

# Design Reviews

**Scott Klemmer**  
*Autumn 2009*

# Genres of assessment

Automated Usability measures computed by software

Empirical Usability assesses by testing with real users

Formal Models and formulas to calculate measures

Inspection Based on heuristics, skills, and experience of evaluators

# When to do a design review?

- Before user testing. Don't waste users on the small stuff. An expert usability inspection will identify minor issues that can be resolved before testing, allowing users to focus on the big issues.
- Before redesigning. Don't throw out the baby with the bathwater. An expert usability inspection will expose the elements of your existing design that work and should be retained (not just the bad stuff).
- When you know there are problems, but you need evidence. Perhaps you've received complaints from customers or found yourself stumbling around your own site. An expert usability inspection can help you articulate problems and provide you with the ammunition to build a business case for redesign.
- Before release. [Smooth] off the rough edges before go-live.

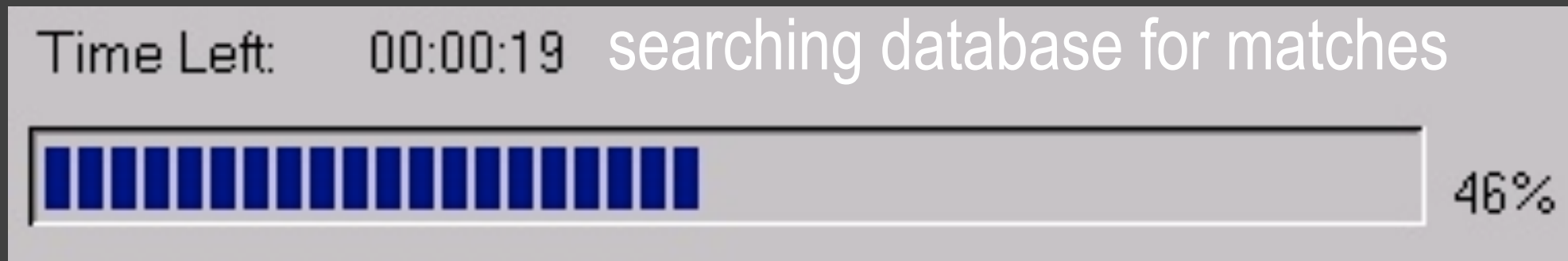
Source: <http://www.etre.com/usability/inspection>

# Begin Review with a Clear Goal

# Heuristic Evaluation

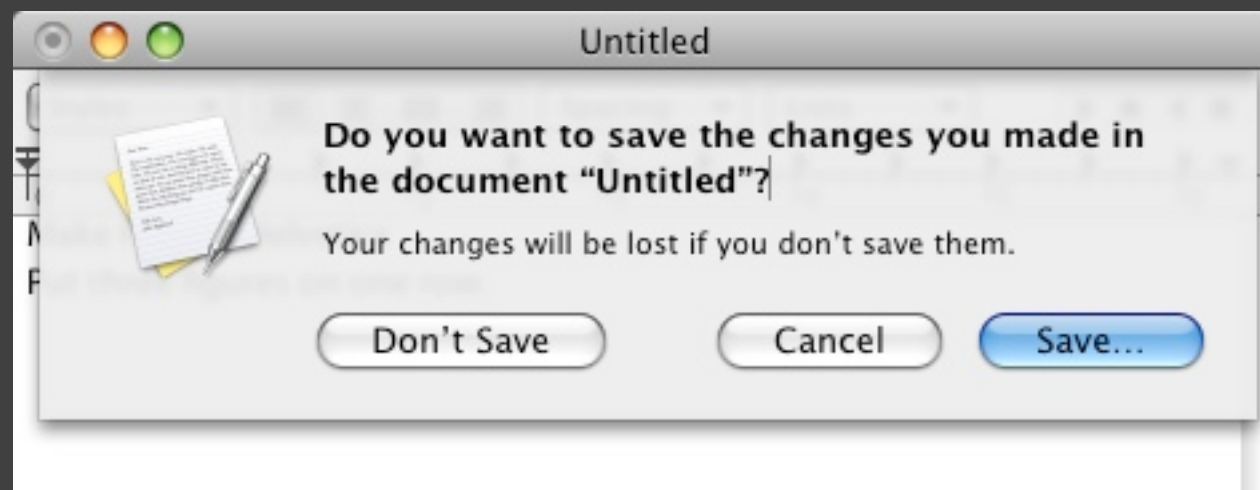
- Developed by Jakob Nielsen
- Helps find usability problems in a UI design
- Small set (3-5) of evaluators examine UI
  - independently check for compliance with usability principles (“heuristics”)
  - different evaluators will find different problems
  - evaluators only communicate afterwards
    - findings are then aggregated
- Can perform on working UI or on sketches

# Visibility of System Status



- Keep users informed about what is going on
- Example: pay attention to response time
  - 0.1 sec: no special indicators needed, why?
  - 1.0 sec: user tends to lose track of data
  - 10 sec: max. duration if user to stay focused on action
  - for longer delays, use percent-done progress bars

