

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 09:
Tasks in Testing,
Patterns

Tuesday / Thursday
12:00 to 1:20

James Fogarty
Kailey Chan
Dhruv Jain
Nigini Oliveira
Chris Seeds
Jihoon Suh

Project Status

Looking Forward

“Getting the Right Design”

Presentation Due Wednesday 11/1

3a: Paper Prototype (1x2) Due Monday 11/6

Other Assignments

Reading 3 Due Saturday 11/4

Reading 4 Due Saturday 11/11, Sooner is Better

Reading 5 Can Be Done Anytime, Sooner is Better

Denny 303 on Tuesday 11/7



Presentations

Presentations Thursday / Friday

6 groups will present on Thursday
entire 9:30 and 10:30 sections
(no 9:30 or 10:30 sections on Friday)

Everybody attends Thursday

welcome in 12:30 and 1:30 sections on Friday

Have thoughtful questions for other groups

Be sure you prepare and rehearse

Limit 7 minutes

Team responsibility for the presentations

PPT(X) or PDF, embed fonts, happy to “check”

Today

Ethics in Testing

Tasks in Testing

Wizard of Oz Methods in Testing

Remote Testing

Patterns

Objectives

Be able to:

Describe why task design is important for usability testing, how poor tasks can mask problems

Describe the principle of Wizard of Oz testing, give examples of how technology can support it

Describe two high-level strategies for remote testing, limitations of hill-climbing in testing

Describe the benefit of design patterns, contrast them with guidelines or templates

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Ethical Considerations



Testing is stressful, can be distressing

people can leave in tears

You have a responsibility to alleviate

make voluntary with informed consent

avoid pressure to participate

let them know they can stop at any time

stress that you are testing the system, not them

make collected data as anonymous as possible

Human Subjects Approvals

Research requires human subjects review of process

This does not formally apply to your design work

But understand why we do this and check yourself

Companies are judged in the eye of the public

Public Announcement

WE WILL PAY YOU \$4.00 FOR ONE HOUR OF YOUR TIME

Persons Needed for a Study of Memory

*We will pay five hundred New Haven men to help us complete a scientific study of memory and learning. The study is being done at Yale University.

*Each person who participates will be paid \$4.00 (plus 50c carfare) for approximately 1 hour's time. We need you for only one hour: there are no further obligations. You may choose the time you would like to come (evenings, weekdays, or weekends).

*No special training, education, or experience is needed. We want:

Factory workers	Businessmen	Construction workers
City employees	Clerks	Salespeople
Laborers	Professional people	White-collar workers
Barbers	Telephone workers	Others

All persons must be between the ages of 20 and 50. High school and college students cannot be used.

*If you meet these qualifications, fill out the coupon below and mail it now to Professor Stanley Milgram, Department of Psychology, Yale University, New Haven. You will be notified later of the specific time and place of the study. We reserve the right to decline any application.

*You will be paid \$4.00 (plus 50c carfare) as soon as you arrive at the laboratory.

TO:
PROF. STANLEY MILGRAM, DEPARTMENT OF PSYCHOLOGY,
YALE UNIVERSITY, NEW HAVEN, CONN. I want to take part in
this study of memory and learning. I am between the ages of 20 and
50. I will be paid \$4.00 (plus 50c carfare) if I participate.

NAME (Please Print)

ADDRESS

TELEPHONE NO. Best time to call you

AGE OCCUPATION SEX

CAN YOU COME:

WEEKDAYS EVENINGS WEEKENDS

Today

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In-Class Design, Prototype, Test

Design and prototype a touchscreen alarm clock to be deployed in a very high-end hotel brand. Your alarm clock should be immediately usable for tired, busy, or just-don't-want-to-be-bothered travelers who will spend zero time learning your interface.

In addition to displaying the current time, your design should include basic functionality for:

- turning the alarm on/off
- setting the wake-up time
- anything else you think is appropriate

Guests will interact with the alarm via a touch panel.

Task Design is Important

The goal of a test is to figure out how a person interacts with an interface in the wild...

There are two possible explanations for why a test does not find significant problems:

- The interface does not have significant problems

- The test itself has significant problems

Task Design is Important

Testing is not entirely in the wild

As a part of focusing the test, you often need to give a person a somewhat artificial task

The artificiality of the task may influence how people interact with an interface...

...and thus may influence the outcomes and insights gained through user testing

Bad: Artificial Subgoals

People using the design “in the wild” may not necessarily form these same subgoals

The task should give one top-level goal, a people should form their subgoals while pursuing this

Now you want to choose the type of paper you want to print your document on. Lets imagine that Bin “B” has the paper you want to print your paper on, please complete this task.

Now set the darkness of your copies to about 50% dark. After setting the darkness, you decide you want to print 2 sides of copies on two sides of paper. Please complete this task.

Bad: Artificial Ordering

Without an artificial ordering of information or subgoals, people might not proceed in this order

The ordering might also be biased towards the layout of the interface, which would conceal any problems with finding the appropriate control

- Enter in 10 copies, with lightness set to 10%.
- Choose 1 sided to 2 sided, use paper source bin A.
- Cover sheet needed, using paper bin B for cover sheet.
- Set stapling feature on and collating on.
- Start printing.

Bad: Changing the Task

The task is to make copies, and this happens to involve entering information in the copier interface

But this task description is an data entry task,
“Here is some information. Put it in the interface.”

- Make 23 copies
- With collate
- Cover sheets
- Default darkness
- 1 Sided-> 1 Sided

Bad: Giving the Answers

Tells the person what terminology the interface uses, which they might not otherwise know

lighten = contrast, sorted = collated?

You are a teacher and are trying to make 40 copies of a one-sided magazine article that is 10 pages long for your class tomorrow. Due to the large number of copies, you print the article double-sided, in other words 10 page article would be printed on 5 sheets of paper. Due to the high contrast of the article, you must lighten the copy, in other words change the contrast. You then want the copies to be collated and stapled.

Good: Giving Context

Giving realistic context through scenarios can reduce the artificiality of the task

It's your first day in the office, starting a new job. You would like to make some copies of several documents that your boss gave you to browse through. Your colleague in the next cubicle tells you that you need an access code to make copies. The code is 5150. You walk over to the copy machine at the end of the hall and realize that it is not the Xerox copier that you are accustomed to... Make 2 copies of the "Company Annual Report".

Consider: Under-Specified Tasks

Many realistic goals are under-specified, as people have only a general idea what they want

By under-specifying the task, you can elicit realistic confusion and decision-making

You just finished fixing up the old hot rod in the garage and now its time to sell her. Make a couple copies of the pictures you took to **send into the used car sales magazines. It's ok that they're in black and white** but maybe you should lighten them up a bit. Your account billing code is 5150.

Task Design Summary

Task design is difficult and important

Poorly designed tasks mask interface failures

Have others help you “debug” them before testing

Today

Ethics in Testing

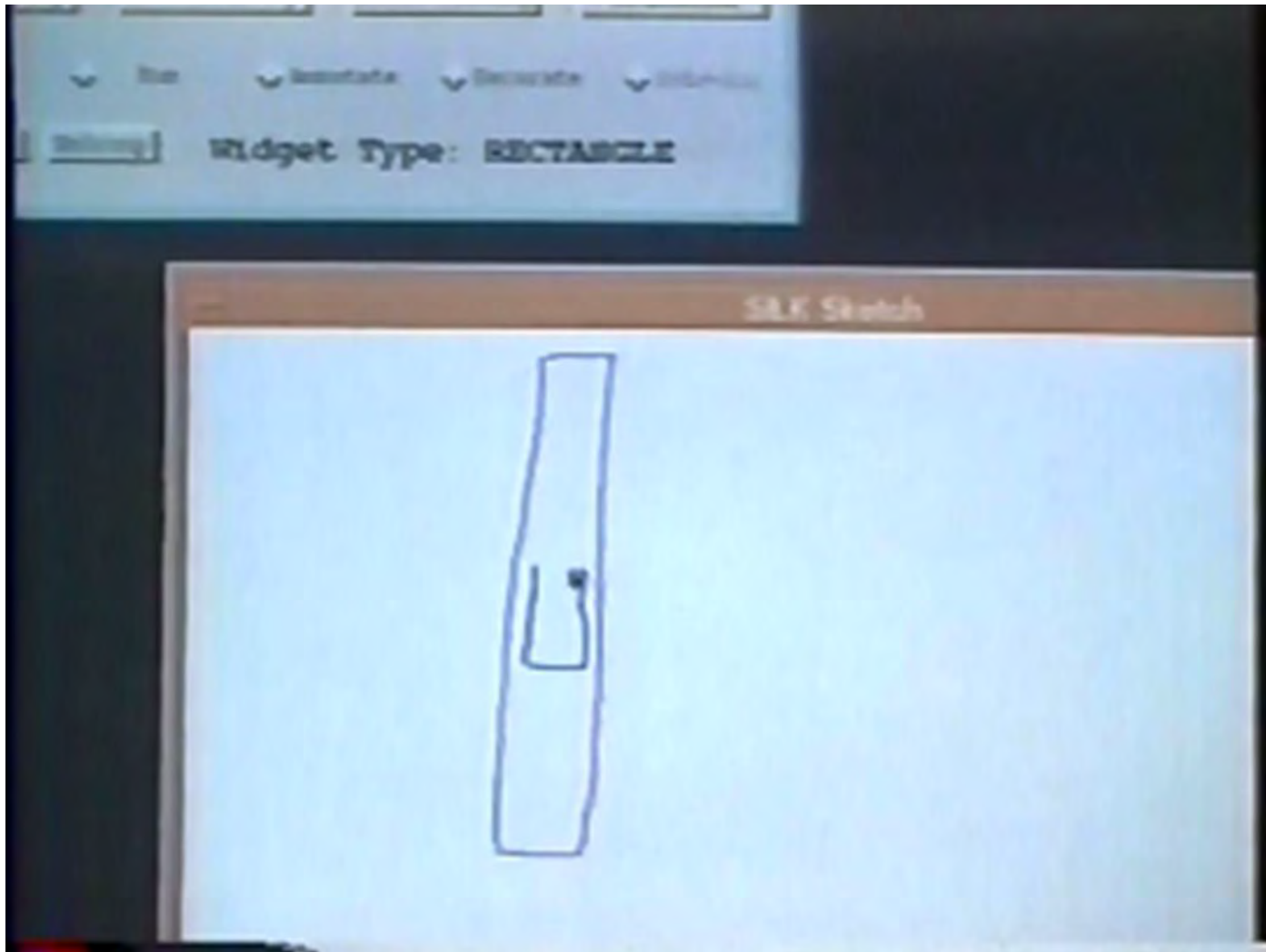
Tasks in Testing

Wizard of Oz Methods in Testing

Remote Usability Testing

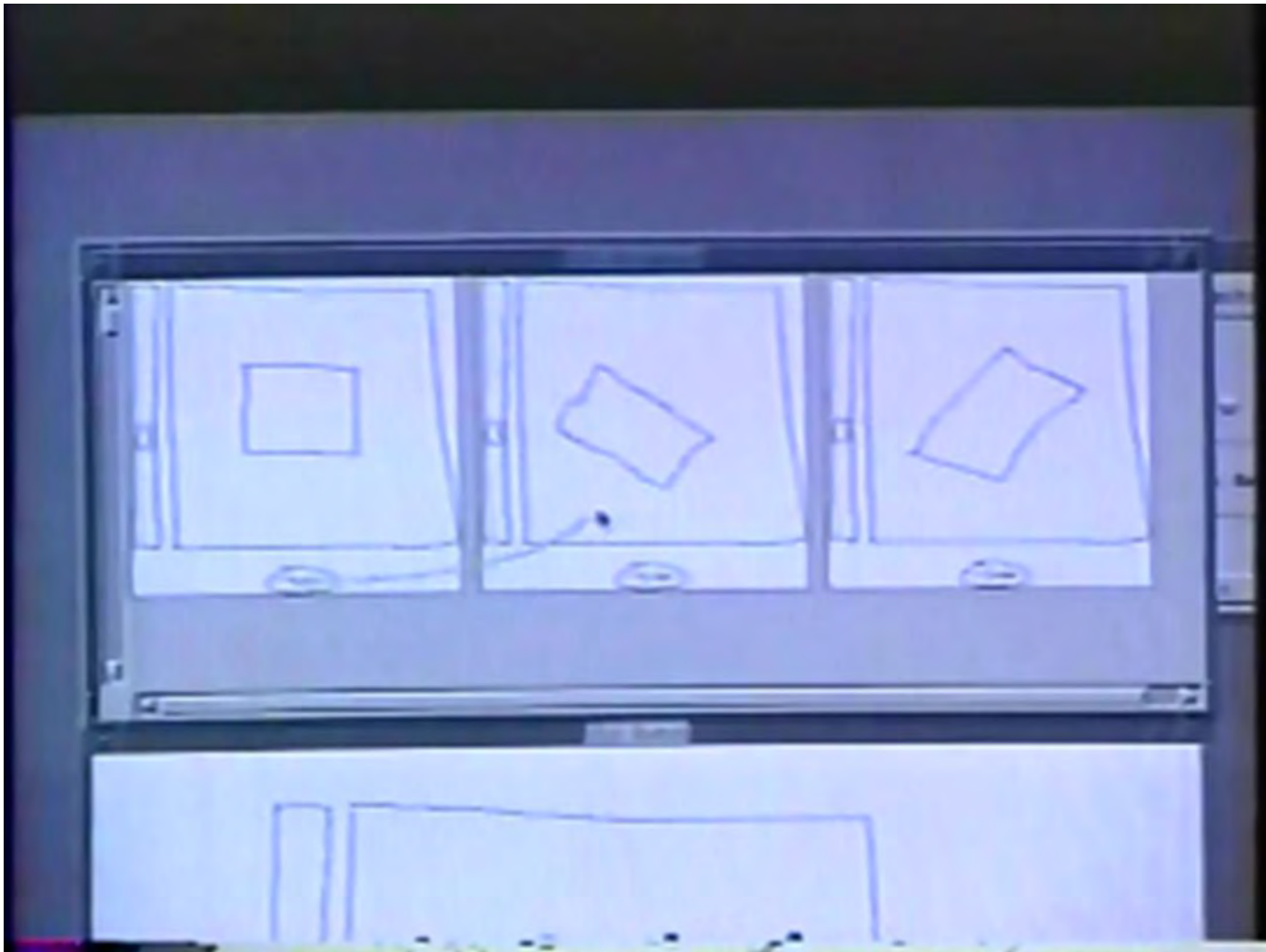
Patterns

SILK (1996)



