

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 14:
Testing and Patterns

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar



Tuesday / Thursday
10:30 to 11:50

Project Status

Looking Forward

3c: Usability Testing Check-In due Today

- Changes from Inspection

- Changes from First Usability Test

3d: Usability Testing Review due Thursday 2/23

Other Assignments

Reading 4 Posted, Due Friday 2/24

(you should engage before that if you can)

Exam

In-Class

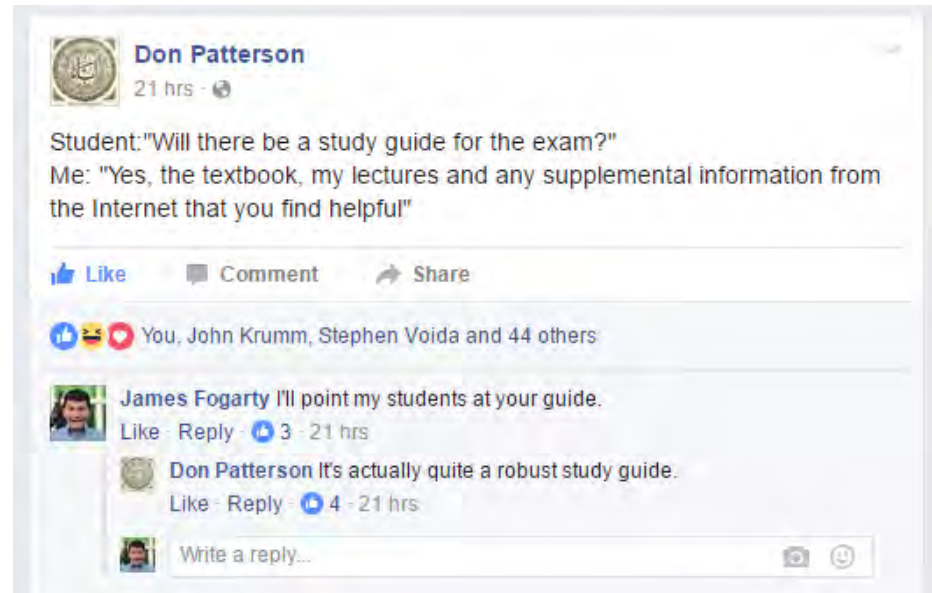
Next Tuesday 2/21

Mostly short answer,
some long answer

Content drawn from
lecture and readings

Compilation of the lecture slides is posted

Q&A scheduled Monday at 1:30 in CSE 403



Testing and Patterns

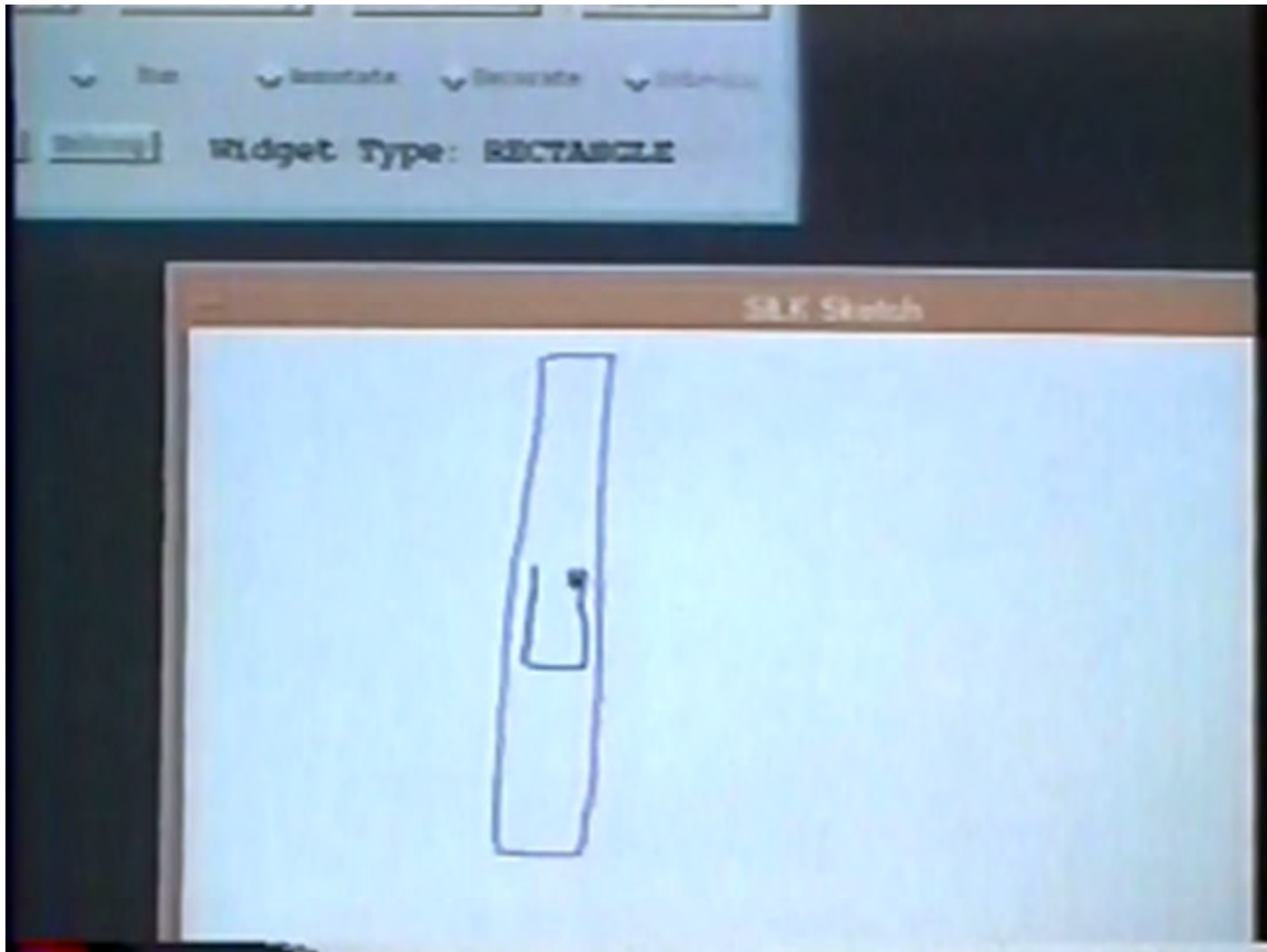
Wizard of Oz and Low Fidelity Testing

Remote Usability Testing

Controlled A/B Experiments

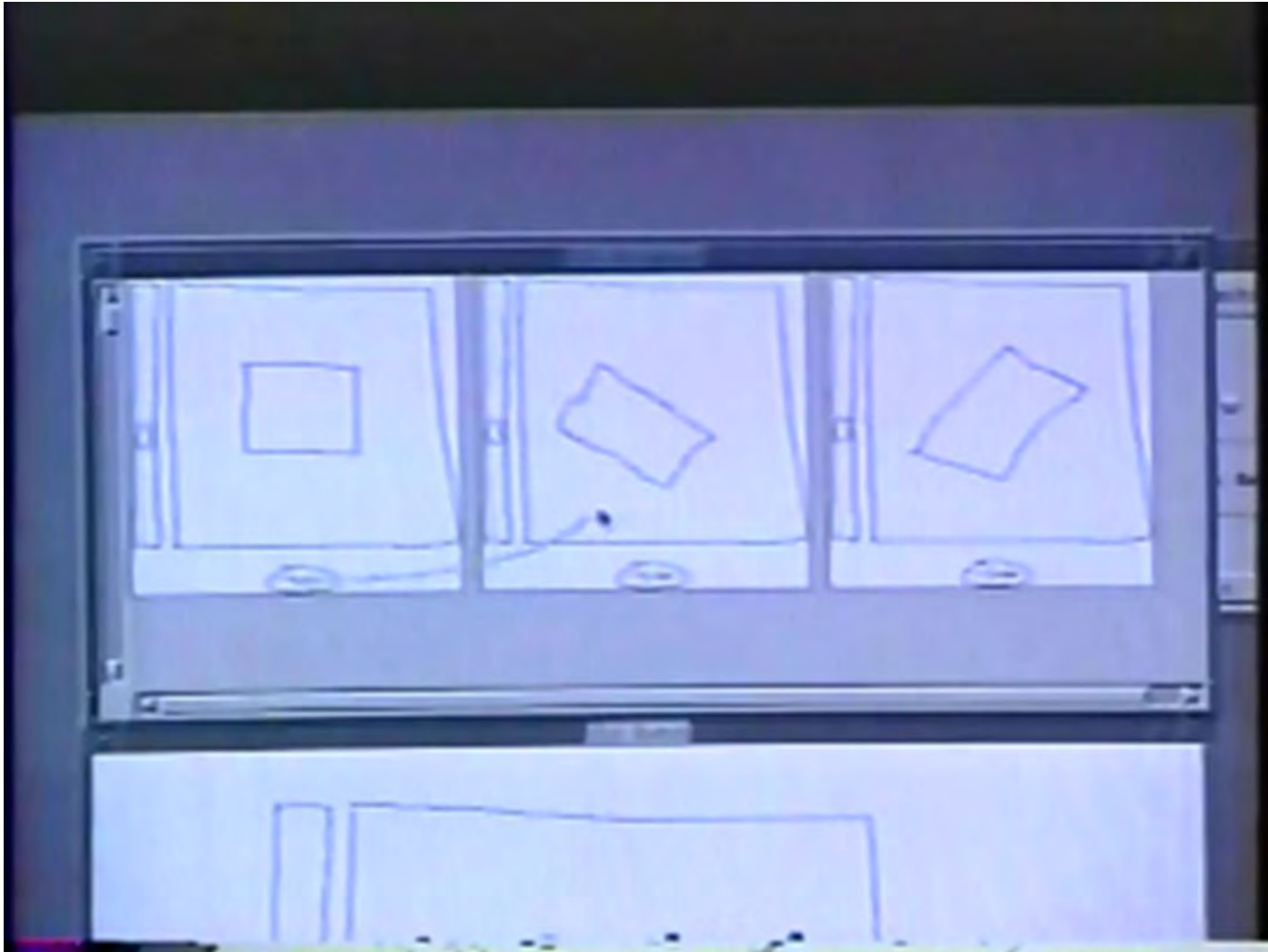
Patterns

SILK (1996)



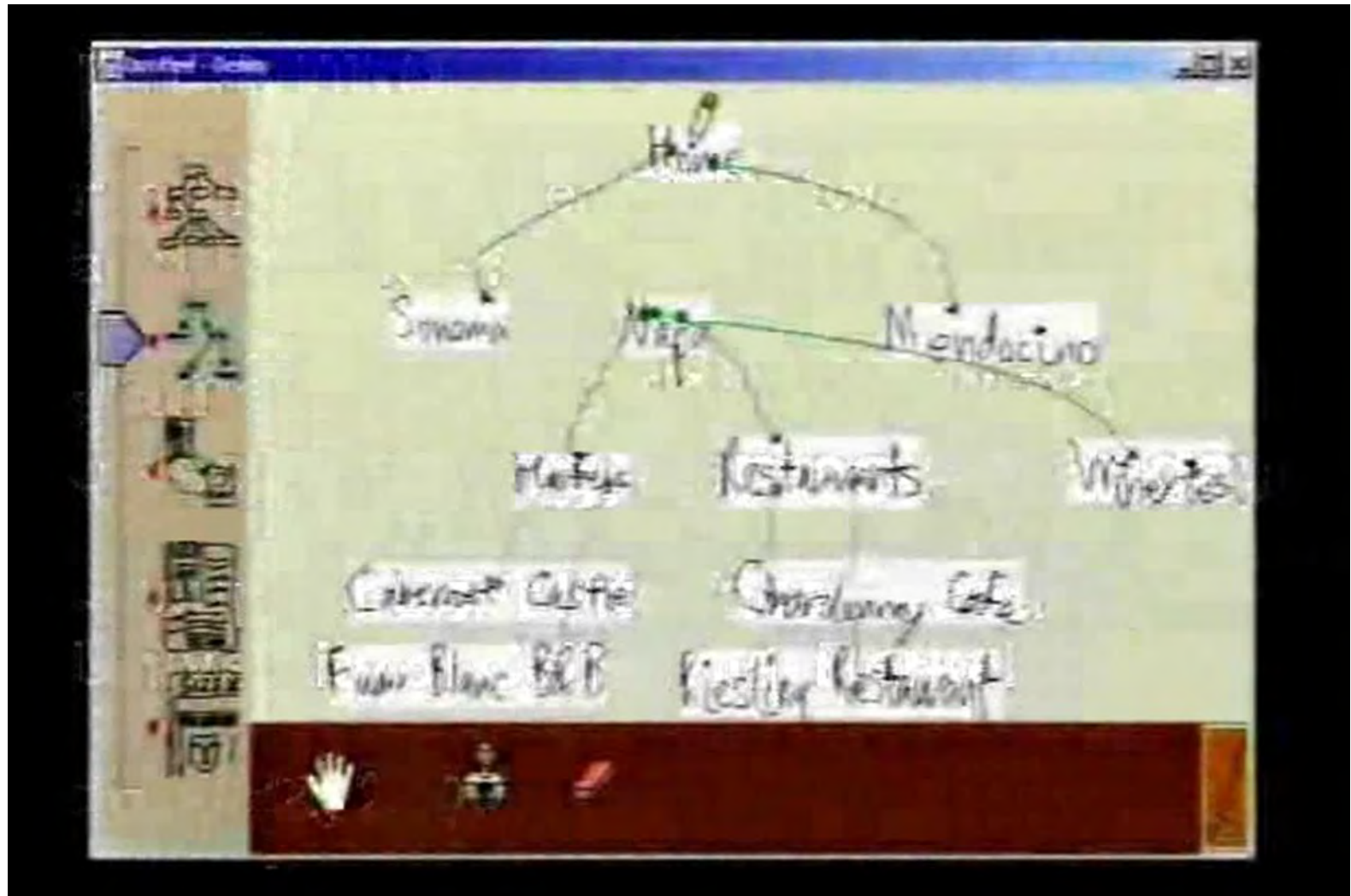
Informal Interaction

SILK (1996)



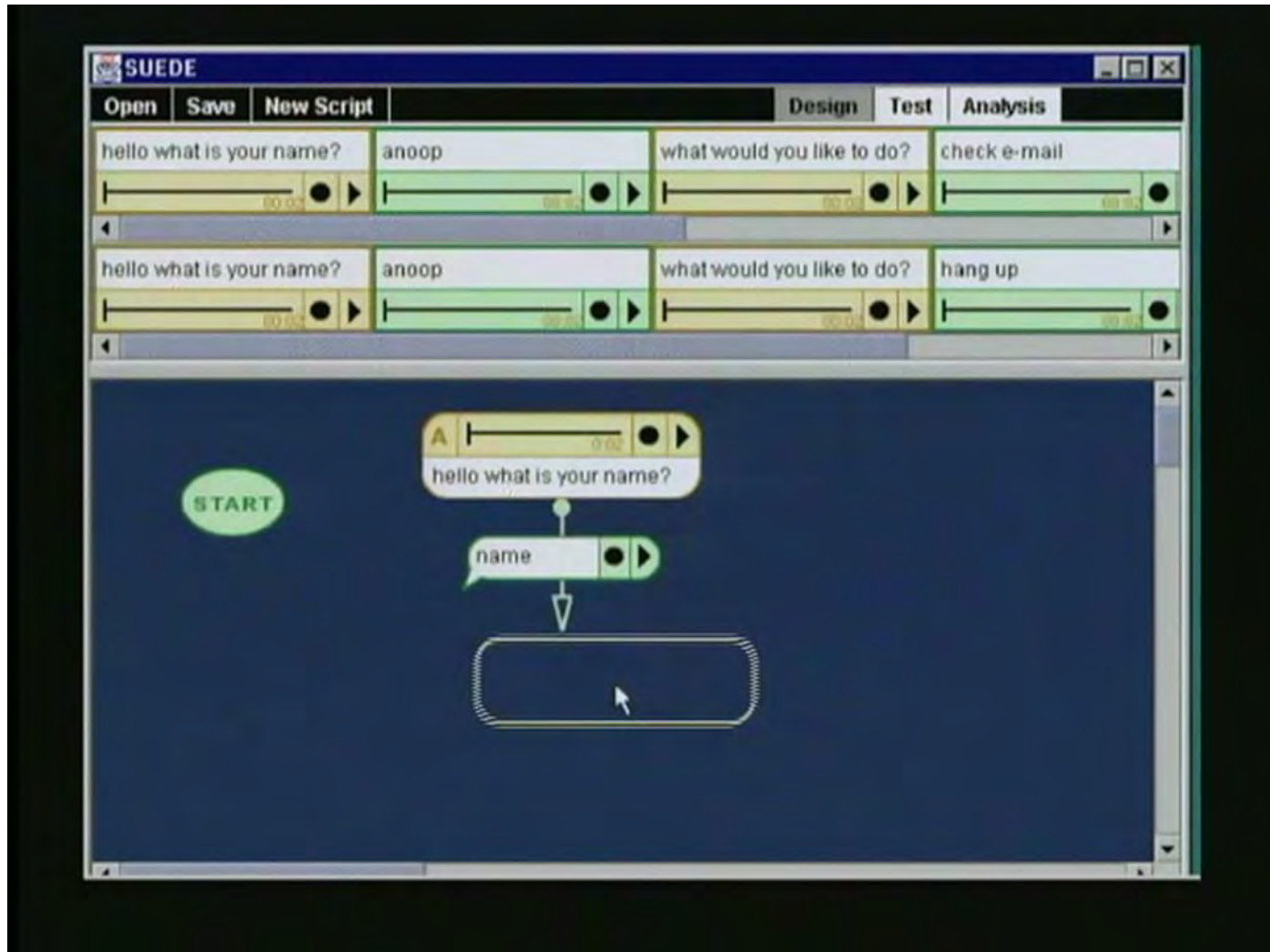
Migrate to Prototype, Storyboard-Based Programming

DENIM (2000)



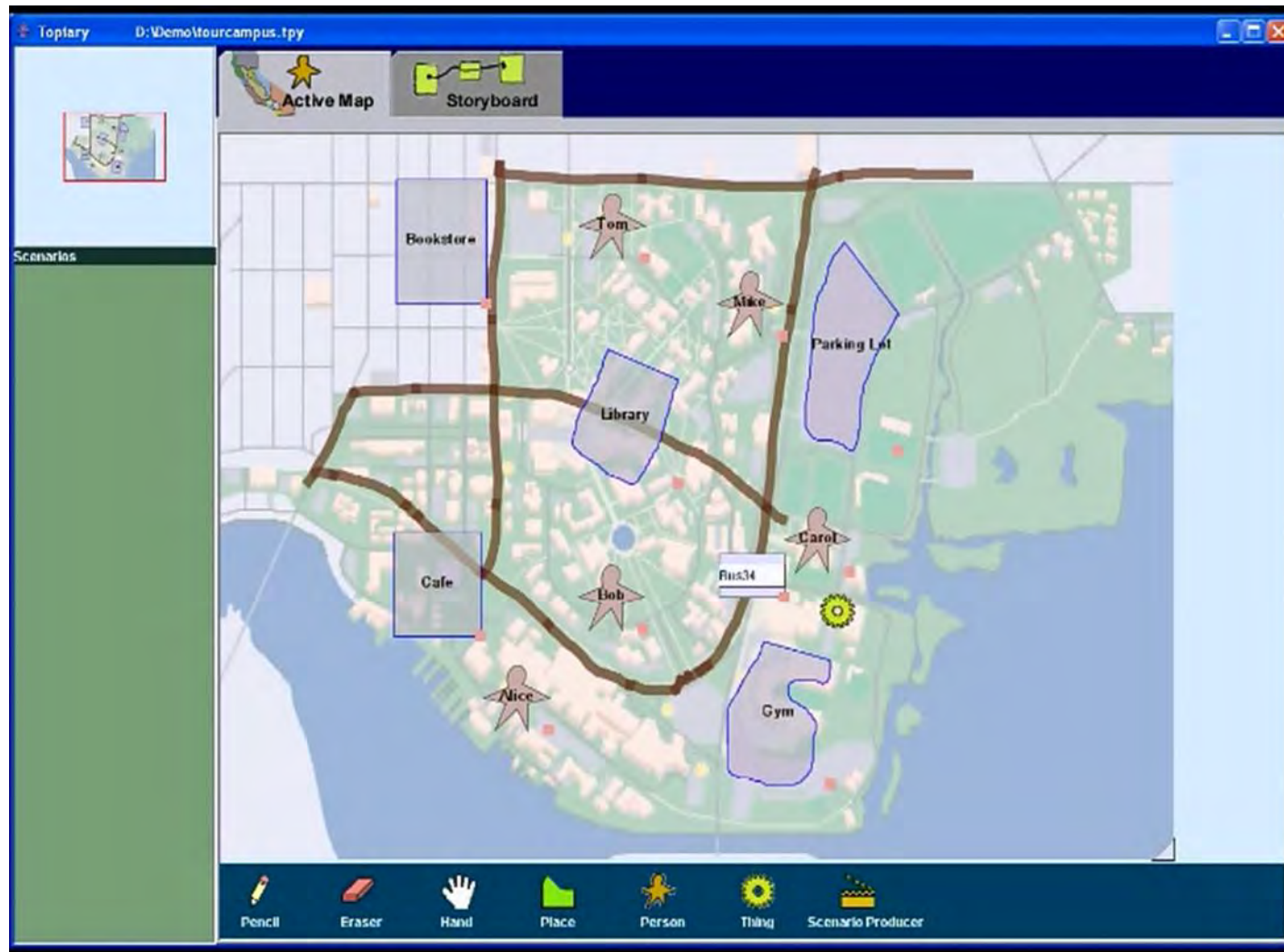
Early Stage, Multiple Levels of Details, Sketching, Pen Interaction