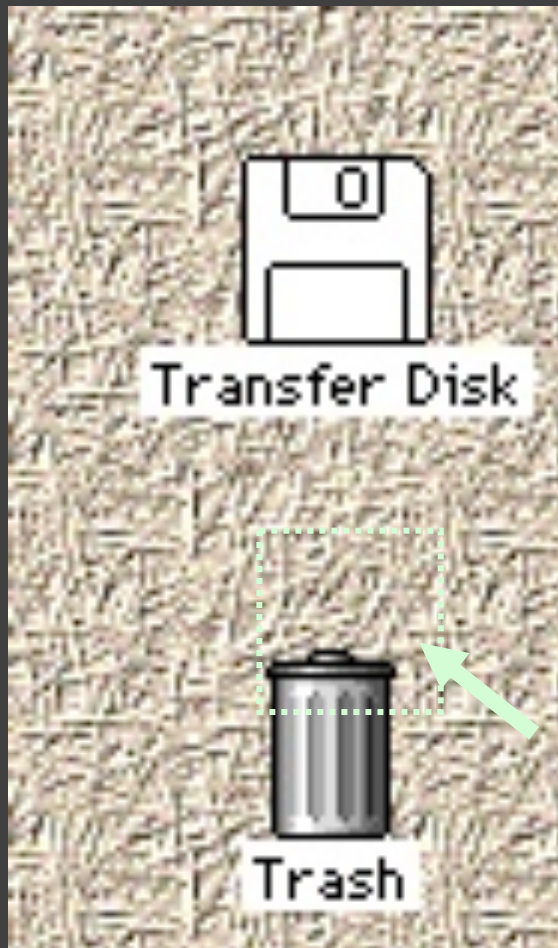
# Visibility of System Status





# Match between system & world

- Speak the users' language
- Follow real world conventions



Thursday, October 15, 2009

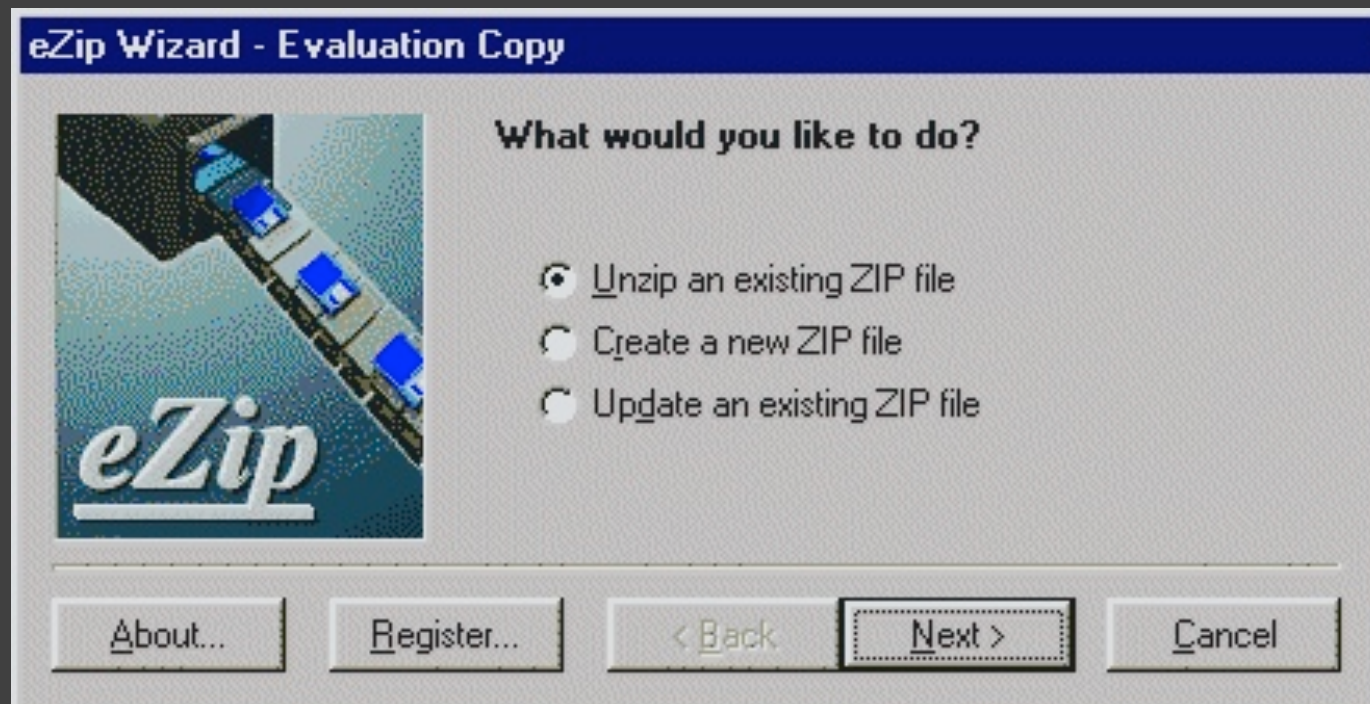
Bad example: Mac desktop

Dragging disk to trash

Should delete it, *not* eject it



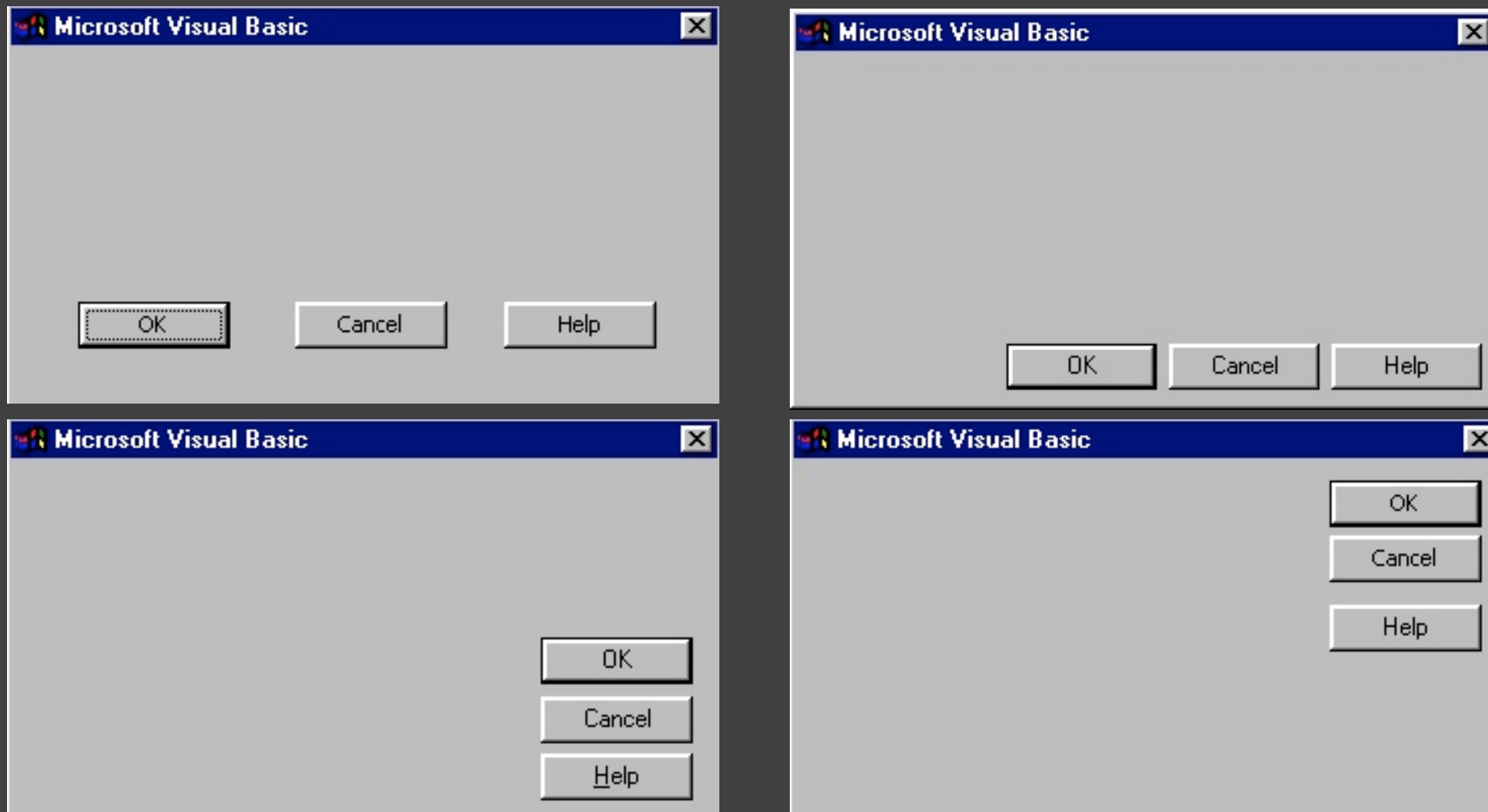
# User Control & Freedom



- Wizards
  - must respond to Q before going to next
  - for infrequent tasks
    - e.g., configuration
  - not for common tasks
  - good for beginners
    - have 2 versions

- “exits” for mistaken choices, undo, redo
- don’t force down fixed paths

# Consistency & Standards



# Error Prevention



- Before dialing
  - asks for id & password
- When connecting
  - asks again for id & pw



## Unsubscribe From Our Mailing List

To unsubscribe from our mailing list, enter your email address, select from the list below and click Submit. After unsubscribing, you will no longer receive email offers, including newsletters and invitations to preview new product versions.

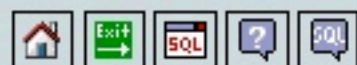
Email Address:

Unsubscribe from the following mailing lists:

- ☐ All Products
- ☐ GoToMyPC Personal or Pro customer newsletter
- ☐ GoToMyPC Personal or Pro email offers
- ☒ GoToMyPC Corporate
- ☒ GoToAssist Corporate
- ☐ GoToAssist Express
- ☐ GoToMeeting and GoToWebinar Personal
- ☒ GoToMeeting and GoToWebinar Corporate
- ☒ HiDef Conferencing

☐ Match case





Database

hci (2)

hci (2)

- Ad Comparison
- publications

## Error

### SQL query:

ALTER TABLE `Ad Comparison` ADD `id` INT( 11 ) NOT NULL AUTO\_INCREMENT FIRST

### MySQL said: ?

#1075 - Incorrect table definition; there can be only one auto column and it must be defined as a key