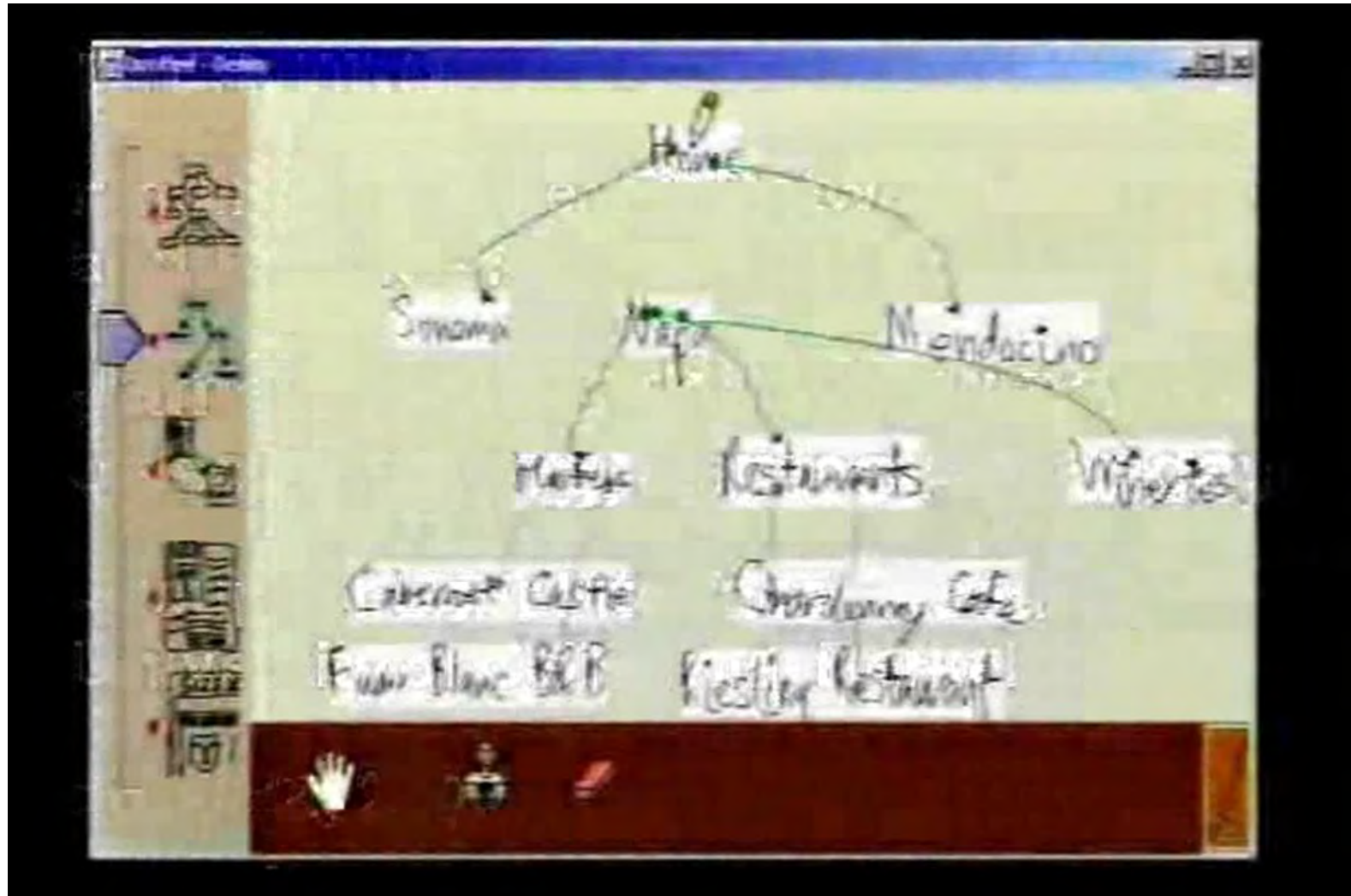
Informal Interaction

SILK (1996)



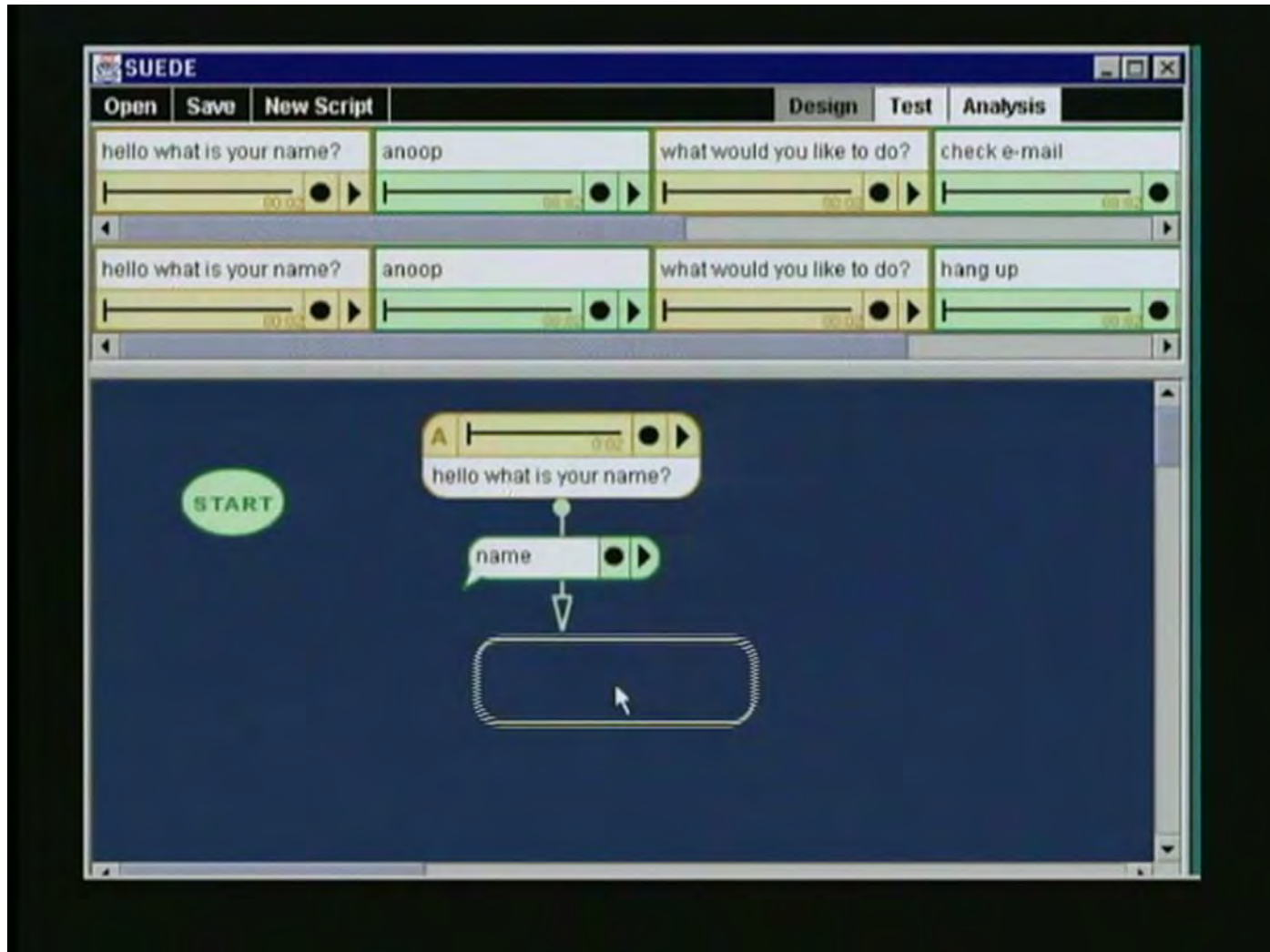
Migrate to Prototype, Storyboard-Based Programming

DENIM (2000)



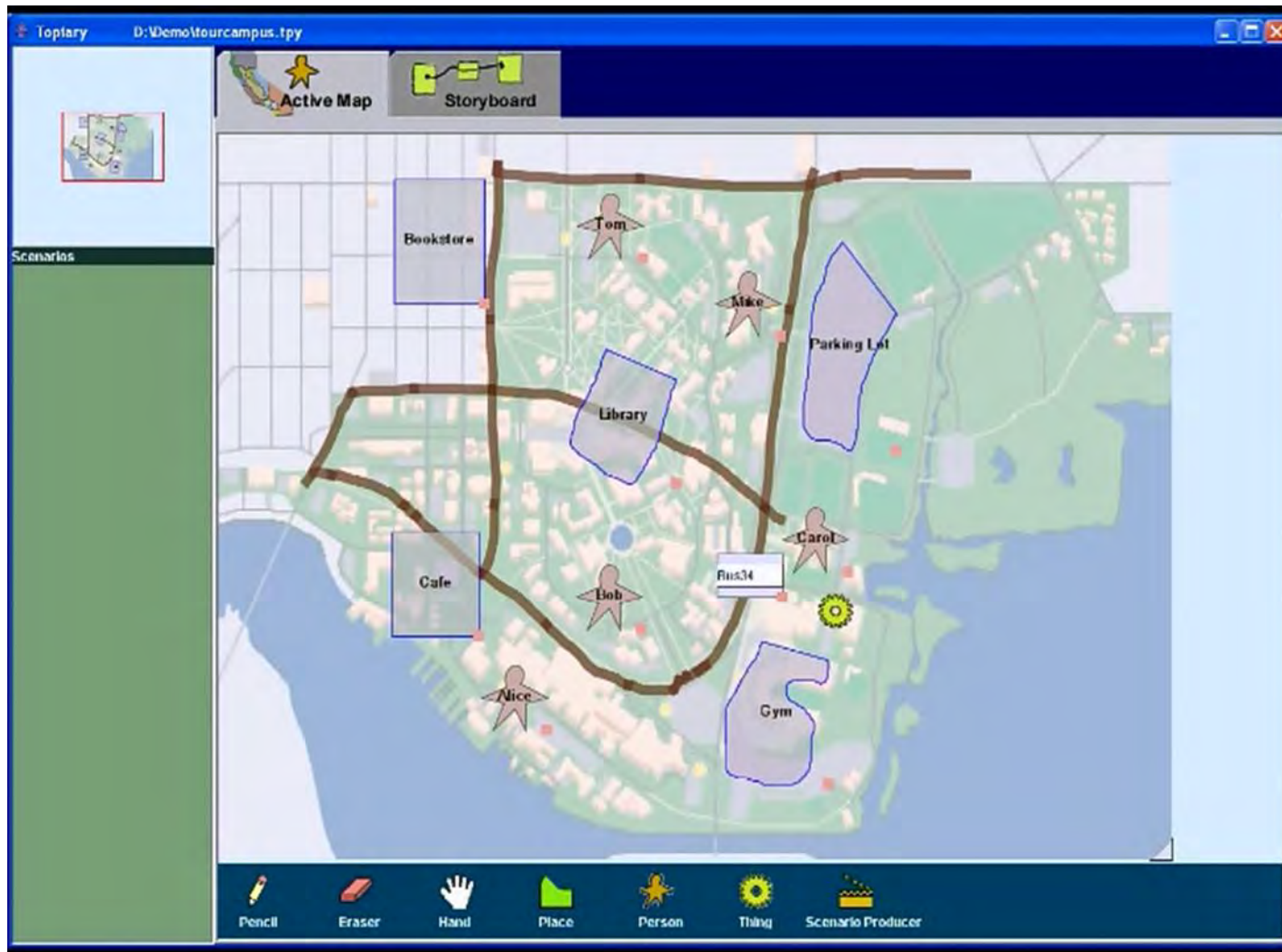
Early Stage, Multiple Levels of Details, Sketching, Pen Interaction

SUEDE (2000)



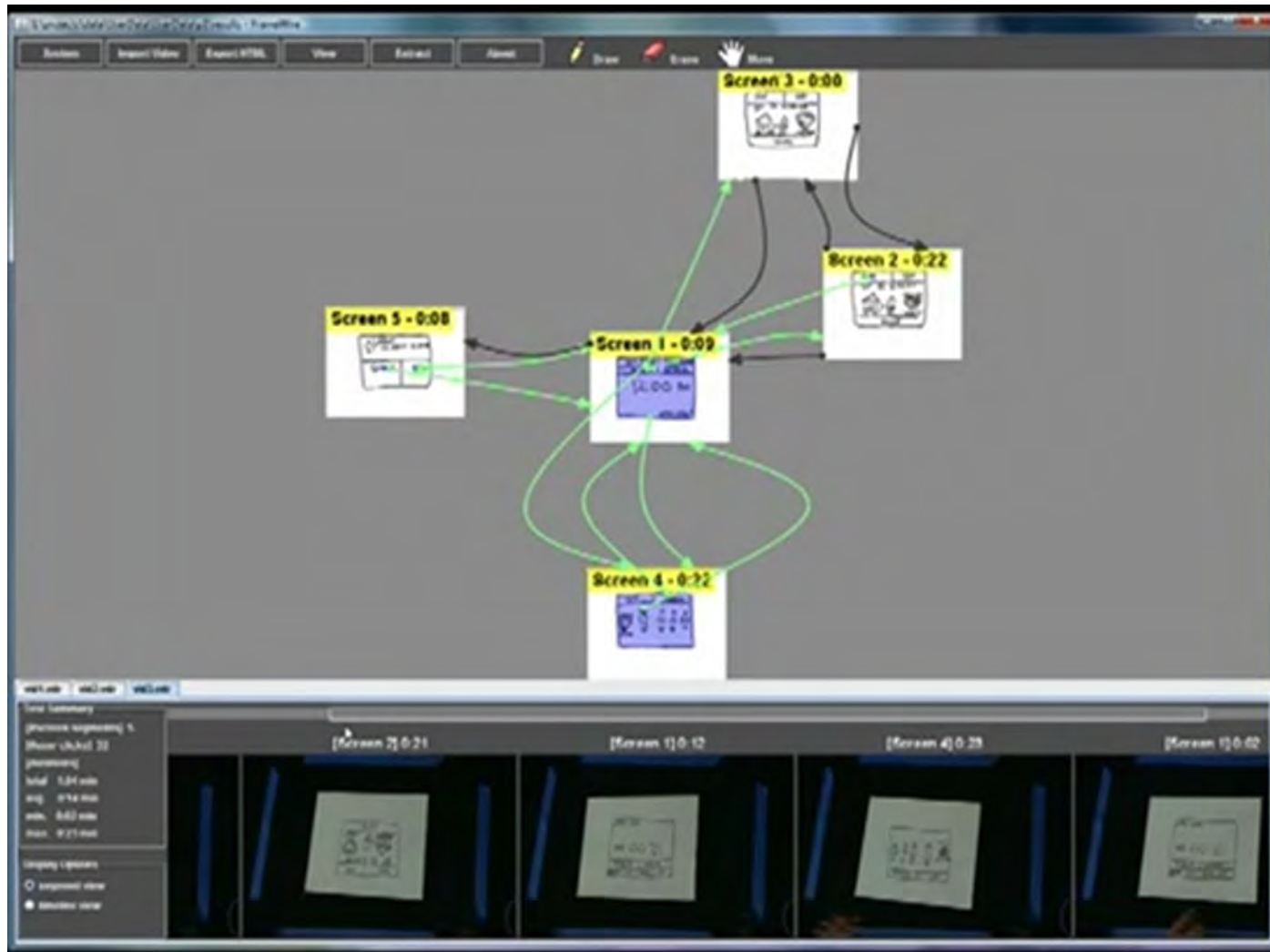
Low-Fidelity Is Not Just About Ink

Topiary (2004)



Location Awareness, Wizard of Oz

FrameWire (2010)



Tangible Interaction

Sketch Wizard (2007)

SketchWizard: Wizard of Oz Prototyping of Pen-based User Interfaces

Richard C. Davis
U.C. Berkeley

T. Scott Saponas
U. of Washington

Michael Shilman
ChatterPop, Inc.

