

# CSE440: Introduction to HCI

Methods for Design, Prototyping and Evaluating User Interaction

Lecture 11:  
Testing

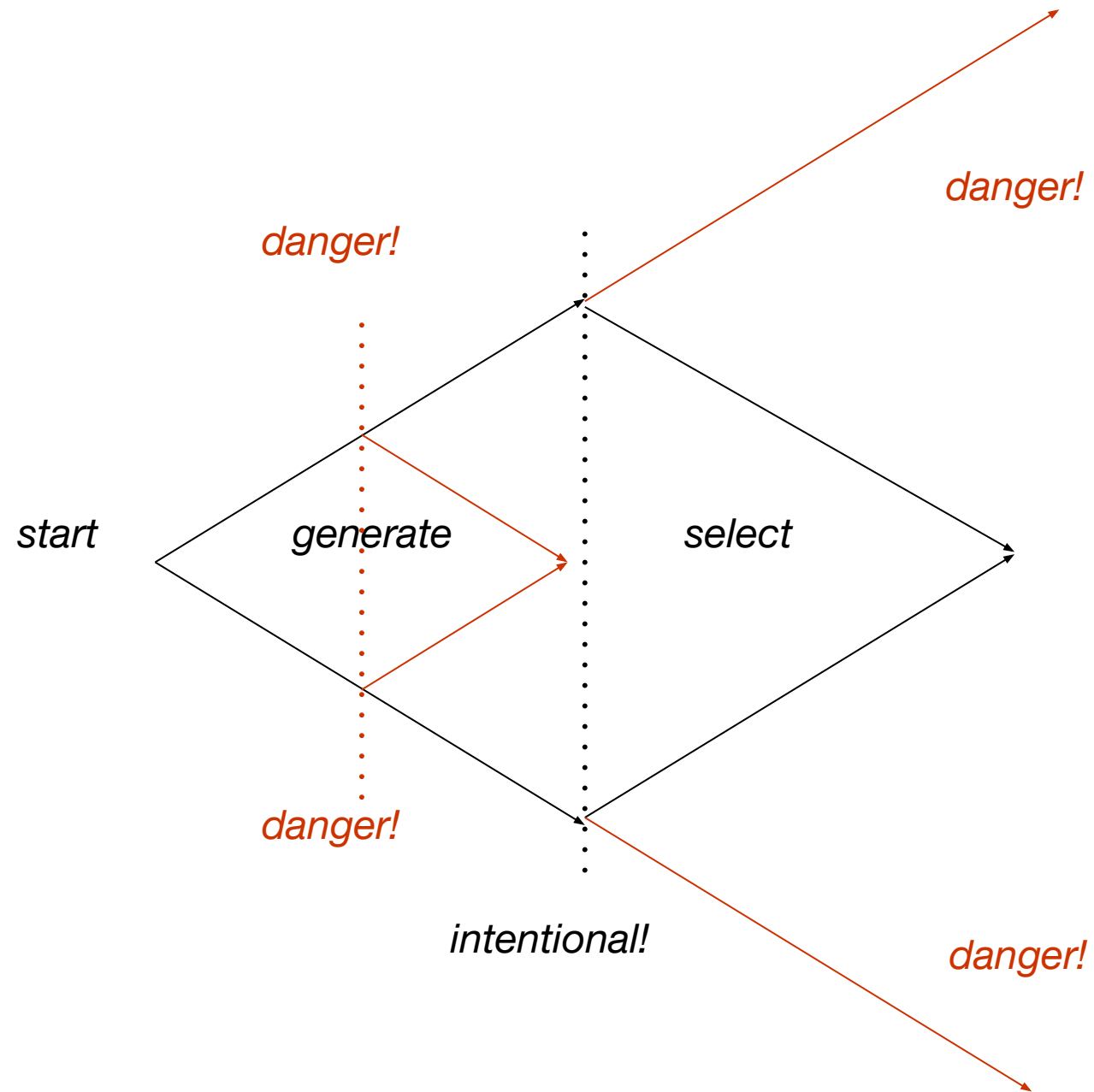
Nigini Oliveira  
Abhinav Yadav  
Liang He  
Angel Vuong  
Jeremy Viny

