CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 11:
Tasks in Testing

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar

Tuesday / Thursday
10:30 to 11:50

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 too... 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

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User Interface Design, Prototyping, and Evaluation

Lecture 13:
Inspection-Based Methods

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar

University of Washington Computer Science & Engineering

DESIGN
USE
BUILD

Tuesday / Thursday
10:30 to 11:50

Today

Project Status

Exam Discussion

Inspection-Based Methods

Time for Heuristic Evaluation of Paper Prototypes

Project Status

Looking Forward

3b: Heuristic Evaluation due Tomorrow Night

3c: Usability Testing Check-In due Thursday

- Changes from Inspection
- Changes from First Usability Test

3d: Usability Testing Review due Thursday 2/23

Other Assignments

Reading 4 will be Posted, Due Friday 2/24

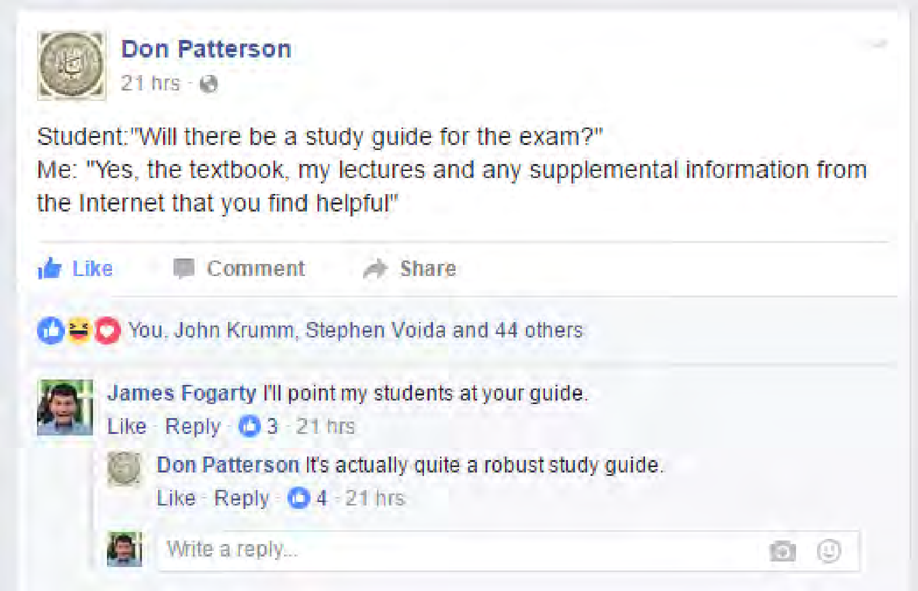
(you should engage before that if you can)

Exam

In-Class
Next Tuesday 2/21

Mostly short answer, some long answer

Content drawn from lecture and readings



Don Patterson
21 hrs ·

Student:"Will there be a study guide for the exam?"
Me: "Yes, the textbook, my lectures and any supplemental information from the Internet that you find helpful"

You, John Krumm, Stephen Voida and 44 others

James Fogarty I'll point my students at your guide.
Like · Reply · 3 · 21 hrs

Don Patterson It's actually quite a robust study guide.
Like · Reply · 4 · 21 hrs

Will post a compilation of the lecture slides

Schedule a time for Q&A?

Inspection-Based Methods

We have cut prototyping to its minimum

- Sketches, storyboards, paper prototypes
- Rapid exploration of potential ideas

But we need evaluation to guide improvement

- Can become relatively slow and expensive
- Study participants can be scarce
- Can waste participants on obvious problems

Inspection-Based Methods

Simulate study participants

- Instead of actual participants, use inspection to quickly and cheaply identify likely problems

Inspection methods are rational, not empirical

Today we cover two complementary methods

- Heuristic Evaluation
- Cognitive Walkthrough

Heuristic Evaluation

Developed by Jakob Nielsen

- Helps find usability problems in a design
- Not a method for “coming up with” a design

Small set of evaluators examine interface

- Three to five evaluators
- Independently check compliance with principles
- Different evaluators will find different problems
- Evaluators only communicate afterwards

Can perform on working interfaces or sketches

Nielsen’s 10 Heuristics

Too few unhelpful, too many overwhelming

- “Be Good” versus thousands of detailed rules

Nielsen seeks to create a small set

- Collects 249 usability problems
- Collects 101 usability heuristics
- Rates how well heuristics explain problems
- Factor analysis to identify key heuristics

Nielsen, 1994

Nielsen’s 10 Heuristics

Visibility of system status

Match between system and the real world

User control and freedom

Consistency and standards

Error prevention

Recognition rather than recall

Flexibility and efficiency of use

Aesthetic and minimalist design

Help recognize, diagnose, and recover from errors

Help and documentation

Nielsen, 1994

1. Visibility

Visibility of system status

The system should always keep people informed about what is going on, through appropriate feedback within reasonable time.