[Browse](#) [Structure](#) [SQL](#) [Search](#) [Insert](#) [Export](#) [Import](#) [Operations](#) [Empty](#) [Drop](#)

Field	id
Type ?	INT
Length/Values <sup>1</sup>	11
Collation	
Attributes	
Null	not null
Default <sup>2</sup>	
Extra	auto_increment
	<input checked="" type="radio"/>
	<input type="radio"/>
	<input type="radio"/>
---	<input type="radio"/>
	<input type="checkbox"/>
Comments	

[Save](#) Or Add  field(s) [Go](#)

<sup>1</sup> If field type is "enum" or "set", please enter the values using this format: 'a','b','c'...

If you ever need to put a backslash ("\") or a single quote (') amongst those values, precede it with a backslash (for example '\xyz' or 'a\'b').

<sup>2</sup> For default values, please enter just a single value, without backslash escaping or quotes, using this format: a





# Recognition Rather than Recall



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Make objects, actions, options, & directions visible or easily retrievable



# Recognition Rather than Recall

**Duplicate Contact Detected**


The name or email address of this contact already exists in the Contacts folder. Would you like to:

☐ Add new contact

☒ Update information of selected Contact. A backup copy will be saved in Deleted Items Folder.

Full Name	Job Title	Company	E-mail
Maneesh Agrawala	Assistant Professor	Berkeley	

Preview of Updated Business Card:



**Maneesh Agrawala**  
Berkeley  
Assistant Professor  
  
(510) 643-8220 Work  
maneesh@cs.berkeley.edu

Changes to Selected Contact:

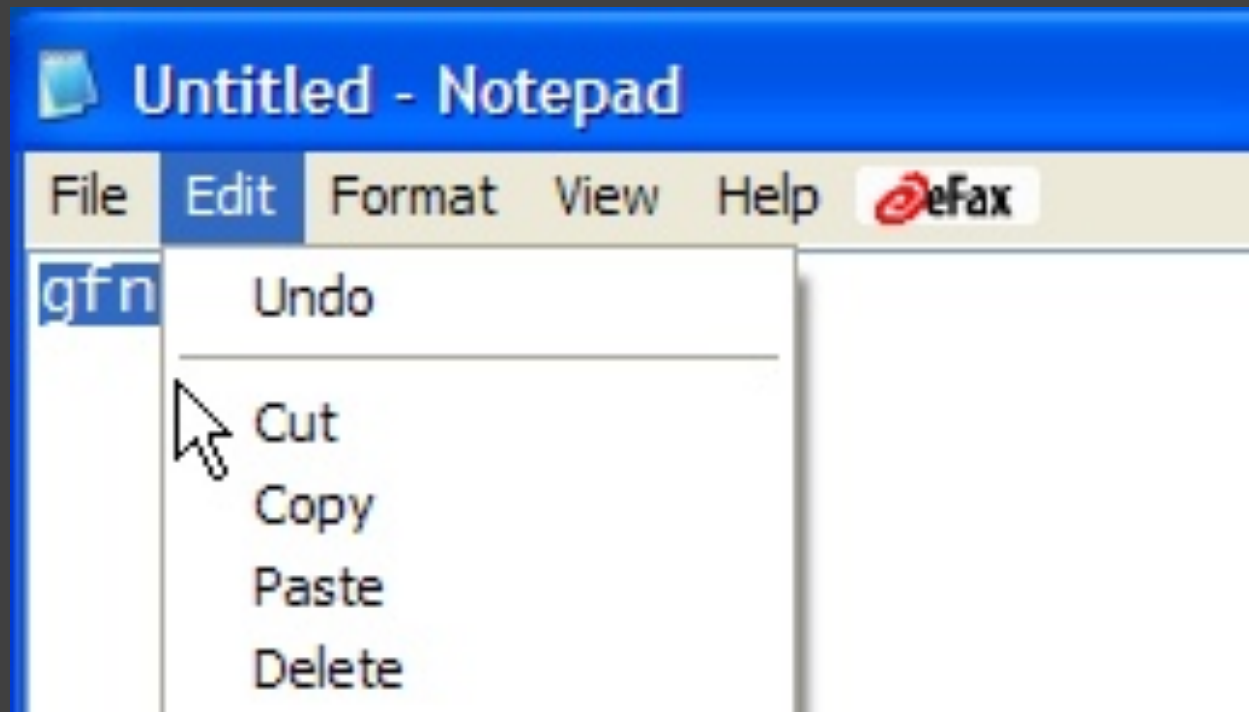
Full Name: Maneesh Agrawala  
Job Title: Assistant Professor  
Company: Berkeley  
E-mail: maneesh@cs.berkeley.edu  
Business Phone: (510) 643-8220  
Contact Picture: No change  
Notes: No change

