

User Studies

Ben Bederson
CMSC434 - Intro to HCI
Spring 2011

Slides (slightly) modified from [Scott Klemmer](#)

Relative Merits: Online vs. In-lab?

Scale
Control (confounding variables)
Realism

Ethical Considerations

Sometimes tests can be distressing: users have left 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

You are testing the
site (not the users)

Articulate the Goals of Your Study

Scope

What are you testing?

Purpose

What concerns, questions, and goals is the test focusing on?

Schedule and location

When and where will the test take place?

Participants

How many users of what types will you recruit?

Scenarios

What will participants do with the product in this round of testing?

Create Concrete Tasks

A good plan for usability testing gives the participants:
a goal/task (what to do or what question to find the answer for)
data, if needed, that a real user would have when going to the site to do that task
You can give the scenario as just the statement of the goal/task
or you can elaborate it a little with a very short story that adds motivation to get to the goal.

Plan Out the Steps

Questions

What will you ask at the beginning and end of the session?

Data to be collected

What will you count?

Set up

What system will you use for testing? Will you be videotaping and/or audiotaping? Will you be using a specific technology to capture data?

Roles

Who will do what in the usability test?

Experimental Details

Order of tasks

choose one simple order (simple -> complex)

unless doing within-subjects experiment

Training

depends on how real system will be used

What if someone doesn't finish?

Pilot study

helps you fix problems with the study

do 2, first with colleagues, then with real users

Options for capturing results

Think aloud

Nothing critical incidents

Video recording

Screen recording

Decide whether to interrupt or not

The “Thinking Aloud” Method

- Need to know what users are thinking, not just what they are doing
- Ask users to talk while performing tasks
 - tell us what they are thinking
 - tell us what they are trying to do
 - tell us questions that arise as they work
 - tell us things they read
- Make a recording or take good notes
 - make sure you can tell what they were doing

Thinking Aloud (cont.)

- Prompt the user to keep talking
 - “tell me what you are thinking”
- Only help on things you have pre-decided
 - keep track of anything you do give help on
- Recording
 - use a digital watch/clock
 - take notes, plus if possible
 - record audio & video (or even event logs)
- Will thinking aloud give the right answers?
 - not always
 - if you ask a question, people will always give an answer, even it is has nothing to do with facts
 - try to avoid specific questions

Recruiting participants

The participants must be like the people who will use your site.

You might end up using a screening questionnaire

... plan on a cost associated with finding the people ... you may still need to plan on incentives to get participants to participate ...

Before “real” users...

Run a pilot to get out the kinks

Setting up the test sessions

Make sure you have everything you need

the prototype you are going to test

the computer set up for the participant with the monitor, resolution, and connection speed that you indicated in the test plan

note-taking forms on paper or set up on a computer

consent forms for participants to sign and a pen in case the participant does not bring one

questionnaires, if you are using any

the participant's copy of the scenarios

cameras, microphones, or other recording equipment if you are using any

folders to keep each person's paperwork in if you are using paper

Greeting Participants

The facilitator:

welcomes the participant and introduces anyone else who is in the room

invites the participant to sit in front of the computer where the participant will be working

explains the general goal of the session—to have the participant try out a Web site (or whatever the product is that is being tested)

asks participant profile questions and has the participant sign the release form

explains thinking aloud (and may demonstrate it and have the participant do a think aloud exercise)

asks if the participant has any questions before starting and answers any that will not give away what you want to learn from the participant

tells the participant where to start

Instructions to Participants

Describe the purpose of the evaluation

“I’m testing the interface; I’m not testing you”

Tell them they can quit at any time

Demonstrate the equipment

Explain how to think aloud

Explain that you will not provide help

Describe the task

give written instructions, one task at a time

Conducting the usability test

- The facilitator:
 - welcomes the participant and introduces anyone else who is in the room
 - invites the participant to sit in front of the computer where the participant will be working
 - explains the general goal of the session—to have the participant try out a Web site (or whatever the product is that is being tested)
 - asks participant profile questions and has the participant sign the release form
 - explains thinking aloud (and may demonstrate it and have the participant do a think aloud exercise)
 - asks if the participant has any questions before starting and answers any that will not give away what you want to learn from the participant
 - tells the participant where to start
- The participant starts to work with the Web site (or other product).
 - The participant works on the scenario while thinking aloud. The note-takers take notes.
 - The session continues from scenario to scenario until the participant has done (or tried) them all or the time allotted has elapsed.
- The facilitator asks the end-of-session questions
 - thanks the participant, giving the participant the agreed-on incentive, and escorts the participant out.