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Visibility of system status

> The system should always keep people informed about what is going on, through appropriate feedback within reasonable time.

Refers to both visibility of system status and providing appropriate feedback

> Anytime a person is wondering what state the system is in, or the result of some action, this is a visibility violation.

2. Real World Match

Match between system and the real world

The system should speak a person’s language, with words, phrases and concepts familiar to the person, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

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Refers to word and language choice, mental model, metaphor, mapping, and sequencing

3. Control and Freedom

User control and freedom

People often choose system functions by mistake and will need a clearly marked “emergency exit” to leave the unwanted state without having to go through an extended dialogue.

Support undo and redo.

3. User in Control

User control and freedom

People often choose system functions by mistake and will need a clearly marked “emergency exit” to leave the unwanted state without having to go through an extended dialogue.

Support undo and redo.

Not just for navigation exits,
but for getting out of any situation or state.

4. Consistency

Consistency and standards

> People should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

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Consistency and standards

> People should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Internal consistency is consistency throughout the same product. External consistency is consistency with other products in its class.

5. Error Prevention

Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present people with a confirmation option before they commit to the action.

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Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present people with a confirmation option before they commit to the action.

Try to commit errors and see how they are handled. Could they have been prevented?

6. Recognition not Recall

Recognition rather than recall

Minimize a person’s memory load by making objects, actions, and options visible. A person should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

6. Recognition not Recall

Recognition rather than recall

Minimize a person’s memory load by making objects, actions, and options visible. A person should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

People should never carry a memory load

6. Recognition not Recall

Addresses visibility of features and information

- where to find things

Visibility addresses system status and feedback

- what is going on

Problems with affordances may go here

- hidden affordance: remember where to act
- false affordance: remember it is a fake

7. Flexibility and Efficiency

Flexibility and efficiency of use

Accelerators, while unseen by novices, may often speed up the interaction for experts such that the system can cater to both inexperienced and experienced use.

Allow people to tailor frequent actions.

7. Flexibility and Efficiency

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> Accelerators, while unseen by novices, may often speed up the interaction for experts such that the system can cater to both inexperienced and experienced use. Allow people to tailor frequent actions.

Concerns anywhere users have repetitive actions that must be done manually. Also concerns allowing multiple ways to do things.

8. Aesthetic Design

Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed.

Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

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Aesthetic and minimalist design

> Dialogues should not contain information which is irrelevant or rarely needed.
> Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Not just about “ugliness”.
About clutter, overload of visual field, visual noise, distracting animations.

9. Error Recovery

Help users recognize, diagnose,
and recover from errors

Error messages should be expressed in plain language (no codes),
precisely indicate the problem,
and constructively suggest a solution.

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Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Error prevention is about preventing errors before they occur. This is about after they occur.

10. Help

Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on a person’s task, list concrete steps to be carried out, and not be too large.

10. Help

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This does not mean that a person must be able to ask for help on every single item.

Heuristic Evaluation Process

Evaluators go through interface several times

- Inspect various dialogue elements
- Compare with list of usability principles

Usability principles

- Nielsen’s “heuristics”
- Supplementary list of category-specific heuristics (competitive analysis or testing existing products)