Update Cancel

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Make objects, actions, options, & directions visible or easily retrievable

# Flexibility & Efficiency of Use



- accelerators for experts (e.g., gestures, kb shortcuts)
- allow users to tailor frequent actions (e.g., macros)

# Aesthetic & Minimalist Design

Form Title -- (appears above URL in most browsers and is used by W/W/W search)		Background Color:
Q&D Software Development Order Desk		FFFBF0
Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk <input checked="" type="checkbox"/> Center		000080
E-Mail responses to (will not appear on)	Alternate (for mailto forms only)	Background Graphic
dversch@q-d.com		
Text to appear in Submit button	Text to appear in Reset button	<input type="radio"/> Mailto
Send Order	Clear Form	<input checked="" type="radio"/> CGI
Scrolling Status Bar Message (max length = 200 characters)		
***WebMania 1.5b with Image Map Wizard is here!***		
<< Prev Tab		Next Tab >>

Thursday, October 15, 2009

Avoid Clutter & Irrelevant information. High signal-to-noise ratio.



# Aesthetic & Minimalist Design

https://ssl.catalinaexpress.com - New Accounts - Mozilla Firefox

**Booking Functions**

My Account	New Account	Find Account	Submit
Reservation Lookup	New Reservation	Reset Entries	Exit

**Travel Information**

General Information	Schedule & Fares	Travel Policies	Site Map
Catalina Island	About Us	Contact Us	Reservation Tips

All fields marked \*\*\* are required.  
Once all information has been entered:  
Click **"Submit"**

Questions or Comments  
Zip Code, Phone, Fax: Numbers only. No dashes.  
Phone & Fax = 5555555555. No special characters.

If you live outside the United States,  
Please call 800-622-2354 for reservations.

Click **"Exit"** to return to the Home Page.

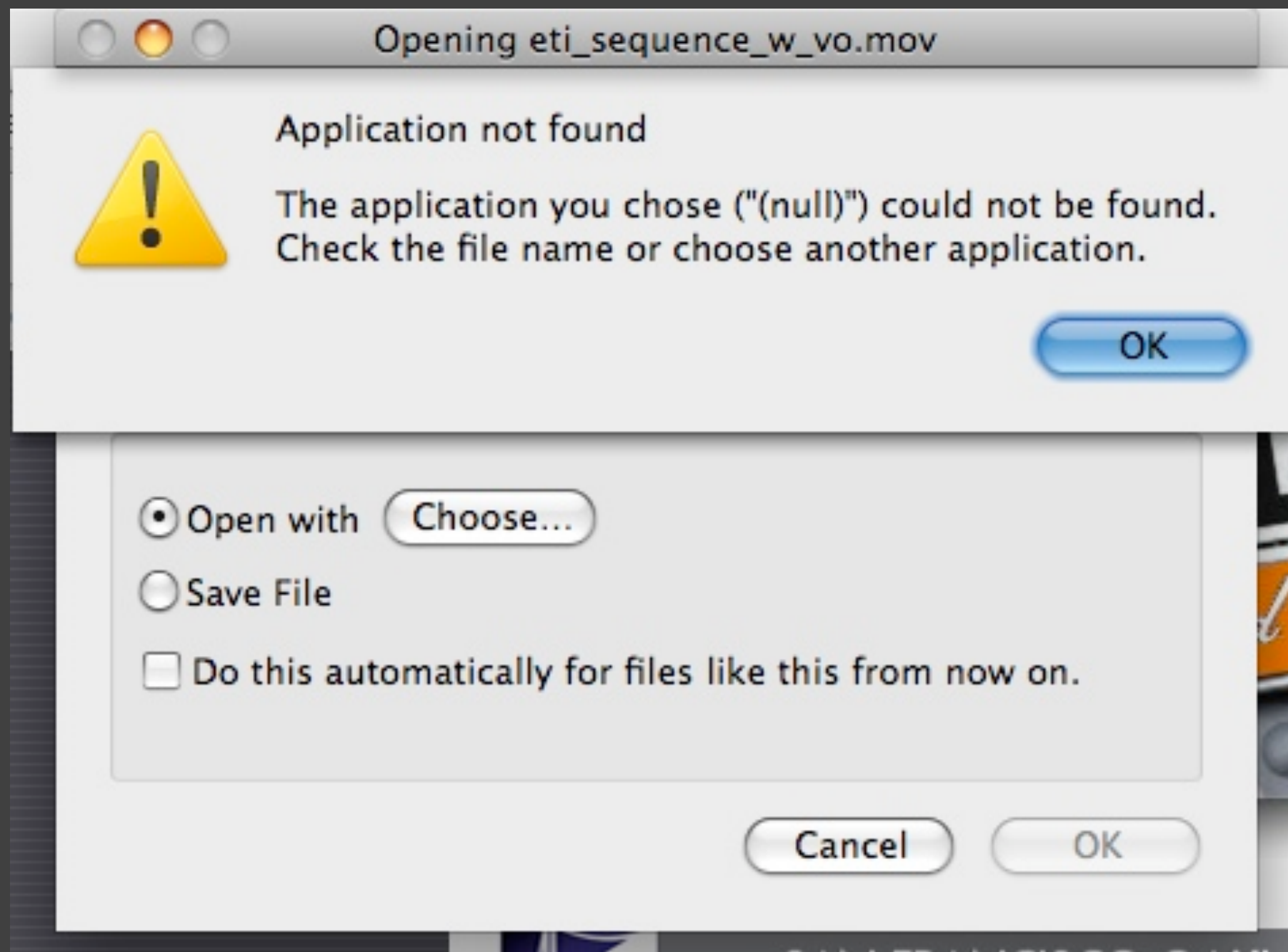
ACCOUNT	<input type="text"/>
PASSWORD	<input type="password"/> ***** ***
CONFIRM	<input type="password"/> ***** ***
FIRST NAME	<input type="text"/> SCOTT ***
LAST NAME	<input type="text"/> KLEMMER ***
ADDRESS LINE 1	<input type="text"/> ***
ADDRESS LINE 2	<input type="text"/>