SUEDE (2000)



Low-Fidelity Is Not Just About Ink

Topiary (2004)



Location Awareness, Wizard of Oz

Activity Designer (2008)

ActivityDesigner

Activity-Based Prototyping of Ubicomp Applications

Yang Li & James Landay

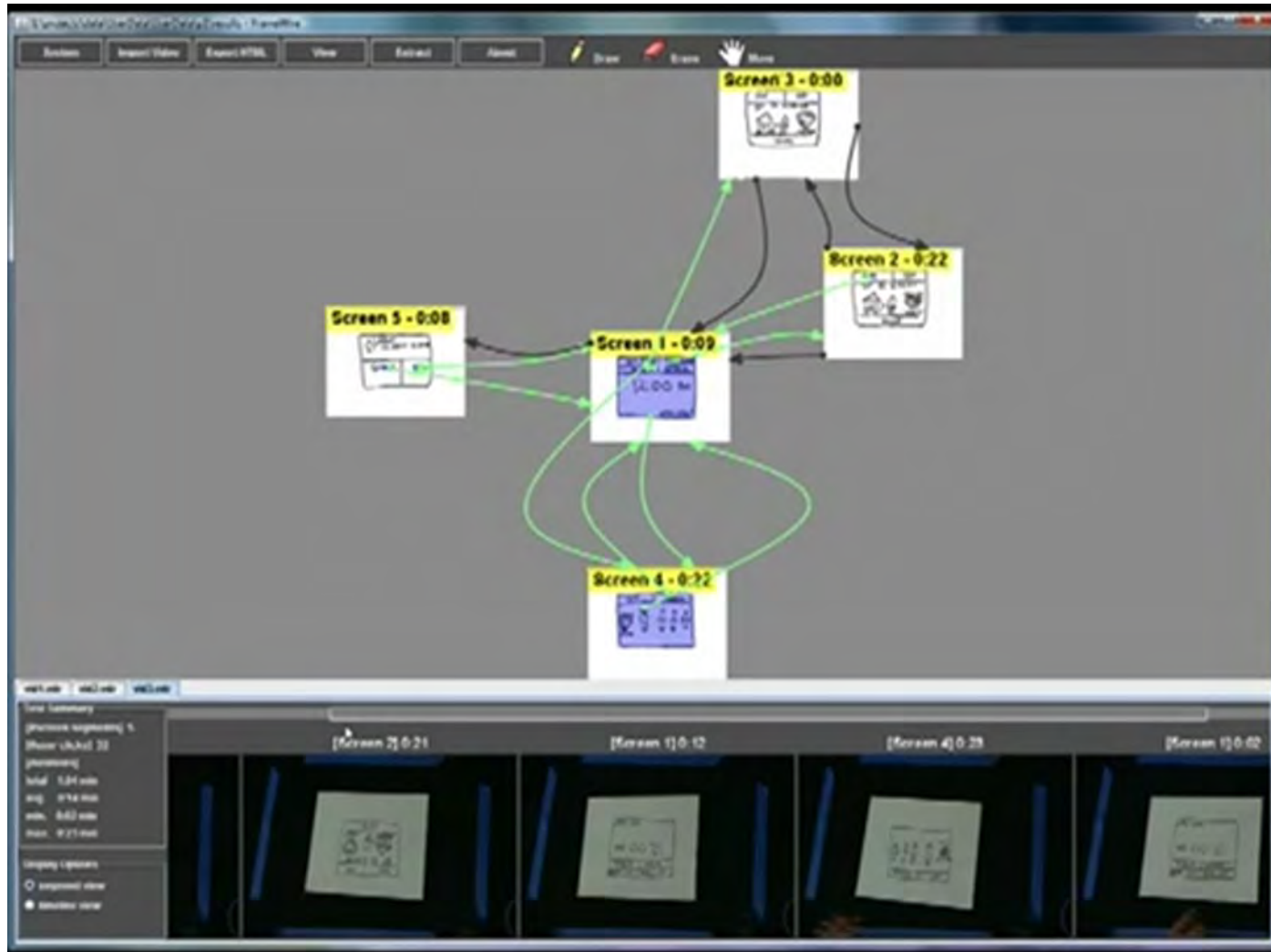
**Computer Science & Engineering
University of Washington**

Intel Research Seattle

January 2008



FrameWire (2010)



Tangible Interaction

Testing and Patterns

Wizard of Oz and Low Fidelity Testing

Remote Usability Testing

Controlled A/B Experiments

Patterns

Remote Usability Testing

Conferencing-based testing

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

Semi-automated 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

Semi-Automated Remote Usability

Now available through a variety of services

Loop11

UserZoom

TryMyUI

Validately

Userlytics

WhatUsersDo

Usertesting.com

YouEye

Unlikely you need to bake your own

Some include mobile testing

Crowds for automated testing in build processes

Semi-Automated Remote Usability

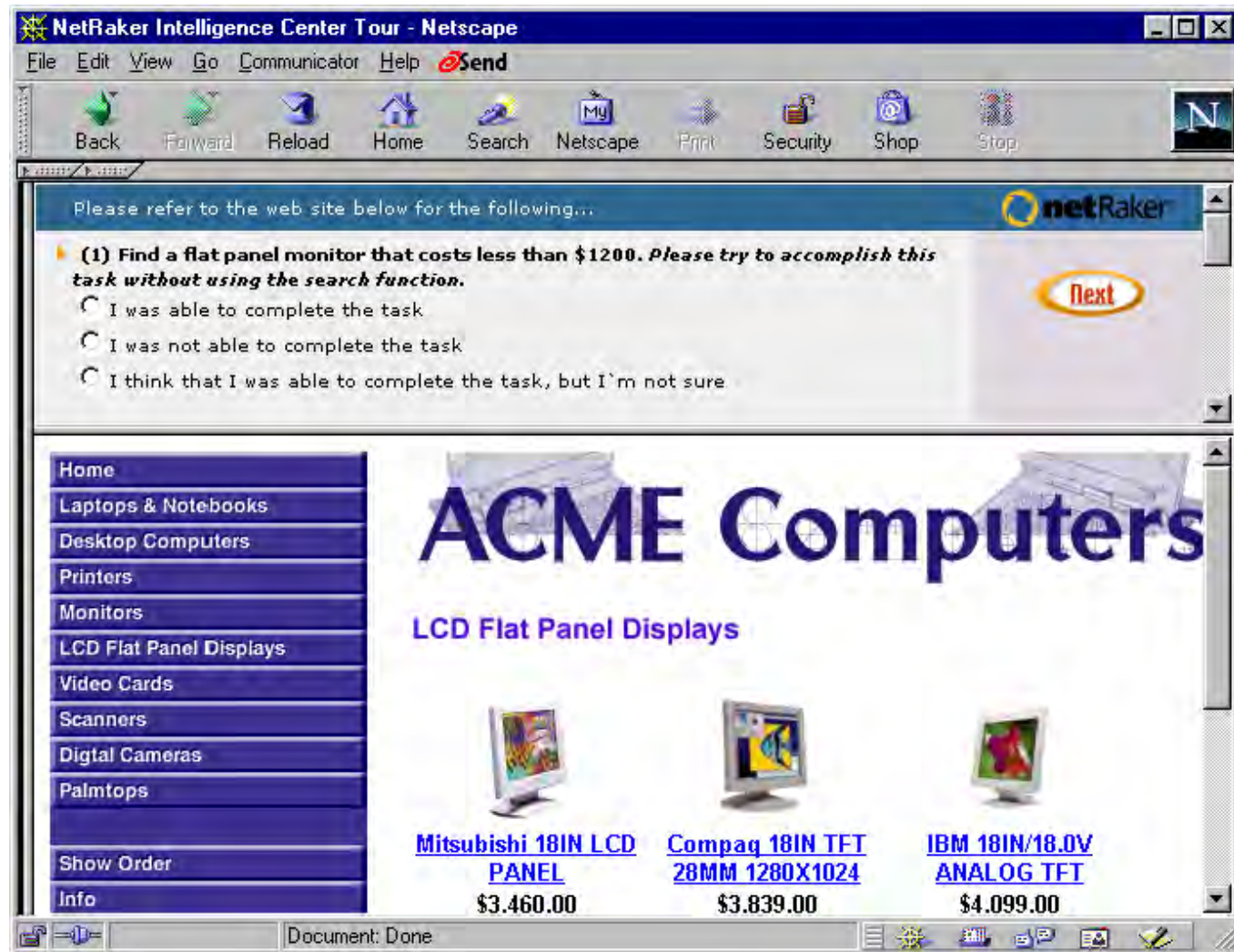
Move usability testing online

- 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

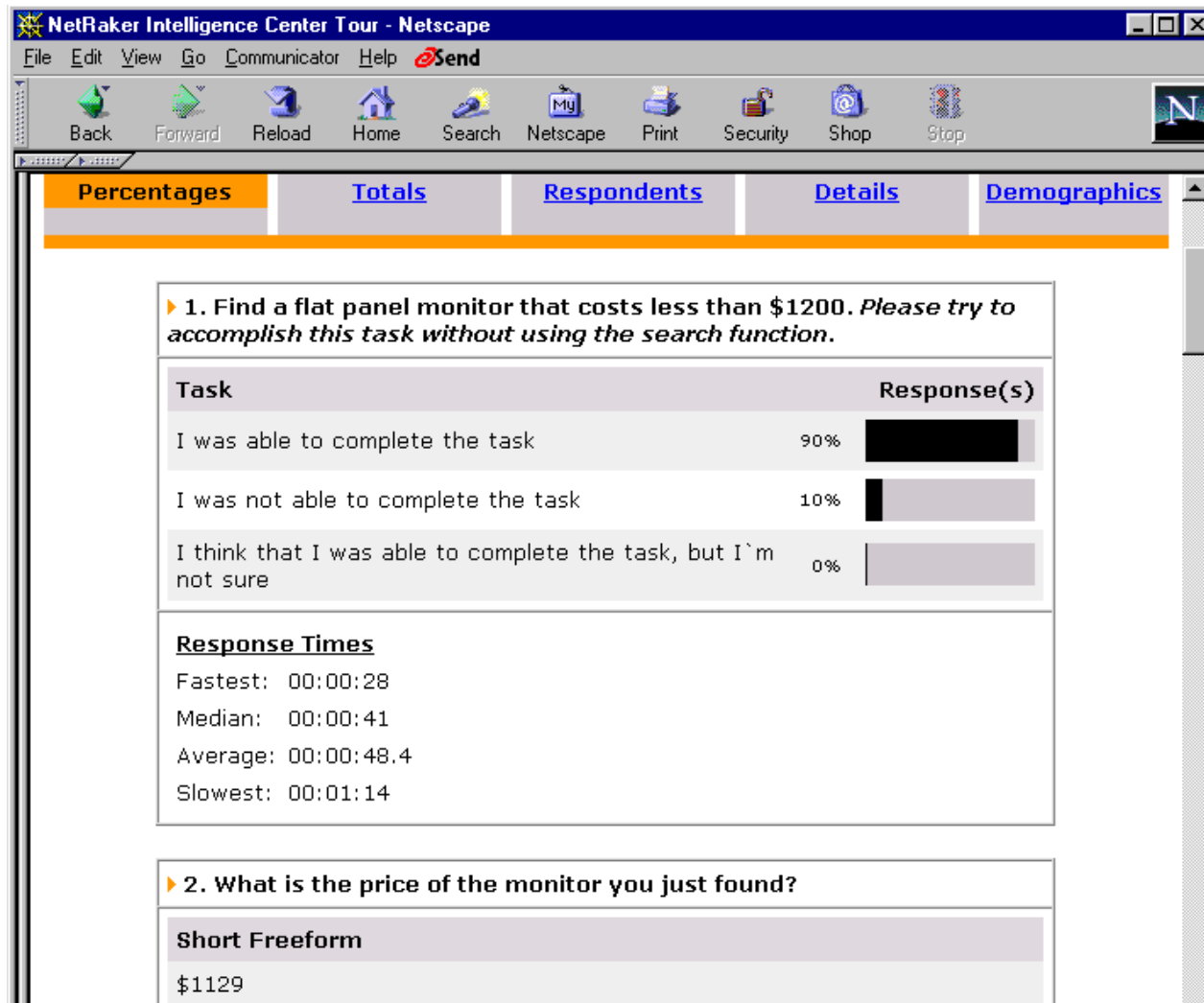
Analyze data individually or in aggregate

- playback individual sessions
- find general problem areas
- if needed, look closely with traditional methods

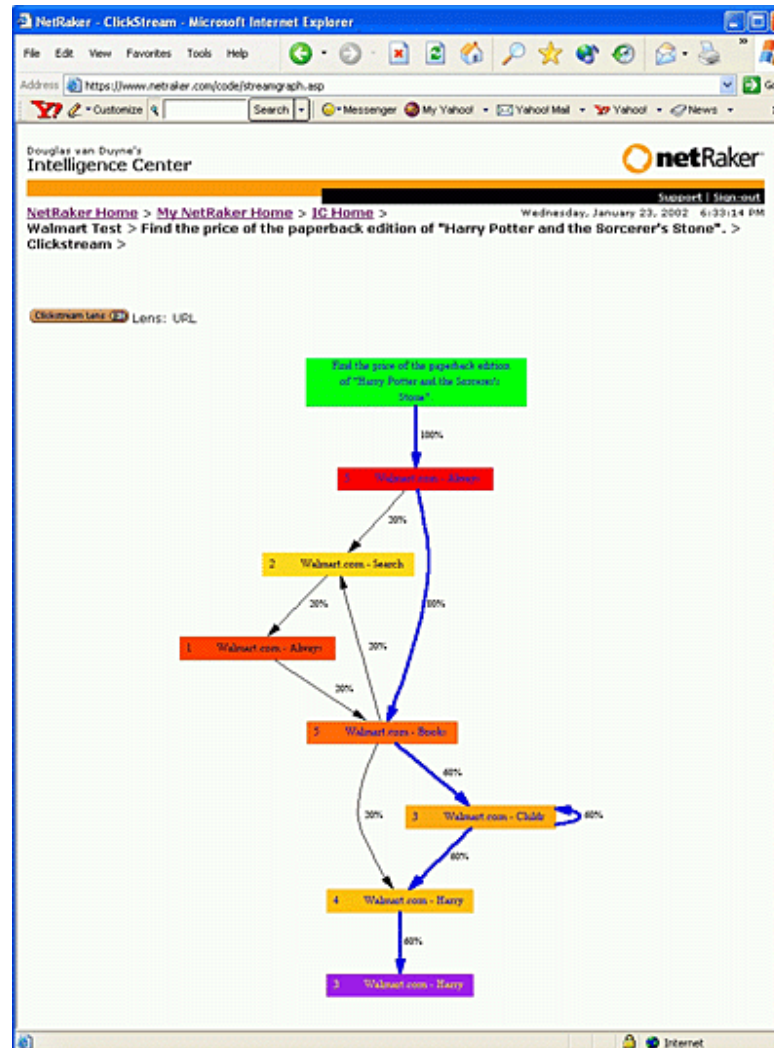
Semi-Automated Remote Usability



Semi-Automated Remote Usability



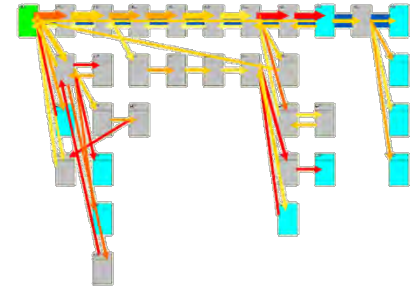
Semi-Automated Remote Usability



WebQuilt: Visual Analysis

Goals

- link page elements to actions
- identify behavior/navigation patterns
- highlight potential problems areas



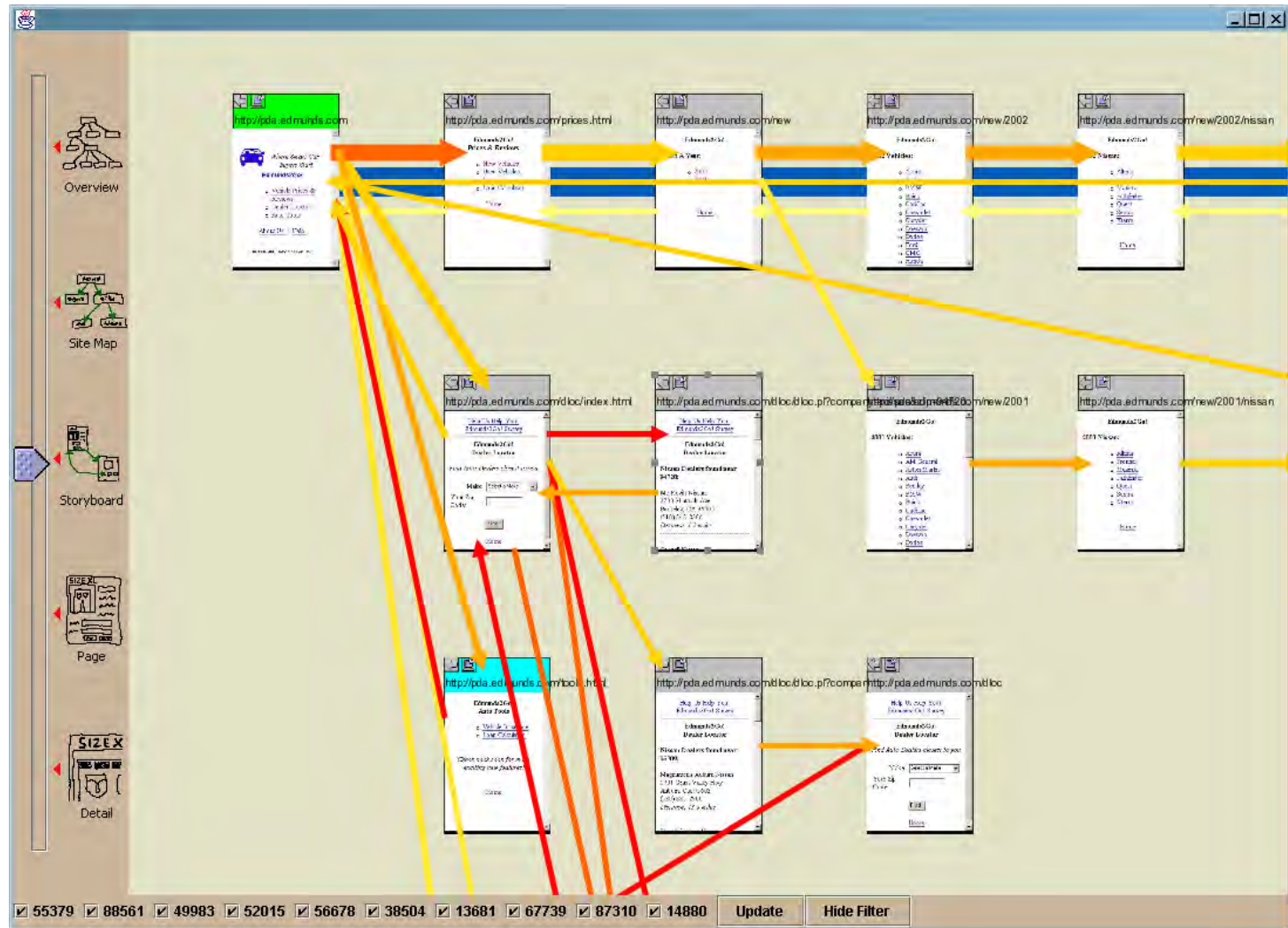
Interactive graph based on web content

- designers can indicate expected paths
- color code common usability interests
- filtering to show only target participants
- use zooming for analyzing at varying granularity