# What we will do today

Design sprint

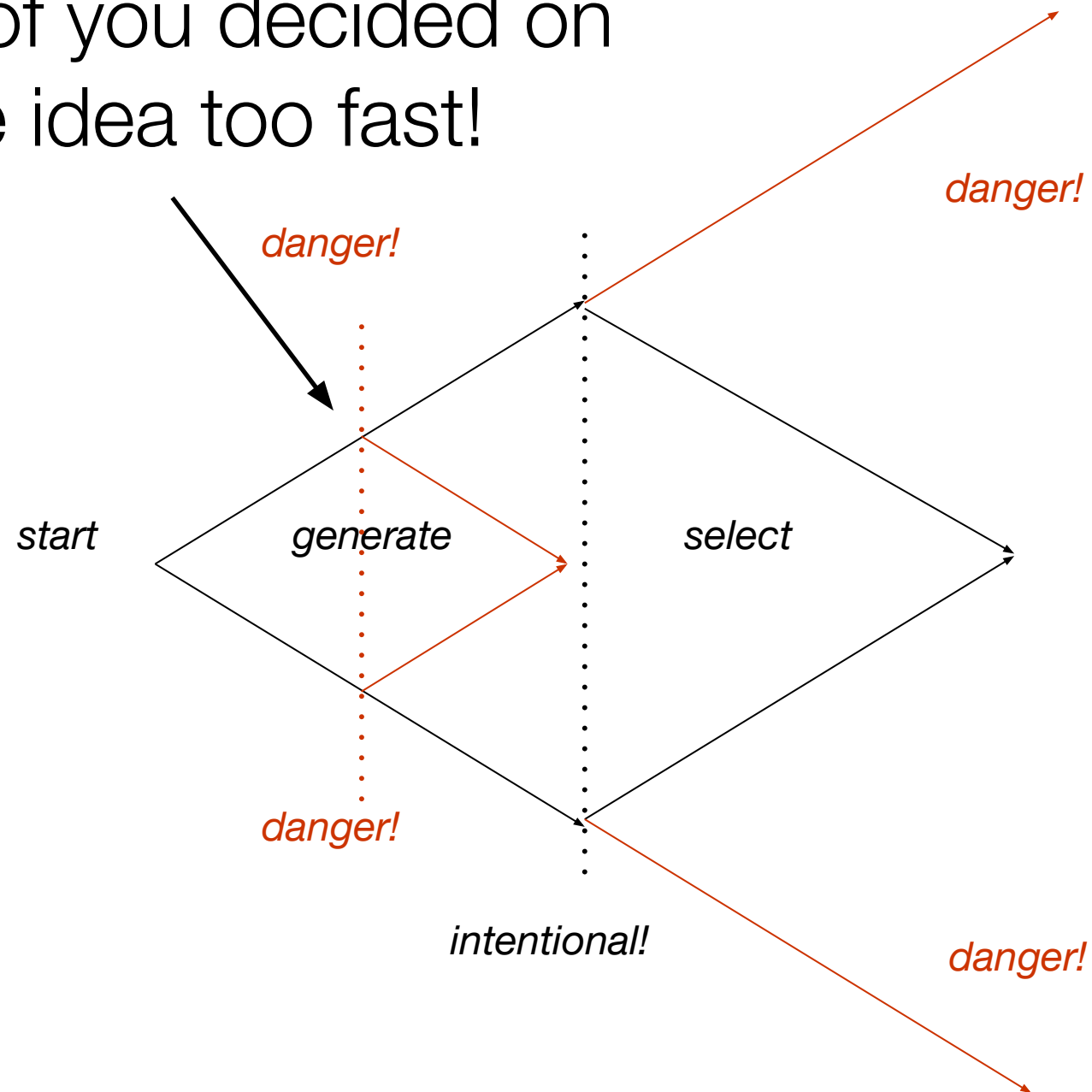
Testing (beyond paper prototypes)