James A Landay
U. of Washington
Intel Research Seattle

[More Recognition](#)

Today

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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

The screenshot shows a Netscape browser window titled "NetRaker Intelligence Center Tour - Netscape". The address bar contains "Document: Done". The browser's menu bar includes "File", "Edit", "View", "Go", "Communicator", "Help", and "Send". The toolbar features icons for Back, Forward, Reload, Home, Search, Netscape, Print, Security, Shop, and Stop. The main content area displays a usability task from the netRaker system:

Please refer to the web site below for the following...

(1) Find a flat panel monitor that costs less than \$1200. Please try to accomplish this task without using the search function.

I was able to complete the task

I was not able to complete the task

I think that I was able to complete the task, but I'm not sure

A "Next" button is visible to the right of the task options. Below the task, the ACME Computers website is displayed. The website has a navigation menu on the left with the following items: Home, Laptops & Notebooks, Desktop Computers, Printers, Monitors, LCD Flat Panel Displays, Video Cards, Scanners, Digital Cameras, Palmtops, Show Order, and Info. The main content area of the website is titled "ACME Computers" and "LCD Flat Panel Displays". It features three product listings:

Product Name	Price
Mitsubishi 18IN LCD PANEL	\$3,460.00
Compaq 18IN TFT 28MM 1280X1024	\$3,839.00
IBM 18IN/18.0V ANALOG TFT	\$4,099.00

The browser's status bar at the bottom shows "Document: Done" and various system icons.

Semi-Automated Remote Usability

The screenshot shows a Netscape browser window with the title 'NetRaker Intelligence Center Tour - Netscape'. The address bar is empty. The menu bar includes 'File', 'Edit', 'View', 'Go', 'Communicator', 'Help', and 'Send'. The toolbar contains icons for 'Back', 'Forward', 'Reload', 'Home', 'Search', 'Netscape', 'Print', 'Security', 'Shop', and 'Stop'. The main content area displays a report with the following sections:

Percentages | [Totals](#) | [Respondents](#) | [Details](#) | [Demographics](#)

▶ 1. Find a flat panel monitor that costs less than \$1200. *Please try to accomplish this task without using the search function.*

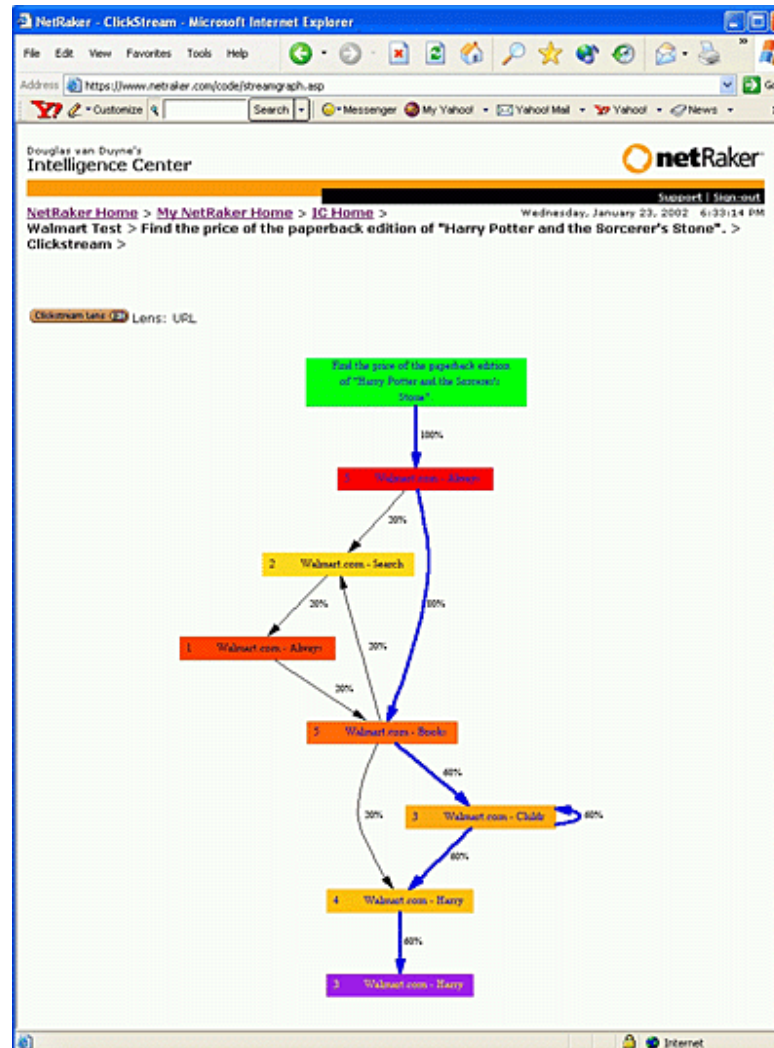
Task	Response(s)
I was able to complete the task	90%
I was not able to complete the task	10%
I think that I was able to complete the task, but I`m not sure	0%

Response Times
Fastest: 00:00:28
Median: 00:00:41
Average: 00:00:48.4
Slowest: 00:01:14

▶ 2. What is the price of the monitor you just found?

Short Freeform
\$1129

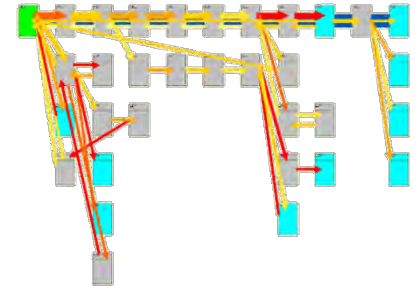
Semi-Automated Remote Usability



WebQuilt: Visual Analysis

Goals

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



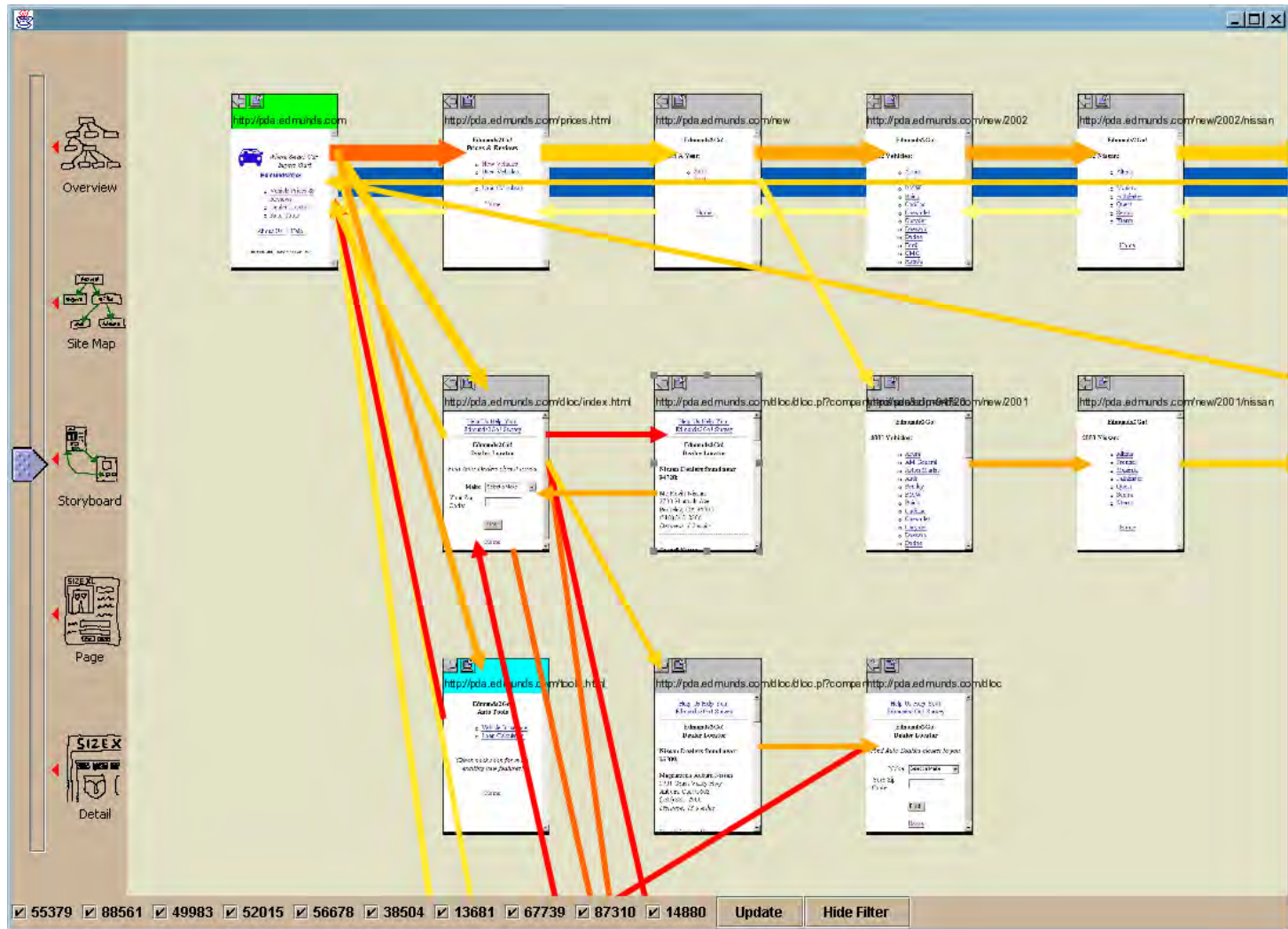
Interactive graph based on web content

- 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

Overview


Site Map

Storyboard

Page

Detail

http://pda.edmunds.com

 *Where Smart Car Buyers Start*

Edmunds2Go!

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55379 49983 52015 56678 38504 13681 67739 87310 14880

Update Hide Filter

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Controlled A/B Experiments

Many names for it

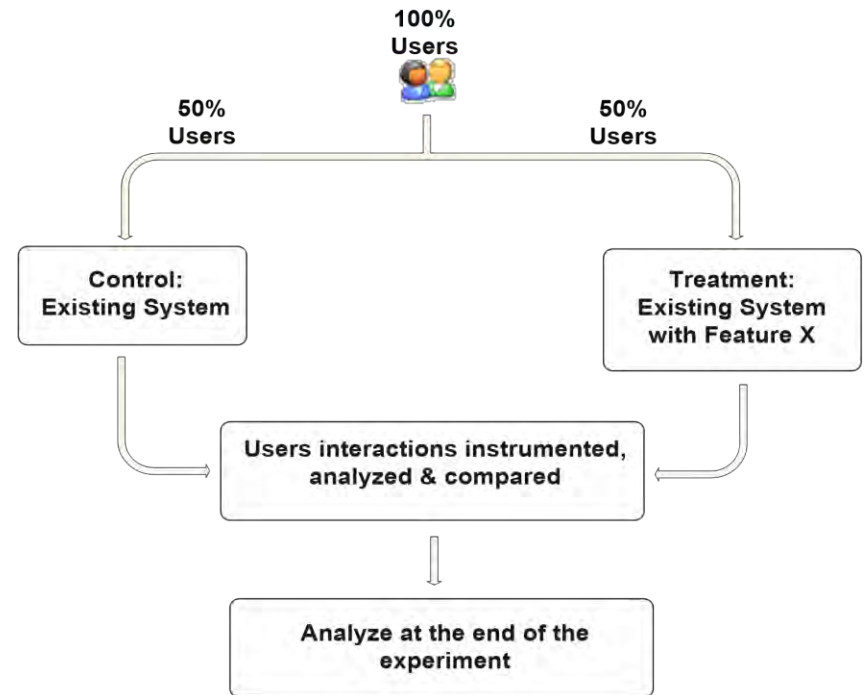
A/B tests or
Control/Treatment

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

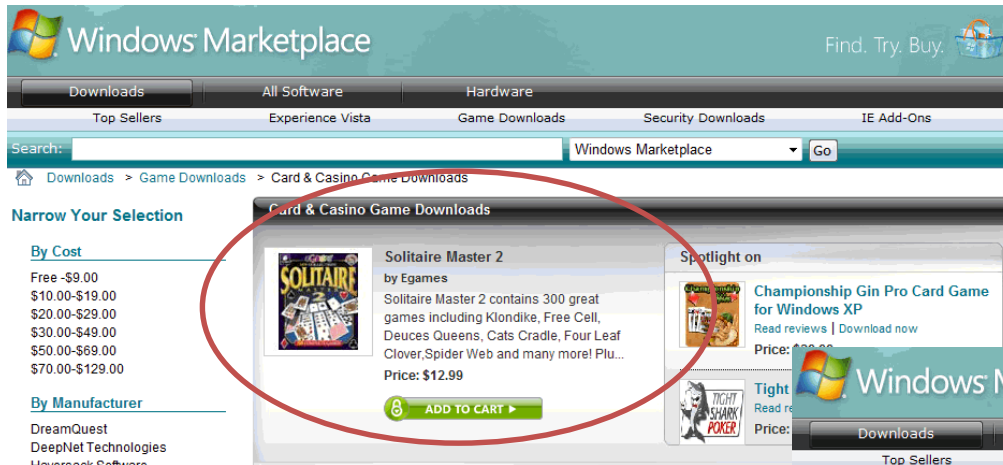
Simple experiment run:

Wildly successful

Marketplace: Solitaire vs Poker

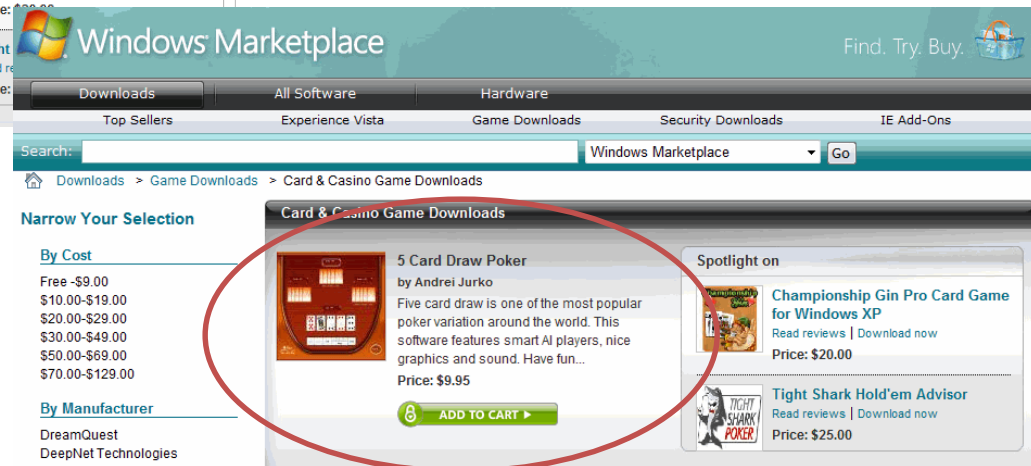
Experiment run in Windows Marketplace / Game Downloads

Which image has the higher clickthrough? By how much?