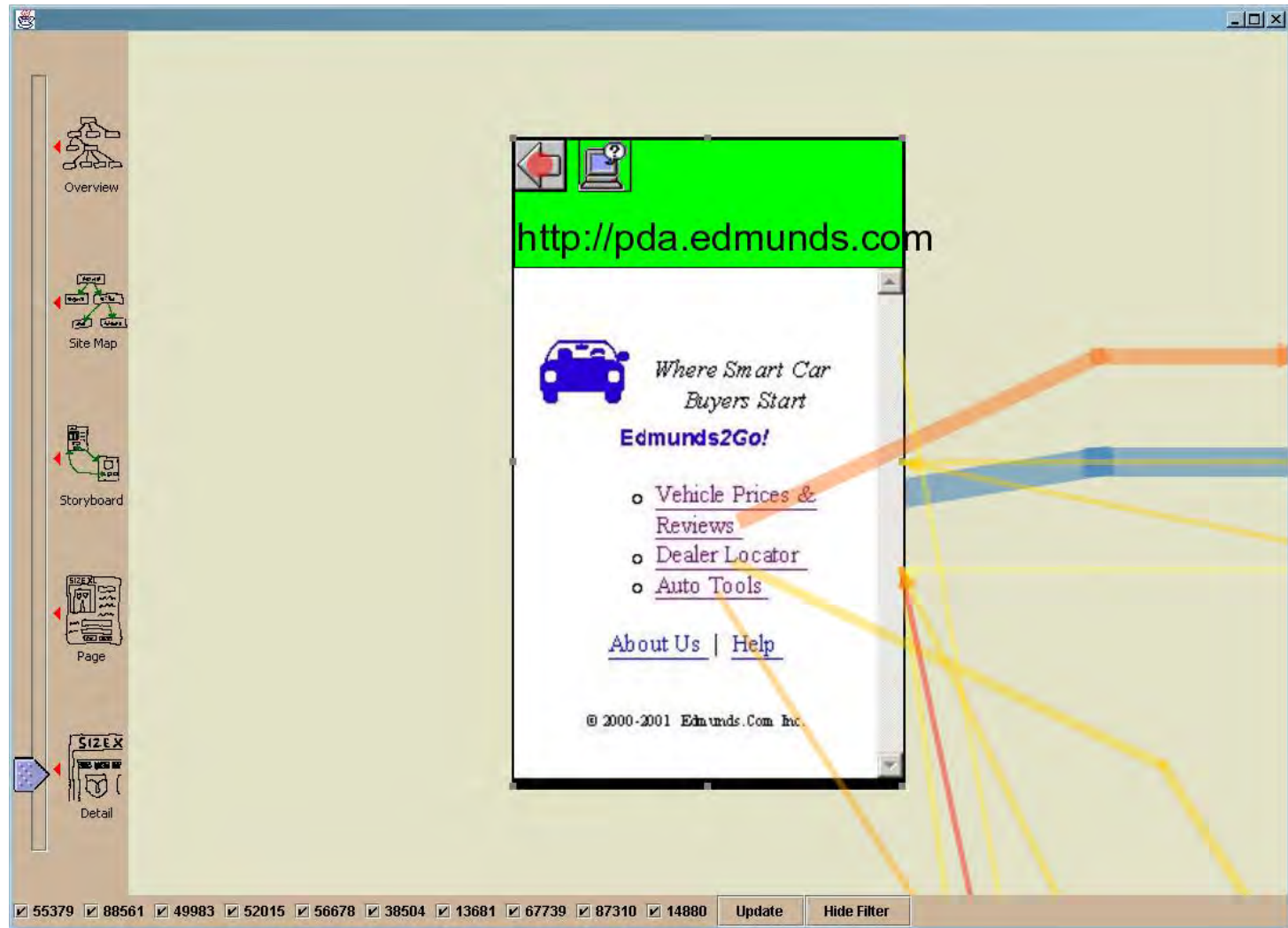
WebQuilt: Visual Analysis



WebQuilt: Visual Analysis



WebQuilt: Visual Analysis



Testing and Patterns

Wizard of Oz and Low Fidelity Testing

Remote Usability Testing

Controlled A/B Experiments

Patterns

Controlled A/B Experiments

Many names for it

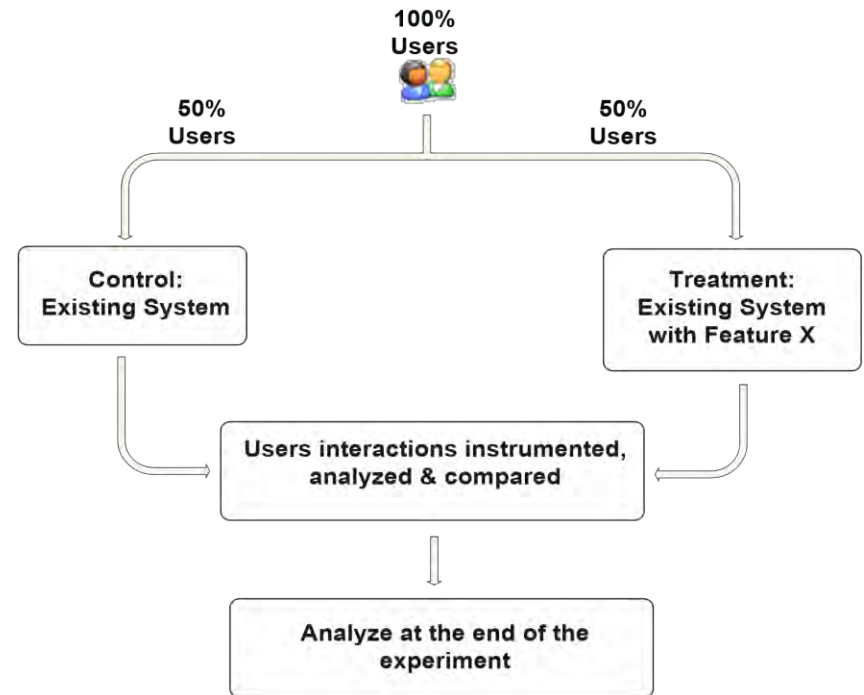
A/B tests or
Control/Treatment

Randomized
Experimental Design

Controlled experiments

Split testing

Parallel flights



(this section mostly due Ronny Kohavi)

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

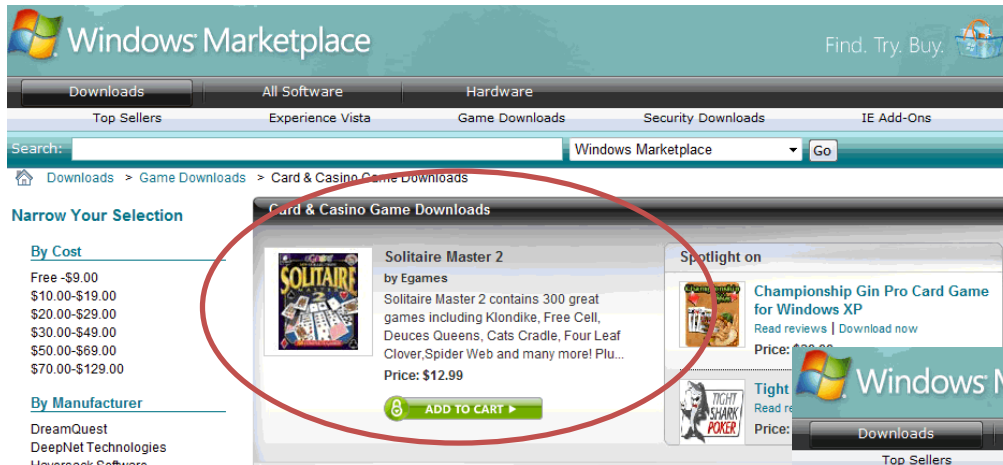
Simple experiment run:

Wildly successful

Marketplace: Solitaire vs Poker

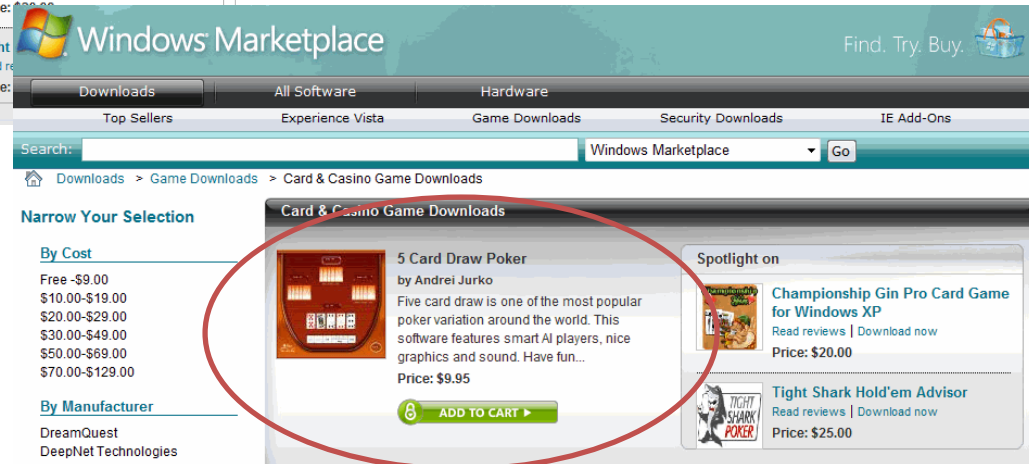
Experiment run in Windows Marketplace / Game Downloads

Which image has the higher clickthrough? By how much?



A: Solitaire game

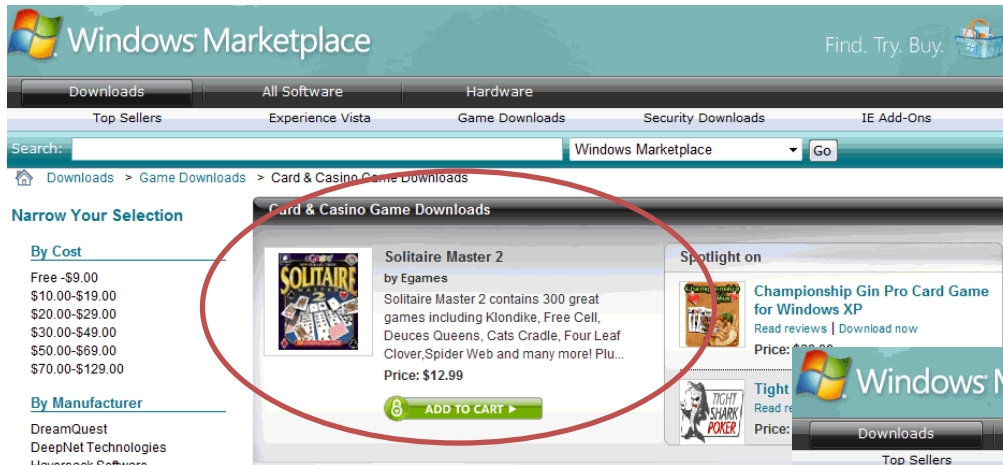
B: Poker game



Marketplace: Solitaire vs Poker

Experiment run in Windows Marketplace / Game Downloads

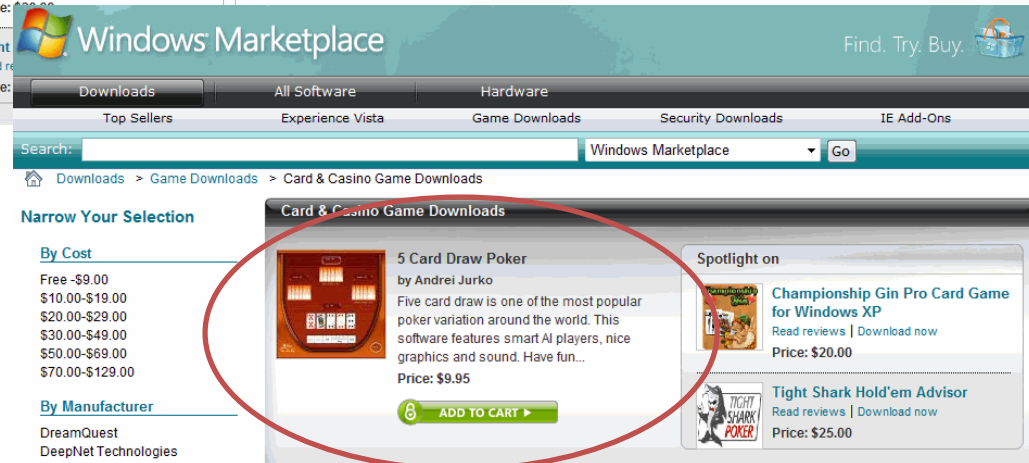
Which image has the higher clickthrough? By how much?



A: Solitaire game

A is 61% better

B: Poker game



Never Underestimate Solitaire

SIX CHIX

BY RINA PICCOLO



Never Underestimate Solitaire

Candy Crush maker boug...

fortune.com/2015/11/03/activision-king-digital/

TIME INC. NETWORK FORTUNE MONEY TIME SPORTS ILLUSTRATED GOLF TL TRAVEL + LEISURE PEOPLE MORE

FORTUNE

NEWS POPULAR VIDEOS FORTUNE 500

TECH ACTIVISION

Activision Acquires Candy Crush Maker King Digital For \$5.9 Billion

by Mathew Ingram @mathewi NOVEMBER 3, 2015, 12:34 AM EST

While cable TV "unbundles," streaming services bulk up

Fast-Flying Drone Avoids Obstacles: Here's How

Obama Slams Republicans Over CNBC Debate Drama

Amazon Is Opening An Actual, Real-Life Bookstore

Alphabet's Ambitions

How Uber's Top Lawyer Wins Equal Pay For Women

Xiaomi's expansion to Africa comes with concessions

Why Activision Spent \$5.9 Billion on 'Candy Crush' Creator King Digital

Standard Chartered is the latest big bank to slash and burn

Activision's candy crush and Tesla 3Q -- 5 things to know today

Here's why the company behind Keystone just asked for a delay

Protesters occupy Airbnb HQ on eve of San Francisco vote


How Google Co-founder Larry Page Decides On His Next Big Bet

California Gov. Jerry Brown: Time is Running Out For Cleaner Energy

Use Your AmEx Points to Book on Airbnb -- Just Like With Hilton

Theranos' Elizabeth Holmes Says the Company Will "absolutely" Get FDA Approval

King



Activision's purchase price for the game maker is a premium to its current price but a discount to its recent IPO price.

King Digital Entertainment, the company behind popular Facebook games such as Candy Crush, seems to have decided that being a publicly-traded entity isn't all it's cracked up to be. King announced late Monday that it is being acquired by Activision Blizzard, the maker of popular console and PC games such as Call of Duty, for \$5.9 billion.

The purchase price of \$18 a share amounts to a premium of about 16% over the recent closing price for King's stock (KING +19.32%)—but it's about 20% lower than the price at which the company went public 18 months ago. At that

Is Candy Crush over?
Photographs by Andrew Hurrell
Bloomberg/Getty Images

MORE

Why Activision Spent \$5.9 Billion on 'Candy Crush' Creator King Digital

Why Activision-Blizzard just launched a new eSports division

7 signs America has gone crazy for 'The Walking Dead'

Checkout Page

Conversion rate is percentage of visits that include purchase

A Doctor FootCare™ Shopping Cart

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- ✓ 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

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100% Secured Checkout » 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

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Which version has a higher conversion rate?

Example from Bryan Eisenberg's article on clickz.com

Checkout Page

Conversion rate is percentage of visits that include purchase

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- ✓ 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

Select Shipping Method Standard (\$5.95)

Total: \$0.00

Continue Shopping > Proceed To Checkout

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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

Enter Coupon Code

Select Shipping Method Standard (\$5.95)

Recalculate Continue Shopping > Proceed To Checkout

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Select Shipping Method Standard (\$5.95)

Total: \$0.00

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Discount	\$0.00
Total	\$0.00

Enter Coupon Code

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Recalculate Continue Shopping > Proceed To Checkout

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

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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

Submit

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

Submit

Feedback A puts everything together, whereas feedback B is two-stage: question follows rating.

Feedback A just has 5 stars, whereas B annotates the stars with “Not helpful” to “Very helpful” and makes them brighter.

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

Feedback A puts everything together, whereas feedback B is two-stage: question follows rating.

Feedback A just has 5 stars, whereas B annotates the stars with “Not helpful” to “Very helpful” and makes them brighter.

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 response rate.

Another Feedback Variant

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

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

C

The flowchart for feedback variant C starts with the question "Was this information helpful?". It has three buttons: "Yes", "No", and "I don't know".

- If "Yes" is clicked, the user is taken to a screen titled "How was this information helpful?". It features a text input field with up/down arrows on the right, and "Back" and "Submit" buttons at the bottom.
- If "No" is clicked, the user is taken to a screen titled "How can we make this information more helpful?". It features a text input field with up/down arrows on the right, and "Back" and "Submit" buttons at the bottom.
- If "I don't know" is clicked, the user is taken to a screen titled "What are you trying to do?". It features a text input field with up/down arrows on the right, and "Back" and "Submit" buttons at the bottom.

Another Feedback Variant

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

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

C

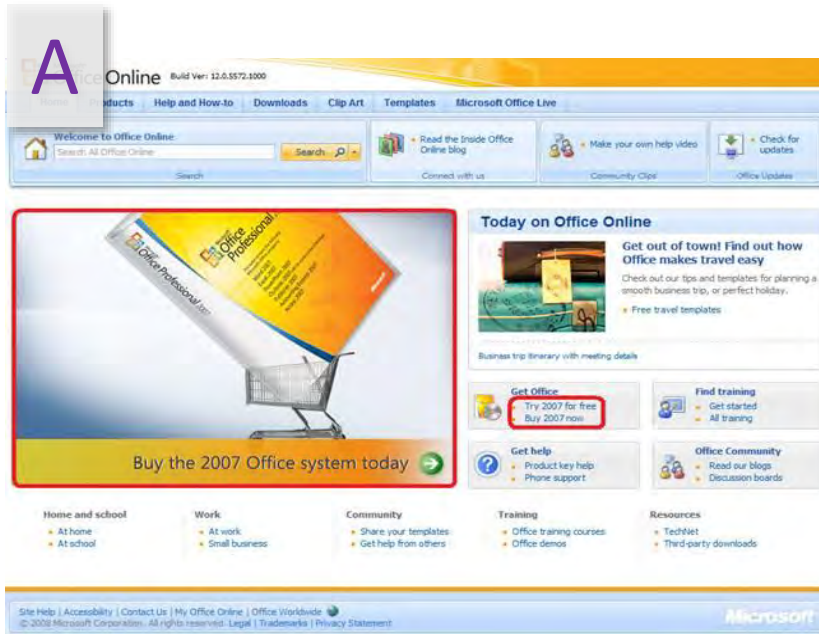
The flowchart for feedback variant C starts with the question "Was this information helpful?". It has three buttons: "Yes", "No", and "I don't know".

- If "Yes" is clicked, the user is asked "How was this information helpful?" with a text input field and "Back" and "Submit" buttons.
- If "No" is clicked, the user is asked "How can we make this information more helpful?" with a text input field and "Back" and "Submit" buttons.
- If "I don't know" is clicked, the user is asked "What are you trying to do?" with a text input field and "Back" and "Submit" buttons.