# But first a reminder

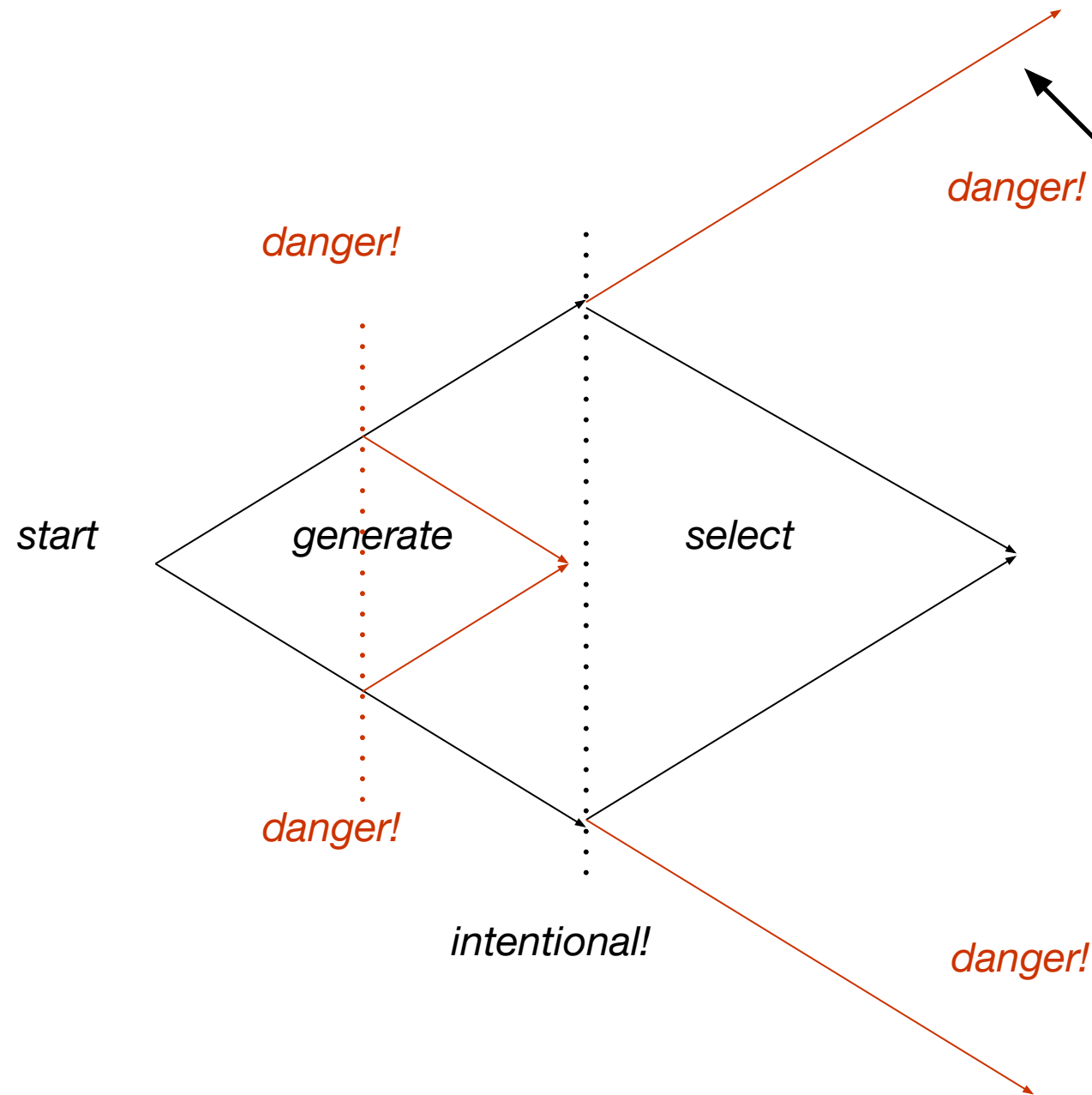


# But first a reminder

Some of you decided on one idea too fast!

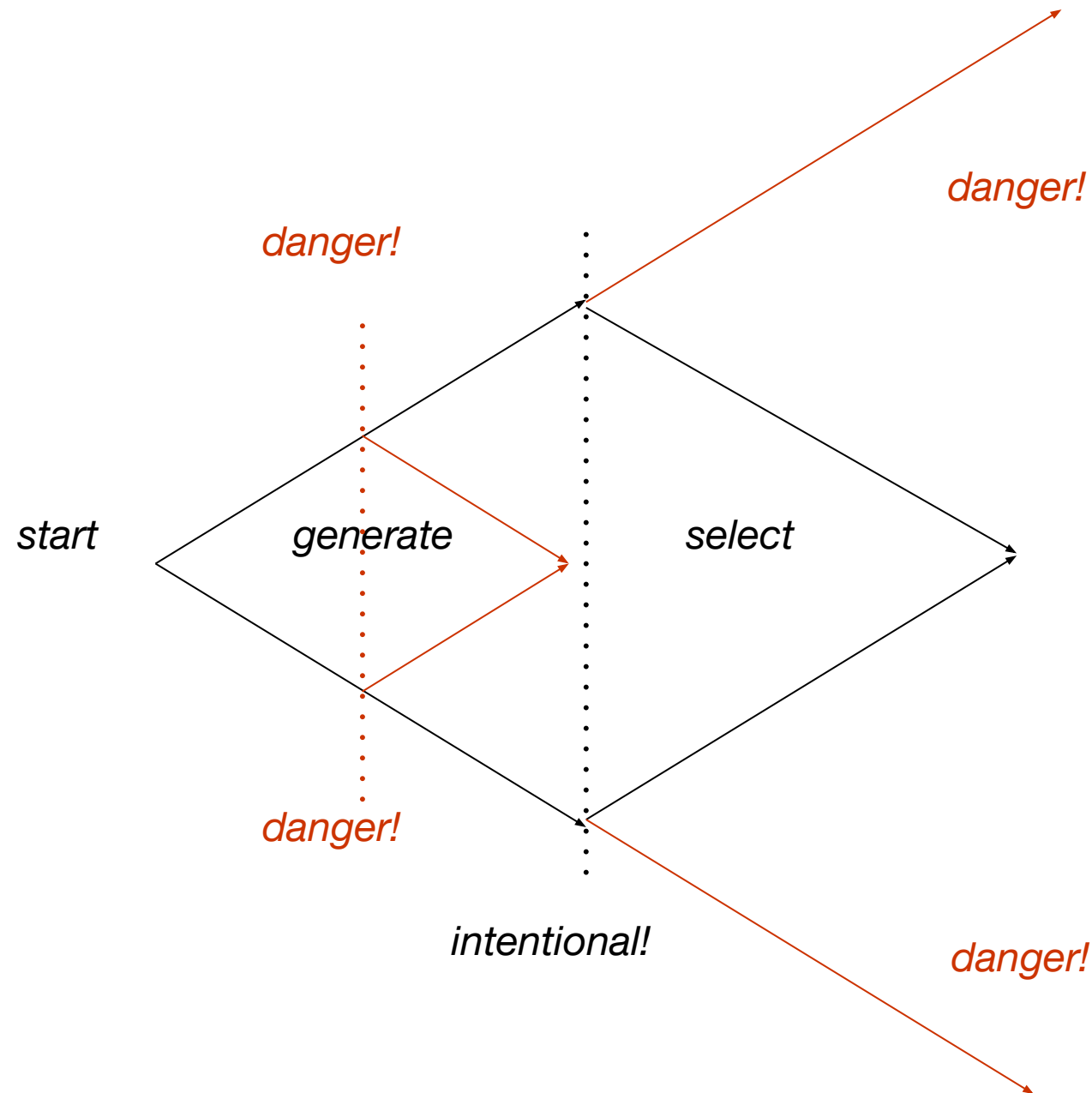


# But first a reminder



Some of you are not deciding on one idea fast enough

# But first a reminder



Make sure to meet in your team and decide!