A: Solitaire game

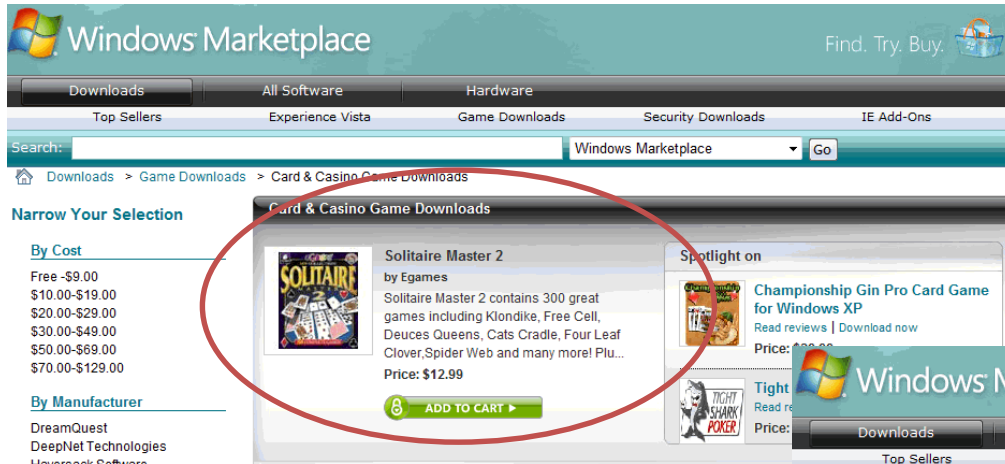
B: Poker game



Marketplace: Solitaire vs Poker

Experiment run in Windows Marketplace / Game Downloads

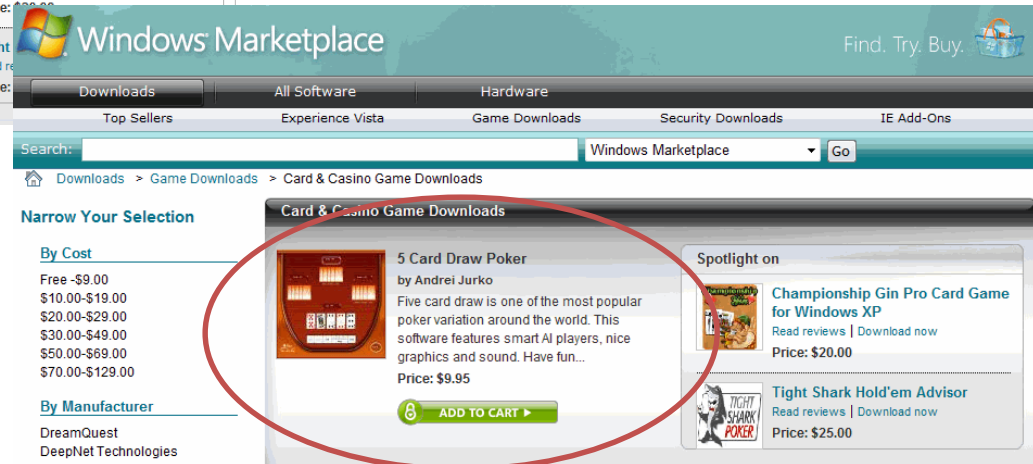
Which image has the higher clickthrough? By how much?



A: Solitaire game

A is 61% better

B: Poker game



Never Underestimate Solitaire

SIX CHIX

BY RINA PICCOLO



Never Underestimate Solitaire

The screenshot shows a web browser displaying a Fortune magazine article. The article title is "Activision Acquires Candy Crush Maker King Digital For \$5.9 Billion" by Mathew Ingram, dated November 3, 2015. The main image shows a tablet displaying the Candy Crush game interface. The article text discusses the acquisition price as a premium to current price but a discount to its recent IPO price. It notes that King Digital Entertainment, the company behind popular Facebook games like Candy Crush, has 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

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

Is Candy Crush over?
Photograph 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'

Activision Acquires Candy Crush Maker King Digital For \$5.9 Billion
12:24 AM EST

Voters In This State Could Make Marijuana History Today
9:19 AM EST

Cisco's Chambers Issues a Warning
9:16 AM EST

Look at what is being sold to kids in school
9:09 AM EST

While cable TV "unbundles," streaming services bulk up
8:59 AM EST

Fast-Flying Drone Avoids Obstacles: Here's How
8:57 AM EST

Obama Slams Republicans Over CNBC Debate Drama
8:21 AM EST

Amazon Is Opening An Actual, Real-Life Bookstore
7:35 AM EST

Alphabet's Ambitions
7:33 AM EST

How Uber's Top Lawyer Wins Equal Pay For Women
7:29 AM EST

Xiaomi's expansion to Africa comes with concessions
7:22 AM EST

Why Activision Spent \$5.9 Billion on 'Candy Crush' Creator King Digital
6:38 AM EST

Standard Chartered is the latest big bank to slash and burn
6:29 AM EST

Activision's candy crush and Tesla 3Q — 5 things to know today
6:16 AM EST

Here's why the company behind Keystone just asked for a delay
5:08 AM EST

Protesters occupy Airbnb HQ on eve of San Francisco vote
4:25 AM EST

How Google Co-founder Larry Page Decides On His Next Big Bet
2:57 AM EST

California Gov. Jerry Brown: Time Is Running Out For Cleaner Energy
1:45 AM EST

Use Your AmEx Points to Book on Airbnb — Just Like Willih Hilton
NOVEMBER 2, 2015

Theranos' Elizabeth Holmes Says the Company Will "absolutely" Get FDA Approval
NOVEMBER 2, 2015

Checkout Page

Conversion rate is percentage of visits that include purchase

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- ✓ 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	<input type="text" value="1"/>		\$0.00	\$0.00

Total: \$0.00

Select Shipping Method

100% Secured Checkout Continue Shopping Proceed To Checkout

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- ✓ 100% Safe, Secured shopping
- ✓ We assure your Privacy

100% Secured Checkout Proceed To Checkout

Item Name	Item Number	Quantity	Remove	Unit Price	Subtotal
Trial Kit	FFCS	<input type="text" value="1"/>		\$0.00	\$0.00

Discount	\$0.00
Total	\$0.00

Enter Coupon Code

Select Shipping Method

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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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)

Continue Shopping > Proceed To Checkout

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- ✓ We assure your Privacy

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	\$0.00

Enter Coupon Code

Select Shipping Method Standard (\$5.95)

Recalculate Continue Shopping > Proceed To Checkout

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Which version has a higher conversion rate?

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Conversion rate is percentage of visits that include purchase

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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

Update Total: \$0.00

Select Shipping Method Standard (\$5.95)

Continue Shopping > Proceed To Checkout

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- ✓ Satisfaction Guaranteed
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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
				Discount	-\$0.00

Enter Coupon Code

Select Shipping Method Standard (\$5.95)

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

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

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?

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

Was this information helpful?

How was this information helpful?

What are you trying to do?

How can we make this information more helpful?

Another Feedback Variant

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

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

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

Office Online

Clicks on revenue generating links (red links)

Office Online Build Ver: 12.0.5572.1000

Home Products Help and How-to Downloads Clip Art Templates Microsoft Office Live

Welcome to Office Online

Search: All Office Online

Read the Inside Office Online blog

Make your own help videos

Check for updates

Connect with us

Community Clips

Office Updates

Today on Office Online

Get out of town! Find out how Office makes travel easy

Check out our tips and templates for planning a smooth business trip, or perfect holiday.

Free travel templates

Business trip itinerary with meeting details

Get Office

Try 2007 for free

Buy 2007 now

Find training

Get started

All training

Get help

Product key help

Phone support

Office Community

Read our blogs

Discussion boards

Home and school

- At home
- At school

Work

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A

Office Online Build Ver: 12.0.5572.1000

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Microsoft

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

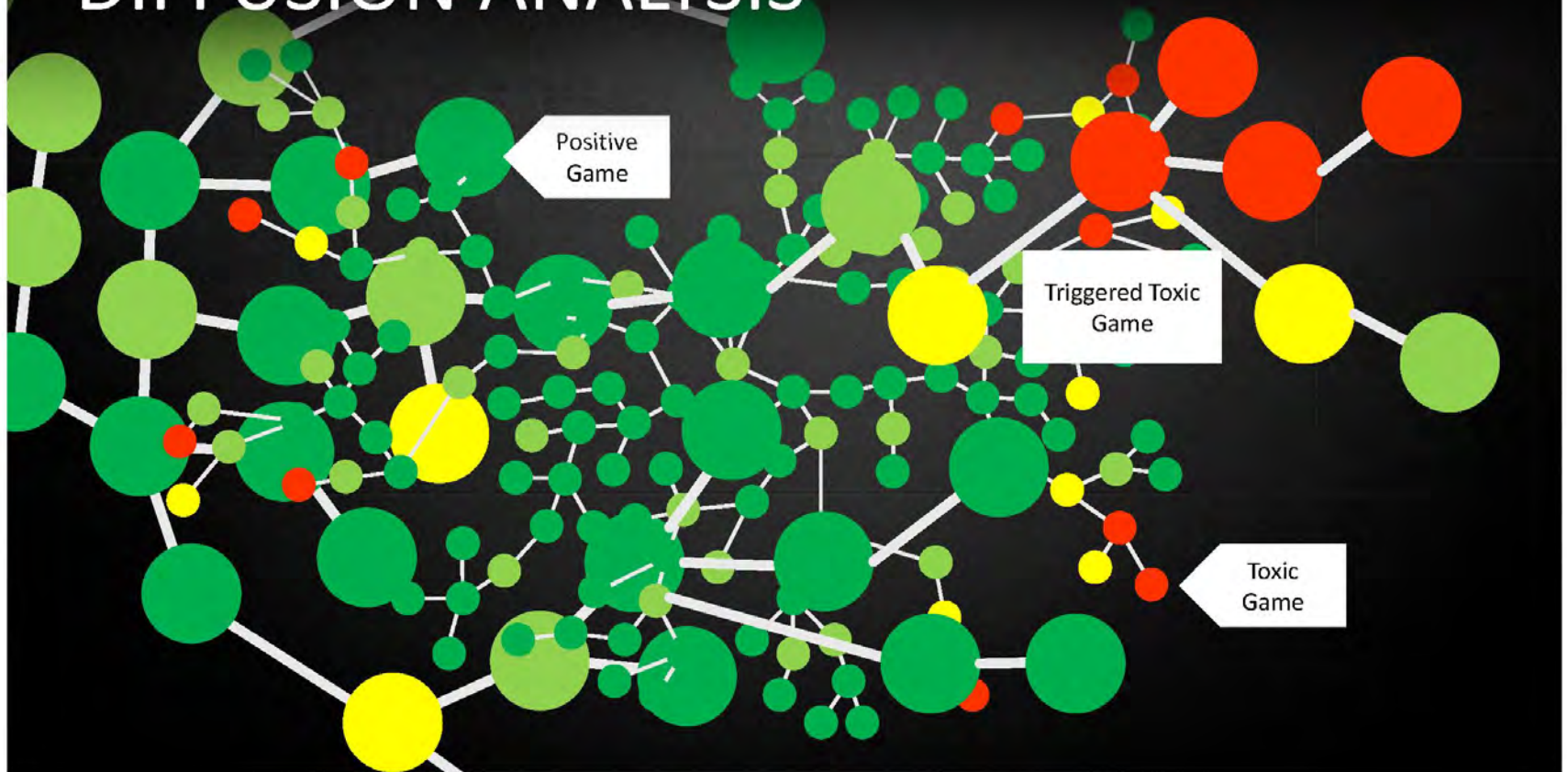
Net was negative (in millions of dollars),
offers module did not launch