Collecting Data

- process data
 - observations of what users are doing & thinking
- bottom-line data
 - summary of what happened (time, errors, success)
 - i.e., the dependent variables

Debriefing

Debriefing test users
often don't remember, so demonstrate or show video segments
ask for comments on specific features
show them screen (online or on paper)

Analyzing the results

- Quantitative data, which might include:
 - success rates
 - time to complete tasks
 - pages visited
 - error rates
 - ratings on a satisfaction questionnaire
- Qualitative data, which might include:
 - notes of your observations about the pathways participants took
 - notes about problems participants had (critical incidents)
 - notes of what participants said as they worked
 - participants' answers to open-ended questions

Summarize the Results

Summarize the data

make a list of all critical incidents

positive & negative

include references back to original data

try to judge why each difficulty occurred

What does data tell you?

UI work the way you thought it would?

users take approaches you expected?

something missing?

Update task analysis & rethink design

rate severity & ease of fixing critical incidents

fix both severe problems & make the easy fixes

Reporting the Results

Report what you did & what happened Images & graphs help people get it! Video clips can be quite convincing

Controlled Web Experiments

Many names; same idea

A/B tests

Randomized experiment

Controlled experiment

Split testing

Randomly split traffic between two versions

A/Control: usually current live version

B/Treatment: new idea

Collect metrics, analyze

Search Results for Zip Code 32225

Search Initiated:	8/2/2005	Time:	12:11 P.M.
Search Location:	State: FL	City:	JACKSONVILLE, JAX
		Zip:	32225



There are currently 32 Registered Sex Offenders located in your zip code

Would you like names, pictures and addresses? [Click Here](#)

The National Alert Registry has made all this vital information available to you. Plus you can get a custom map of your neighborhood, identifying your home and where offenders reside in proximity to it.

Your complete "Predator Report" includes all of the below:

- Color Photos (when available)
- Appearance Details
- Street Addresses
- A Detailed Map
- Name & Aliases
- Conviction Information
- Offense Dates
- Offense Details



[See the address sample Report!](#)

You can purchase your complete Predator Report and access this vital information today. For just \$10.00 we will create a custom report using your address.

Email:

(Email address used for RED ALERT notifications)

First Name:

Last Name:

Address 1:

Address 2:

City:

State:

Zip:

Country:

Phone:

Billing Information

By submitting this information you agree to a one time charge of \$10.00. [Terms and Conditions.](#)

Single "Predator Report" one time charge of \$10.00

Upgrade my registration and guarantee me "Red Alert!" **Automatic Report Updates & Email notifications** when new predators are in my area for an additional \$4.95/month. [Details](#)

Credit Card Number:

Credit Card Exp. Date: /

3 or 4 Digit Code After Card # on Back of Card: [How to find your security code?](#)

[CLICK HERE FOR INSTANT ACCESS](#)