C outperforms B by a factor of 3.5

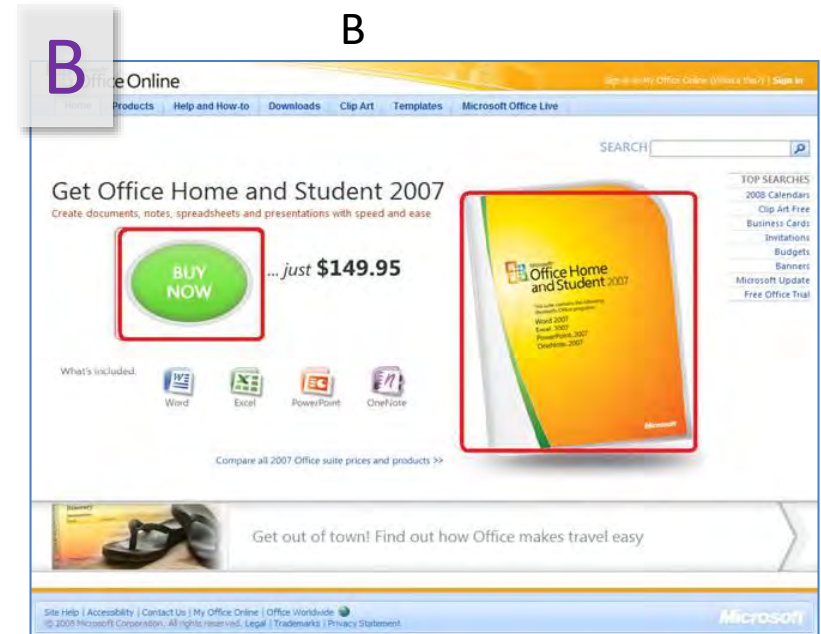
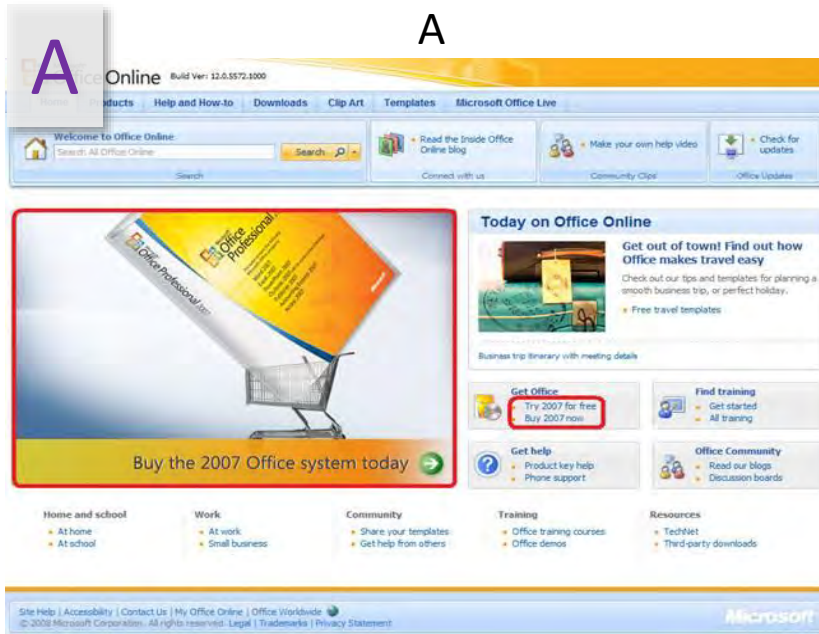
Office Online

Clicks on revenue generating links (red links)



Office Online

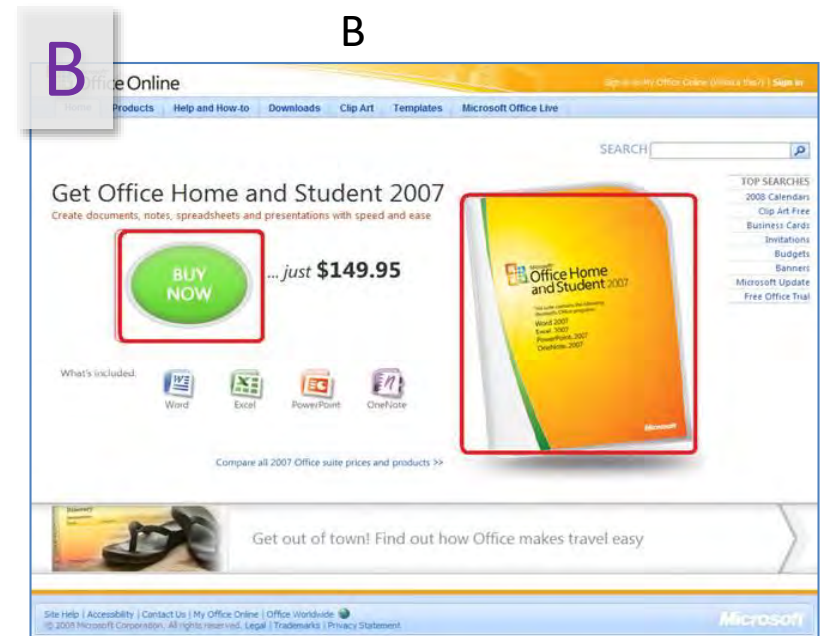
Clicks on revenue generating links (red links)



A gets many more clicks

Office Online

Clicks on revenue generating links (red below)



B gets more revenue

Examples Where Data Is Wrong

If something is “amazing,” find the flaw!

If you have a mandatory birth date field,
and people think it's unnecessary,
you will find lots of 11/11/11 or 01/01/01

If you have an optional drop down,
do not default to the first alphabetical entry,
or you will have lots of: jobs = Astronaut

Traffic to doubled between 1-2am Nov 6, 2011 for
many web sites, relative to same hour week prior

MSN US Home Page

Proposal: New Offers module below Shopping

Shopping

- Lancôme: Free deluxe compact w/ purchase
- Special promotions at your favorite stores
- Warm fall fashion styles are here
- Save on top brand digital cameras
- Free shipping on furniture for every room

Advertisements

 **A smart way to buy a diamond**


- Wal-Mart: Back-to-school
- Our editor picks budget electronics
- Get fit & save money: Sports sale

Control

Shopping


- Lancôme: Free deluxe compact w/ purchase
- Special promotions at your favorite stores
- Warm fall fashion styles are here
- Save on top brand digital cameras
- Free shipping on furniture for every room


Advertisements


 **A smart way to buy a diamond**

- Wal-Mart: Back-to-school
- Our editor picks budget electronics
- Get fit & save money: Sports sale

Offers

 **Search GM Certified**
With our 117-Point Inspection
GM Certified means no worries

 **Online University**
Earn degree from a top school
100% Online. Get Free Info!

 **\$200k Loan, Get Low Rates**
Secure Financing and Increase
Cash Flow. Click Here Now!

Treatment

Experiment Results

Ran A/B test for 12 days on 5% of MSN US visitors

Experiment Results

Ran A/B test for 12 days on 5% of MSN US visitors

Clickthrough:

Page views per person-day:

Experiment Results

Ran A/B test for 12 days on 5% of MSN US visitors

Clickthrough: decreased 0.49%

Page views per person-day: decreased 0.35%

Experiment Results

Ran A/B test for 12 days on 5% of MSN US visitors

Clickthrough: decreased 0.49%

Page views per person-day: decreased 0.35%

Value of click from home page: X cents

Net = Expected Revenue –

Value Per Click * Direct lost clicks –

Value Per Click * Lost Due to Decreased Views

Experiment Results

Ran A/B test for 12 days on 5% of MSN US visitors

Clickthrough: decreased 0.49%

Page views per person-day: decreased 0.35%

Value of click from home page: X cents

Net = Expected Revenue –

Value Per Click * Direct lost clicks –

Value Per Click * Lost Due to Decreased Views

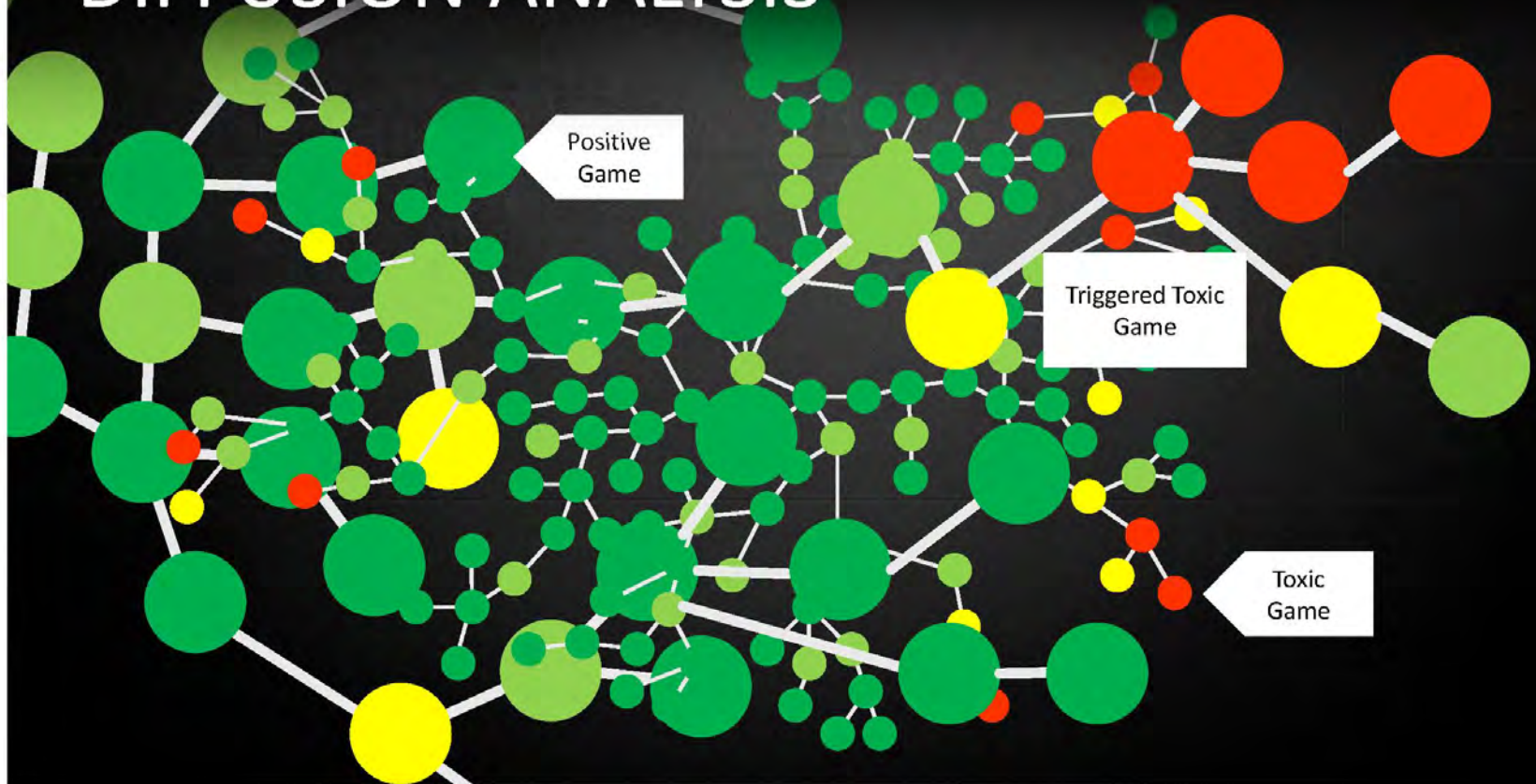
Net was negative (in millions of dollars),
offers module did not launch

ONLINE PLATFORMS AS THE FUTURE OF RESEARCH



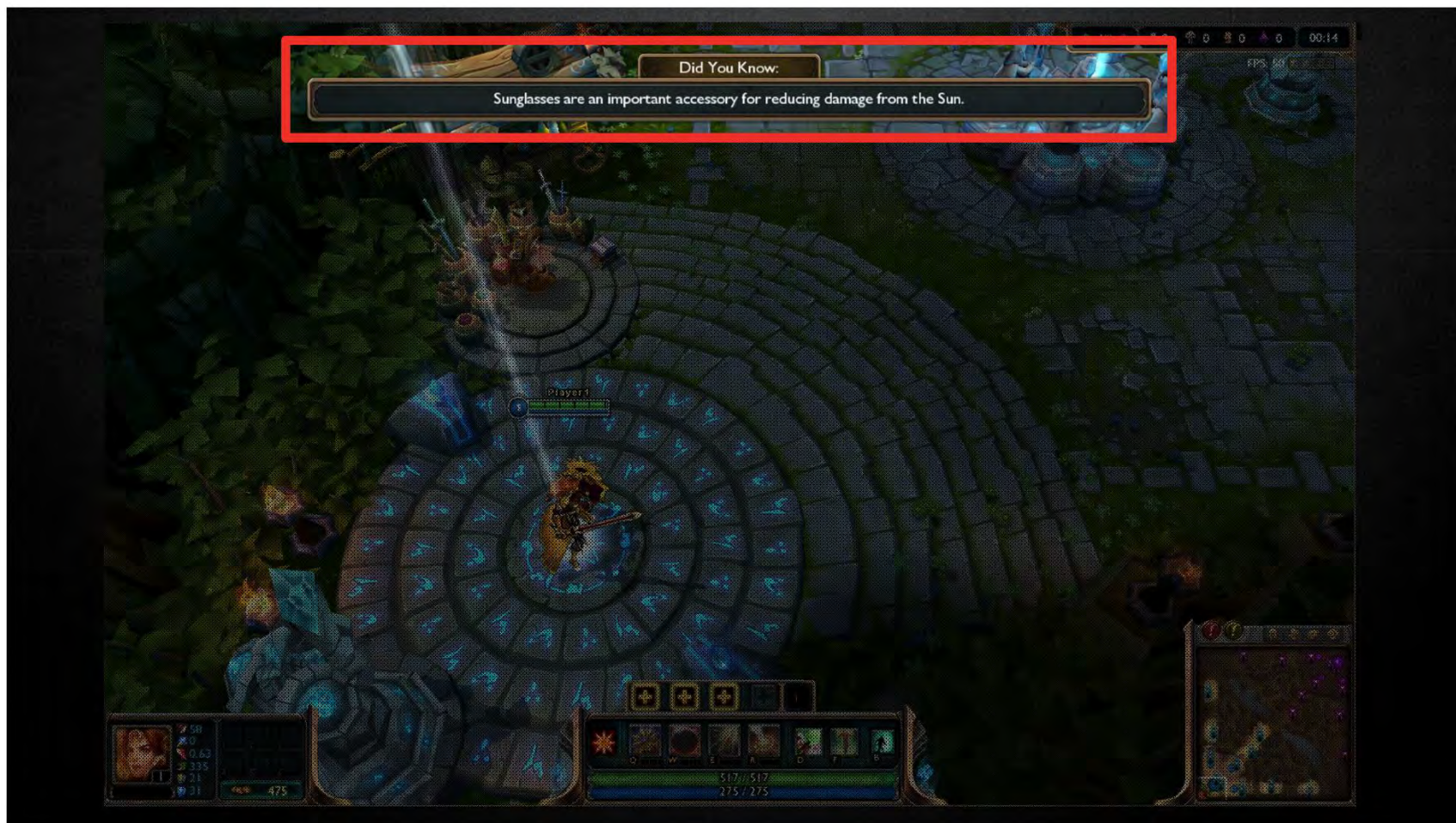
JEFFREY "LYTE" LIN
jlin@riotgames.com | @RiotLyte

DIFFUSION ANALYSIS





OPTIMUS PRIME **EXPERIMENT**



OPTIMUS PRIME

EXPERIMENTAL DESIGN

C1

CATEGORY 1: FUN FACTS

“Nautilus’ /joke makes him swim through air. He’s weird like that.”

OPTIMUS PRIME

EXPERIMENTAL DESIGN

C1

C2

CATEGORY 2:

POSITIVE BEHAVIOR

“Players perform better if you give them constructive feedback after a mistake.”

OPTIMUS PRIME

EXPERIMENTAL DESIGN

C1

C2

C3

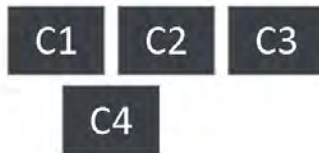
CATEGORY 3:

NEGATIVE BEHAVIOR

“Players who verbally abuse
their teammates lose 16%
more games.”

OPTIMUS PRIME

EXPERIMENTAL DESIGN

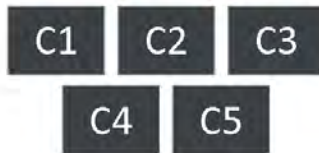


CATEGORY 4: SELF-REFLECTION

“Who will be the most
sportsmanlike player in this
game?”

OPTIMUS PRIME

EXPERIMENTAL DESIGN



CATEGORY 5: GAMEPLAY TIPS

“Hold down the ALT key while casting an ability to cast it on yourself.”

OPTIMUS PRIME

EXPERIMENTAL DESIGN

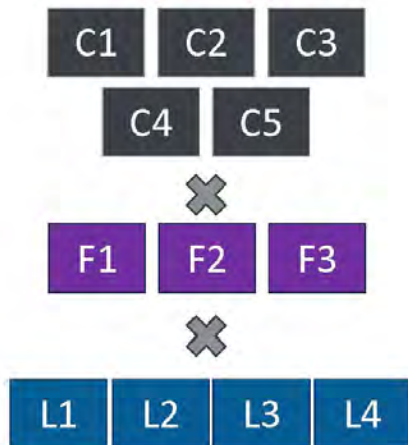


FONT COLORS

Font Color 1 | Red
Font Color 2 | Blue
Font Color 3 | White (Control)

OPTIMUS PRIME

EXPERIMENTAL DESIGN



LOCATIONS

LOCATION 1: Loading Screen

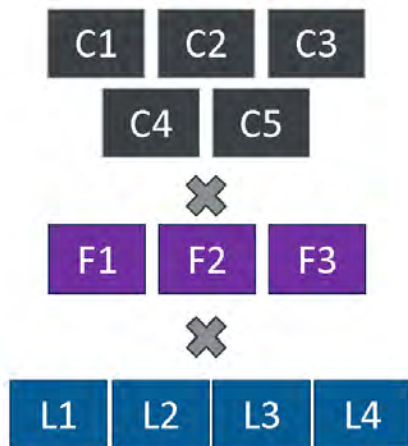
LOCATION 2: In-Game

LOCATION 3: Both

LOCATION 4: None (Control)

OPTIMUS PRIME

EXPERIMENTAL DESIGN



COMPLETE EXPERIMENTAL DESIGN:

24 TIPS ACROSS 5 CATEGORIES



3 FONT COLORS



3 LOCATIONS + 1 OVERALL CONTROL



217 UNIQUE CONDITIONS

EVERY GAME OF *LEAGUE OF LEGENDS* GOT A
RANDOM TIP, LOCATION & FONT COLOR
(10% OF GAMES GOT NOTHING TO ACT AS CONTROLS)

OPTIMUS PRIME RESULTS

TIP: "X% of players punished by the Tribunal improve their behavior and are never punished again"

FONT: White

LOCATION: Loading Screen



*Optimus data from 11/2012

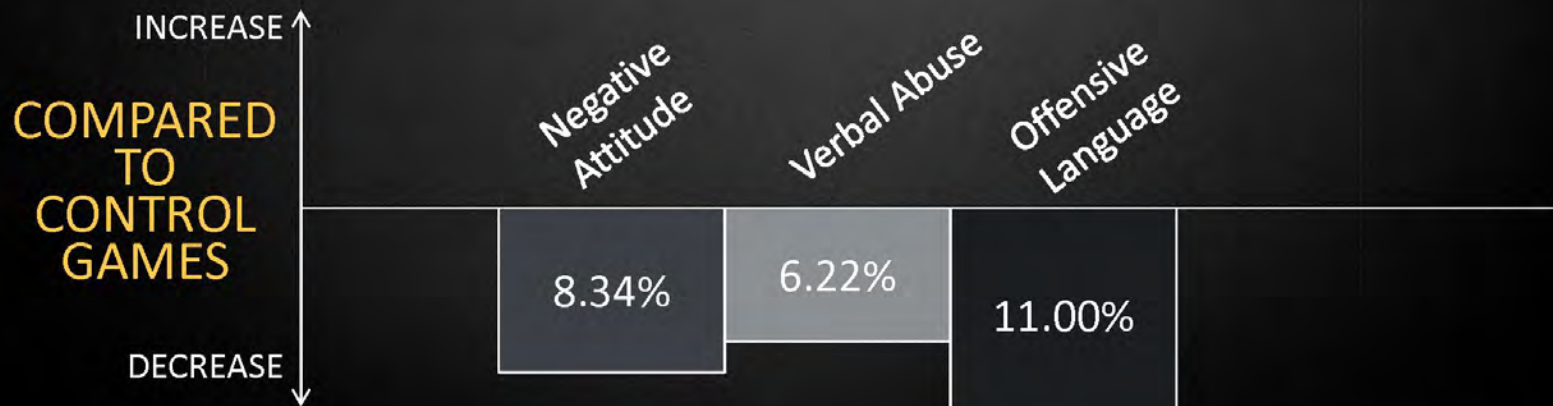
**HOW DO FONT COLORS INTERACT
WITH TIP CATEGORIES?**

OPTIMUS PRIME RESULTS

TIP: "Teammates perform worse if you harass them after a mistake."