ONLINE PLATFORMS AS THE FUTURE OF RESEARCH



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

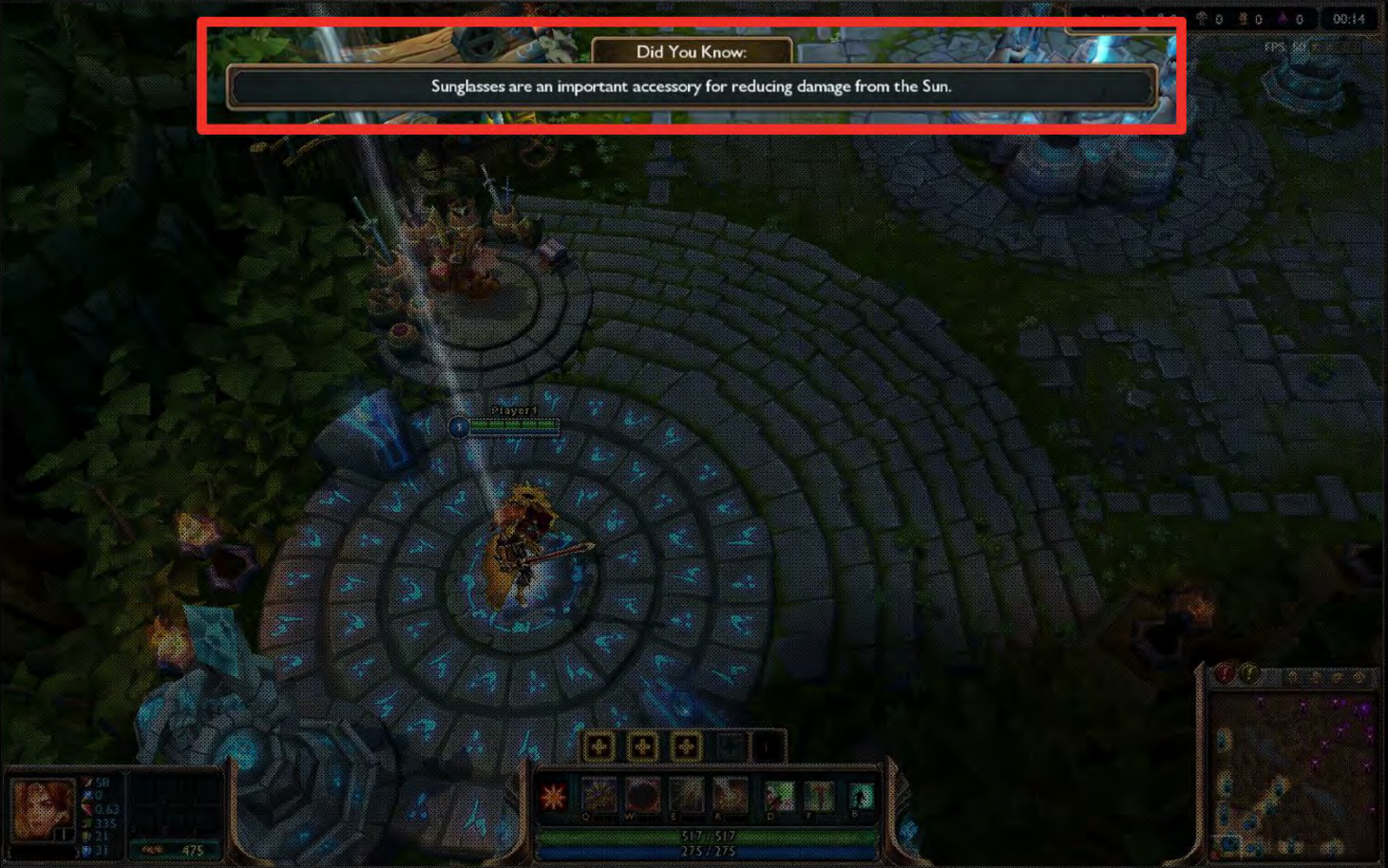
DIFFUSION ANALYSIS





OPTIMUS PRIME **EXPERIMENT**

Did You Know:
Sunglasses are an important accessory for reducing damage from the Sun.



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

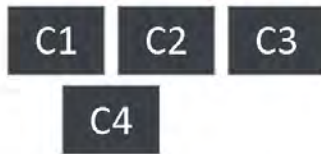
CATEGORY 3:

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

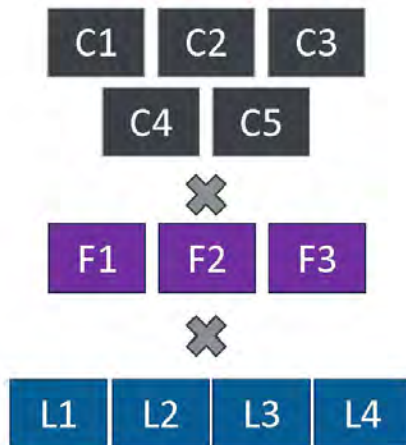


FONT COLORS

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

OPTIMUS PRIME

EXPERIMENTAL DESIGN



LOCATIONS

LOCATION 1: Loading Screen

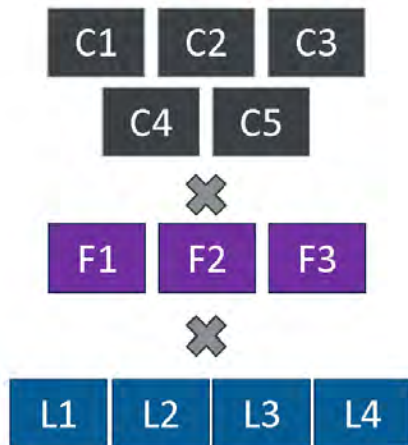
LOCATION 2: In-Game

LOCATION 3: Both

LOCATION 4: None (Control)

OPTIMUS PRIME

EXPERIMENTAL DESIGN



COMPLETE EXPERIMENTAL DESIGN:

24 TIPS ACROSS 5 CATEGORIES

X

3 FONT COLORS

X

3 LOCATIONS + 1 OVERALL CONTROL

=

217 UNIQUE CONDITIONS

EVERY GAME OF *LEAGUE OF LEGENDS* GOT A
RANDOM TIP, LOCATION & FONT COLOR

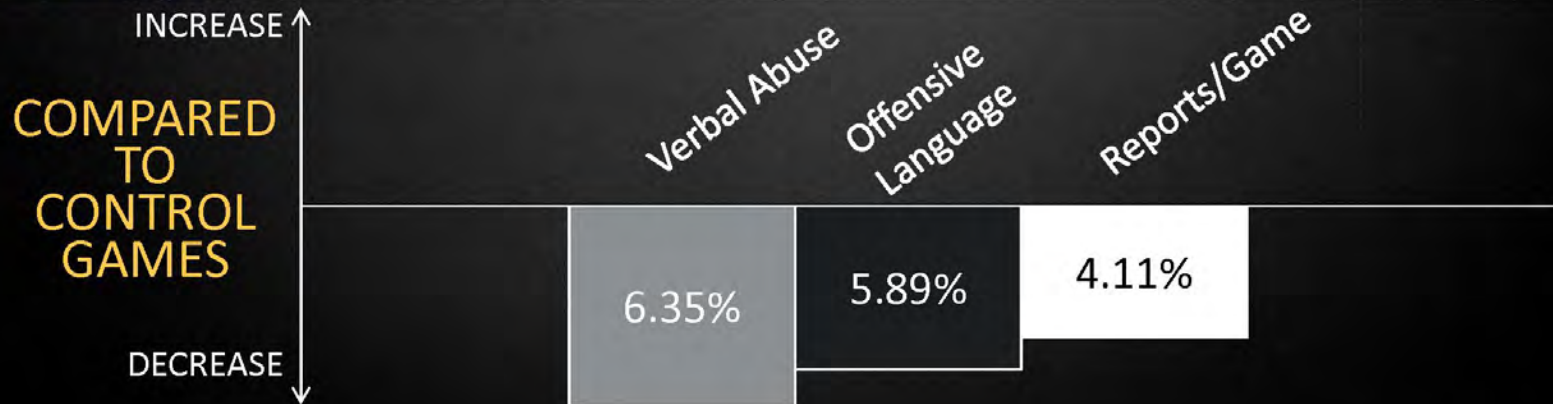
(10% OF GAMES GOT NOTHING TO ACT AS CONTROLS)

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

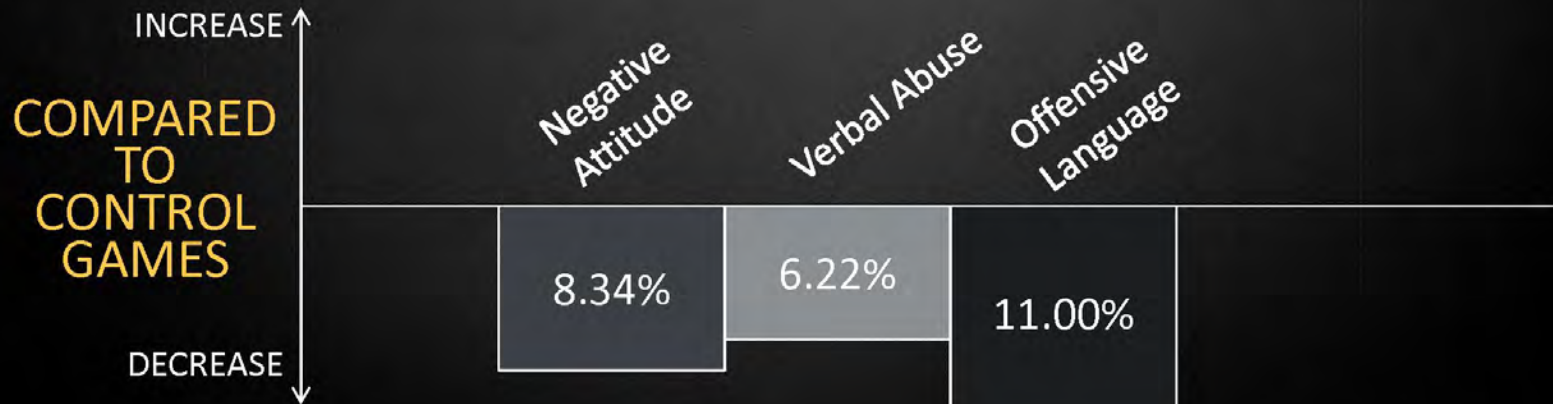
HOW DO **FONT COLORS** INTERACT
WITH TIP CATEGORIES?

OPTIMUS PRIME RESULTS

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

FONT: Red

LOCATION: Loading Screen



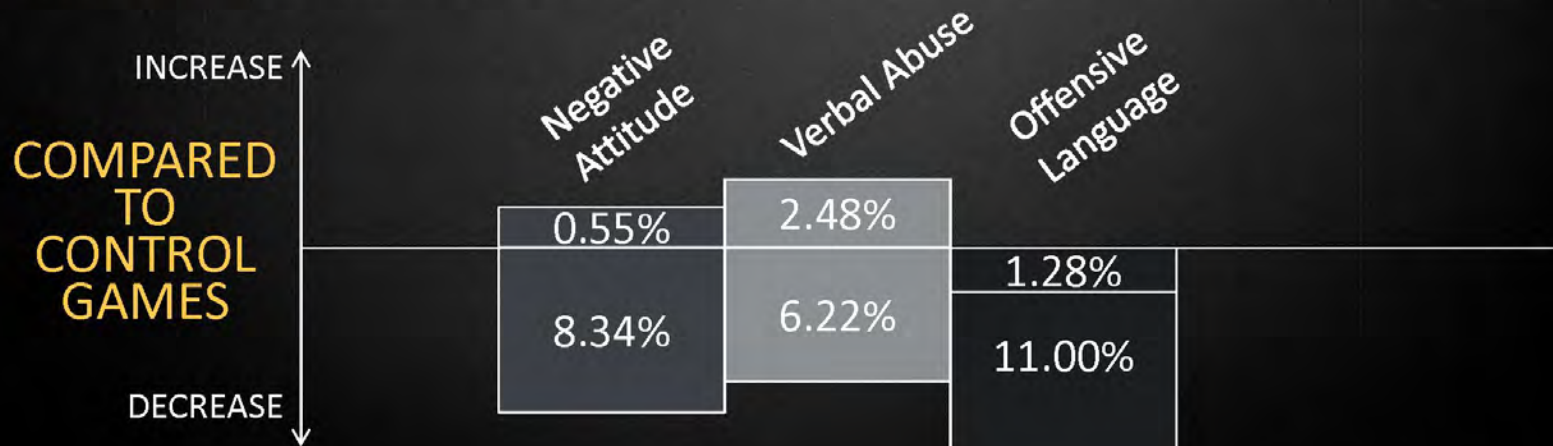
*Optimus data from 11/2012

OPTIMUS PRIME RESULTS

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

FONT: White

LOCATION: Loading Screen



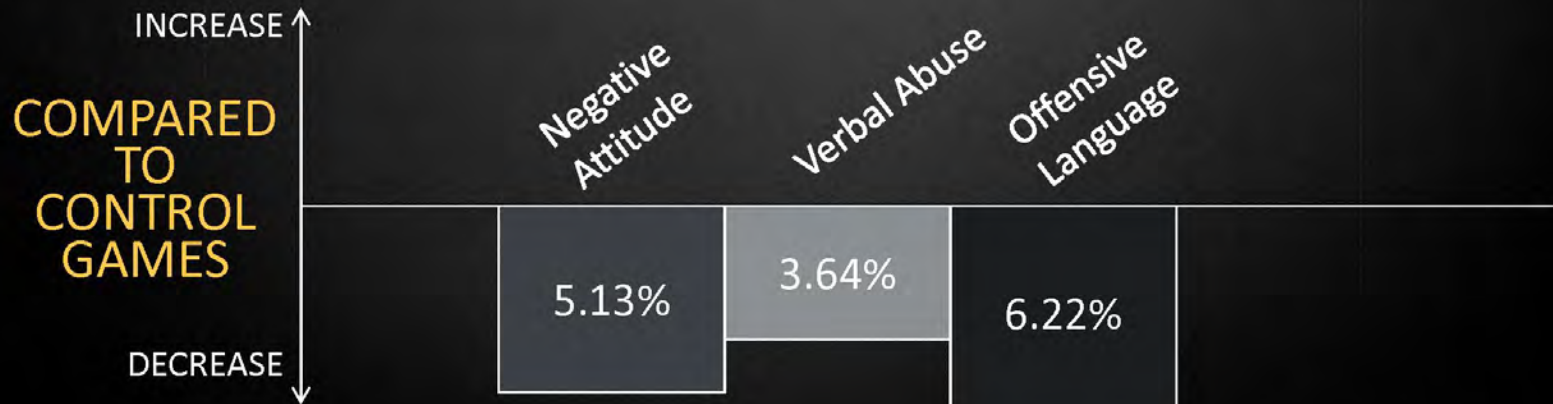
*Optimus data from 11/2012

OPTIMUS PRIME RESULTS

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

FONT: Blue

LOCATION: Loading Screen



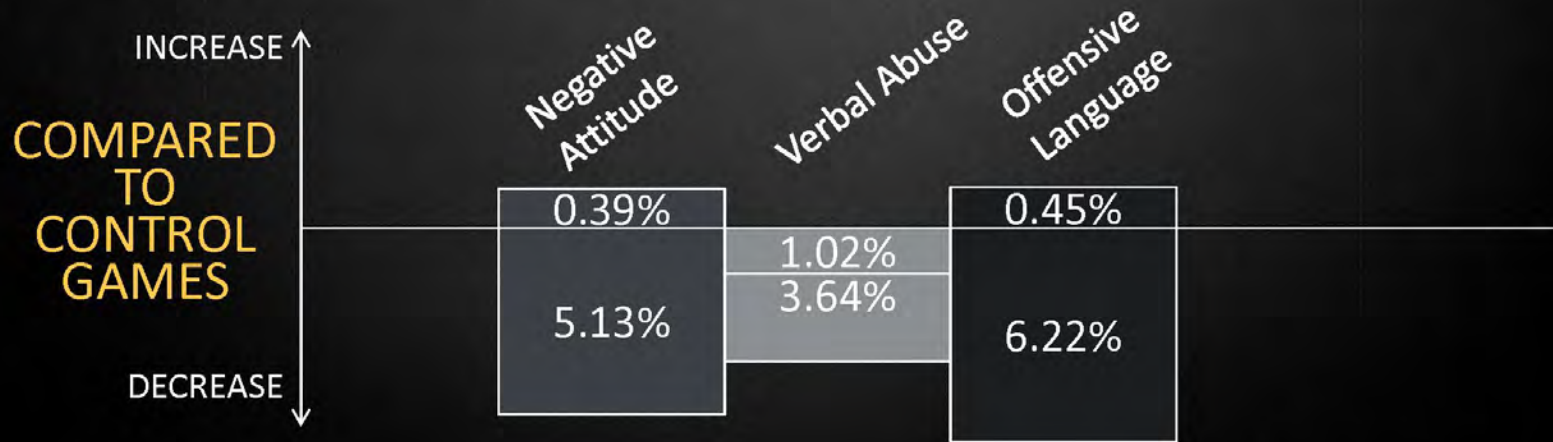
*Optimus data from 11/2012

OPTIMUS PRIME RESULTS

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

FONT: Red

LOCATION: Loading Screen



*Optimus data from 11/2012

ONLINE PLATFORMS AS THE FUTURE OF RESEARCH



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

Data Driven Methods Not Just Online


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[NEXT ▶](#)
[Back to story](#)

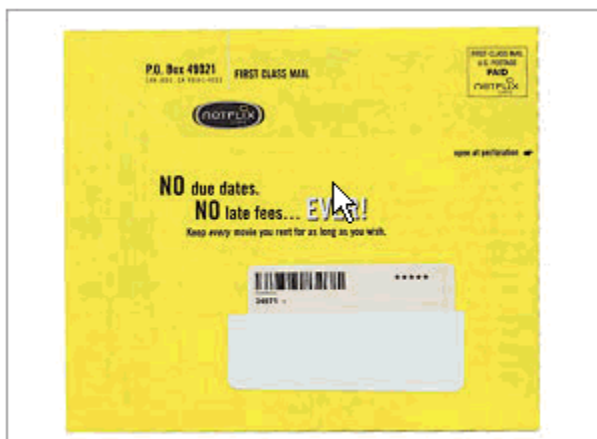
1999

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.