CITY	<input type="text"/> SAN FRANCISCO ***
ZIP CODE	<input type="text"/> 94110 ***
STATE	<input type="text"/> CALIFORNIA ***
COUNTRY	<input type="text"/>
PHONE	<input type="text"/> 415.920.17 ***
FAX	<input type="text"/>
EMAIL ADDRESS	<input type="text"/> SRK@CS.STANFORD.EDU ***

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Avoid Clutter & Irrelevant information. High signal-to-noise ratio.

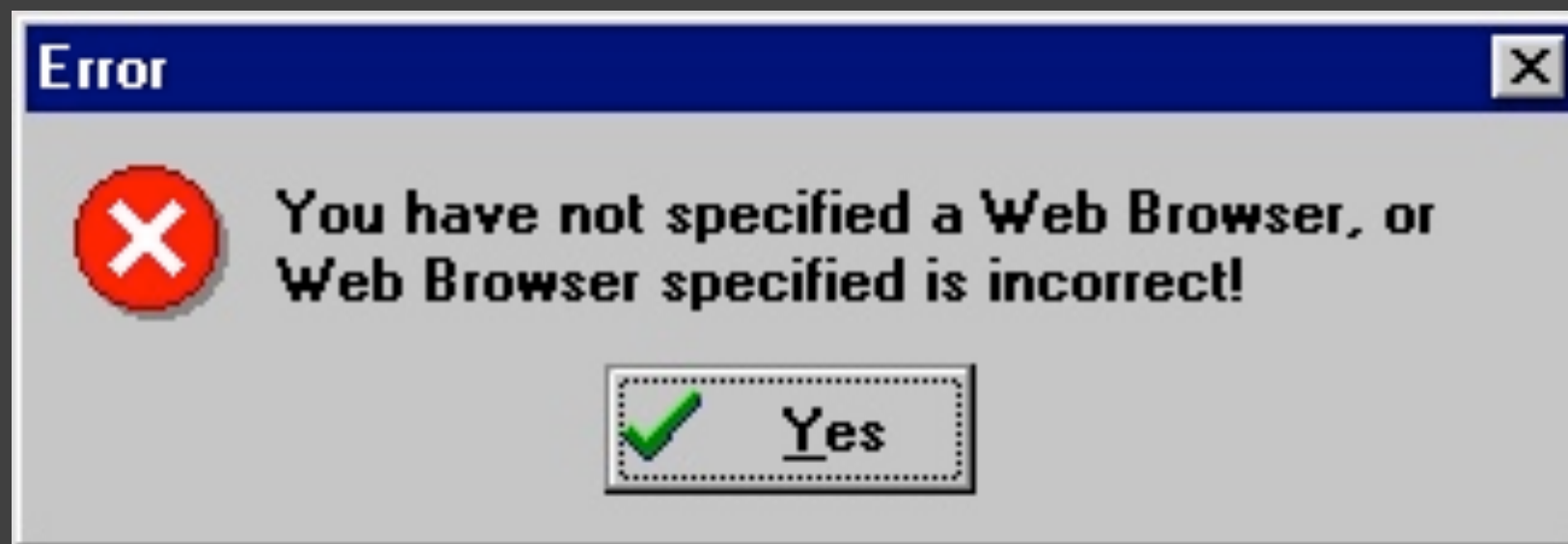
# Help Users Recognize, Diagnose, & Recover from Errors



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error messages in plain language  
precisely indicate the problem  
constructively suggest a solution