FONT: Red

LOCATION: Loading Screen



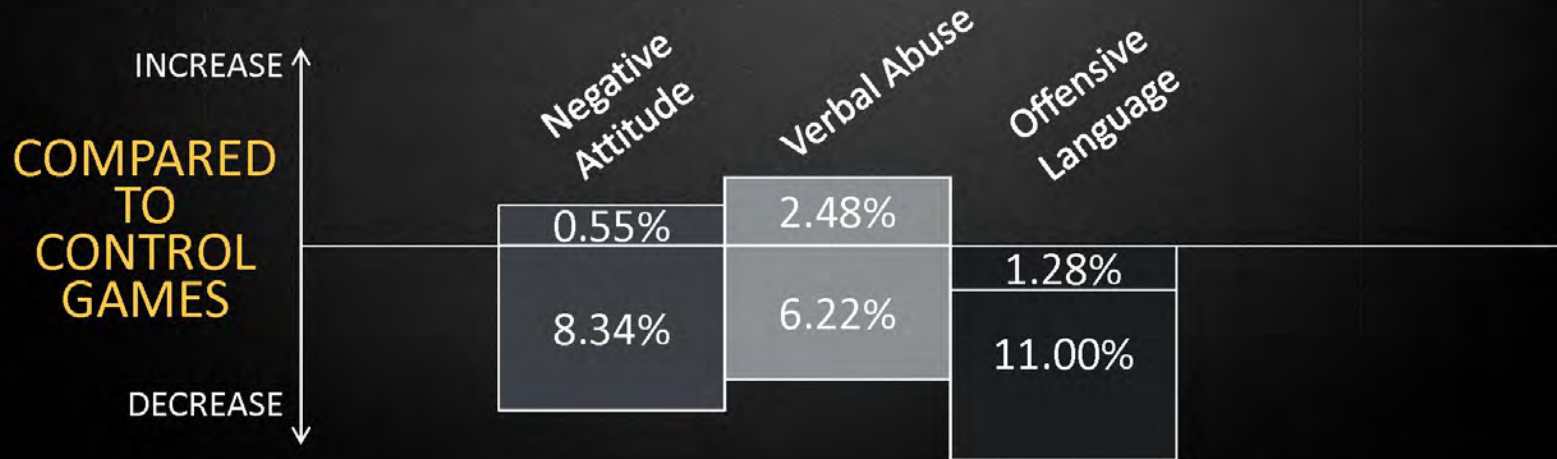
*Optimus data from 11/2012

OPTIMUS PRIME RESULTS

TIP: "Teammates perform worse if you harass them after a mistake."

FONT: White

LOCATION: Loading Screen



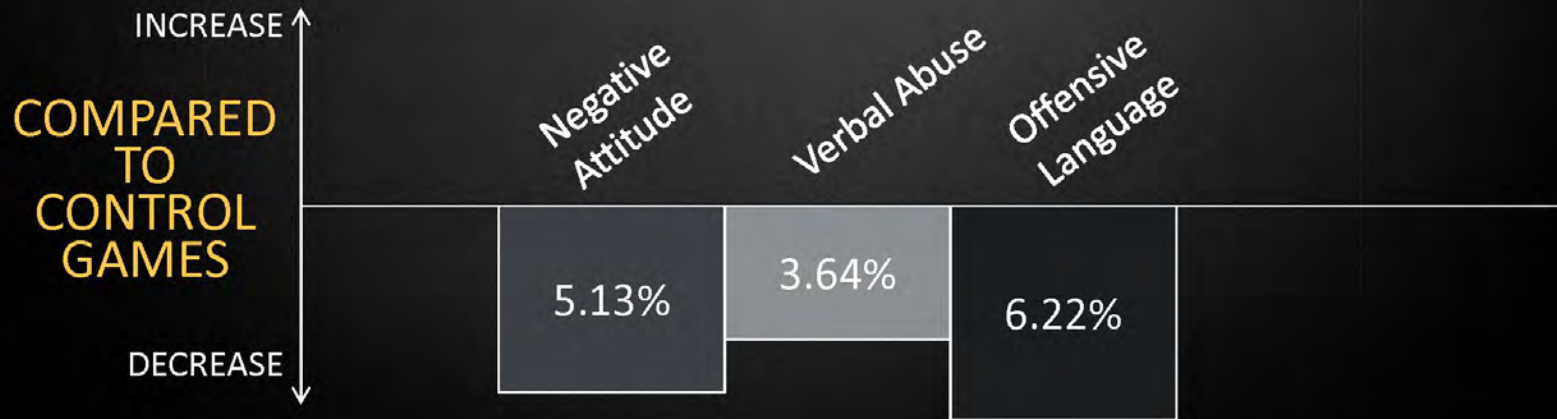
*Optimus data from 11/2012

OPTIMUS PRIME RESULTS

TIP: "Players who cooperate with their teammates win X% more games."

FONT: Blue

LOCATION: Loading Screen



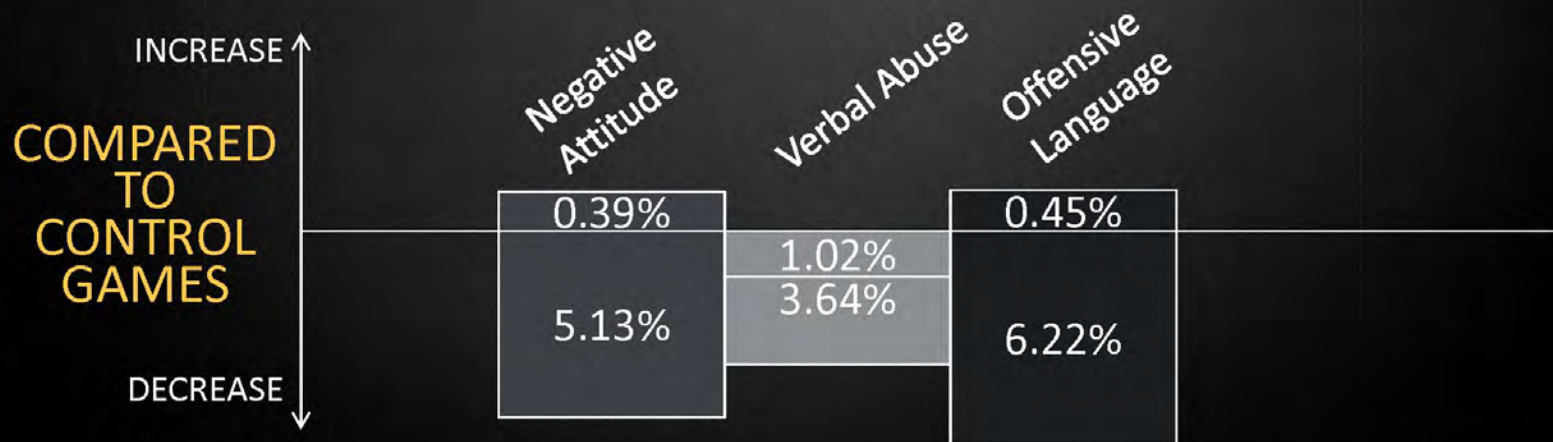
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OPTIMUS PRIME RESULTS

TIP: "Players who cooperate with their teammates win X% more games."

FONT: Red

LOCATION: Loading Screen



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ONLINE PLATFORMS AS THE FUTURE OF RESEARCH



JEFFREY "LYTE" LIN
jlin@riotgames.com | @RiotLyte

Data Driven Methods Not Just Online


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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](#)
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2000

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



NUCCI STUDIO

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2000

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

[NEXT >>](#)

Data Driven Methods Not Just Online


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2000

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


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2000

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


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2001

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


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2001

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

[NEXT >>](#)

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2001

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

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2001

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

[< PREVIOUS](#)
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2003

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

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2004

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

[NEXT >>](#)

NUCCI STUDIO

Limitations of Data Driven Testing

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

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[Weezer](#)

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(CD, 1994)

Weezer

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[Weezer \(2001\)](#) Weezer, Weezer (Music)

CD, Release Year: 2001

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Item: \$8.30

Media Mail: \$2.45

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Subtotal: \$10.75

Total Merchandise: \$8.30
Total Shipping: \$2.45

TOTAL: \$10.75

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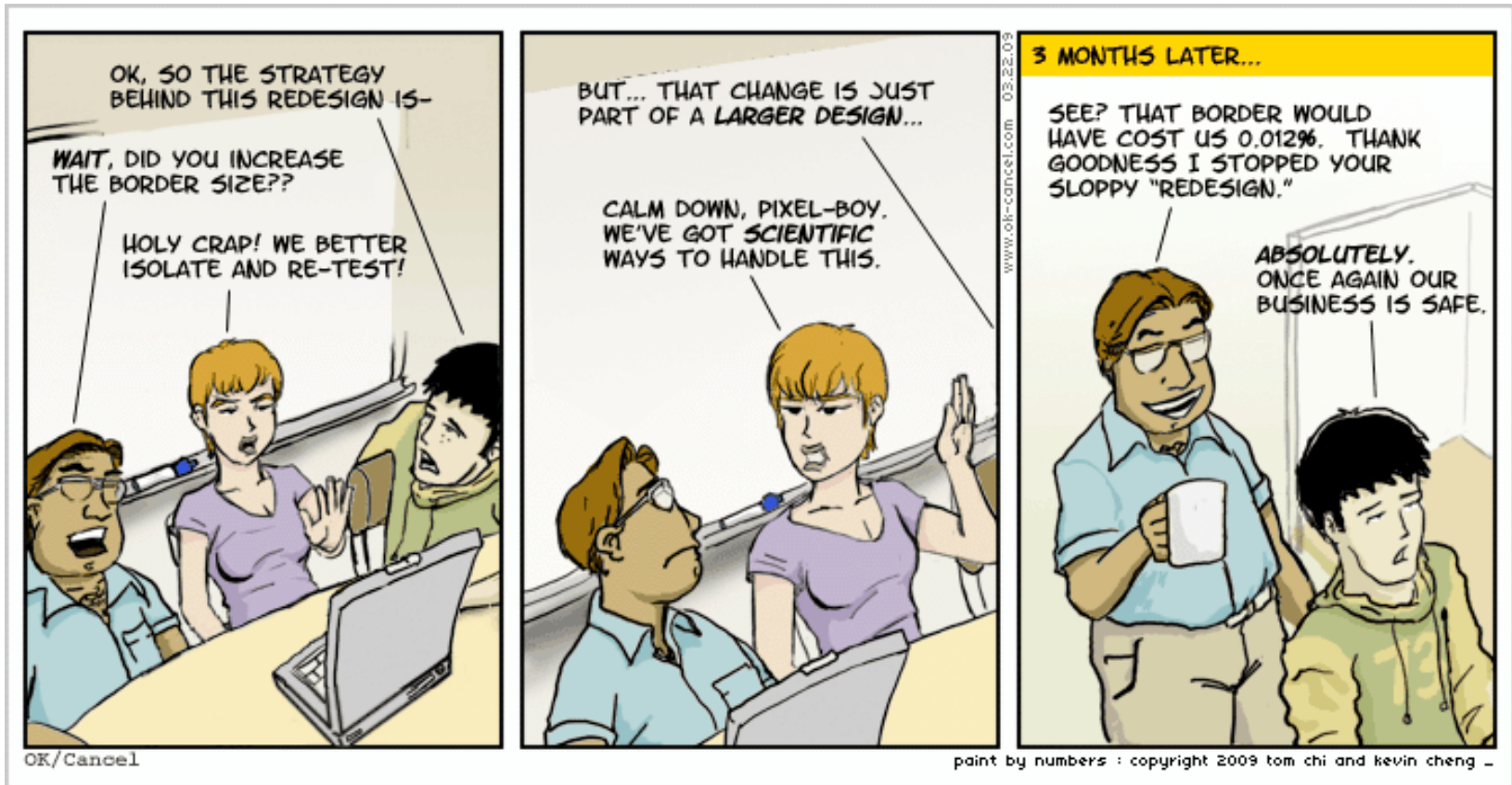
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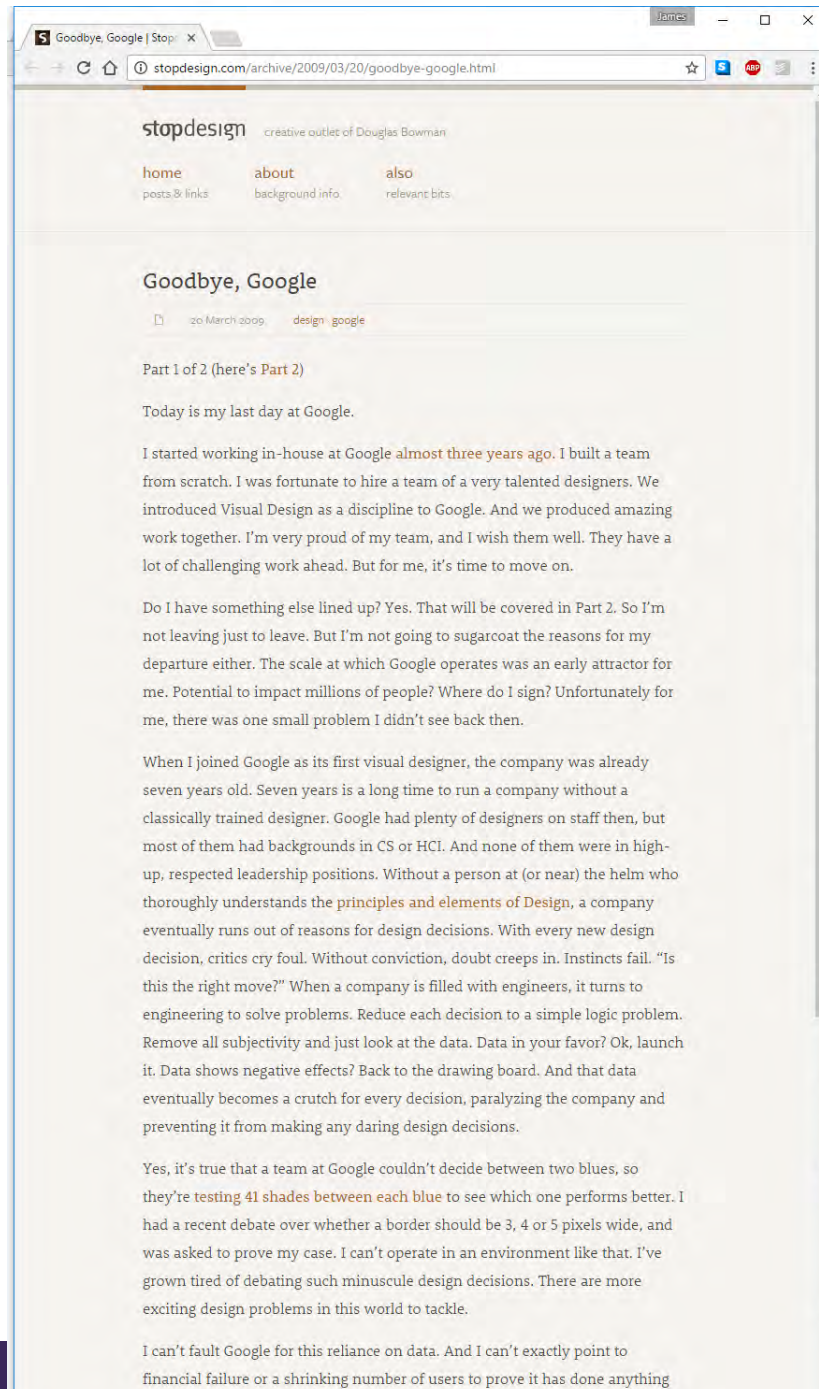
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[17 items in stock](#)

Price	Total Price	Seller (Rating)	Seller Comments	
\$8.00 Buy!	\$10.45 Media Mail	lucidsky (14) ★	perfect	More info...
\$8.84 Buy!	\$11.29 Media Mail	steveeq1 (82) ★		More info...
\$9.00 Buy!	\$11.45 Media Mail	saint.timothy (18) ★	Great shape...first class ship	More info...

• Where am I in the site?

- “Home > Music” are LOCATION BREAD CRUMBS
- TAB ROW says “Music”
- Album cover, “Product Highlights”, and CD cover



Actual items for sale may vary from this image.

Product Highlights

CD

May 2001

List Price: **\$18.97**
28 minutes
UPC 606949-30452-2
Geffen Records
Catalog 493 045

Standard shipping ([USPS Media Mail](#)) for this item is \$2.30.

About this album:

- >> [Song List](#)
- >> [Album Credits](#)
- >> [Album Notes](#)
- >> [Editorial](#)
- >> [Customer Reviews](#)

About the Artist

- >> [Other Works](#)

Spread the Word:

- >> [Write a Review](#)
- >> [Email a Friend](#)

> [Sell yours now!](#)

Compare our Prices!

Half.com	\$6.99
CDNOW	---
AlphaCraze	\$ 15,66
CDUniverse	\$ 15,69

[View all](#)

[74 items in stock](#)

\$7.75 Buy!	\$10.20 Media Mail	custodian46 (149) ★	best buy	More info...
\$8.00 Buy!	\$10.45 Media Mail	stargaze13 (3)	Disk, case, and liner all in excellent c	more... More info...
\$8.25 Buy!	\$10.70 Media Mail	dazzyliz (1205) ★	SEALED NEW BMG	More info...
\$8.30 Buy!	\$10.75 Media Mail	naojia@hotmail.com (35) ★	Perfect condition	More info...

>> [View all Like New Items](#)

Very Good Sorted by Price

[17 items in stock](#)

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\$8.00 Buy!	\$10.45 Media Mail	lucidsky (14) ★	perfect	More info...
\$8.84 Buy!	\$11.29 Media Mail	steveeq1 (82) ★		More info...
\$9.00 Buy!	\$11.45 Media Mail	saint.timothy (18) ★	Great shape...first class ship	More info...

• Can I trust these sellers?

- Who am I buying from?
- Are they reputable?
- What about shipping?

[Home](#) > [Music](#)

Weezer

[Weezer](#)Our best price: **\$6.99**List Price: \$18.97 (Save: **\$11.98**)

Find out more...

[Full product info](#), [Product Reviews](#)

Not ready to buy?

[Add to your Wish List](#), [Preorder this item](#), [May we also suggest...](#)▶ [Sell yours now!](#)

Compare our Prices!

Half.com	\$6.99
CDNOW	---
AlphaCraze	\$ 15.66
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- » [Email a Friend](#)

Like New

Sorted by Price

[74 items in stock](#)

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\$8.00 Buy!	\$10.45 Media Mail	stargaze13 (3)	Disk, case, and liner all in excellent c more...	More info...
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» [View all Like New Items](#)

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[17 items in stock](#)

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\$9.00 Buy!	\$11.45 Media Mail	saint.timothy (18) ★	Great shape...first class ship	More info...