Use violations to redesign/fix problems

Examples

Can’t copy info from one window to another

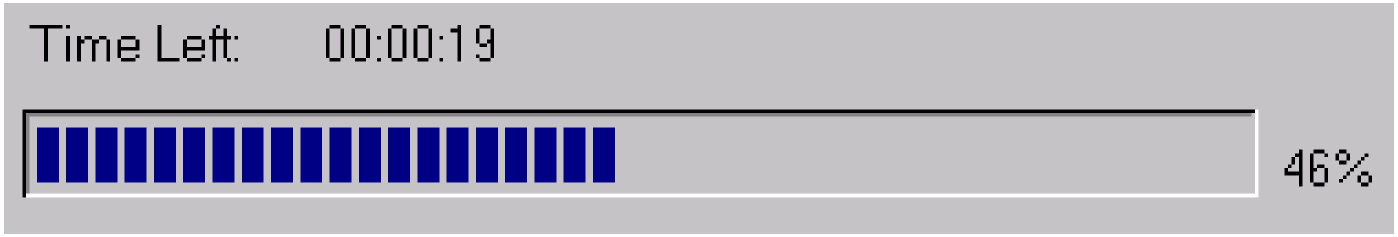
- violates “Minimize memory load” (H6)
- fix: allow copying

Typography uses different fonts in 3 dialog boxes

- violates “Consistency and standards” (H4)
  - slows users down
  - probably wouldn’t be found by usability testing
- fix: pick a single format for entire interface

Heuristics

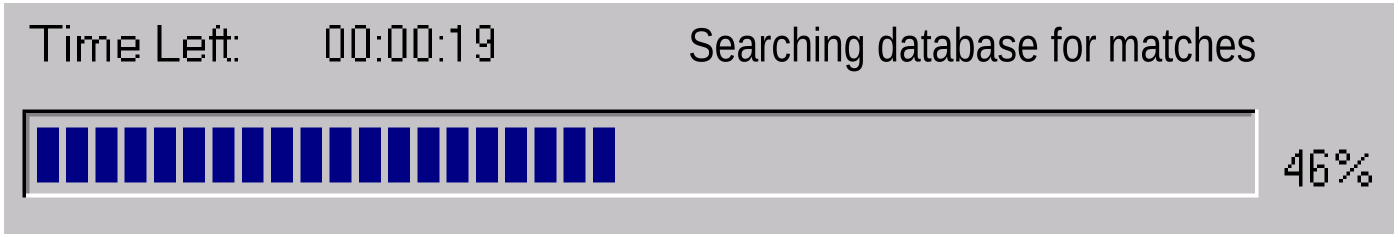
Heuristics



Time Left: 00:00:19

46%

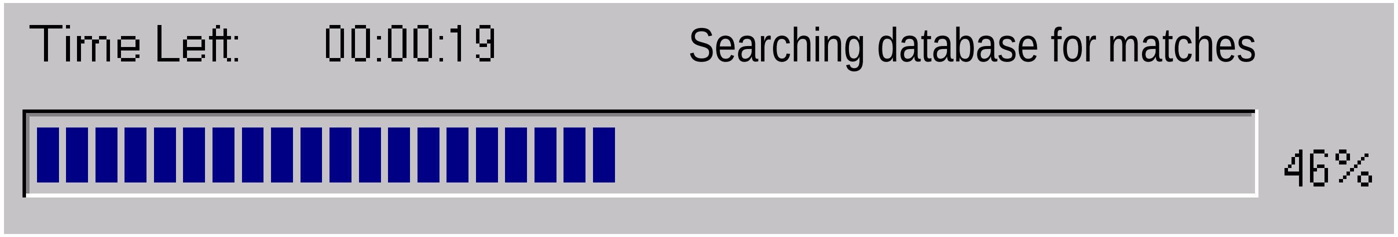
Heuristics



Time Left: 00:00:19 Searching database for matches

46%

Heuristics



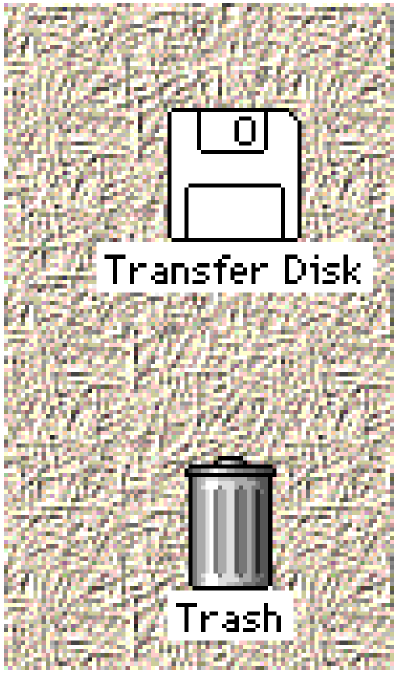
Time Left: 00:00:19 Searching database for matches