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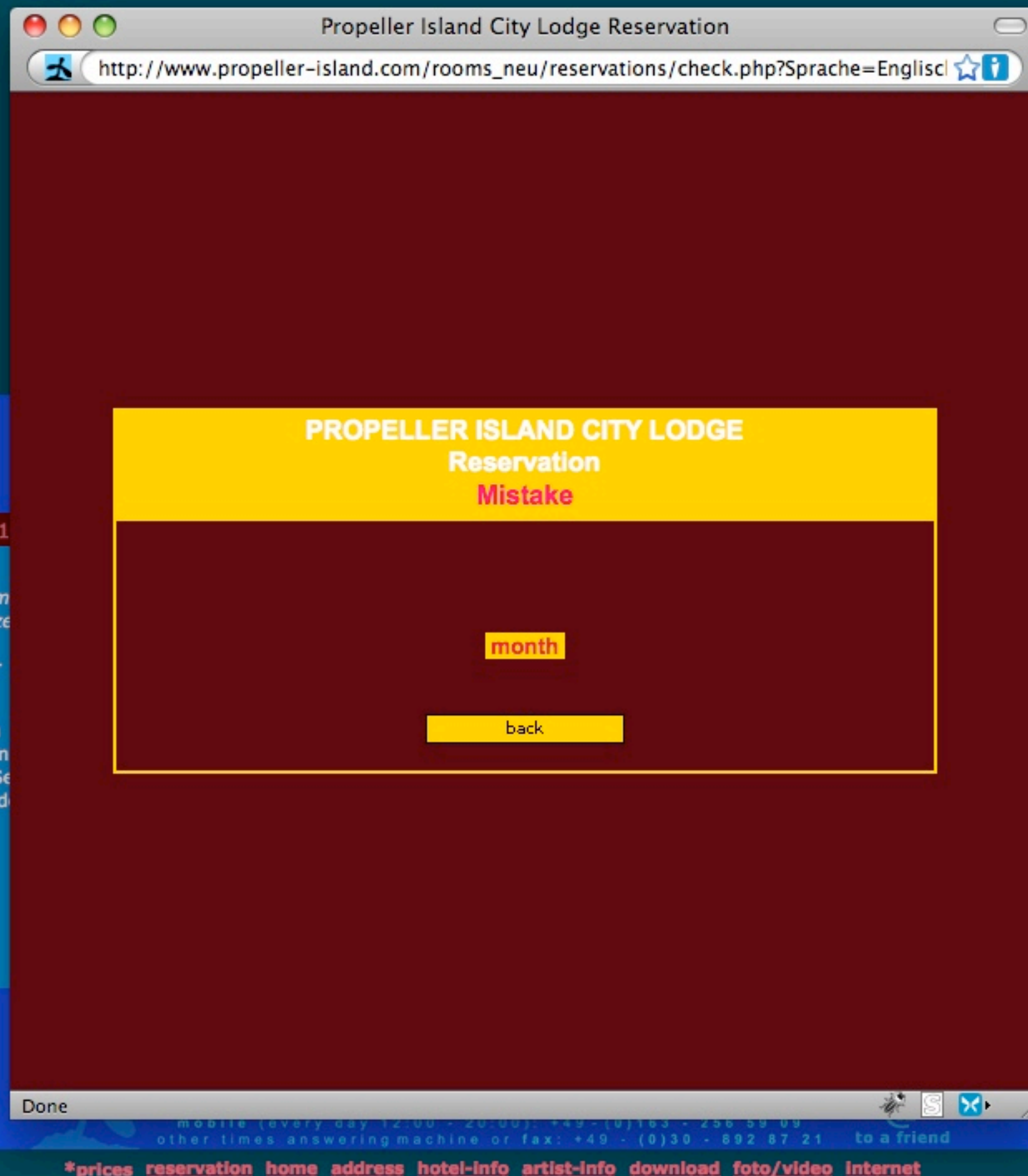
# Help Users Recognize, Diagnose, & Recover from Errors



Thursday, October 15, 2009

error messages in plain language  
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constructively suggest a solution





ROOMS

are beneath

on the ceiling and  
comfortable boxes  
Uncannily surreal!  
One of the most

S F R G

01 02 03 04 1

#### Besonderheiten:

- Zimmer steht auf dem Fußboden
- 4 Betten und 4 Sitze
- Nichtraucher-Zimmer

#### Beschreibung:

Die Möbel hängen von der Decke. Die Betten sind unter dem Fußboden. Sehen Sie sich das 4-Bett-Zimmer. Eines der besten Zimmer!

ROOMS

© PROPELLER ISLAND

mobile (every day 12:00 - 20:00): +49 - (0)163 - 256 59 09  
other times answering machine or fax: +49 - (0)30 - 892 87 21 to a friend

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error messages in plain language  
precisely indicate the problem  
constructively suggest a solution

# Help Users Recognize, Diagnose, & Recover from Errors

(All prices are in US Dollars)

UIST '09: The 22nd Annual ACM Symposium on User Interface Software and Technology ([Event Details](#))

Secure connection

Personal Information

Agenda

**Merchandise**

Checkout

Confirmation

	Amount	Quantity	Subtotal
Extra Demo Reception ticket	\$40.00	<input type="text"/>	
Extra Banquet Ticket	\$90.00	<input type="text"/>	
Extra copies of the proceedings	\$45.00	<input type="text"/>	
			Total So Far: \$0.00
			<a href="#">Recalculate Total</a>

[Continue](#)

[Terms of Use](#)

(All prices are in US Dollars)

[Contact Info](#)

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error messages in plain language  
precisely indicate the problem  
constructively suggest a solution

# Help and Documentation

- easy to search
- focused on the user's task
- list concrete steps to carry out
- not too large




FirefoxFileEditViewHistoryBookmarksToolsWindowHelp

PHP: Your first PHP-enabled page - Manual

http://us.php.net/manual/en/tutorial.firstpage.php

147547TWCwthrDocsBooksMapsScholCalmailnyTimesAzonsrkstanfordMintsfcuChaseFIA

php PHP: Your first PHP-enabled page ...



[downloads](#) | [documentation](#) | [faq](#) | [getting help](#) | [mailing lists](#) | [licenses](#) | [wiki](#) | [reporting bugs](#) | [php.net sites](#)

search for  in the

PHP Manual

Getting Started

A simple tutorial

- What do I need?
- Your first PHP-enabled page**
- Something Useful
- Dealing with Forms
- Using old code with new versions of PHP
- What's next?

«What do I need?

view this page in 

Bulgarian

## Your first PHP-enabled page

Create a file named *hello.php* and put it in your web server's root directory (*DOCUMENT\_ROOT*) with the following content:

**Example #1 Our first PHP script: *hello.php***

```
<html>
<head>
  <title>PHP Test</title>
</head>
<body>
  <?php echo '<p>Hello World</p>'; ?>
</body>
</html>
```

Use your browser to access the file with your web server's URL, ending with the */hello.php* file reference. When developing something like *http://localhost/hello.php* or *http://127.0.0.1/hello.php* but this depends on the web server's configuration. configured correctly, this file will be parsed by PHP and the following output will be sent to your browser:

```
<html>
<head>
  <title>PHP Test</title>
</head>
<body>
  <p>Hello World</p>
```