You still have time to adjust/explain things in your **final report.**

# Upcoming

<b>May 6</b> Nigini at CHI	<b>May 7</b> Nigini at CHI Testing 10:00 - 11:20   OUG 136 Reading 2: Storyboarding and Video Prototyping	<b>May 8</b> Nigini at CHI 2g - Design Review	<b>May 9</b> Nigini at CHI Heuristic Evaluation 10:00 - 11:20   OUG 136	<b>May 10</b> Nigini at CHI Section 10:30 - 11:20   MGH 058 11:30 - 12:20   MGH 058 1:30 - 2:20   MGH 058 2:30 - 3:20   MGH 058 2h - Getting the Right Design
<b>May 13</b> 3a - Paper Prototype	<b>May 14</b> Accessibility 10:00 - 11:20   OUG 136	<b>May 15</b> 3b - Heuristic Evaluation Nigini's office hours 10:00 - 12:00 Allen Center 338	<b>May 16</b> Patterns 10:00 - 11:20   OUG 136	<b>May 17</b> Section 10:30 - 11:20   MGH 058 11:30 - 12:20   MGH 058 1:30 - 2:20   MGH 058 2:30 - 3:20   MGH 058 Reading 3: Usability Testing 3c - Usability Testing Check-In

# Design Sprint



# Design Sprint (30 minutes)

Form groups of 3

(find at least one member who is not usually in your usual groups)

Read through the handout

5 minutes: Sketch out a few designs and decide on one

15 minutes: Prototype your design

5 minutes: Test your design with one of the TAs, myself, or with a member of another group

# Design Sprint (30 minutes)

Form groups of 3

(find at least one member who is not usually in your usual groups)

Read through the handout

5 minutes: Sketch out a few designs and decide on one

15 minutes: Prototype your design

5 minutes: Test your design with one of the TAs, myself, or with a member of another group

# Design Sprint (30 minutes)

Form groups of 3

(find at least one member who is not usually in your usual groups)

Read through the handout

5 minutes: Sketch out a few designs and decide on one

15 minutes: Prototype your design

5 minutes: Test your design with one of the TAs, myself, or with a member of another group

# Design Sprint (30 minutes)

Form groups of 3

(find at least one member who is not usually in your usual groups)

Read through the handout

5 minutes: Sketch out a few designs and decide on one

15 minutes: Prototype your design

5 minutes: Test your design with one of the TAs, myself, or with a member of another group

# Design Sprint (30 minutes)

Form groups of 3

(find at least one member who is not usually in your usual groups)

Read through the handout

5 minutes: Sketch out a few designs and decide on one

15 minutes: Prototype your design

5 minutes: Test your design with one of the TAs, myself, or with a member of another group

# Discussion

What worked well during the paper prototyping?

What did you learn about coffee ordering?

How would you change your design?

What did you come up with?

Testing

# Testing

## User tests vs. Usability tests

### Different ways for gaining insights

- Quick and dirty: informal discussions with users  
sometimes done using paper prototypes/Wizard-of-Oz testing
- Usability tests in lab  
e.g., Human Task Performance Measures
- Remote usability tests  
e.g., using recording software
- A/B testing



# Remote Usability Testing

## Conferencing-based testing

Use tools like video conferencing, instant messaging, and screencasting to test with a remote participant

## Unmoderated remote testing

Automatic logging and some analysis of usage

## Controlled online A/B experiments

Carefully measure results of showing different versions to different sets of live customers

# Unmoderated Remote Usability Test

Move usability testing online

- participants access the “lab” via web

- answer questions & complete tasks in “survey”