NUCCI STUDIO

[◀ 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.

[NEXT >>](#)

Data Driven Methods Not Just Online


[PREVIOUS](#)
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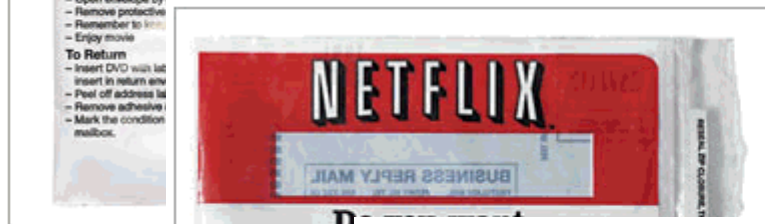
2000

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


[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.

NUCCI STUDIO

[NEXT >>](#)

Data Driven Methods Not Just Online

← [PREVIOUS](#) [NEXT](#) ▶ [Back to story](#)

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

← [PREVIOUS](#) [NEXT](#) ▶ [Back to story](#)

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

← [PREVIOUS](#) [NEXT](#) ▶ [Back to story](#)

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

← [PREVIOUS](#) [NEXT](#) ▶ [Back to story](#)

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

Now we step through a larger example



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Music



Red Hot Price for the Chili Peppers' New CD: \$11.88!

Evolving after the popularity of *Californication*, the Chili Peppers release a new album featuring the hit song "By the Way".

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Weezer, Weezer

[Green Day](#), *3000 Dolls*

[The Slim Shady LP](#), Eminem

[Echoes](#), Pink Floyd

[18](#), Moby

Our Price **List Price**

~~\$6.99~~ \$18.97

~~\$9.00~~ \$18.98

~~\$2.98~~ \$18.97

~~\$11.54~~ \$24.97

~~\$10.99~~ \$18.98



Movies



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Our Price **List Price**

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Weezer (2001)

[Weezer](#)

Our best price: **\$6.99**

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



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Compare our Prices!

Half.com	\$6.99
CDNOW	---
AlphaCraze	\$ 15.66
CDUniverse	\$ 15.69



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.

Like New

Sorted by **Price**

[74 items in stock](#)

Price	Total Price	Seller (Rating)	Seller Comments	
\$7.75	\$10.20 Media Mail	custodian46 (149) ★	best buy	More info...
\$8.00	\$10.45 Media Mail	stargaze13 (3)	Disk, case, and liner all in excellent c more...	More info...
\$8.25	\$10.70 Media Mail	dazzyliz (1205) ★	SEALED NEW BMG	More info...
\$8.30	\$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](#)

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

About this album:

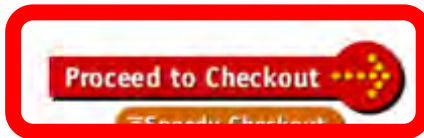
- [» Song List](#)
- [» Album Credits](#)
- [» Album Notes](#)
- [» Editorial](#)
- [» Customer Reviews](#)

About the Artist

- [» Other Works](#)

Spread the Word:

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



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

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

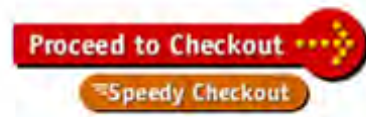
[Move to WishList](#) • [Remove from Cart](#) • [Find another one](#)

TOTAL: \$10.75

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[Redeem](#)



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)

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](#)

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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:





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



 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

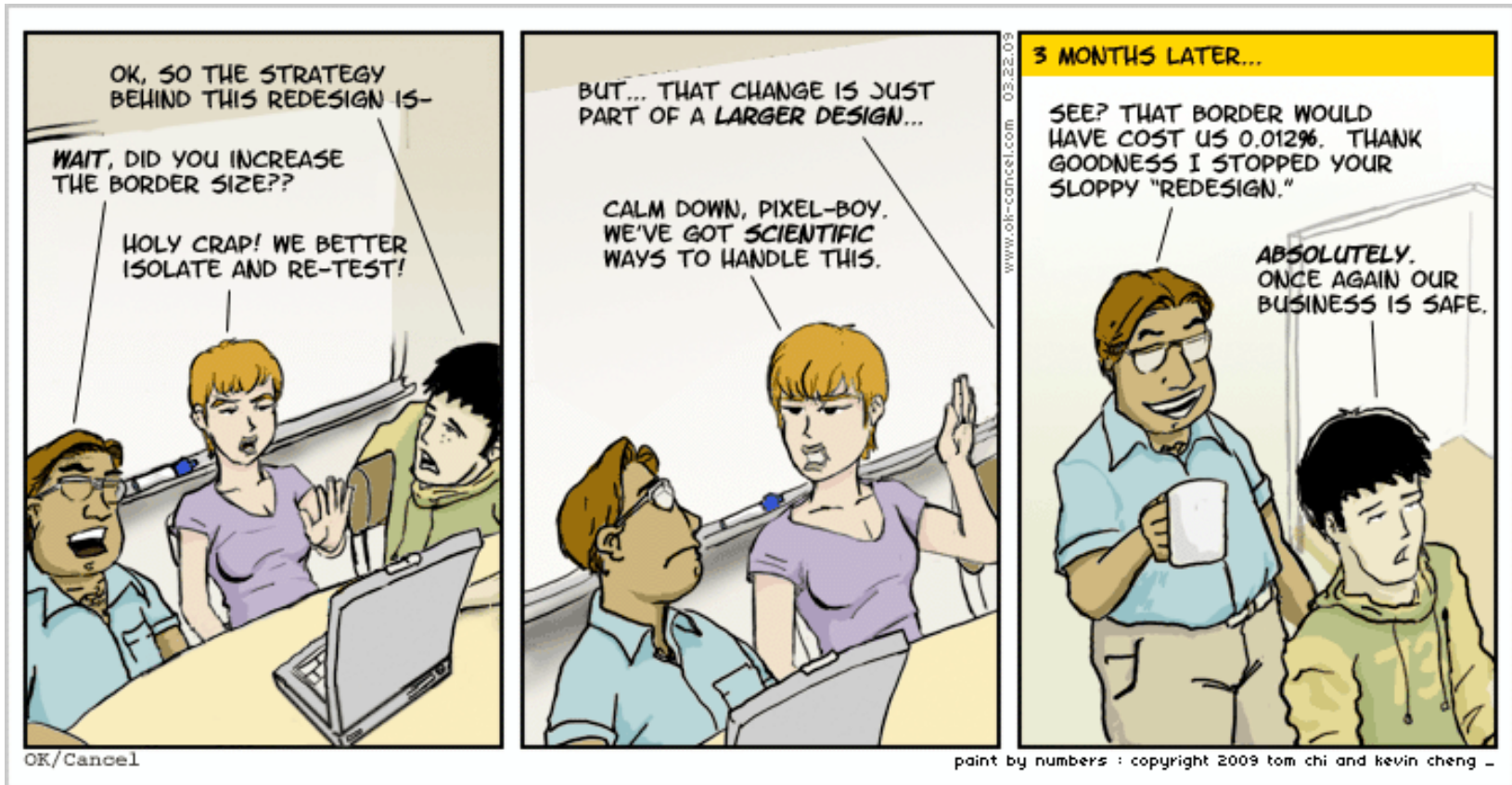
MasterCard ending with 0155
Expires 11/2003
Zipcode: 94709

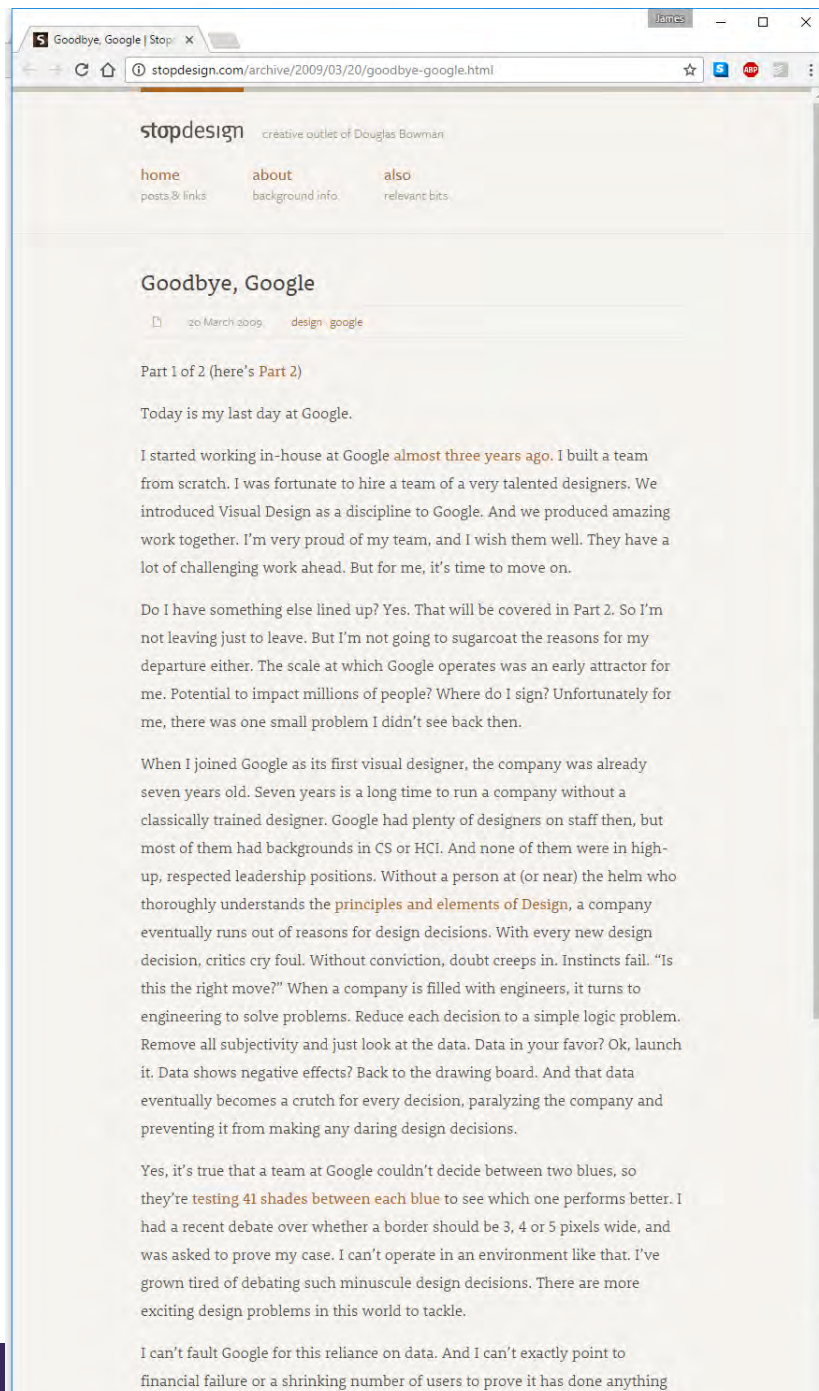
[Edit / Change Billing](#)

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

 Place my order!