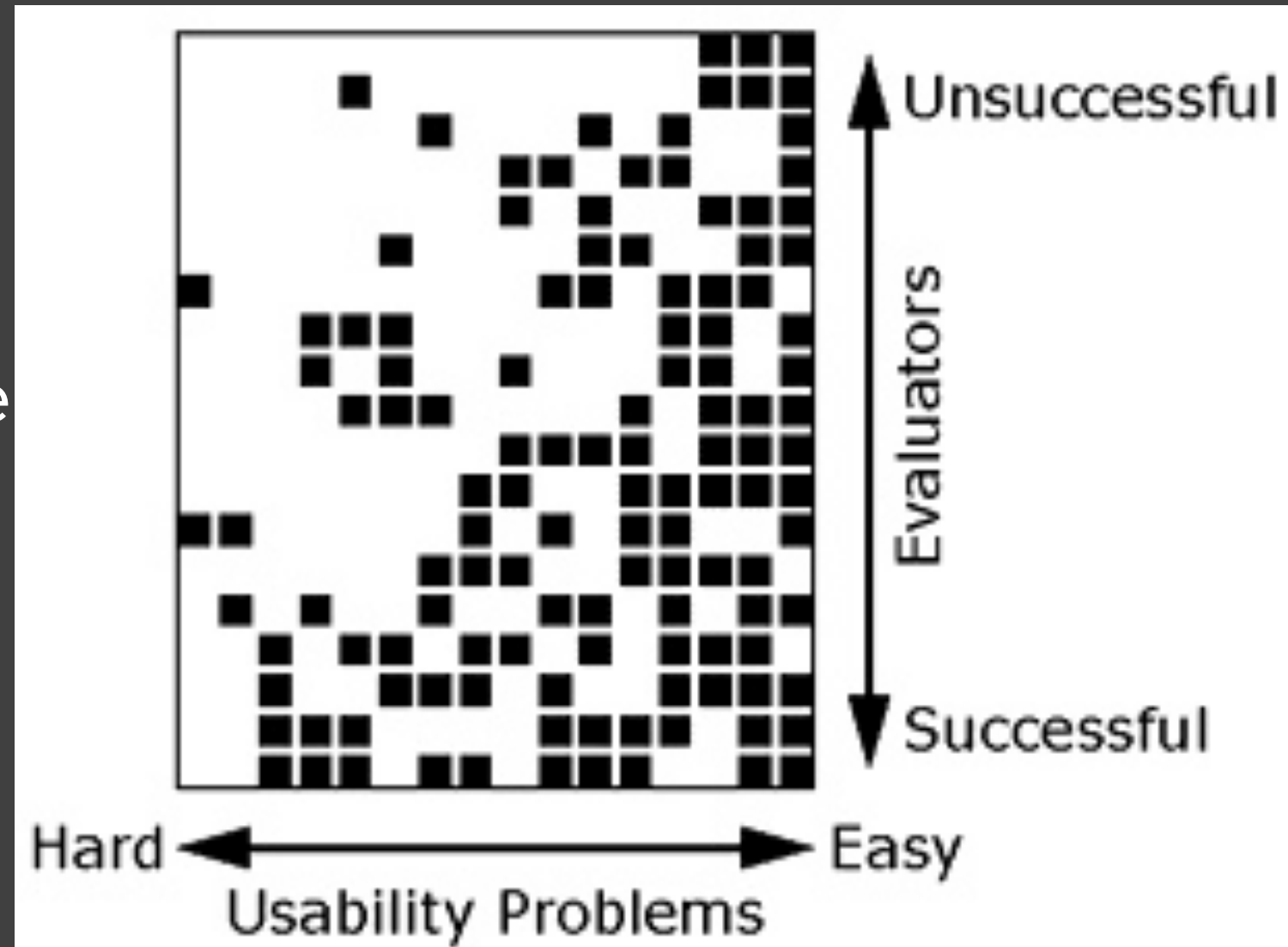
Done  
Thursday, October 15, 2009

# Heuristic Evaluation Process

- Evaluators go through UI several times
  - inspect various dialogue elements
  - compare with list of usability principles
  - consider other principles/results that come to mind
- Usability principles
  - Nielsen's "heuristics"
  - supplementary list of category-specific heuristics
    - competitive analysis & user testing of existing products
- Use violations to redesign/fix problems

# Why Multiple Evaluators?

- Every evaluator doesn't find every problem
- Good evaluators find both easy & hard one



# HE vs. User Testing

- HE is much faster
  - 1-2 hours each evaluator vs. days-weeks
- HE doesn't require interpreting user's actions
- User testing is far more accurate (by def.)
  - takes into account actual users and tasks
  - HE may miss problems & find "false positives"
- Good to alternate between HE & user testing
  - find different problems
  - don't waste participants