- records actions or screens for playback

- can test many people completing many tasks

Analyze data individually or in aggregate

- playback individual sessions

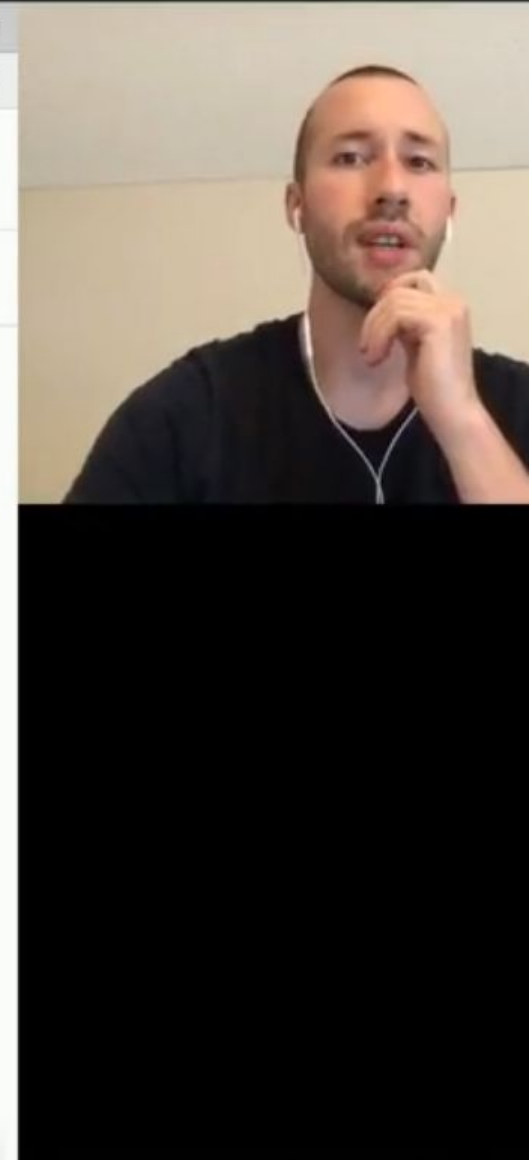
- find general problem areas

- if needed, look more closely with traditional methods

# Unmoderated Remote Usability Test

Userlytics | Website User Testing"

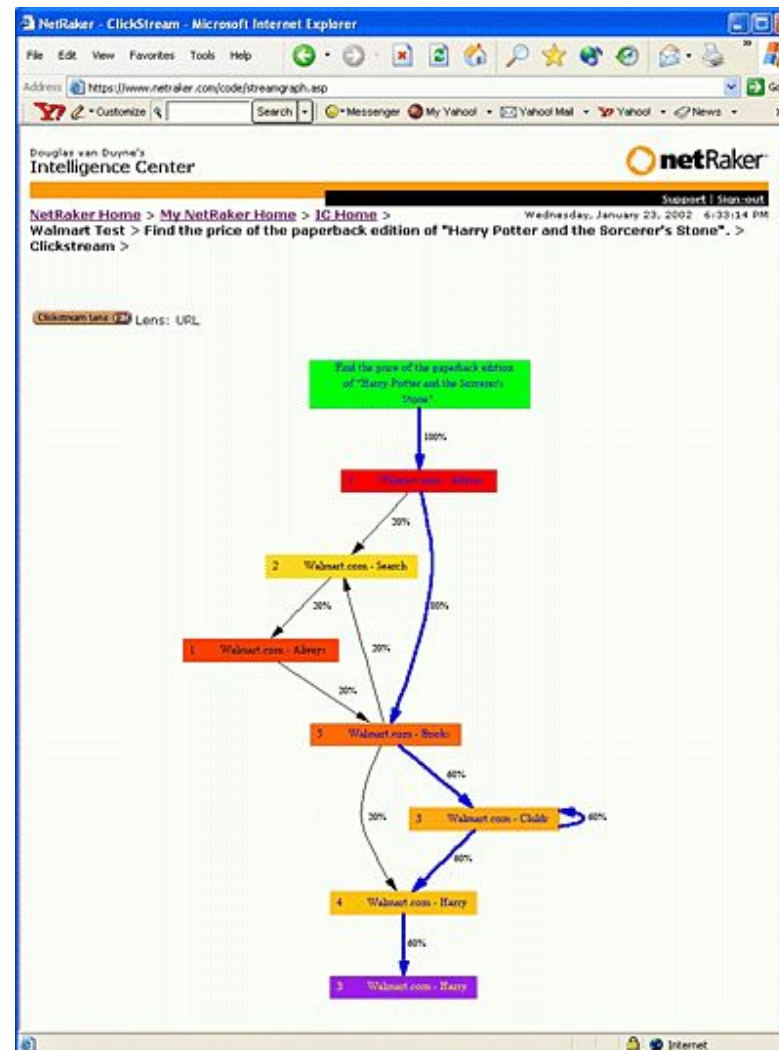
The screenshot shows the Airbnb website interface for San Francisco, CA. A task overlay is present in the upper right quadrant of the browser window. The task text reads: "Using the site, please find accommodations that cost between \$50-\$250 per night near or in San Francisco. Next, within that range, try and find the cheapest lodging out of all of those options. Please describe the process out loud as you do it. When you feel you've completed this task, please click Next." A blue "NEXT" button is located at the bottom right of the task overlay. Below the task overlay, the website content includes a search bar with "San Francisco, CA", filters for "Dates" and "Guests", and a section titled "Explore San Francisco" with buttons for "Homes", "Experiences", and "Restaurants". Below this is a section for "49 Airbnb Plus homes in San Francisco" with a sub-header "A new selection of homes verified for quality & comfort". Four accommodation cards are visible, each with a "PLUS VERIFIED" badge and a "1 BED" or "2 BEDS" label. The cards are: "Quiet Room in Apartment near Golden Gate Park", "Loft Suite in Victorian House with Private Deck", "Room in Elegant, Private, Serene House with Beautiful Furnishings", and "Experience Noe Valley from Stylish and Private House".