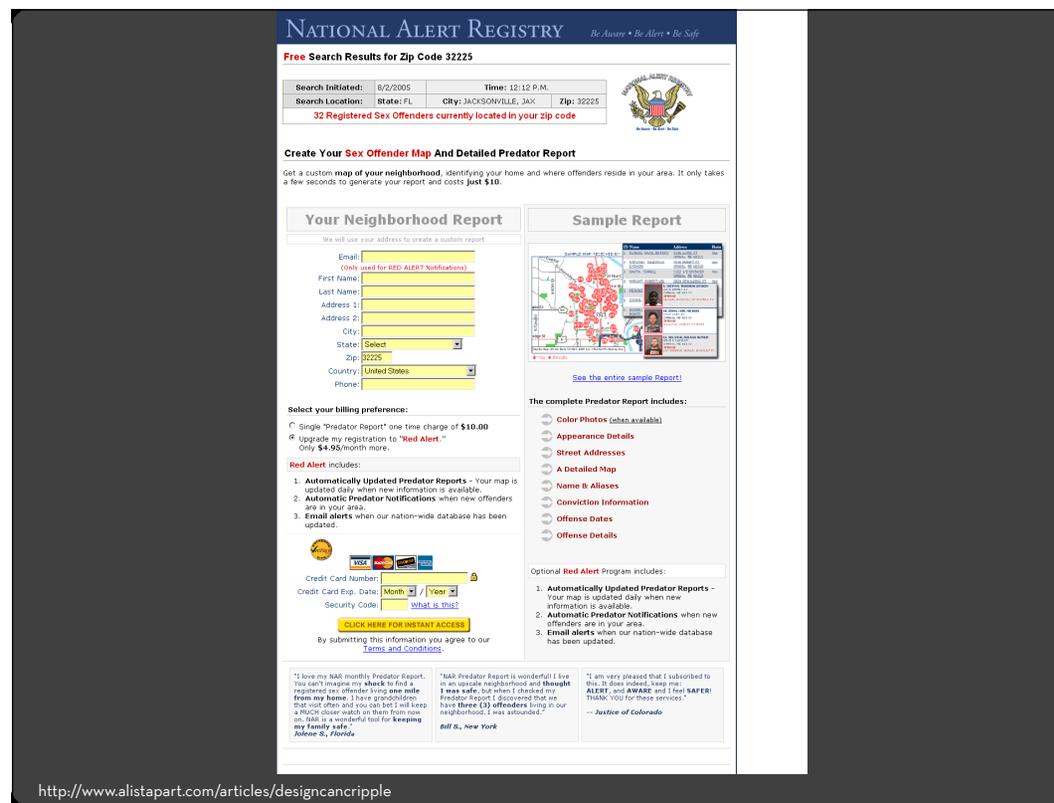
"I love my RED monthly Predator Report. You can't imagine my shock to find a registered sex offender living one mile from my home. I have grandchildren that visit often and you can bet I will keep a VERY close watch on them from now on. RED is a wonderful tool for keeping my family safe." *John S., Florida*

"RED Predator Report is wonderful! I live in an upscale neighborhood and thought I was safe, but when I checked my Predator Report I discovered that we have three (3) offenders living in our neighborhood. I was shocked!" *Bill S., New York*

"I am very pleased that I subscribed to this. It has indeed kept me ALERT, and WISE and I feel SAFE! THANK YOU for these services!" *Jurison of Colorado*



Version B follows the same basic layout, but we made some minor copy changes.



In version C, we changed from a one-column format to two-column format. We wanted to test the impact of bringing more of the page content onto the first screen. Be honest with yourself and decide now whether B or C beat A, and by what percentage. I imagine you have some way of measuring the success of your site. Maybe it's about sales. Maybe it's based on readership. But one way or another, your site has a purpose. But I don't think most designers truly understand the effect their design choices can have on achieving that purpose. And yes, I'm sure you do some usability testing. And that likely gives you some broad, if sometimes confusing insights into what's working and what isn't. But do you test different page designs?

By testing, I don't mean asking a few folks around the office; I mean doing a live test that demonstrates—with hard figures—what site visitors actually do. Testing like that is a beautiful thing. There is no space for fancy arguments. An expert's credentials and opinions mean squat. When you serve alternative versions, one after the other, and measure reader actions, you get the real deal. You get what is. But if you are serious about achieving your site's purpose, and if testing can show you which version of a page does best, then where is the argument not to test?

Search Results

Search Initiated: 6/2/2005 Time: 12:10:12 P.M. Search Location: Zip: 32225 City: JACKSONVILLE, JAK State: FL

33 Registered sex offenders are located in your immediate area.

Get the complete report including map, photograph, and address to find out who they are and where they live. You will be able to enter your full address and specify a larger radius.

The complete report includes:

- Photos
Appearance Details
Conviction Information
Offense Dates
Offense Details
Name & Aliases



See the area search results

To get a complete Predator Report today, register below with National Alert Registry, and for just \$10.00 we will create a custom report using your address. We will also send you a free alert notification when new predators are in your area.

Registration form with fields for Email, First Name, Last Name, Address 1, Address 2, City, State, Zip, Country, and Phone.