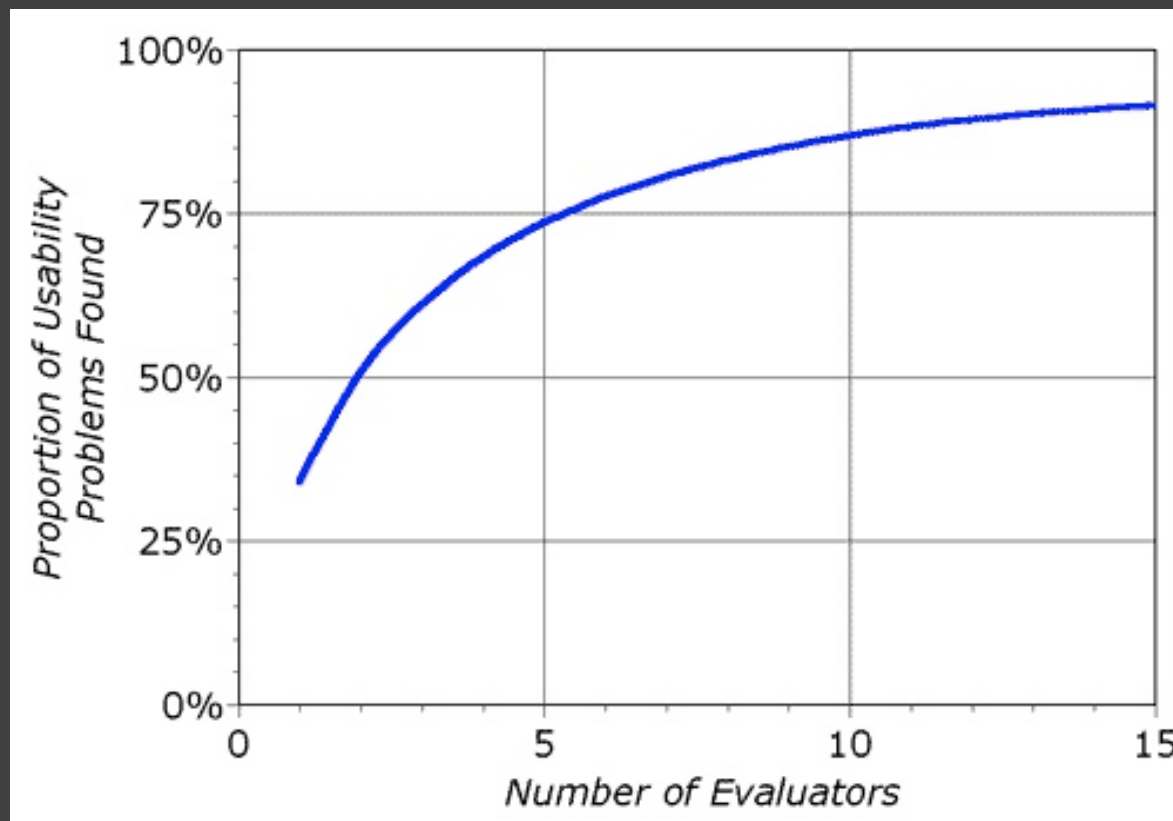


# Results of Using HE

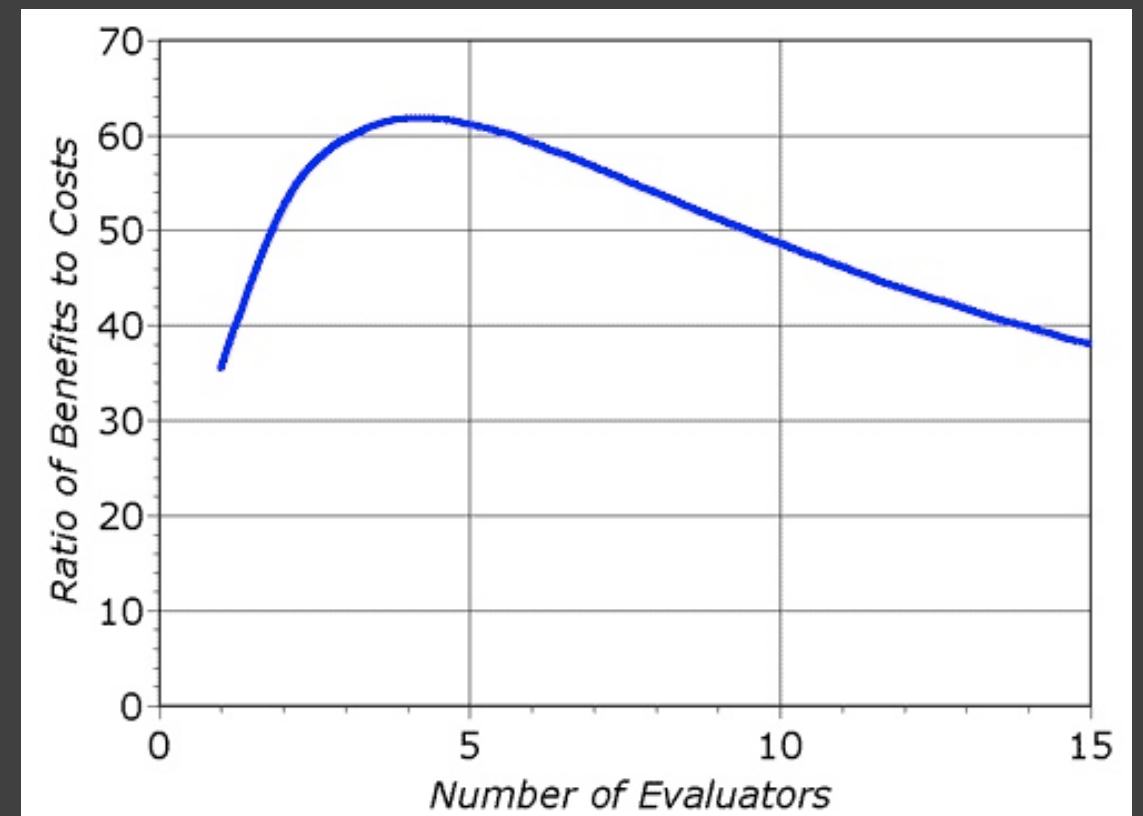
- Discount: benefit-cost ratio of 48 [Nielsen94]
  - cost was \$10,500 for benefit of \$500,000
  - value of each problem ~15K (Nielsen & Landauer)
  - how might we calculate this value?
    - in-house -> productivity; open market -> sales
- Correlation between severity & finding w/ HE
- Single evaluator achieves poor results
  - only finds 35% of usability problems
  - 5 evaluators find ~ 75% of usability problems
  - why not more evaluators???? 10? 20?
    - adding evaluators costs more & won't find more probs

# Decreasing Returns

problems found



benefits / cost



- Caveat: graphs for a specific example

# Phases of Heuristic Evaluation

## 1) Pre-evaluation training

- give evaluators needed domain knowledge and information on the scenario

## 2) Evaluation

- individuals evaluate and then aggregate results

## 3) Severity rating

- determine how severe each problem is (priority)
  - can do this first individually and then as a group

## 4) Debriefing

- discuss the outcome with design team

# How-to: Heuristic Evaluation

- At least two passes for each evaluator
  - first to get feel for flow and scope of system
  - second to focus on specific elements
- If system is walk-up-and-use or evaluators are domain experts, no assistance needed
  - otherwise might supply evaluators with scenarios
- Each evaluator produces list of problems
  - explain why with reference to heuristic or other information
  - be specific and list each problem separately

# How-to: Heuristic Evaluation

- Why separate listings for each violation?
  - risk of repeating problematic aspect
  - may not be possible to fix all problems
- Where problems may be found
  - single location in UI
  - two or more locations that need to be compared
  - problem with overall structure of UI
  - something that is missing
    - hard w/ paper prototypes so work extra hard on those
    - note: sometimes features are implied by design docs and just haven't been "implemented" – relax on those

# Severity Rating

- Used to allocate resources to fix problems
- Estimates of need for more usability efforts
- Combination of
  - frequency
  - impact
  - persistence (one time or repeating)
- Should be calculated after all evals. are in
- Should be done independently by all judges

# Severity Ratings

- 0 - don't agree that this is a usability problem
- 1 - cosmetic problem
- 2 - minor usability problem
- 3 - major usability problem; important to fix
- 4 - usability catastrophe; imperative to fix



# Debriefing

- Conduct with evaluators, observers, and development team members
- Discuss general characteristics of UI
- Suggest potential improvements to address major usability problems
- Dev. team rates how hard things are to fix
- Make it a brainstorming session
  - little criticism until end of session