# Unmoderated Remote Usability Test



# Unmoderated Remote Usability Test



# Controlled A/B Experiments

## Many names for concept

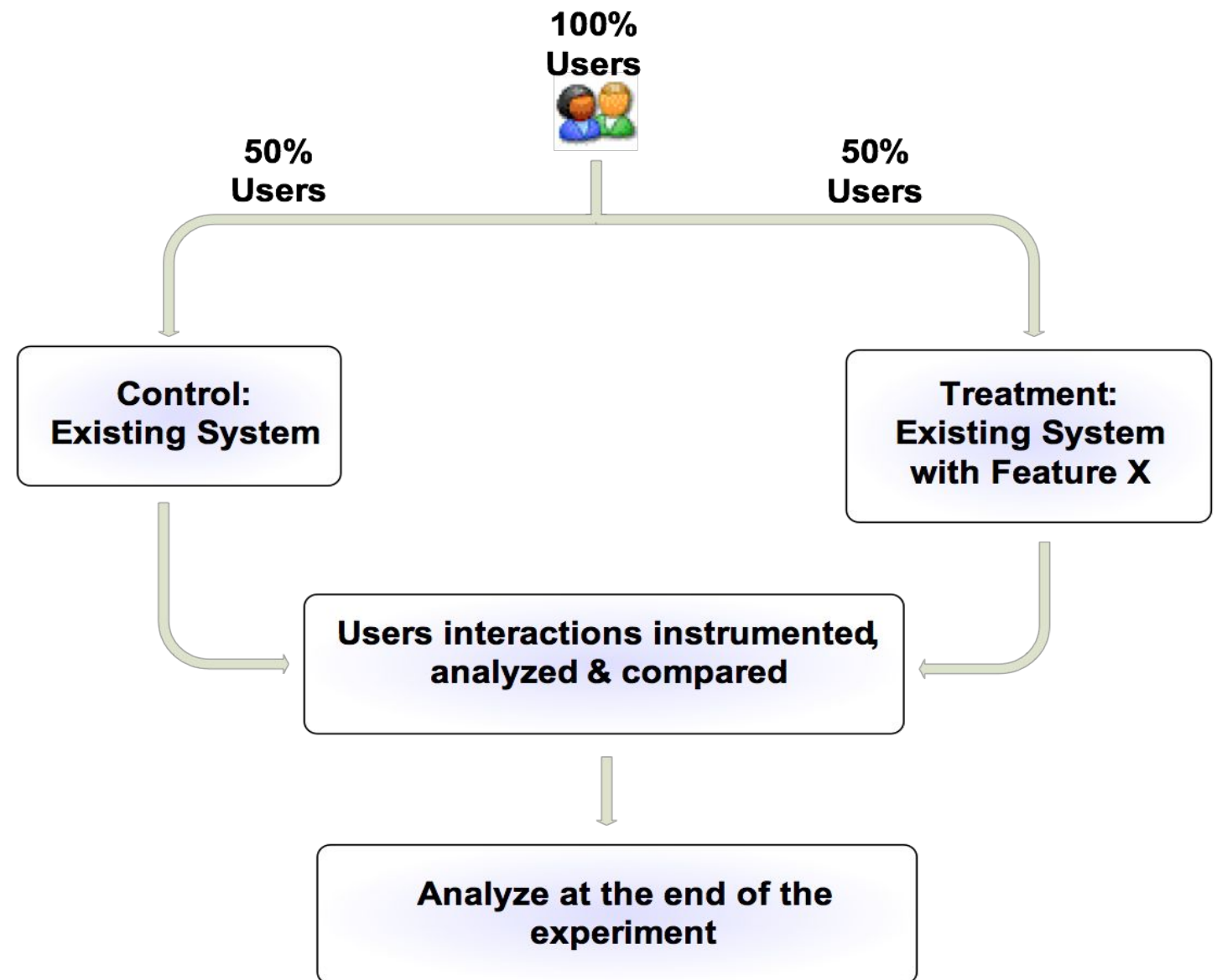
A/B tests or  
Control/Treatment

Randomized  
Experimental Design

Controlled experiments

Split testing

Parallel flights



# Controlled A/B Experiments

Example: Amazon Shopping Cart Recommendations

Add an item to your shopping cart

Most sites show the cart

At Amazon, Greg Linden had idea to show recommendations based on cart items



# Controlled A/B Experiments

## Evaluation

Pro: cross-sell more items

Con: distract people from checking out

## Highest Paid Person's Opinion:

Stop the project

## Simple experiment run:

Wildly successful



# Checkout Page

Conversion rate is percentage of visits that include purchase

Doctor FootCare™ Shopping Cart

Home | Products | Learn More | Tips | Testimonials | About Us | Contact Us | 1-866-211-9733

Shop With Confidence

- ✓ Satisfaction Guaranteed
- ✓ 30-day, hassle-free Returns
- ✓ 100% Safe, Secured shopping
- ✓ We assure your Privacy

100% Secured Checkout

Continue Shopping > Proceed To Checkout

Item Name	Item Number	Quantity	Remove	Unit Price	Subtotal
Trial Kit	FFCS	1		\$0.00	\$0.00

Update Total: \$0.00

Select Shipping Method Standard (\$5.95)

100% Secured Checkout

Continue Shopping > Proceed To Checkout

Home | Products | Learn More | Tips | Testimonials | FAQ | About Us | Contact Us | Shopping Cart

Copyright © 2003 Doctor Foot Care Inc. All Rights Reserved. [Privacy Policy](#)

Doctor FootCare™ Shopping Cart

Home | Products | Learn More | Tips | FAQ | About Us | Contact Us | 1-866-211-9733