46%

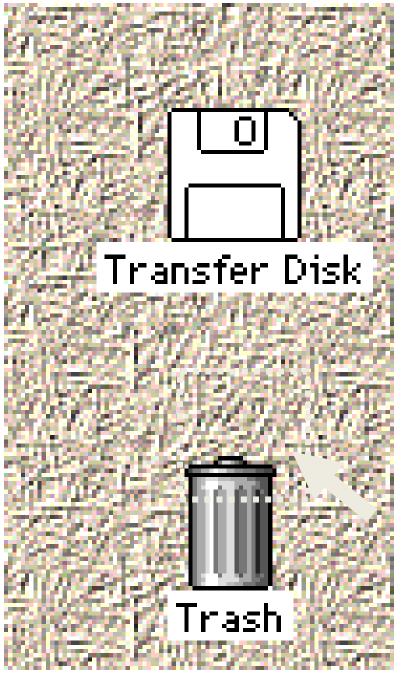
Visibility of system status

- 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: maximum duration if user to stay focused on action
- longer delays require percent-done progress bars

Heuristics



Heuristics



Mac desktop

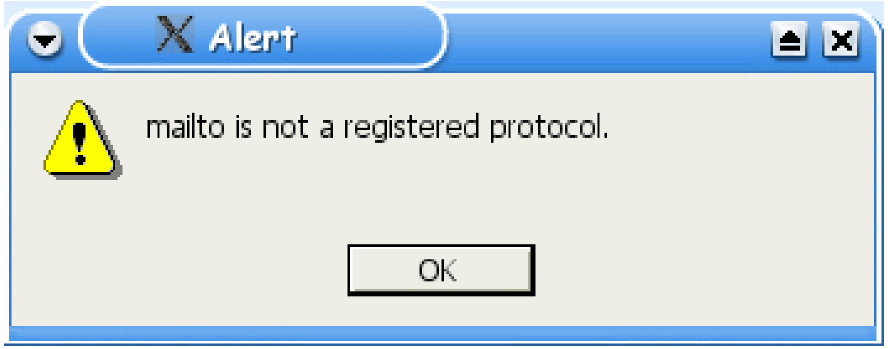
Dragging disk to trash should delete, not eject it

Match system to real world

Speak the person’s language

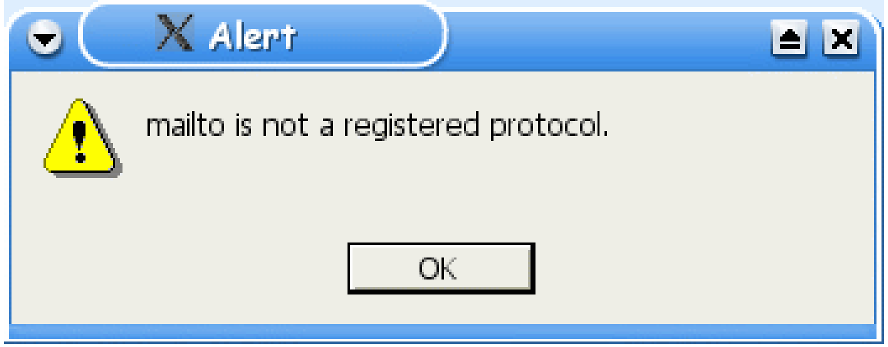
Follow conventions

Heuristics



mailto is not a registered protocol.

Heuristics



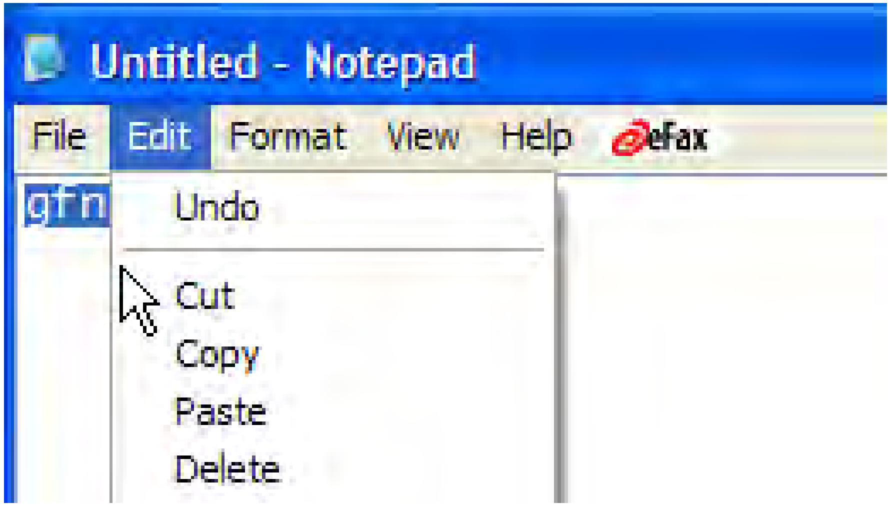
mailto is not a registered protocol.