[Home](#) > [Music](#)

[Sell your now!](#)

Weezer (2001)

[Weezer](#)

Our best price: **\$6.99**

List Price: \$18.97 (Save: **\$11.98**)



Find out more...

[Full product info](#), [Product Reviews](#)



Not ready to buy?

[Add to your Wish List](#), [Preorder this item](#), [May we also suggest...](#)

Compare our Prices!

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- [Editorial](#)
- [Customer Reviews](#)

About the Artist

- [Other Works](#)

Spread the Word:

- [Write a Review](#)
- [Email a Friend](#)

• The Fold
– Hmm, what's below here?

may we also suggest...

» People who bought "Weezer (2001)" also bought:



[Weezer \(1994\)](#) CD, Release Year: 1994
Weezer
Save \$6.97 - Best price: **\$5.00**



[Pinkerton](#) CD, Release Year: 1996
Weezer
Save \$10.95 - Best price: **\$6.00**



[Hybrid Theory](#) CD, Release Year: 2000
Linkin Park
Save \$11.68 - Best price: **\$6.29**

About this album

Song List

1. Don't Let Go
2. Photograph
3. Hashpipe
4. Island In The Sun
5. Crab
6. Knock-Down Drag-Out
7. Smile
8. Simple Pages
9. Glorious Days
10. O Girlfriend

Album Credits

[Ken Allerdycce](#), Engineer
[Ric Ocasek](#), Producer

- Impulse buy
 - PERSONALIZED RECOMMENDATIONS
- About this album
- Lots of unused space
- Still more info below...

Album Notes

Weezer: Rivers Cuomo (vocals, guitar); Brian Bell (guitar); Matt Sharp (bass); Patrick Wilson (drums). Recorded at Cello Studios, Los Angeles, California in December 2000. In 1994 Weezer burst onto the music scene, reaching platinum status with their debut, and in the process proving that there was still room in an airbrushed MTV world for unrepentant power pop played by decidedly non-airbrushed guys. Following a brief sojourn into semi-deconstructionism, 1997's PINKERTON, the four men who make up Weezer serve up a third offering, WEEZER 2001, returning to the sound and producer of their successful debut. Nowhere does producer Ric Ocasek define his trademark refined power pop style more than with Weezer. Unlike the immediate, obvious pop hooks of the string of singles on the first album, though, the songs on WEEZER 2001 may take a few listens to settle in. However, once the subtle-yet-undeniable refrains of such tracks as "Crab," "Don't Let Go," and first single "Hash Pipe" make their way into your skull, they're there to stay, as furious, fuzzy, layered guitars compliment Rivers Cuomo's raw, vulnerable vocals. While this disc clocks in at less than a half-hour long, it packs more hooky wallop than many double live albums.

Product Reviews

Editorial Reviews

Spin (01/01/2002)

Ranked #9 in Spin's Albums of the Year 2001
 Ranked #13 in AP's 25 Best Albums of 2001
 beast...Rolling Stone (6/7/01, p.110) - 4
 excellent tunes in less than half an hour
 Rivers Cuomo's shrink another hot tub...C
 observed power pop of their '94 debut, a

Customer Reviews

Rated 4.3 out of 5.0 by 29 raters.

» [Read Customer Reviews](#)

» [Rate this item](#)

- Is this product any good?
 - Editorial reviews
 - Customer reviews
 - RECOMMENDATION COMMUNITY

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People with similar tastes also enjoyed...



Weezer (1994)

(CD, 1994)

Weezer

\$5.00

(Save \$6.97)



Pinkerton

(CD, 1996)

Weezer

\$6.00

(Save \$10.95)



All Killer No Filler

[ECD]

(CD, 2001)

Sum 41, Sum 41

\$4.29

(Save \$8.68)

[Redeeming a Gift Certificate or Coupon?](#)

Proceed to Checkout 

Speedy Checkout

Shopping Cart

Weezer (2001) Weezer, Weezer (Music)

CD, Release Year: 2001

Seller: naojia@hotmail.com (35)

Condition: Like New • Notes: Perfect condition

Item: \$8.30

Media Mail: \$2.45

[\(Change Shipping Method\)](#)

[Move to WishList](#) • [Remove from Cart](#) • [Find another one](#)

TOTAL: \$10.75

Gift Certificates and Coupons

Redeeming your Half.com Gift Certificate or Coupon is easy. Just enter your Claim Code in the box to the right and click "**Redeem**".

Redeem

Proceed to Checkout 

Speedy Checkout

People with similar tastes also enjoyed...



Weezer (1994)

(CD, 1994)

Weezer

\$5.00

(Save \$6.97)



Pinkerton

(CD, 1996)

Weezer

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TOTAL: \$10.75

Gift Certi

Redeeming
Claim Code

Redeem

Proceed to Checkout

Speedy Checkout

• What site am I at?

- Logo in upper-left
- Colors, layout, font
- examples of SITE BRANDING

People with similar tastes also enjoyed...



[Weezer \(1994\)](#)

(CD, 1994)

Weezer

\$5.00

(Save \$6.97)



[Pinkerton](#)

(CD, 1996)

Weezer

\$6.00

(Save \$10.95)



[All Killer No Filler](#)

[ECD]

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[\(Change Shipping Method\)](#)

TOTAL: \$10.75

Gift Certi

Redeeming
Claim Code

Redeem

Proceed to Checkout

Speedy Checkout

• Where am I in the site?

- Last link clicked was “Buy!”
- “Shopping Cart” and “Proceed to Checkout” reinforce that this is “the right page”
- SHOPPING CART

People with similar tastes also enjoyed...



[Weezer \(1994\)](#)

(CD, 1994)

Weezer

\$5.00

(Save \$6.97)



[Pinkerton](#)

(CD, 1996)

Weezer

\$6.00

(Save \$10.95)



[All Killer No Filler](#)

[ECD]

(CD, 2001)

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Condition: Like New • Notes: Perfect condition

[Move to WishList](#) • [Remove from Cart](#) • [Find another one](#)

Proceed to Checkout

Speedy Checkout

Item: \$8.30

Media Mail: \$2.45

[\(Change Shipping Method\)](#)

TOTAL: \$10.75

Gift Certi

Redeeming
Claim Code

Redeem

Proceed to Checkout

Speedy Checkout

• Cross-selling

- Possibly a pleasant surprise
- Impulse buy
- **CROSS-SELLING & UP-SELLING**

People with similar tastes also enjoyed...



Weezer (1994)

(CD, 1994)

Weezer

\$5.00

(Save \$6.97)



Pinkerton

(CD, 1996)

Weezer

\$6.00

(Save \$10.95)



All Killer No Filler

[ECD]

(CD, 2001)

Sum 41, Sum 41

\$4.29

(Save \$8.68)

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Speedy Checkout

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Media Mail: \$2.45

[\(Change Shipping Method\)](#)

[Move to WishList](#) • [Remove from Cart](#) • [Find another one](#)

TOTAL: \$10.75

Gift Certi

Redeeming
Claim Code

Redeem

Proceed to Checkout

Speedy Checkout

• What am I going to buy?

- Easy to remove
- Easy to move to wishlist

• How much will it cost?

- Shipping costs there, no nasty surprises

• SHOPPING CART

People with similar tastes also enjoyed...



Weezer (1994)

(CD, 1994)

Weezer

\$5.00

(Save \$6.97)



Pinkerton

(CD, 1996)

Weezer

\$6.00

(Save \$10.95)



All Killer No Filler

[ECD]

(CD, 2001)

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\$4.29

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Condition: Like New • Notes: Perfect condition

[Move to WishList](#) • [Remove from Cart](#) • [Find another one](#)

Proceed to Checkout

Speedy Checkout

Item: \$8.30

Media Mail: \$2.45

[\(Change Shipping Method\)](#)

TOTAL: \$10.75

• What can I do?

– “Proceed to Checkout”

HIGH VISIBILITY ACTION BUTTON

– Visually distinct

– 3D, looks clickable

– Repeated above and below fold

Redeem

Proceed to Checkout

Speedy Checkout

Checkout

Enter your User ID and Password.

Are you a **half.com™** user having
trouble signing in? [Get help now.](#)

eBay [User ID](#)

You can also use your registered email.

eBay Password

[Forgot](#) your password?

Learn how to [protect your account](#)

Secure Sign In

or [Register Now](#)

☐ Keep me signed in on this computer unless I
sign out. [Learn more](#)

② Having problems signing in? [Get help now.](#)

For more information about sign in, visit [sign in help](#).

Or sign in to eBay
using:



Checkout

Enter your User ID and Password.

Are you a half.com™ user having trouble signing in? [Get help now.](#)

eBay [User ID](#)

You can also use your registered email.

eBay Password

[Forgot](#) your password?

Learn how to [protect your account](#)

Secure Sign In

[Register Now](#)

☐ Keep me signed in on this computer unless I sign out. [Learn more](#)

② Having problems signing in? [Get help now.](#)

For more information about sign in, visit [sign in help](#).

Or sign in to eBay using:



- What if I don't have a User ID?
- What if I forgot my password?
- SIGN-IN/NEW ACCOUNT options



Step 1 - Choose Shipping Address

Ship my order to:

Jason Hong
387 Soda Hall Computer Science UC Berkeley
Berkeley, CA 94720

Use This Address

OR

Enter a new shipping address:

Name

Street address

City

State

If U.S. Military, enter APO/FPO for City,

If U.S. Military, select AE, AP or AA from bottom of list for State.

ZIP code

Country

USA

Save Changes



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Use This Address

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Enter a new shipping address:

Name

Street address

City

State

If U.S. Military, enter APO/FPO for City,

Select State

If U.S. Military, select AE, AP or AA from bottom of

ZIP code

Country

USA

Save Changes

• What site?

- Logo, layout, color, fonts

• Where in site?

- Checkout, step 1 of 3
- “Choose shipping address”
- QUICK-FLOW CHECKOUT



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Use This Address

OR

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Street address

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State

ZIP code

Country

If U.S. Military, enter APO/FPO for City,

Select State

If U.S. Military, select AE, AP or AA from bottom

USA

Save Changes

- **Note what's different**

- No tab rows
- No impulse buys
- Only navigation on page takes you to next step

- **This is a PROCESS FUNNEL**

- Extraneous info and links removed to focus customers



Place my order!

Order Summary

Weezer (2001) Weezer, Weezer (Music)
Seller: naojia@hotmail.com (35)
Condition: Like New • Notes: Perfect condition

Item: \$8.30
Media Mail: \$2.45
Subtotal: \$10.75

Total Merchandise: \$8.30
Total Shipping: \$2.45

TOTAL: \$10.75

Ship to

Jason Hong
387 Soda Hall Computer Science UC Berkeley
Berkeley, CA 94720

[Edit / Change Shipping Address](#)

Bill to

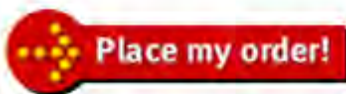
MasterCard ending with 0155
Expires 11/2003
Zipcode: 94709

[Edit / Change Billing](#)

☐ Use this shipping and billing information as my Speedy Checkout settings.



Place my order!



Order Summary

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Condition: Like New • Notes: Perfect condition

Ship to

Jason Hong

387 Soda Hall Computer Science UC Berkeley
Berkeley, CA 94720

[Edit / Change Shipping Address](#)

[Edit / Change Billing](#)

☐ Use this shipping and billing information for my speedy Checkout settings.



• Last step of process

- Step 3, “Place Order”
- “Place my order” button

• Two HIGH-VISIBILITY ACTION BUTTONS for fold



• No nasty surprises

- Can see order
- Total price is same as shopping cart
- **ORDER SUMMARY**

order!

Item: \$8.30
Media Mail: \$2.45
Subtotal: \$10.75

Total Merchandise: \$8.30
Total Shipping: \$2.45

TOTAL: \$10.75

Ship to

Jason Hong
387 Soda Hall Computer Science UC Berkeley
Berkeley, CA 94720

[Edit / Change Shipping Address](#)

Bill to

MasterCard ending with 0155
Expires 11/2003
Zipcode: 94709

[Edit / Change Billing](#)

☐ Use this shipping and billing information as my Speedy Checkout settings.



Place my order!



- Easy to change shipping and billing
- Easy to save this info
 - Easier to setup info in context of specific task

order!

Item: \$8.30

Media Mail: \$2.45

Subtotal: \$10.75

Total Merchandise: \$8.30

Total Shipping: \$2.45

TOTAL: \$10.75

Ship to

Jason Hong
387 Soda Hall Computer Science UC Berkeley
Berkeley, CA 94720

[Edit / Change Shipping Address](#)

Bill to

MasterCard ending with 0155
Expires 11/2003
Zipcode: 94720

[Edit / Change Billing](#)

☐ Use this shipping and billing information as my Speedy Checkout settings.



Place my order!

Design Equals Solutions

Design is about finding solutions

Designers often reinvent

- Hard to know how things were done before

- Why things were done a certain way

- How to reuse solutions

One option is patterns

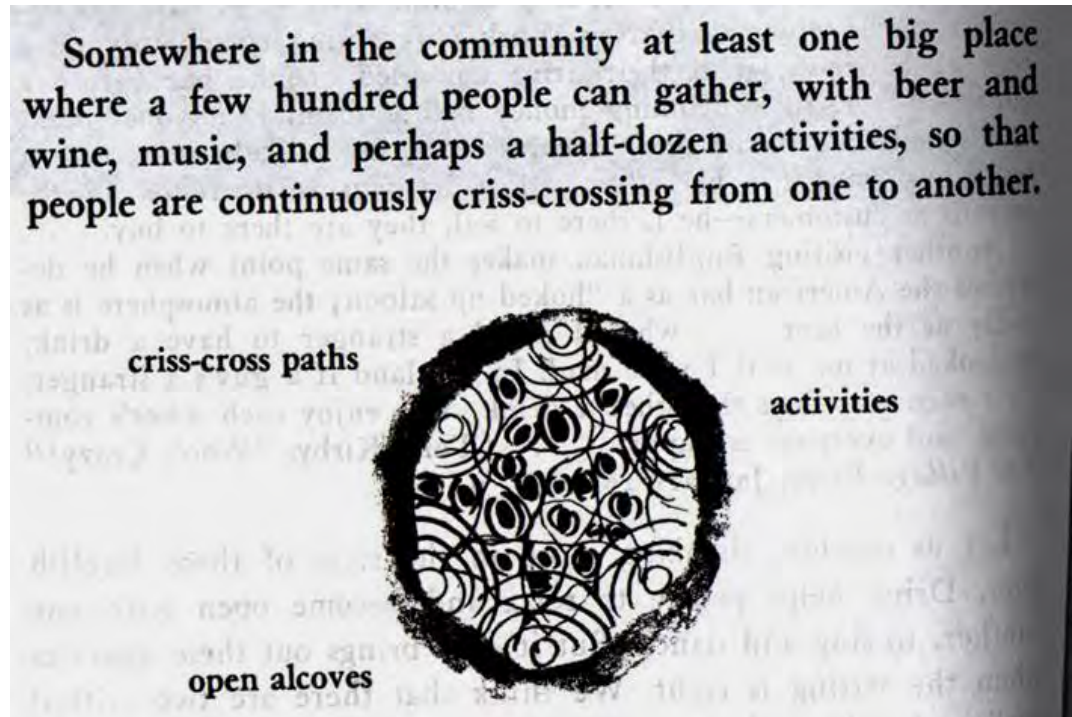
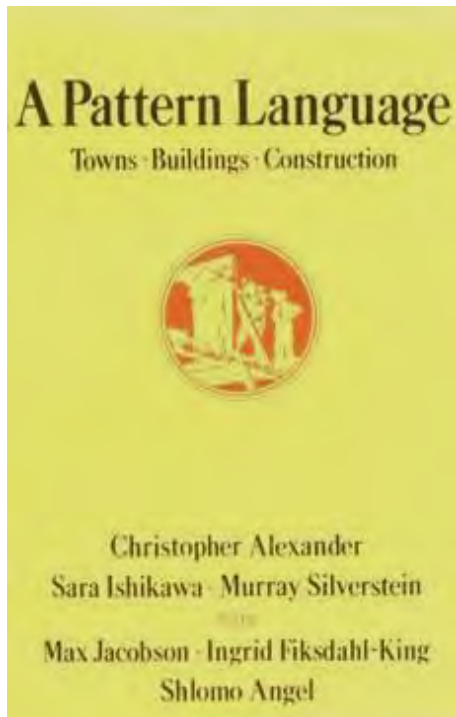
- But this is also why we point you at research

Design Patterns

Design patterns communicate common design problems and solutions

First used in architecture [Alexander]

How to create a beer hall where people socialize?



Design Patterns

Somewhere in the community at least one big place where a few hundred people can gather, with beer and wine, music, and perhaps a half-dozen activities, so that people are continuously criss-crossing from one to another.

criss-cross paths

activities

open alcoves



Using Design Patterns

Not too general and not too specific

use a solution “a million times over,
without ever doing it the same way twice”

Design patterns are a shared language

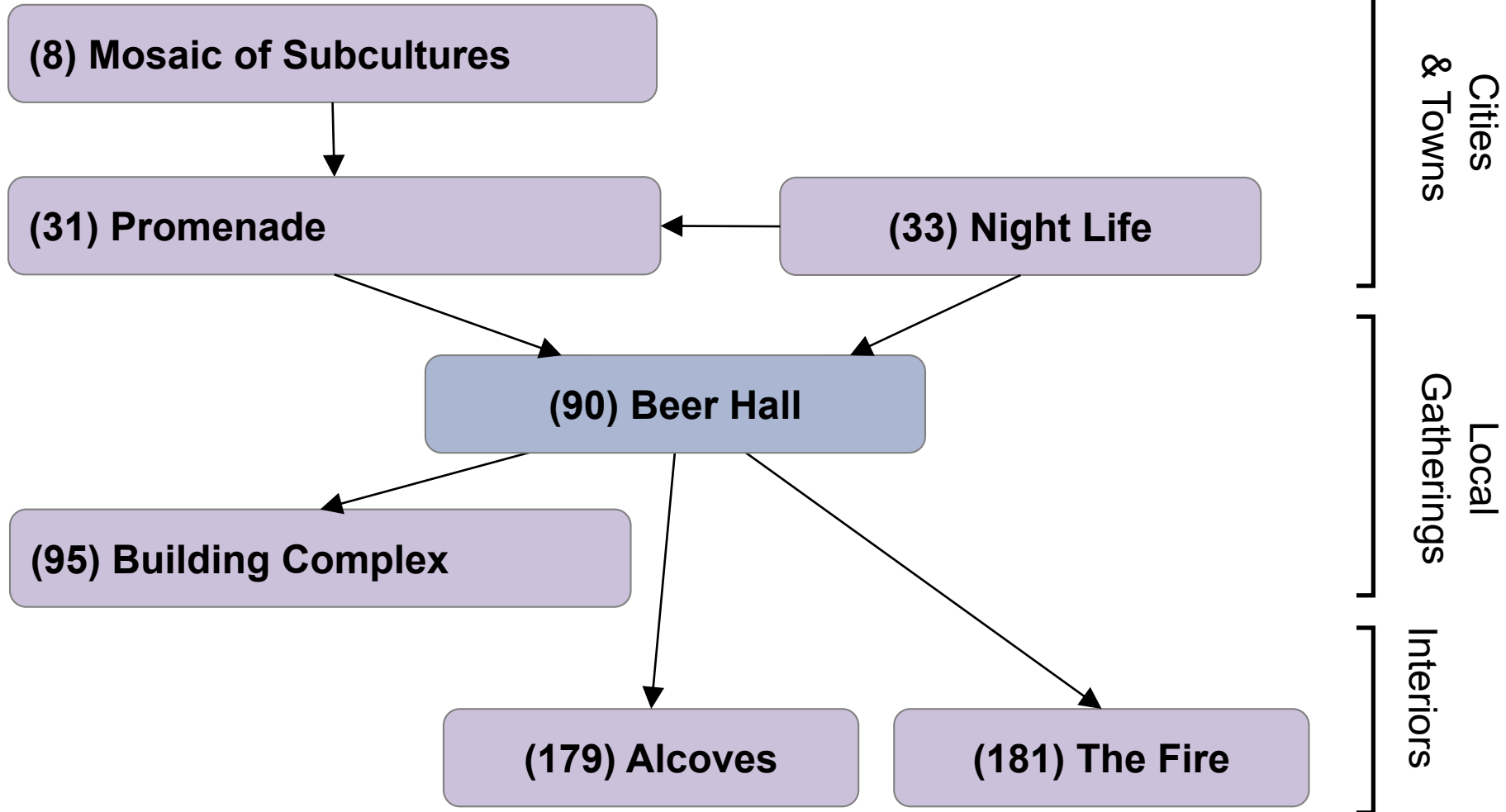
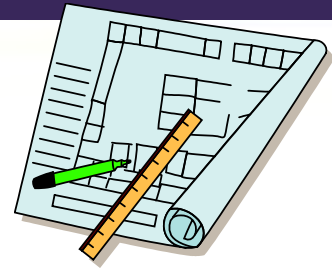
for “building and planning towns,
neighborhoods, houses, gardens, and rooms”