Testing in a Larger Design





Today

Ethics in Testing

Tasks in Testing

Wizard of Oz Methods in Testing

Remote Usability Testing

Patterns

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

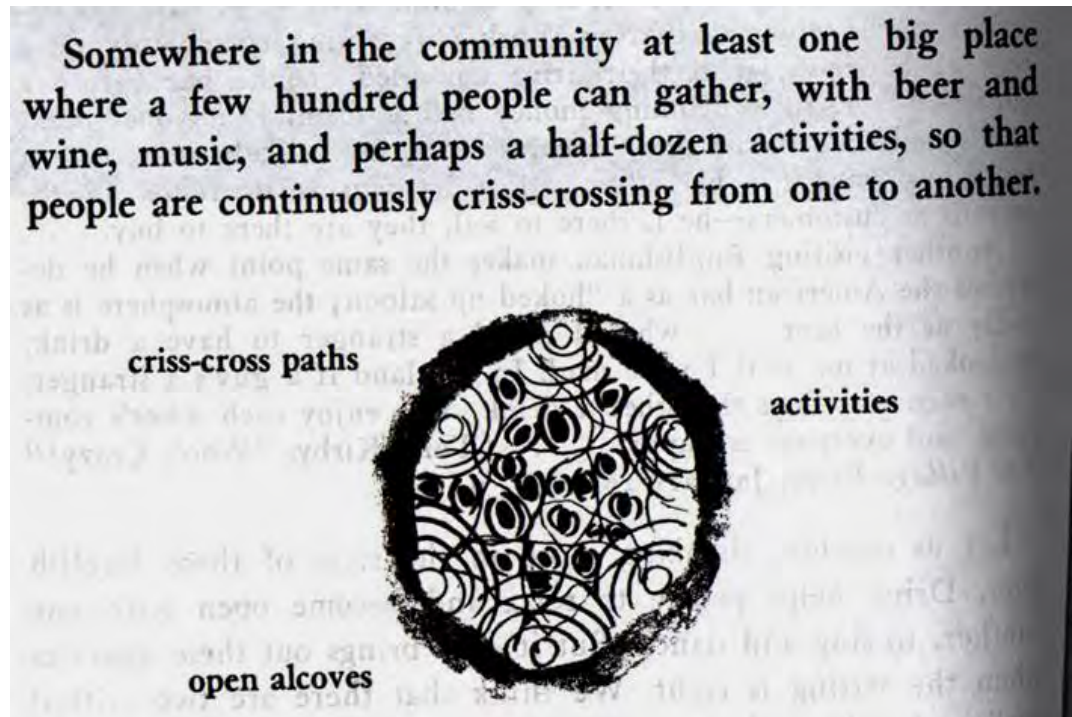
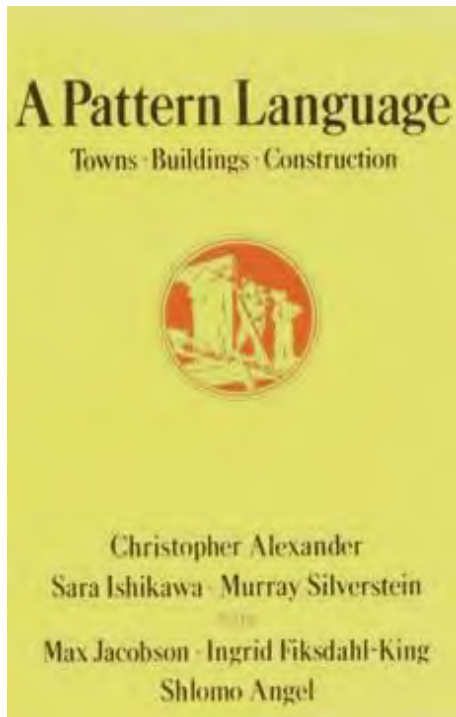
- But this is also why we point you at research

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

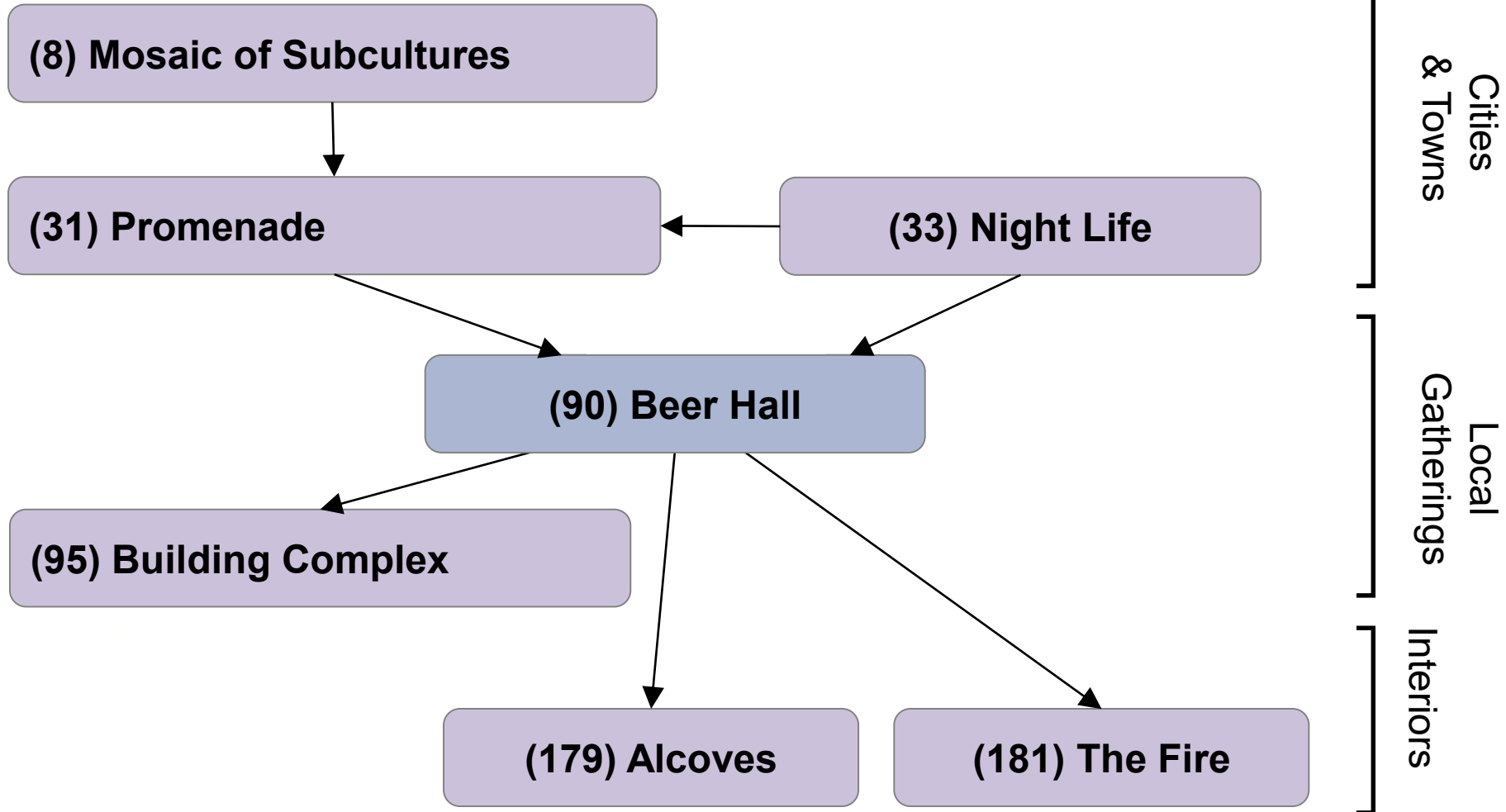
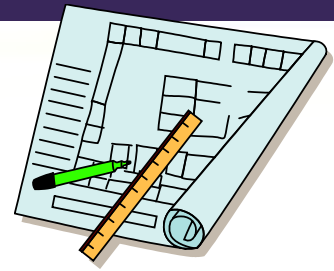
for “building and planning towns,
neighborhoods, houses, gardens, and rooms”

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



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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.

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Spin (01/01/2002)

Ranked #9 in Spin's Albums of the Year 2001
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beast...Rolling Stone (6/7/01, p.110) - 4
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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

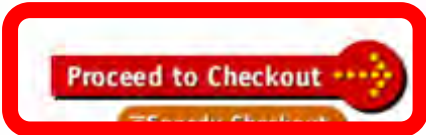
Redeeming
Claim Code

Redeem

Proceed to Checkout 
Speedy Checkout

• **What site am I at?**

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



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

Weezer (2001) Weezer Weezer (Music)

CD, Release Year: 2001
Seller: naojia@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 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)
Sum 41, Sum 41
\$4.29
(Save \$8.68)

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 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)

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

Proceed to Checkout

Shopping Cart

Weezer (2001) Weezer, Weezer (Music)
CD, Release Year: 2001
Seller: naojia@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 Certi

Redeeming
Claim Code

Redeem

- **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**

Proceed to Checkout

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?](#)

Shopping Cart

[Weezer \(2001\)](#) Weezer, Weezer (Music)
CD, Release Year: 2001
Seller: naojia@hotmail.com (35)
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

YOUR

Proceed to Checkout

Speedy Checkout

• What can I do?

- “Proceed to Checkout”
HIGH VISIBILITY ACTION BUTTON
- Visually distinct
- 3D, looks clickable
- Repeated above and below fold

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](#)

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.

Select State

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

ZIP code

Country

USA

Save Changes



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

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 of

USA

Save Changes

- **What site?**

- Logo, layout, color, fonts

- **Where in site?**

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



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

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

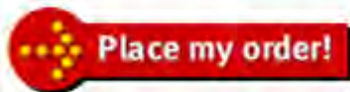
- **Note what's different**

- 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

Weezer (2001) Weezer, Weezer (Music)
Seller: naojia@hotmail.com (35)
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: 94700

[Edit / Change Billing](#)

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



Place my order!

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

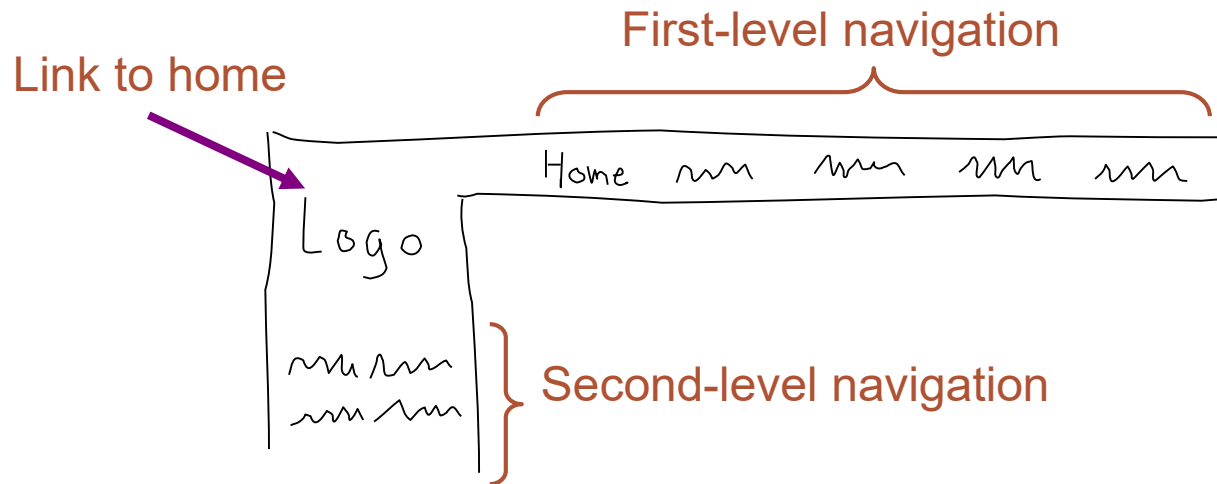
The image shows a screenshot of a website navigation bar with several red boxes highlighting specific areas:

- Top Navigation Bar:** A dark brown bar with the text "Group for User Interface Research" on the left and a menu of "Home", "Projects", "People", "Publications", and "Links" on the right.
- Left Sidebar:** A light beige box containing the heading "DENIM and SILK" and a list of links: "Download", "Documentation", "Support", "Research", "Publications", and "More Projects".
- Main Content Area:** A large white area with the heading "DENIM and SILK" and a small graphic of a notepad labeled "SILK".
- IBM Header:** A blue bar with the IBM logo, "United States", a search box, and a "Search" button.
- Navigation Menu:** A dark blue bar with links for "Home", "Products & services", "Support & downloads", and "My account".
- Country Selector:** A dark blue box with the text "Select a country" and a dropdown menu for "Industries" with a "Go" button.
- Industry List:** A blue box with a list of industry links: "Home / home office", "Small business", "Medium business", "Government", and "Education".
- Promotional Banner:** A white box with a laptop image and the text "Buy today, ship today" and "If you need it fast, IBM can ship select PC models to you today when you buy by 3 p.m. Eastern, Monday-Friday, (U.S. only)".
- Product Highlights:** Three small boxes on the right side of the page, each with an icon and text: "Tune-up your bottom line", "e-business on demand", and "IBM Global Financing".

NAVIGATION BAR (K2)

Solution diagram

Captures essence on how to solve problem



Pattern Groups

Patterns organized by group

- A** Site genres
- B** Navigational framework
- C** Home page
- D** Content management
- E** Trust and credibility
- F** Basic ecommerce
- G** Advanced ecommerce
- H** Completing tasks
- I** Page layouts
- J** Search
- K** Page-level navigation
- 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)

The screenshot displays the Half.com website interface. At the top, there is a navigation bar with the Half.com logo, a promotional banner for 'Counting Crows: Hard Candy' with a 37% discount, and links for 'my account', 'cart', 'help', 'home', and 'sign in'. Below this is a category menu with buttons for Home, Books, Music, DVDs/Movies, Video Games, Computers & Software, Electronics, and Everything Else. A secondary navigation bar includes links for Gift Certificates, Wish List, Pre-Orders, Sell Your Stuff, and New Users. A search bar is located below the navigation, with a dropdown menu set to 'All Categories' and a 'go' button.

On the left side, there is a section titled 'People with similar tastes also enjoyed...' featuring three product recommendations:

- 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)

The main content area is titled 'Redeeming a Gift Certificate or Coupon?' and features a 'Proceed to Checkout' button with a 'Speedy Checkout' option. Below this is the 'Shopping Cart' section, which displays the following items:

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

Below the shopping cart is a section for 'Gift Certificates and Coupons' with a 'Redeem' button. At the bottom right, there is another 'Proceed to Checkout' button with a 'Speedy Checkout' option.

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 the half.com by eBay website. The page is titled "Step 1 - Choose Shipping Address". It features a navigation bar at the top with "Checkout" and "Shipping" steps. The main content area is divided into two sections: "Ship my order to:" and "Enter a new shipping address:". The "Ship my order to:" section displays a pre-filled address for Jason Hong at UC Berkeley, with a "Use This Address" button. The "Enter a new shipping address:" section contains form fields for Name, Street address, City, State (a dropdown menu), ZIP code, and Country (set to USA), along with a "Save Changes" button. A "Secure Shopping" logo is visible in the top right corner.

- 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

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 /46 pmts
No payment for 90 days
(Click or scroll for details)⁴

[Customize It](#)

E-Value Code
8V771-4100p1

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 Ink Jet 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 shows the Dell.com website with a product page for the Dimension 4100. A context-sensitive help window is open over the keyboard selection area. The window title is "Keyboards - Netscape" and it contains the following content:

DELL LEARN MORE Close

Keyboards





Great Keyboard Choices to Suit Your Needs:

- 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



Dell™ Enhanced Performance Keyboard

DELL GLOSSARY
Need a definition?
Click on a term.

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 response• Soft "rubberdome" touch	<ul style="list-style-type: none">• 10 Hot Keys for easy access to your internet and e-mail• E-mail Hotkey	<ul style="list-style-type: none">• 3 programmable keys• Soft "rubberdome"	<ul style="list-style-type: none">• 7 programmable keys• Built-in 2 port USB HUB

Processor: Intel® Pentium® III processor at 933MHz

Keyboard: QuietKey™ Keyboard

Hard Drive: 40GB Ultra ATA-100 Hard Drive (7200 RPM)

Epson 640U Scanner Add

FLOATING WINDOWS (H6)



The screenshot shows the Netflix interface with a red header and navigation tabs. The 'Recommendations' tab is active, displaying a list of movie suggestions. A tooltip window is overlaid on the 'Gladiator: Extended Edition' recommendation, providing detailed information about the film.