By submitting this information you agree to a one time charge of \$10.00. Terms and Conditions.

Upgrade my registration so I can generate "Red Alert" Reports when new predators are in my area for just \$4.95/month. No. Yes. Yes

Credit card information form with fields for Credit Card Number, Credit Card Exp. Date, and 3 or 4 Digit Code after Card # on Back of Card.

CLICK HERE FOR INSTANT ACCESS



Search Results for Zip Code 32225

Search Initiated: 6/2/2005 Time: 12:11 P.M. Search Location: State: FL City: JACKSONVILLE, JAK Zip: 32225 There are currently 32 Registered Sex Offenders located in your zip code.

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The National Alert Registry has made all this vital information available to you. Plus you can get a custom map of your neighborhood, identifying your home and where offenders reside in proximity to it.

Your complete "Predator Report" includes all of the below:

- Color Photos (when available)
Appearance Details
A Detailed Map
Street Addresses
Name & Aliases
Conviction Information
Offense Dates
Offense Details



See the area search results

Your can purchase your complete Predator Report and access this vital information today. For just \$10.00 we will create a custom report using your address.

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Single "Predator Report" one time charge of \$10.00

Upgrade my registration and guarantee me "Red Alert" Automatic Report Updates & Email Notifications when new predators are in my area for an additional \$4.95/month. Details

Credit card information form with fields for Credit Card Number, Credit Card Exp. Date, and 3 or 4 Digit Code after Card # on Back of Card.

CLICK HERE FOR INSTANT ACCESS



Free Search Results for Zip Code 32225

Search Initiated: 6/2/2005 Time: 12:10 P.M. Search Location: State: FL City: JACKSONVILLE, JAK Zip: 32225

32 Registered Sex Offenders currently located in your zip code

Create Your Sex Offender Map And Detailed Predator Report

Get a custom map of your neighborhood, identifying your home and where offenders reside in your area. It only takes a few seconds to generate your report and cost! Just \$10.

Your Neighborhood Report

We will get you the address and a custom report

Form for Neighborhood Report with fields for Email, First Name, Last Name, Address 1, Address 2, City, State, Zip, Country, and Phone.

Select your billing preference: Single "Predator Report" one time charge of \$10.00 Upgrade my registration to "Red Alert" One \$4.95/month more.

Red Alert includes: 1. Automatically Updated Predator Reports - Your map is updated daily when new information is available. 2. Automatic Predator Notifications when new offenders are in your area. 3. Email alerts when our nationwide database has been updated.

Optional Red Alert Program includes: 1. Automatically Updated Predator Reports - Your map is updated daily when new information is available. 2. Automatic Predator Notifications when new offenders are in your area. 3. Email alerts when our nationwide database has been updated.

By submitting this information you agree to our Terms and Conditions

Credit card information form with fields for Credit Card Number, Credit Card Exp. Date, and 3 or 4 Digit Code after Card # on Back of Card.

CLICK HERE FOR INSTANT ACCESS

Upgrade my registration and guarantee me "Red Alert" Automatic Report Updates & Email Notifications when new predators are in my area for an additional \$4.95/month. Details

Credit card information form with fields for Credit Card Number, Credit Card Exp. Date, and 3 or 4 Digit Code after Card # on Back of Card.

CLICK HERE FOR INSTANT ACCESS

Sample Report

We will get you the address and a custom report



The complete Predator Report includes: Color Photos (when available) Appearance Details Name & Aliases Conviction Information Offense Dates Offense Details

Optional Red Alert Program includes: 1. Automatically Updated Predator Reports - Your map is updated daily when new information is available. 2. Automatic Predator Notifications when new offenders are in your area. 3. Email alerts when our nationwide database has been updated.

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From http://www.alistapart.com/articles/designcancripple

A/B/C Split Test

	PAGE A	PAGE B	PAGE C
Percent of traffic	34%	33%	33%
New sales	244	282	114
Change	N/A	15.57%	-53.28%

From <http://www.alistapart.com/articles/designcanncripple>

“That’s an astonishing reduction in sales and revenues, resulting from a design change that was intended to improve the performance of the page.