“Mailto”, “protocol”?

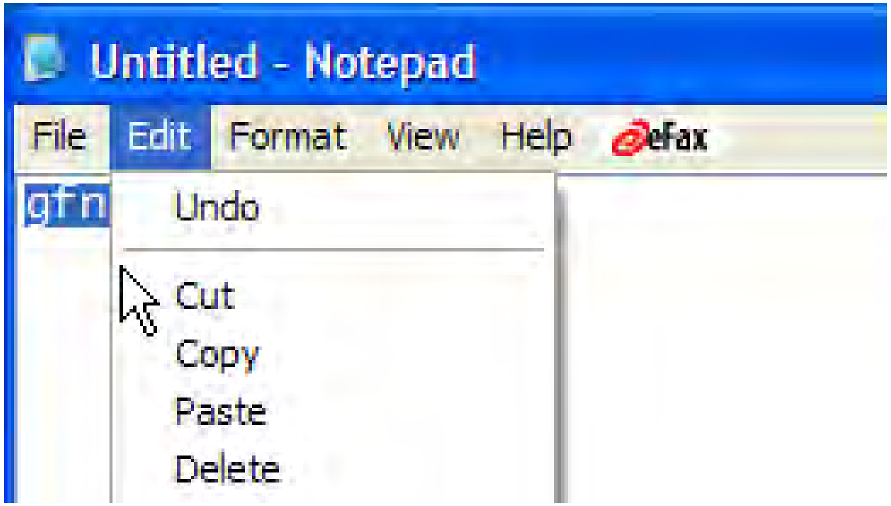
Match system to real world

Speak the person’s language

Heuristics


Untitled - Notepad
File
Edit
Format
View
Help
efax
gfn
Undo
Cut
Copy
Paste
Delete

Heuristics

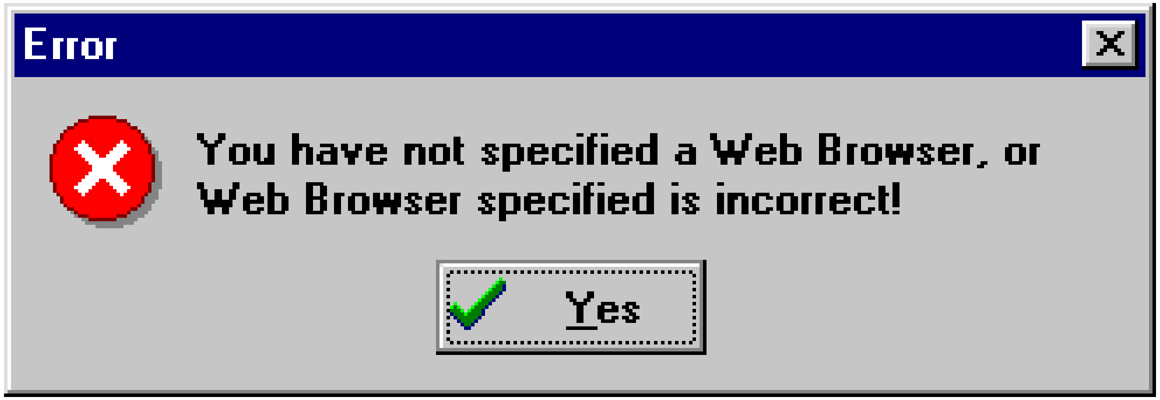


Flexibility and Efficiency of Use

accelerators for experts (e.g., keyboard shortcuts)

