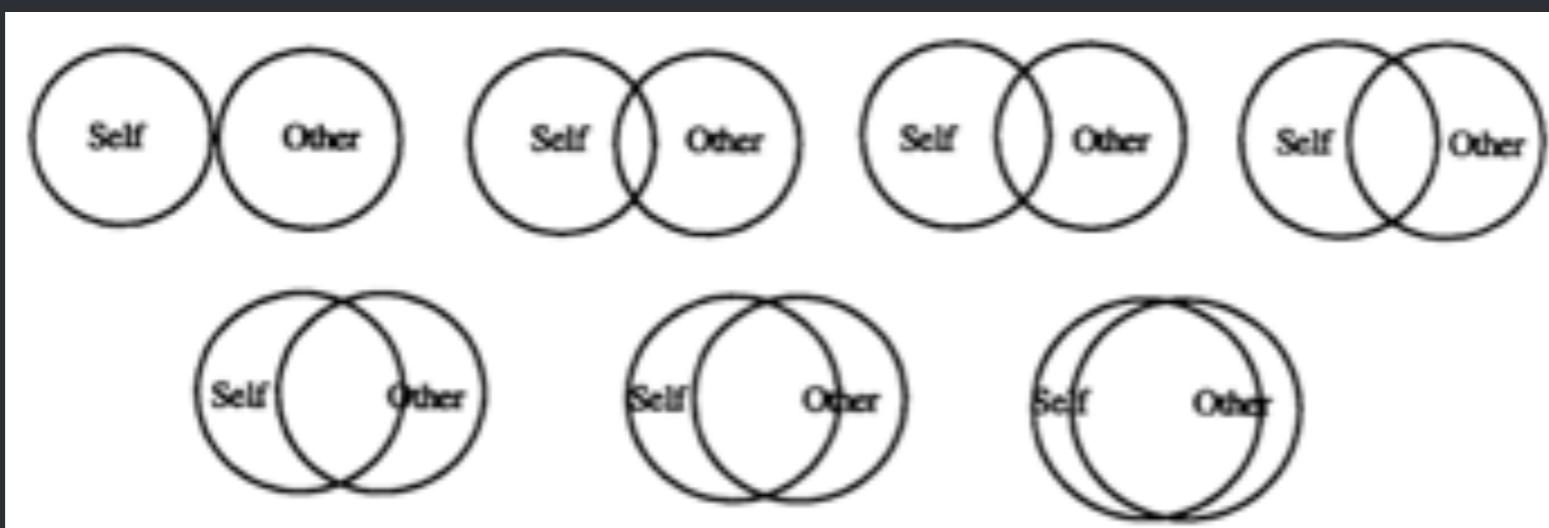


# Benefits of sharing multiple

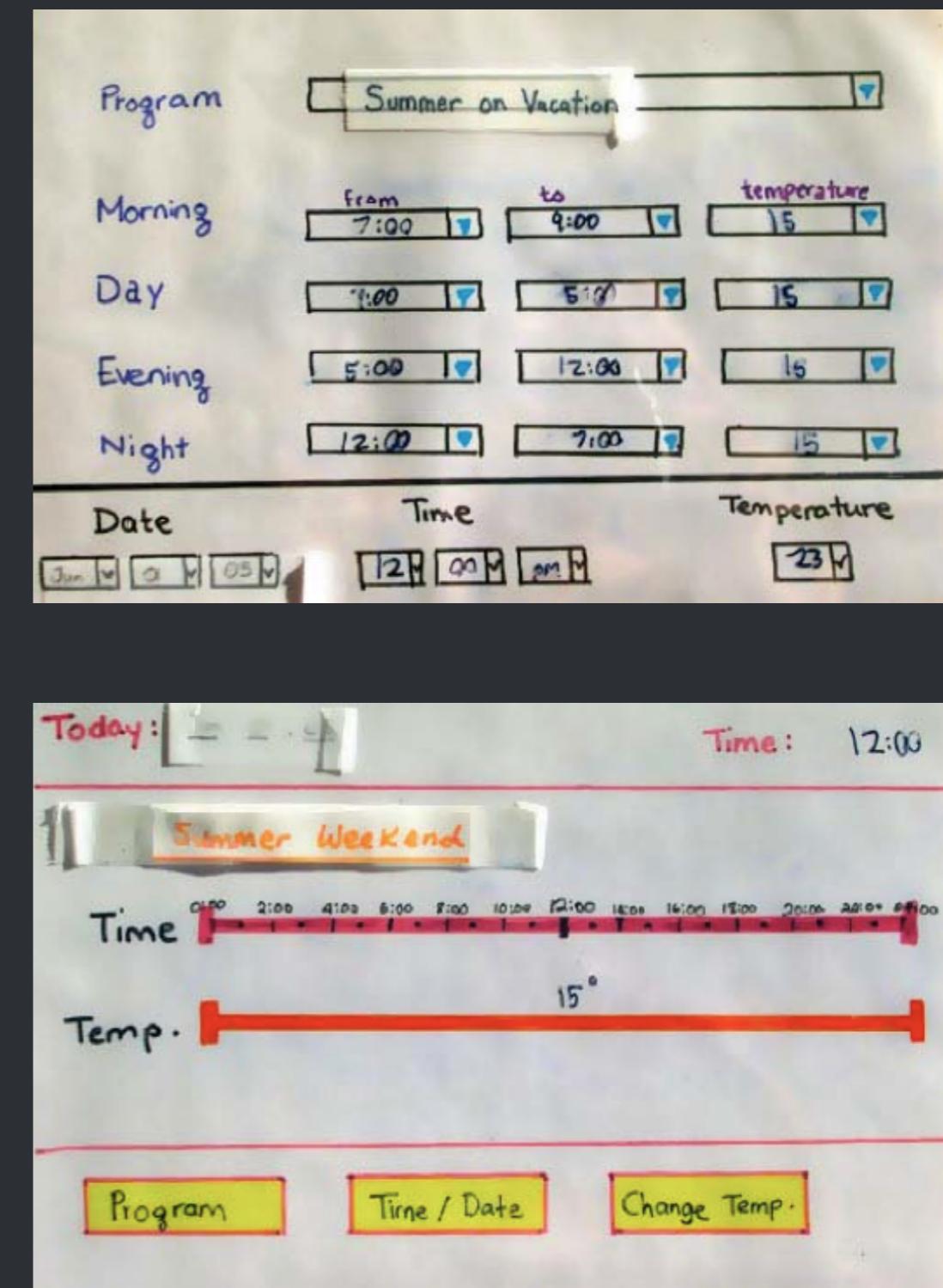
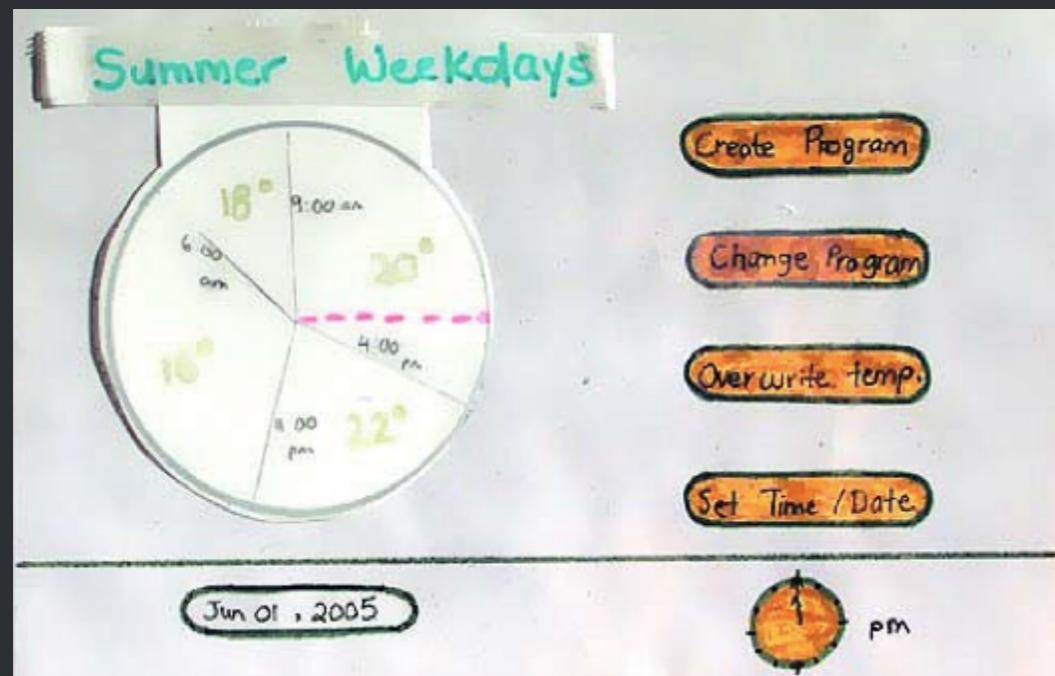
- More individual exploration
- More feature sharing
- More conversational turns
- Better consensus
- Increase in group rapport

# Benefits of sharing multiple

- More individual exploration
- More feature sharing
- More conversational turns
- Better consensus
- **Increase in group rapport**



# Alternatives Provide a Vocabulary



Tohidi, Buxton, Baecker,  
Sellen, CHI 2006