Beer hall is part of a center for public life

Beer hall needs spaces for groups to be alone

ALCOVES

A Web of Design Patterns



Web Design Patterns

Communicate design problems & solutions

how to create navigation bars for finding relevant content

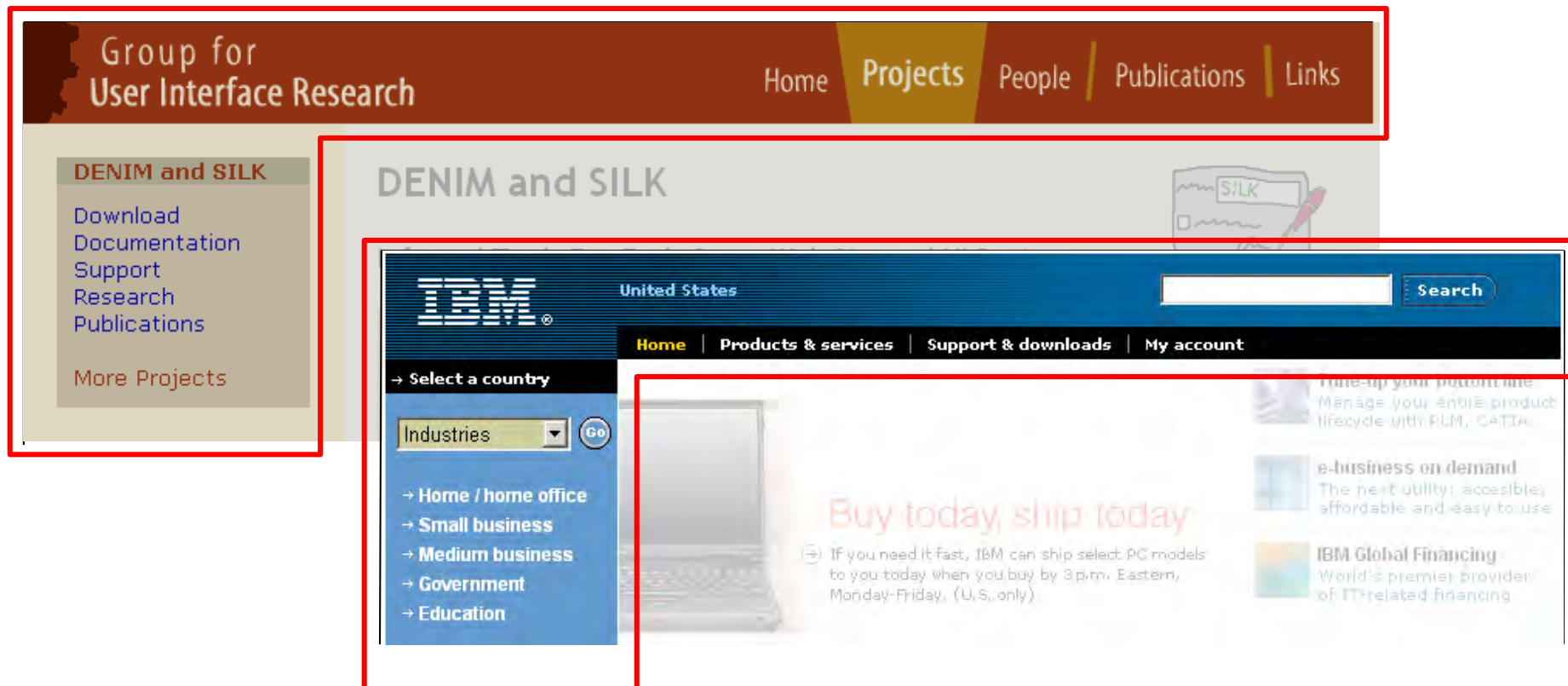
how to create a shopping cart that supports check out

how to make e-commerce sites where people return & buy



NAVIGATION BAR (K2)

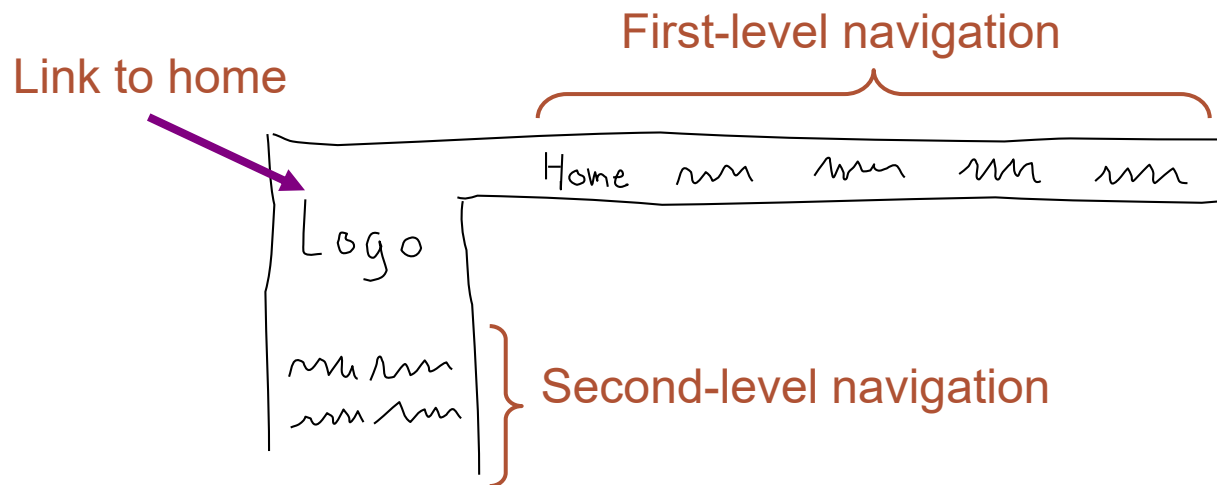
Problem: Customers need a structured, organized way of finding the most important parts of your Web site



NAVIGATION BAR (K2)














Solution diagram

Captures essence on how to solve problem



Pattern Groups

Patterns organized by group

- | | |
|--|--|
|  A Site genres |  G Advanced ecommerce |
|  B Navigational framework |  H Completing tasks |
|  C Home page |  I Page layouts |
|  D Content management |  J Search |
|  E Trust and credibility |  K Page-level navigation |
|  F Basic ecommerce |  L Speed |
| |  M The mobile web |

PROCESS FUNNEL (H1)

Problem:

Need a way to help people complete highly specific stepwise tasks

Ex. Create a new account

Ex. Fill out survey forms

Ex. Check out

PROCESS FUNNEL (H1)

half.com
by **ebay**

NEW: Counting Crows: *Hard Candy* \$11.88 Save 37%!


my account cart help **ebay** home sign in


Home Books Music DVDs/Movies Video Games Computers & Software Electronics Everything Else...


Gift Certificates Wish List Pre-Orders Sell Your Stuff New Users

Search: All Categories **go**

People with similar tastes also enjoyed...


Weezer (1994)
(CD, 1994)
Weezer
\$5.00
(Save \$6.97)


Pinkerton
(CD, 1996)
Weezer
\$6.00
(Save \$10.95)


All Killer No Filler [ECD]
(CD, 2001)

[Redeeming a Gift Certificate or Coupon?](#)

Proceed to Checkout
Speedy Checkout

Shopping Cart

Weezer (2001) Weezer, Weezer (Music) CD, Release Year: 2001 Seller: naotia@hotmail.com (35) Condition: Like New • Notes: Perfect condition Move to WishList • Remove from Cart • Find another one	Item: \$8.30 Media Mail: \$2.45 (Change Shipping Method)
TOTAL: \$10.75	

Gift Certificates and Coupons

Redeeming your Half.com Gift Certificate or Coupon is easy. Just enter your Claim Code in the box to the right and click "**Redeem**".

Redeem

Proceed to Checkout
Speedy Checkout

PROCES

- What's different?

- No tab rows
- No impulse buys
- Only navigation on page takes you to next step

The screenshot shows the checkout process on half.com. At the top, there's a navigation bar with 'Checkout' and a progress indicator showing '1 Shipping', '2', and '3'. Below this, the page title is 'Step 1 - Choose Shipping Address'. The main content area has a heading 'Ship my order to:' followed by a box containing a pre-filled address: 'Jason Hong, 387 Soda Hall Computer Science UC Berkeley, Berkeley, CA 94720'. To the right of this address is a red button labeled 'Use This Address'. Below this, there's an 'OR' separator and a heading 'Enter a new shipping address:'. This section contains several input fields: 'Name', 'Street address', 'City', 'State' (a dropdown menu), 'ZIP code', and 'Country' (pre-filled with 'USA'). There are also instructions for military addresses. At the bottom of this section is a red button labeled 'Save Changes'.

- What's the same?

- Logo, layout, color, fonts

PROCESS FUNNEL (H1)

Problem:

What if users need extra help?

PROCESS FUNNEL (H1)

Dell.com About Dell Contact Search Support Order Status My Cart

DELL HOME & HOME OFFICE

Computers Software & Accessories Service & Support Learning Center

Buy Online or Call
1-800-915-3355

Main | Desktops | Notebooks | Handhelds | Hot Deals!

FEATURED SYSTEM

Featured Dimension 4100

The Dimension 4100 desktop offers you amazing power and flexibility at a price that won't break your budget.

- Intel® Pentium® III processor at 933Mhz
- 40GB⁵ Hard Drive
- 128MB SDRAM
- 32MB Nvidia GeForce2 MX 4X AGP Graphics Card

Free Ground (3-5 day) Shipping with purchase of any new Dell Home System. Offer ends 4/23/01.
[Click Here for Details.](#)

Dimension 4100 [Great Add-Ons For This System](#) [Price](#)

Intel® Pentium® III processor at 933Mhz

\$1,199

As low as \$36⁴ /45 pmts
No payment for 90 days
(Click or scroll for details)⁴

[Customize It](#)


E-Value Code
8V771-4100p01


Processor ? Intel® Pentium® III processor at 933Mhz

Keyboard ? **QuietKey® Keyboard**

Hard Drive ? 40GB⁵ Ultra ATA-100 Hard Drive (7200 RPM)

Check any item(s) you wish to add to this system, then click Customize It.

 **3 Year On-Site Service** Add \$99
• With on-site service, you don't have to leave your home or ship your computer to us should you have a problem.
[More Details](#)

 **Epson Stylus Color 880 InkJet Printer** Add \$149
• A creative and versatile printer that features super fast print speeds.
[More Details](#)

Epson 640U Scanner Add

CONTEXT-SENSITIVE HELP (H8)

The screenshot displays the Dell website interface. The top navigation bar includes links for 'About Dell', 'Contact', 'Search', 'Support', 'Order Status', and 'My Cart'. The main navigation bar features 'Computers', 'Software & Accessories', 'Service & Support', and 'Learning Center'. A sidebar on the left offers 'Purchase Assistance' (Payment Solutions, Tax & Shipping Info, Secure Shopping Guarantee, Privacy Policy) and 'Recommended Systems'.

The main content area features a 'FEATURED' section for the 'Dimension 4100' system. It includes a list of features: 'Free Ground (3-5 day) Ship' and 'Click Here for Details'. The system specifications are listed: 'Intel® Pentium® III processor 933MHz' and a price of '\$1,199'. A 'Customize It' button is highlighted with a red arrow.

A context-sensitive help window titled 'Keyboards - Netscape' is open, displaying 'Dell LEARN MORE' information. It lists 'Keyboards' as 'Great Keyboard Choices to Suit Your Needs:' and provides a list of benefits:

- Choose from standard-size and "space-saver" designs
- Ergonomic design for added comfort
- Hot Keys provide quick, one-touch access to frequently used programs and Web sites
- USB ports allow for quick and easy access to USB peripherals, such as digital cameras, scanners and joysticks

The window also features a 'DELL GLOSSARY' section with the text 'Need a definition? Click on a term.' and a table comparing different keyboard types:

Keyboard Type	Dell™ QuietKey	Microsoft® Internet Keyboard, Dell Edition	Dell™ Enhanced QuietKey	Dell™ Enhanced Performance
ZOOM! For a closer look.				
Benefits	<ul style="list-style-type: none">Quiet key responseSoft "rubberdome" touch	<ul style="list-style-type: none">10 Hot Keys for easy access to your internet and e-mailE-mail Hotkey	<ul style="list-style-type: none">3 programmable keysSoft "rubberdome"	<ul style="list-style-type: none">7 programmable keysBuilt-in 2 port USB HUB

The bottom of the page shows a configuration summary for the Dimension 4100 system, including the processor, keyboard, and hard drive specifications.

FLOATING WINDOWS (H6)

The screenshot shows the Netflix homepage with the 'Recommendations' tab selected. The page features a 'NEW RECOMMENDATIONS' section with two movie cards: 'Gladiator: Extended Edition' and 'Samurai Champloo'. A floating tooltip window is positioned over the 'Gladiator: Extended Edition' card, displaying detailed information about the movie. The tooltip includes the movie title, year, a description, starring and director information, genre, MPAA rating, and a recommendation note. The background shows the Netflix navigation bar and the main content area with a yellow starburst graphic.

NETFLIX Arthine van Duvne | Your Account

Browse Recommendations Friends Queue Buy DVDs Movies, action

Get Recommendations (636) Rate Movies Movies You've Rated (210)

Recommendations

Movie suggestions based on your ratings

NEW RECOMMENDATIONS



Gladiator: Extended Edition (2000)

★★★★★
Not Interested

Fans of Gladiator's original theatrical release will appreciate this extended version of the epic Ridley Scott film, packed with 17 extra minutes of action footage and gripping dialogue. Featuring a strong supporting cast and an Oscar-winning performance from actor Russell Crowe as the dauntless Roman general Maximus, this big-budget Best Picture winner became an instant classic -- and helped elevate its leading man to icon status.

Starring: Russell Crowe, Joaquin Phoenix
Director: Ridley Scott
Genre: Action & Adventure
MPAA: R

★ Recommended based on 1 rating

Add



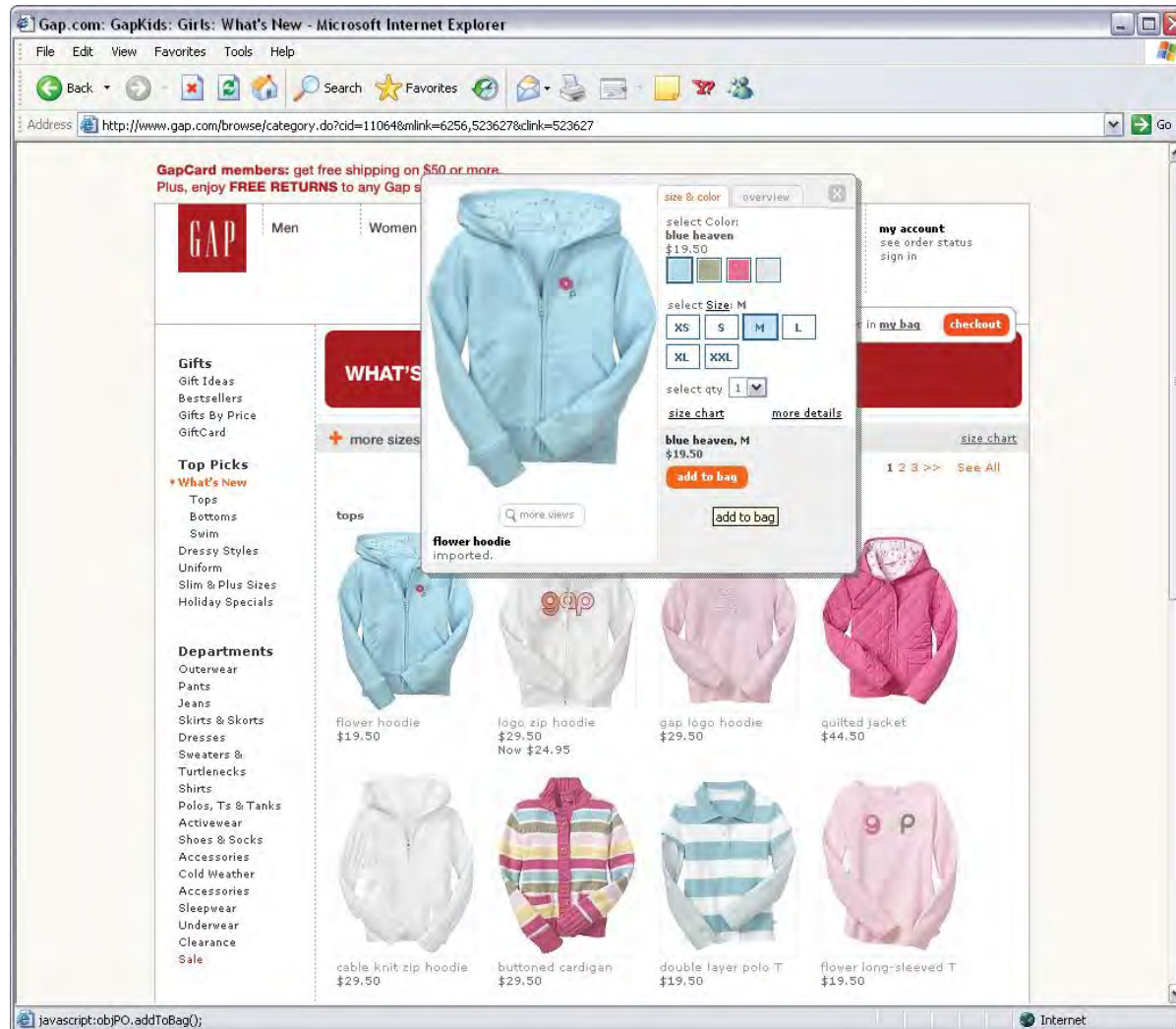
Samurai Champloo (7-)

★★★★★
Not Interested

Director Shinichiro Watanabe mixes a maturity rarely found in anime with a historical Japanese setting and a funky hip-hop soundtrack. Fuu is a spacey waitress at a teahouse where a sword fight breaks out between Mugen, a wild warrior, and Jin, a ... [Read More](#)