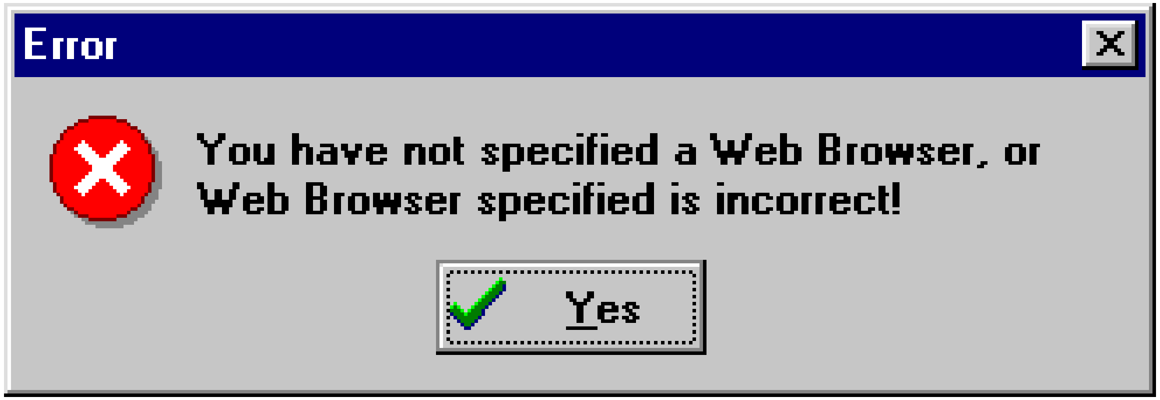
allow tailoring of frequent actions (e.g., macros)

Heuristics



You have not specified a Web Browser, or Web Browser specified is incorrect!

Heuristics

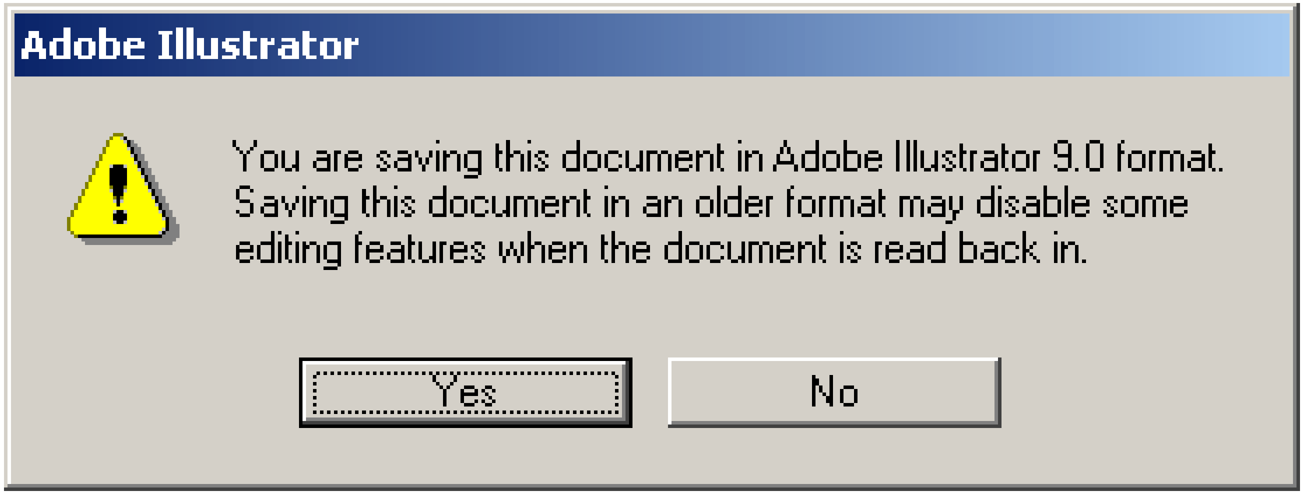


You have not specified a Web Browser, or Web Browser specified is incorrect!