Shop With Confidence

- ✓ Satisfaction Guaranteed
- ✓ 30-day, hassle-free Returns
- ✓ 100% Safe, Secured shopping
- ✓ We assure your Privacy

100% Secured Checkout

Continue Shopping > Proceed To Checkout

Item Name	Item Number	Quantity	Remove	Unit Price	Subtotal
Trial Kit	FFCS	1		\$0.00	\$0.00

Discount \$0.00

Total \$0.00

Enter Coupon Code

Select Shipping Method Standard (\$5.95)

100% Secured Checkout

Recalculate Continue Shopping > Proceed To Checkout

Home | Products | Learn More | Tips | Testimonials | FAQ | About Us | Contact Us | Shopping Cart

Copyright © 2003 Doctor Foot Care Inc. All Rights Reserved. [Privacy Policy](#)

Which version has a higher conversion rate?

# Checkout Page

Conversion rate is percentage of visits that include purchase

The image shows two versions of a checkout page for Doctor FootCare. Version A (left) and Version B (right) are compared. Red circles highlight specific elements in both versions.

**Version A (Left):**

- Shopping Cart icon in the top right.
- Buttons: "Continue Shopping" and "Proceed To Checkout" (circled).
- Table with columns: Item Name, Item Number, Quantity, Remove, Unit Price, Subtotal.
- Item: Trial Kit, FFCS, Quantity: 1, Unit Price: \$0.00, Subtotal: \$0.00.
- Buttons: "Update" (circled), "Total: \$0.00" (circled).
- Shipping Method: "Standard (\$5.95)".
- Footer: "Home | Products | Learn More | Tips | Testimonials | FAQ | About Us | Contact Us | Shopping Cart" (circled).

**Version B (Right):**

- Shopping Cart icon in the top right (circled).
- Buttons: "Proceed To Checkout" (circled).
- Table with columns: Item Name, Item Number, Quantity, Remove, Unit Price, Subtotal.
- Item: Trial Kit, FFCS, Quantity: 1, Unit Price: \$0.00, Subtotal: \$0.00.
- Buttons: "Discount" (circled), "Total: \$0.00" (circled).
- Form: "Enter Coupon Code" (circled).
- Shipping Method: "Standard (\$5.95)".
- Buttons: "Recalculate" (circled), "Continue Shopping", "Proceed To Checkout".
- Footer: "Home | Products | Learn More | Tips | Testimonials | FAQ | About Us | Contact Us | Shopping Cart".

Which version has a higher conversion rate?

# Checkout Page

Conversion rate is percentage of visits that include purchase

The image displays two versions of a checkout page for Doctor FootCare. Version A (left) shows a shopping cart with one item, 'Trial Kit' (FFCS), with a quantity of 1, unit price of \$0.00, and a subtotal of \$0.00. The total is \$0.00. Version B (right) shows the same cart but with a discount of \$0.00 applied, resulting in a total of \$0.00. Red circles highlight the 'Continue Shopping' and 'Proceed To Checkout' buttons in both versions, the 'Update' button in version A, the 'Discount' button in version B, the 'Enter Coupon Code' field in version B, and the 'Recalculate' button in version B. The navigation menu at the bottom of both versions is also circled in red.

Item Name	Item Number	Quantity	Remove	Unit Price	Subtotal
Trial Kit	FFCS	1		\$0.00	\$0.00

Item Name	Item Number	Quantity	Remove	Unit Price	Subtotal
Trial Kit	FFCS	1		\$0.00	\$0.00
Discount				\$0.00	\$0.00

Which version has a higher conversion rate?

Coupon Code decreases by factor of 10

# Office Online Feedback

A

**Please let us know if this content was helpful.**

Rate this content:  
☆☆☆☆☆

Tell us why you rated the content this way (optional):

Remaining characters: 650

B

**How helpful was this information?**  
Click a star.

Not helpful ☆☆☆☆☆ Very helpful

Click to rate: 3 out of 5 stars

**How helpful was this information?**  
Click a star.

Not helpful ★★★★★ Very helpful

Why did you rate the information this way?

Remaining characters: 650

Which one has a higher response rate? By how much?



# Office Online Feedback

A

**Please let us know if this content was helpful.**

Rate this content:  
☆☆☆☆☆

Tell us why you rated the content this way (optional):

Remaining characters: 650

B

**How helpful was this information?**  
Click a star.

Not helpful ☆☆☆☆☆ Very helpful

Click to rate: 3 out of 5 stars

**How helpful was this information?**  
Click a star.

Not helpful ★★★★★ Very helpful

Why did you rate the information this way?

Remaining characters: 650

Which one has a higher response rate? By how much?  
B gets more than double...

# Another Feedback Variant

Call this variant C. Like B, also two stage.

Which one has a higher response rate, B or C?

**Was this information helpful?**

Yes

No

I don't know

**How was this information helpful?**

Back

Submit

**What are you trying to do?**

Back

Submit

**How can we make this information more helpful?**

Back

Submit

# Another Feedback Variant

Call this variant C. Like B, also two stage.

Which one has a higher response rate, B or C?