Now, just pause for a moment and think of all the design choices you have made over the last year, and the reasons why you made them. And think about the huge impact those choices might have had on the performance of the sites you worked on.”

NATIONAL ALERT REGISTRY

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33 Registered sex offenders are located in your immediate area.

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The complete report includes:

- Photos
- Appearance Details
- Conviction Information
- Offense Dates
- Offense Details
- Street Addresses
- Name Aliases

See the entire search results!

To get a complete Predator Report today, register below with National Alert Registry, and for just \$10.00 we will create a custom report using your address. We will also send you a "Red Alert" notification when new predators are in your area.

Email: _____
 (Email address used for RED ALERT notifications)

First Name: _____
 Last Name: _____
 Address 1: _____
 Address 2: _____
 City: _____
 State: [Select] _____
 Zip: 32225 _____
 Country: [United States] _____
 Phone: _____

Billing Information

By submitting this information you agree to a one time charge of \$10.00. [Terms and Conditions](#)

Upgrade my registration so I can generate "Updated Reports" when new predators are in my area for just \$4.95/month. * Yes "No"

Credit Card Number: _____
 Credit Card Exp. Date: [Month] / [Year] _____
 3 or 4 Digit Code After Card #: _____

[CLICK HERE FOR INSTANT ACCESS](#)

NATIONAL ALERT REGISTRY

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 Search Location: State: FL City: JACKSONVILLE, JAX Zip: 32225

There are currently 32 Registered Sex Offenders located in your zip code

Would you like names, pictures and address? [Click Here](#)

Your complete "Predator Report" includes all of the below:

- Color Photos (with addresses)
- Appearance Details
- Street Addresses
- A Detailed Map
- Name & Aliases
- Conviction Information
- Offense Dates
- Offense Details

See the entire search results!

You can purchase your complete Predator Report and access this vital information today. For just \$10.00 we will create a custom report using your address.

Email: _____
 (Email address used for RED ALERT notifications)

First Name: _____
 Last Name: _____
 Address 1: _____
 Address 2: _____
 City: _____
 State: [Select] _____
 Zip: 32225 _____
 Country: [United States] _____
 Phone: _____

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Credit Card Number: _____
 Credit Card Exp. Date: [Month] / [Year] _____
 3 or 4 Digit Code After Card #: _____
[how to find your security code!](#)

[CLICK HERE FOR INSTANT ACCESS](#)

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Your Neighborhood Report

We will use your address to create a custom report

Email: _____
 (Email used for RED ALERT notifications)

First Name: _____
 Last Name: _____
 Address 1: _____
 Address 2: _____
 City: _____
 State: [Select] _____
 Zip: 32225 _____
 Country: [United States] _____
 Phone: _____

Select your billing preference:

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Upgrade my registration to "Red Alert" * Only \$4.95/month more.

Red Alert includes:

1. Automatically Updated Predator Reports - Your map is updated daily when new information is available.
2. Automatic Predator Notifications when new offenders are in your area.
3. Email alerts when our nation-wide database has been updated.

Credit Card Number: _____
 Credit Card Exp. Date: [Month] / [Year] _____
 Security Code: _____
[CLICK HERE FOR INSTANT ACCESS](#)

By submitting this information you agree to our [Terms and Conditions](#)

"I love my NAR monthly Predator Report. It has made me much more aware of my neighborhood and I feel much safer. I have a Red Alert and I have been notified when new predators are in my area. I have been notified when new predators are in my area. I have been notified when new predators are in my area." - *John Smith, Jacksonville, FL*

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	PAGE A	PAGE B	PAGE C
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New sales	244	282	114
Change	N/A	15.57%	-53.28%

Why did B do better and C do so much worse? A few theories. One is the free. Maybe another is it's more confusing. It employs a "menu" pattern when what's needed is a "funnel" pattern. B has a call to action, "would you like...? click here" at the top.

Ways design makes a difference

- The position and color of the primary call to action
- Position on the page of testimonials, if used
- Whether linked elements are in text or as images
- The amount of “white space” on a page, giving the content space to “breathe”
- The position and prominence of the main heading
- The number of columns used on the page
- The number of visual elements competing for attention
- The age, sex and appearance of someone in a photo

From <http://www.alistapart.com/articles/designcripple>