NETFLIX Arthine van Duvne | Your Account

Browse Recommendations Friends Queue Buy DVDs Movies, act

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

Recommendations

Movie suggestions based on your ra

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

[Read More](#)



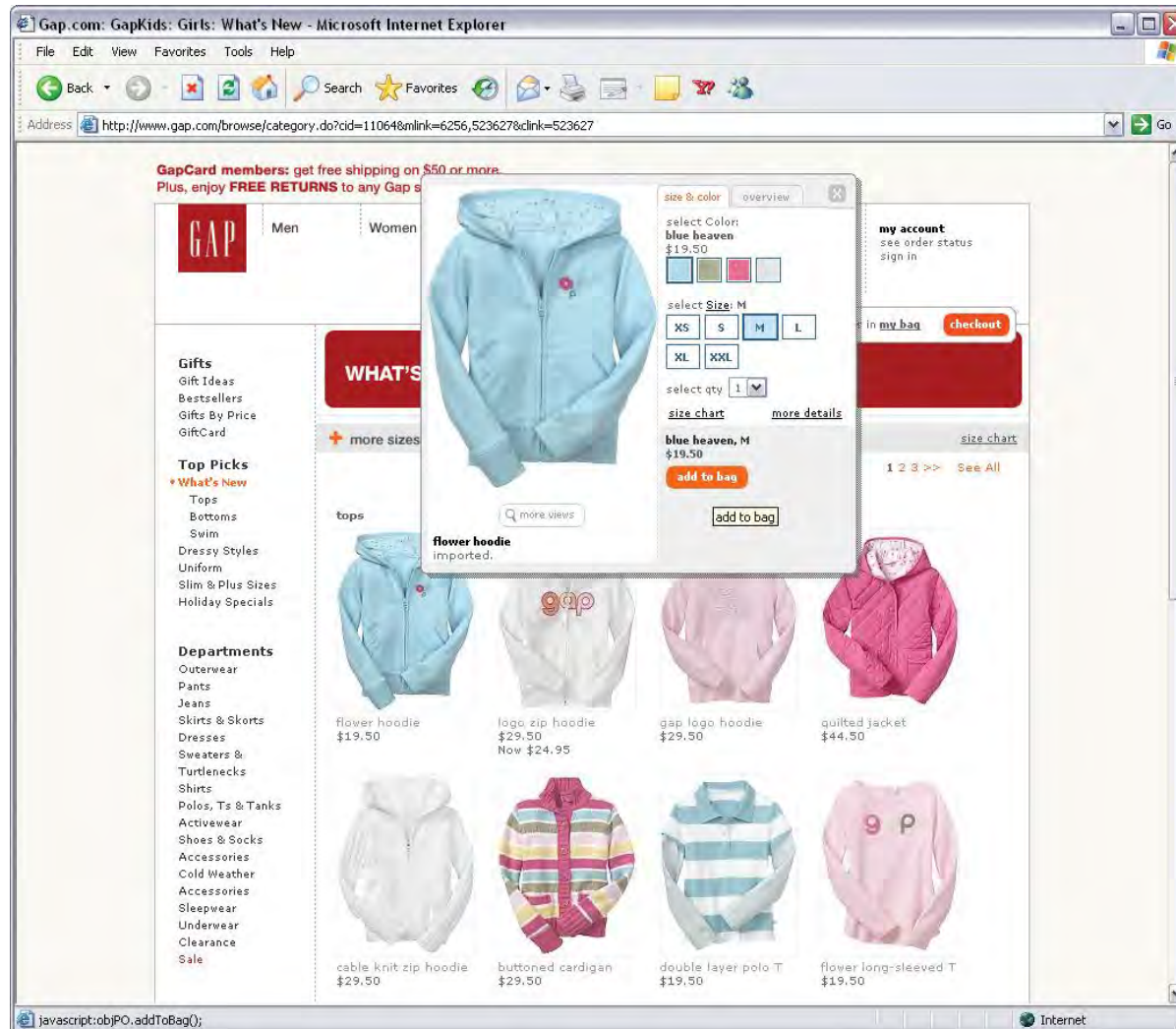
Samurai Champloo (7-

★★★★★
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](#)

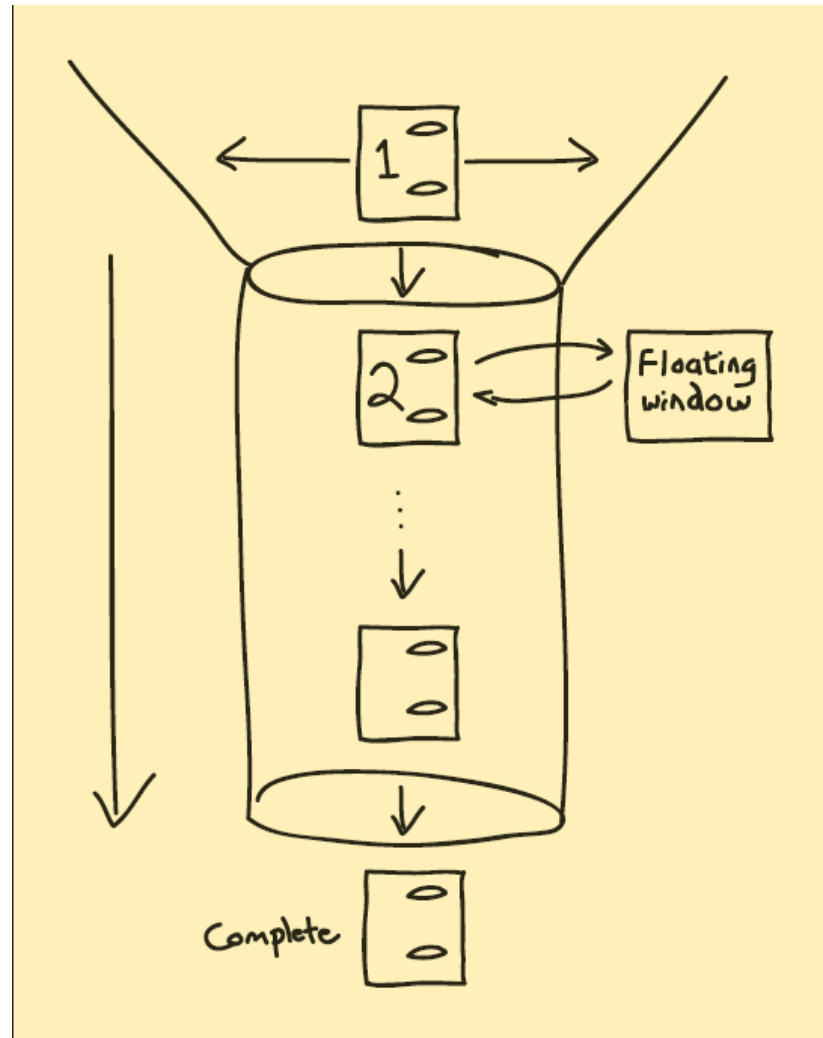
Add All

FLOATING WINDOWS (H6)

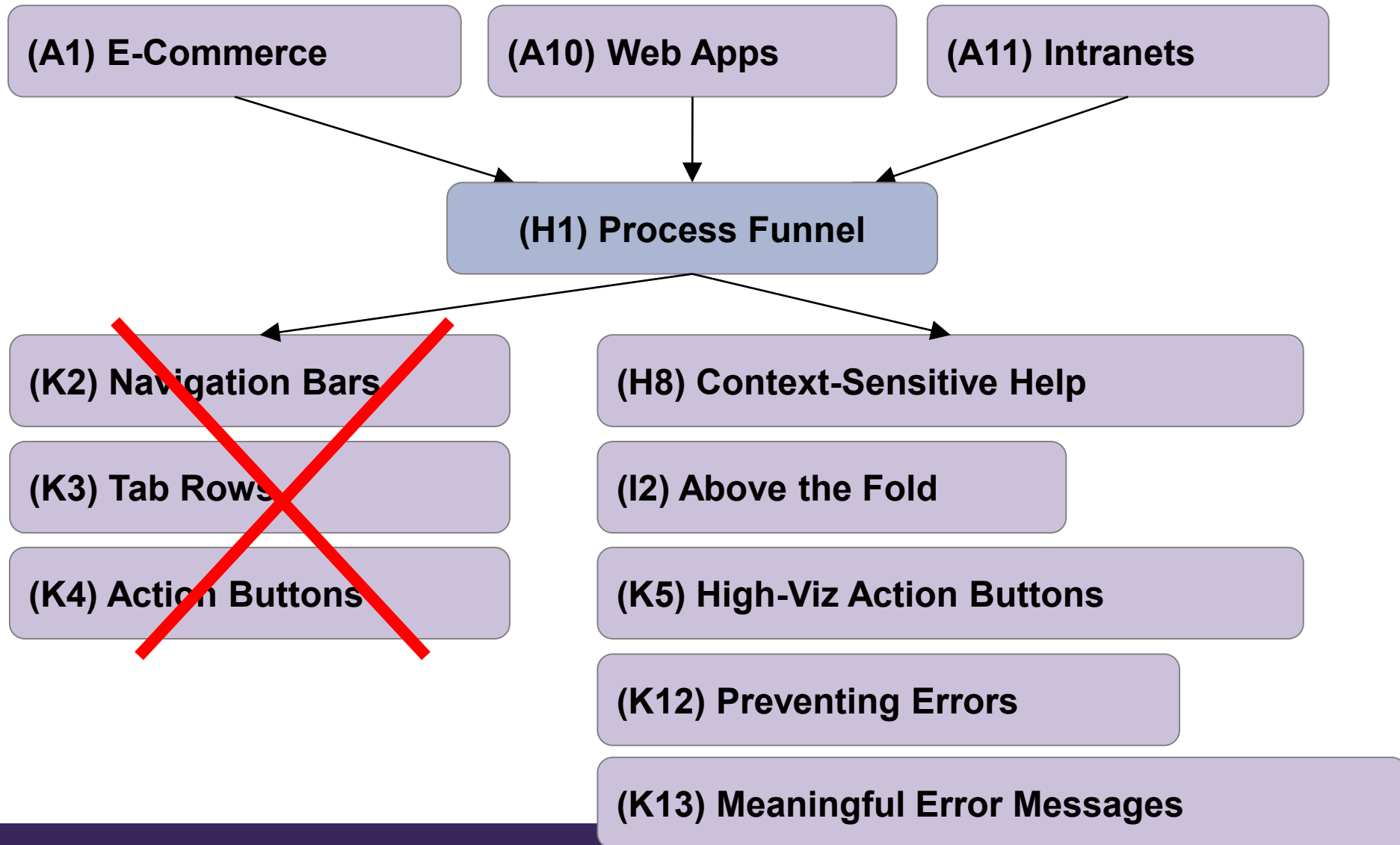


PROCESS FUNNEL (H1)

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



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

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 two goals can be challenging.

Required to Complete a Task • 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

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

Forces & Solution

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 find the information they need for their tasks. Remove all NAVIGATION BARS (K2), TAB BARS (K3), BREADCRUMBS (K6), and EMBEDDED LINKS (K7), LEAVENING BUTTONS (K4) 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 people know they're still on the same site.

Background

* BACKGROUND

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



Problem Statement

* 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



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.

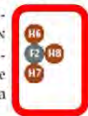
Make Sure the Back Button Always Works • Customers often use the **Back** button on browsers to modify answers they have typed in on previous pages. However, if the Web site is not implemented correctly, the information they have already entered may be lost when they hit the **Back** button, forcing 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 errors. You can provide good customer support and sample input to help PREVENT ERRORS (K1), and provide MEANINGFUL ERROR MESSAGES (K1.3) when errors do occur.

* SOLUTION

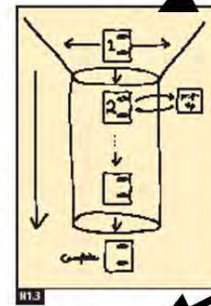
Minimize the number of steps required to complete a task, keeping them between two and eight. Remove unnecessary and potentially confusing links and content from each page, while reinforcing the brand to maintain a sense of place. Use pop-up windows to provide extra information, without leading people 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 (K1.2), and provide MEANINGFUL ERROR MESSAGES (K1.3) 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).

- A1 A4
- A10 A11
- F1
- H2
- G4
- K2 K3
- K4 K6 K7
- E1
- K1.2
- K1.3
- H5
- H8
- H7 H6
- I2 K5

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 "Fisher Brothers" individuals who

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

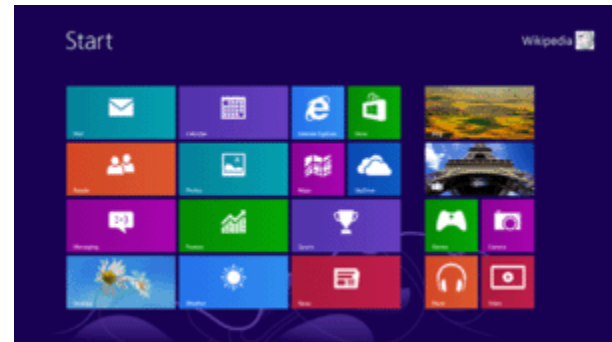
Pre-pattern based on some meta-analysis

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

The screenshot shows a web browser window with the URL https://www.fastcodesign.com/3051906/fast-feed/after-lawsuit-settlement-linkedin-dishonest-design-is-now-a-13-million-problem?utm_source=facebook. The article is titled "After Lawsuit Settlement, LinkedIn's Dishonest Design Is Now A \$13 Million Problem" and is categorized under "EVIDENCE". The article text discusses how LinkedIn's design practices, which were used to trick users into signing up, have now become a legal problem. It mentions that LinkedIn is paying for a class-action lawsuit worth \$13 million. A photo of a smartphone displaying the LinkedIn login page is included. The article is presented in San Jose's U.S. District Court, with the key issue being spam during the sign-up process. The article also mentions that LinkedIn claims it will not store user passwords or email addresses without permission, but it still sends automated follow-up emails to contacts harvested from webmail accounts. Under California law, the judge has deemed this illegal, and users who were members of LinkedIn's "add connection" program between September 2011 and October 2014 can submit a claim for a payout.

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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CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 08:
Presentations,
Paper Prototyping,
Tasks in Testing
Tuesday / Thursday
12:00 to 1:20

James Fogarty
Kailey Chan
Dhruv Jain
Nigini Oliveira
Chris Seeds
Jihoon Suh