**Was this information helpful?**

**How was this information helpful?**

**What are you trying to do?**

**How can we make this information more helpful?**

C outperforms B by a factor of 3.5





# Obama Campaign

## CONTROL

OBAMA BIDEN

OBAMA CLASSIC

You could be there

Contribute

First name: \_\_\_\_\_ Last name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Phone number: \_\_\_\_\_

Select amount

\$15 \$25 \$50 \$100 \$250 \$500 \$1,000

Credit card

Card number: \_\_\_\_\_ Expiration: Month \_\_\_\_\_ Year \_\_\_\_\_

Make this a recurring donation to support the campaign in the long run. (You can stop it at any time.)

Employment

Employer: \_\_\_\_\_ Occupation: \_\_\_\_\_

DONATE NOW

## "SEQUENTIAL"

OBAMA BIDEN

OBAMA CLASSIC

You could be there

How much would you like to donate today?

Select amount

\$15 \$25 \$50 \$100 \$250 \$500 \$1,000

Other amount: \_\_\_\_\_

CONTINUE

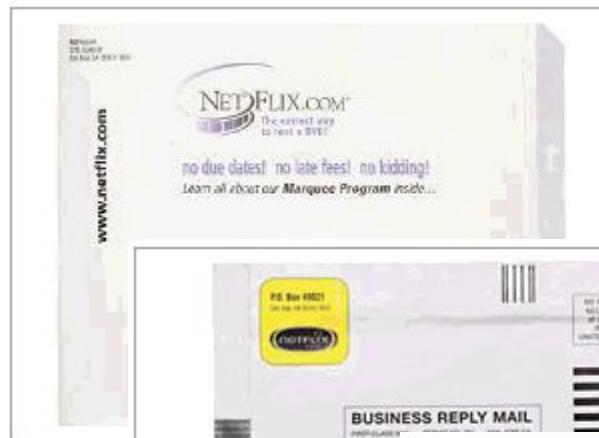
↑ +5%

<http://kylerush.net>

<http://o04151985.kylerush.net/blog/optimization-at-the-obama-campaign-ab-testing/>



# Data-Driven Methods Not Just Online



[PREVIOUS](#) [NEXT](#)

[Back to story](#)

**1999**

Made from cardboard, the first Netflix mailer weighs more than an ounce. But with only 100,000 customers, reducing material and shipping costs is not yet a priority for the company.

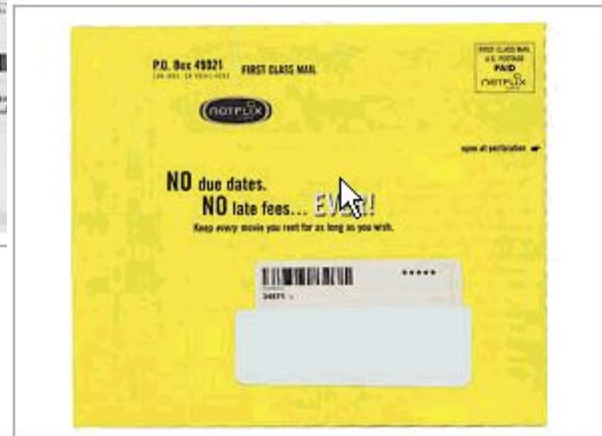


[PREVIOUS](#) [NEXT](#)

[Back to story](#)

**2000**

Thick paper replaces cardboard. DVDs are inserted and removed from the top rather than the side.



[PREVIOUS](#) [NEXT](#)

[Back to story](#)

**2000**

Full-color printing is introduced. Top-loading is abandoned in favor of side-loading, which is judged more convenient.

NUCCI STUDIO

[NEXT >>](#)

# Data-Driven Methods Not Just Online



[PREVIOUS](#) [NEXT](#)

[Back to story](#)

**2000**

Customers are asked to peel off a sticker to reveal Netflix's return address. The design is eventually deemed too complex.



[PREVIOUS](#) [NEXT](#)

[Back to story](#)

**2000**

Made from plastic instead of paper, this mailer is cheaper, but it sometimes inflates when transported on airplanes.



[PREVIOUS](#) [NEXT](#)

[Back to story](#)

**2001**

An airhole (the black dot on the left side of the mailer) is added to prevent the package from inflating.



[PREVIOUS](#) [NEXT](#)

[Back to story](#)

**2001**

Netflix returns to paper because it's easier to recycle. Foam padding is added to reduce breakage.

[NEXT](#)

NUCCI STUDIO



# Data-Driven Methods Not Just Online



2001  
Foam padding is dropped because the benefits don't justify the cost. The company gives top-loading another try.

2001  
Marking a return to side-loading, this mailer is a direct ancestor of the one the company uses today.

2003  
Instead of sealing the entire top and bottom, Netflix introduces a circular sticker, affixed only on the top.

2004  
A window shows the disc bar code. Speculation is that this enables storing discs in mailers prior to shipping.

NUCCI STUDIO

Navigation: PREVIOUS, NEXT, Back to story, NEXT>>

# Limitations

Drives hill-climbing, but not overall design

A design may be better, but is it good?

Impossible for new designs to compete

Can be difficult to scale to many features

Ask me something!

# Ideation and Evaluation

Case Video:  
Phone Button Lay-Out

<http://www.youtube.com/watch?v=kCSziExvbTQ>