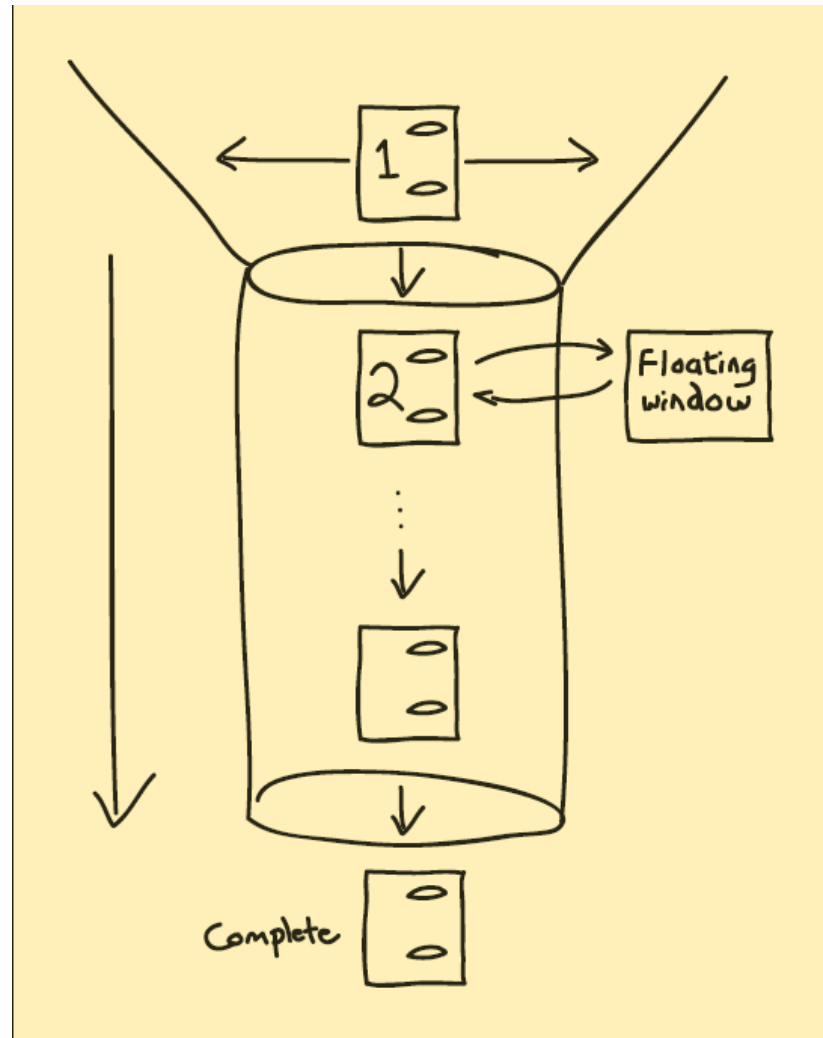
Add All

FLOATING WINDOWS (H6)

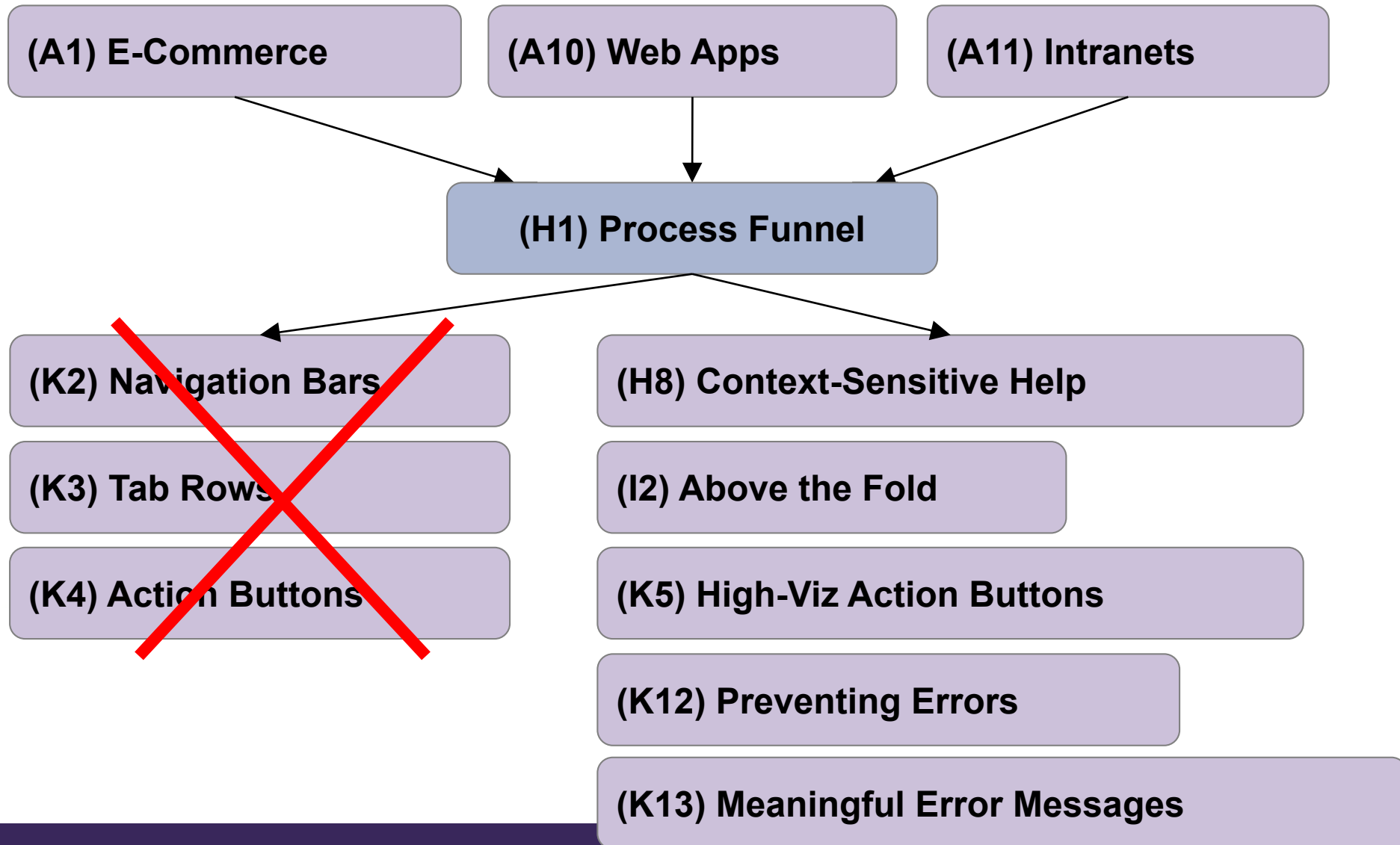


PROCESS FUNNEL (H1)

Solution Diagram



Related Patterns



Patterns Support Creativity

Patterns come from successful examples

sites that are so successful that lots of people are familiar with their paradigms

interaction techniques/metaphors that work well across many sites (e.g., shopping carts)

Not too general and not too specific

you need to specialize to your needs

Patterns let you focus on the hard, unique problems of your design situation

Principles, Guidelines, Templates

Patterns help design without over-constraining

unlike principles, patterns are not too general

unlike guidelines, patterns discuss tradeoffs,
show good examples, and tie to other patterns

unlike style guides, patterns not too specific, can
be specialized to a design

unlike templates, patterns illustrate flows and
relationships among different pages

Web Design Patterns

Pattern Name and Number

H1 PROCESS FUNNEL

PROCESS FUNNEL H1



Figure H1.1

Dell uses a process funnel consisting of several logical steps that guide customers to quickly configure and purchase a personal computer. Information in a pop-up window shows additional details but keeps customers in the funnel so that they can continue to completion.



Exemplar

Forces & Solution

Background

Problem Statement

* BACKGROUND

All Web applications that lead visitors through stepped tasks—PERSONAL E-COMMERCE (A1), SELF-SERVICE GOVERNMENT (A4), WEB APPS THAT WORK (A10), and ENABLING INTRANETS (A11)—need ways to help people succeed at completing the tasks.

* PROBLEM

Customers often need to complete highly specific tasks on Web sites, but pages with tangential links and many questions can prevent them from carrying out these tasks successfully.

People enjoy completing the tasks they start. Yet all kinds of distractions—including links that lead off the critical path, extra steps, and extra

content—can inadvertently lead them away from accomplishing their goals. These diversions can have legitimate purposes, however, such as providing continuity, giving visitors opportunities to explore, providing instructions, or providing extra details. Striking a balance between these goals can be challenging.

Required to Complete a Task • Customers should not be required to complete too many steps. A process funnel should not have more than two steps. Anything less than two steps is not a process, and a process of more than eight steps is unmanageable. If there are more than eight steps, try to split the process into two or more separate process funnels, or try combining multiple steps into one page. However, this is not always a viable solution because one choice may precede another, and not every page can hold all the information that customers might need at certain points.

Provide a Progress Bar to Let Customers Know How Far They've Come • Showing a progress bar at each step of the funnel lets customers know how much farther they have to go to complete the task. It is often not worth your time to create a progress bar clickable because doing so provides little benefit for customers.

Remove Unnecessary Links and Content While Reinforcing the Brand • Removing links and content unrelated to the task at hand will reduce the clutter on the page, making it more likely that your customers will complete their tasks. Remove all NAVIGATION BARS (K2), TABS (K3), and CRUMBS (K6), and EMBEDDED LINKS (K7), leaving only the links that help visitors reach their goals. Take out any content that is superfluous to the task.

Reinforce the Web site brand to minimize any disorientation customers might feel from sudden changes in navigation options. Use the same logo throughout the Web site so that no one is confused, and logo throughout the Web site so that no one knows they're still on the same site.



Web Design Patterns

H1 PROCESS FUNNEL

Use Pop-Up Windows to Provide Extra Information, without Leading Visitors Out of the Process Funnel • Sometimes customers need additional information that you have not provided on a page, such as extra help or product details. Provide a link to a POP-UP WINDOW (H6) containing CLEAN PRODUCT DETAILS (F2) (see Figure H1.1), CONTEXT-SENSITIVE HELP (H8), or information from the FREQUENTLY ASKED QUESTIONS (H7) page, to make the extra information less intrusive. Your challenge is to implement this extra content without detracting from the main purpose.

Make Sure the Back Button Always Works • Customers often use the Back button on browsers to modify answers they have typed in on previous pages. However, if the Web site is not implemented correctly, the information they have already entered may be lost when they hit the Back button, forcing them to type everything again. In the worst case, people get a cryptic error message saying that the posted information was lost. You can address this annoying problem by temporarily storing the information they type in on each page, redisplaying this information if customers hit the Back button, and then overriding the temporarily stored information on the page if it is changed.

Always Make It Clear How to Proceed to the Next Step • Some Web pages are longer than can be displayed on a customer's Web browser. The problem is that people sometimes get lost if the critical ACTION BUTTON (K4), the one that takes them to the next step, is hidden below the fold. Place HIGH-VISIBILITY ACTION BUTTONS (K5) both high and low on the page, ensuring that at least one of the critical action buttons is visible without scrolling.

Prevent Errors Where Possible, and Provide Meaningful Error Messages When Errors Do Occur • People will always make mistakes. You can provide good customer support and sample input to help prevent errors, and provide MEANINGFUL ERROR MESSAGES (K13) when errors do occur.

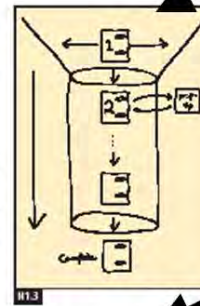
* SOLUTION

Minimize the number of steps required to complete a task, keeping them between two and eight. Remove unnecessary and potentially confusing links and content from each page, while reinforcing the brand to maintain a sense of place. Use pop-up windows to provide extra information, without leading people out of the process funnel. Make sure the Back button always works so that customers can correct errors. Make it clear how to proceed to the next step

Bus Stops

Figure H1.3

A process funnel lets people complete their goals by breaking down complicated tasks into a small number of steps, using pop-up windows for detailed information, and reducing the number of links to only the critical ones, so that people are never distracted.



Solution Diagram

Related Patterns

* CONSIDER THESE OTHER PATTERNS

Many kinds of Web sites use process funnels, including sites for PERSONAL E-COMMERCE (A1), SELF-SERVICE GOVERNMENT (A4), WEB APPS THAT WORK (A10), and ENABLING INTRANETS (A11). Customers use process funnels when they finalize purchases through QUICK-FLOW CHECKOUT (F1), when they create new accounts through SIGN-IN/NEW ACCOUNT (H2), and when they post new messages to a RECOMMENDATION COMMUNITY (G4), to name some examples.

Remove NAVIGATION BARS (K2), TAB ROWS (K3), irrelevant ACTION BUTTONS (K4), LOCATION BREAD CRUMBS (K6), and EMBEDDED LINKS (K7) to ensure that customers stay on their paths. However, keep strong site BRANDING (E1) so that customers still know where they are.

Design process funnels to PREVENT ERRORS (K12), and provide MEANINGFUL ERROR MESSAGES (K13) when errors do occur.

Track your customers through PERSISTENT CUSTOMER SESSIONS (H5) to avoid problems with the Back button, and to save customer-entered information.

Move extra content, such as CONTEXT-SENSITIVE HELP (H8) and FREQUENTLY ASKED QUESTIONS (H7), to POP-UP WINDOWS (H6) to keep the main task page on the screen. Make the next action visible by keeping it ABOVE THE FOLD (I2) and by using HIGH-VISIBILITY ACTION BUTTONS (K5).

Solution Summary

Pre-Patterns

Patterns require broad adoption and examples

- Many version of the same basic idea

- Shown successful in many contexts

- That is what makes them patterns

This is challenging in novel domains

Pre-patterns are based in weaker evidence

- Can help speed diffusion of techniques and results

- Can help see relationships among ideas

UbiComp Pre-Patterns

Literature review

Button-up card sorting of lessons from literature

Cut down based on critique by other researchers

E13 - Notification on Access of Personal Data



Figure 1. AT&T Wireless Find Friends service notifies your friend if you ask for his or her location.

Synopsis

Systems can provide feedback about what is being monitored and recorded

Background

This pattern is one part of providing [Appropriate Privacy Feedback](#) to individuals.

Problem

How can systems provide feedback about what is being monitored, as well as the current state of the system?

Solution

There at least two different times that notification can be used, during an access and afterwards.

Forces

A key design decision here is whether the person is simply notified or has choice over whether information is disclosed. There are plausible cases for each. For example, "always let my family know where I am", but "let me choose whether to reveal my current location if a co-worker asks". This is primarily an issue of trust and boundaries with other individuals.

[Privacy Mirrors](#) also act as a form of notification. Notification can also be combined with unobtrusive displays to provide constant feedback.

UbiComp Pre-Patterns

B6 • FIND A FRIEND



Figure 1. AT&T Wireless' mMode service allows customers to add friends to a friend list, find out who is nearby, and call or send messages to them. Users can make themselves invisible whenever they want.

• BACKGROUND

This pattern discusses services that allow people to find where their friends are while allowing those friends some level of privacy. This pattern is useful for GUIDES FOR EXPLORATION AND NAVIGATION (A5).

• PROBLEM

People would like to know where their friends are, for impromptu communication and gatherings. At the same time, those people may not always want to be tracked.

Displaying people's location • There are several different ways of displaying a person's location. A straightforward approach is to simply show the location in text, for example "near corner of Euclid Ave and Hearst Ave" or "in Soda Hall". Another approach is to show the data on a map, or possibly even an ACTIVE MAP (B1) that is constantly updated.



Figure 2. UC San Diego's ActiveCampus project shows your friends' location in real time. While useful, this visualization raises many privacy concerns.

Managing privacy concerns • There are many privacy concerns about find-a-friend applications due to the potential for abuse. This is not just the fear of "Big Brother," but also so-called "Little Brothers" who are using the technology to track their friends.

UbiComp Pre-Patterns

A – Ubiquitous Computing Genres	B – Physical-Virtual Spaces	C – Developing Successful Privacy	D – Designing Fluid Interactions
Describes broad classes of emerging applications, providing many examples and ideas	Associating physical objects and spaces with information and meaning; location-based services; helping users navigate such spaces	Policy, systems, and interaction issues in designing privacy-sensitive systems	How to design for interactions involving dozens or even hundreds of sensors and devices while making users feel like they are in control
Upfront Value Proposition (A1) Personal Ubiquitous Computing (A2) Ubiquitous Computing for Groups (A3) Ubiquitous Computing for Places (A4) Guides for Exploration and Navigation (A5) Enhanced Emergency Response (A6) Personal Memory Aids (A7) Smart Homes (A8) Enhanced Educational Experiences (A9) Augmented Reality Games (A10) Streamlining Business Operations (A11) Enabling Mobile Commerce (A12)	Active Map (B1) Topical Information (B2) Successful Experience Capture (B3) User-Created Content (B4) Find a Place (B5) Find a Friend (B6) Notifier (B7)	Fair Information Practices (C1) Respecting Social Organizations (C2) Building Trust and Credibility (C3) Reasonable Level of Control (C4) Appropriate Privacy Feedback (C5) Privacy-Sensitive Architectures (C6) Partial Identification (C7) Physical Privacy Zones (C8) Blurred Personal Data (C9) Limited Access to Personal Data (C10) Invisible Mode (C11) Limited Data Retention (C12) Notification on Access of Personal Data (C13) Privacy Mirrors (C14) Keeping Personal Data on Personal Devices (C15)	Scale of Interaction (D1) Sensemaking of Services and Devices (D2) Streamlining Repetitive Tasks (D3) Keeping Users in Control (D4) Serendipity in Exploration (D5) Context-Sensitive I/O (D6) Active Teaching (D7) Resolving Ambiguity (D8) Ambient Displays (D9) Follow-me Displays (D10) Pick and Drop (D11)

Patterns

When you see advice, consider its depth

Result of an individual study / rant

Pre-pattern based on some meta-analysis

Established pattern

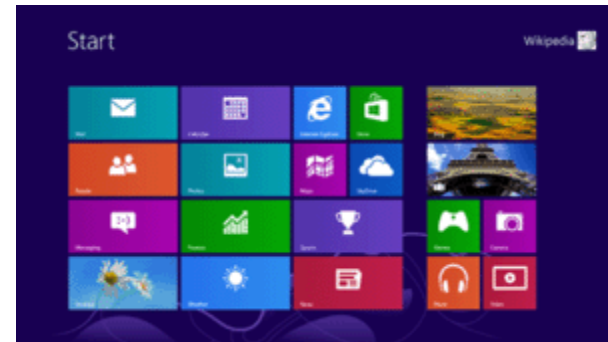
Be aware of misapplying patterns

And be aware of anti-patterns

Touch and Microsoft Windows



2004



2012

Consistency vs. Specialization

Beware of simply copying a design language

Consistency is your friend
until it is not your friend

Not limited to platform-level decisions

One “look” for your app
Or targeted at each device

Dark Patterns

A Dark Pattern is an interface that has been carefully crafted to trick people into doing things, such as buying insurance with their purchase or signing up for recurring bills.

Disguised Ads

Ads that are disguised as other kinds of content or navigation, in order to get users to click on them

Dark Patterns

A Dark Pattern is an interface that has been carefully crafted to trick people into doing things, such as buying insurance with their purchase or signing up for recurring bills.

Friend Spam

A site or game asks for your credentials, then goes on to publish content or send out bulk messages

Dark Patterns

After Lawsuit Settlement

https://www.fastcodesign.com/3051906/fast-feed/after-lawsuit-settlement-linkedin-dishonest-design-is-now-a-13-million-problem?utm_source=facebook

EVIDENCE

After Lawsuit Settlement, LinkedIn's Dishonest Design Is Now A \$13 Million Problem

HOPEFULLY, THIS WILL BE A LESSON TO OTHER COMPANIES WHO USE DARK UX PATTERNS TO TRICK THEIR USERS.

10

NOTES

5

PIN

108

PLUS

853

SHARE

1.2K

TWEET

1.5K

LIKE

Anyone who has ever signed up, or even known anyone who has signed up, for LinkedIn has probably found themselves on the receiving end of dozens of follow-up emails, inviting you to "expand your professional network." Even worse, they're virtually impossible to opt-out of. It's a scummy use of dark UX patterns by a company that should know better. Now, LinkedIn is going to be paying for it as part of a class-action lawsuit, to the tune of \$13 million.




Photo: Bloomua via Shutterstock

Presented in San Jose's U.S. District Court, the key issue in *Perkins v. LinkedIn* is spam. Namely, during the user sign-up process, LinkedIn claims that it "will not store your password or email anyone without your permission." Despite this, LinkedIn sends automated follow-up email reminders on a new user's behalf to any contacts harvested from their webmail accounts, which are presented in such a way as to appear as if they came directly from the user.

Under California law, the sitting judge says has deemed this illegal. Consequently, if you were a member of LinkedIn's "add connection" program between September 2011 and October 2014, you can submit a claim to get a payout.

EVID3NCE

WHAT THE SCIENCE HAS TO SAY ABOUT DESIGN, CREATIVITY, INNOVATION, AND VISUAL CULTURE.

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TRENDING

HAPPENING NOW

1

Google Goes Analog With Its New Note-Taking Tools

2

Will Flat Design Ever Die?

3

This Note-Taking System Turns You Into An Efficiency Expert

4

3 Radical Ideas To Totally Disrupt Air Travel

5

UI, UX: Who Does What? A Designer's Guide To The Tech Industry

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 14:
Testing and Patterns

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar



Tuesday / Thursday
10:30 to 11:50