Help recognize, diagnose, & recover from errors

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

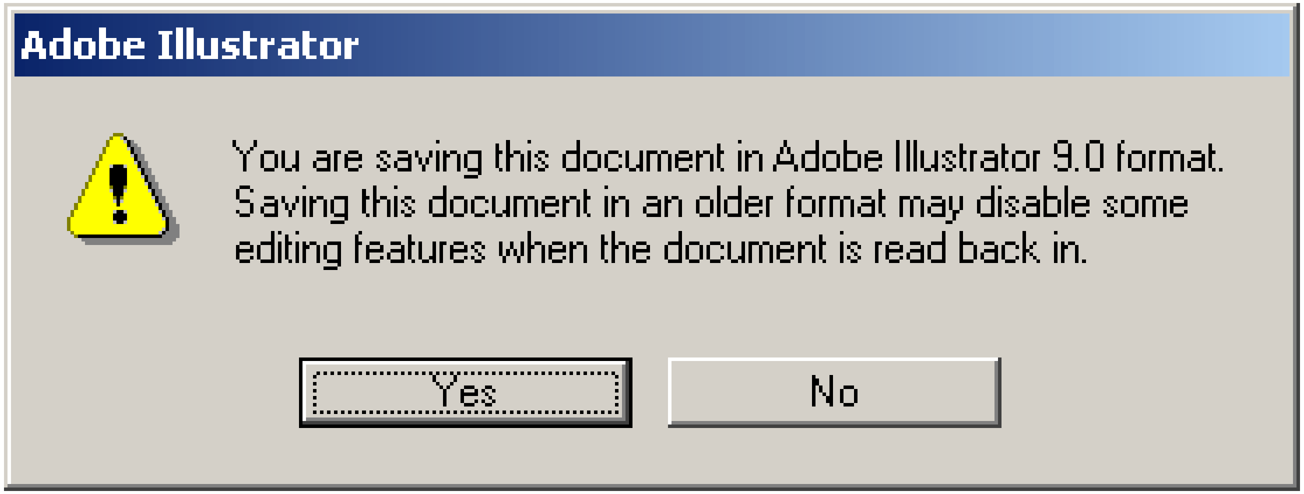
Heuristics



Adobe Illustrator

You are saving this document in Adobe Illustrator 9.0 format. Saving this document in an older format may disable some editing features when the document is read back in.

Heuristics



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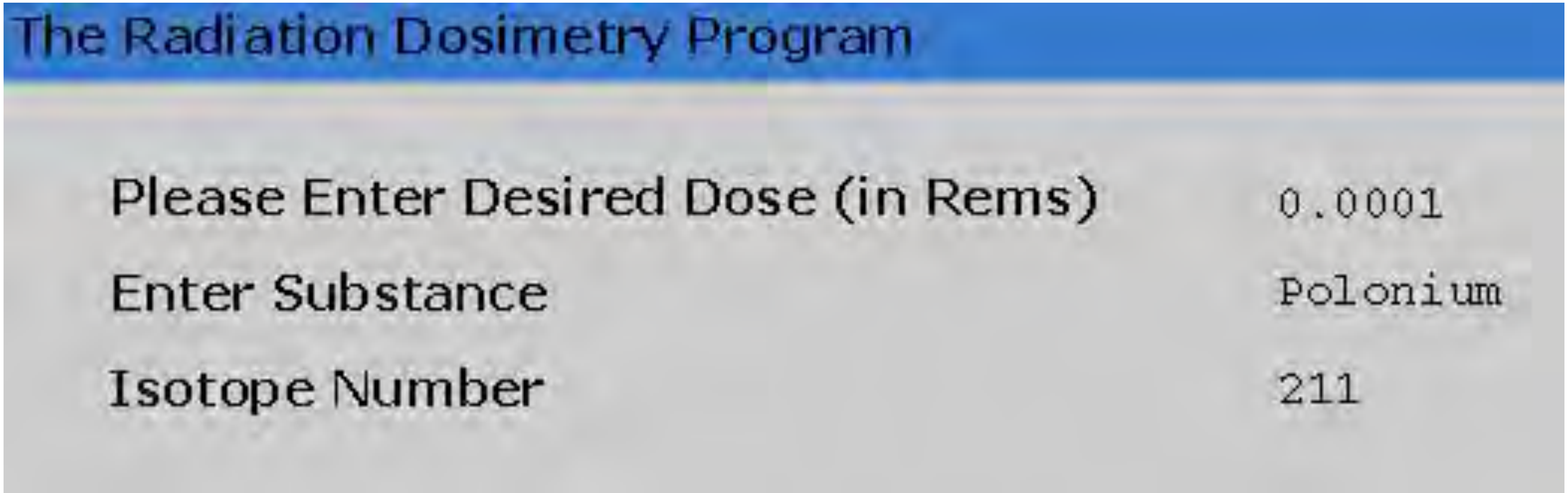
User Control and Freedom

Prevent Errors

Heuristics



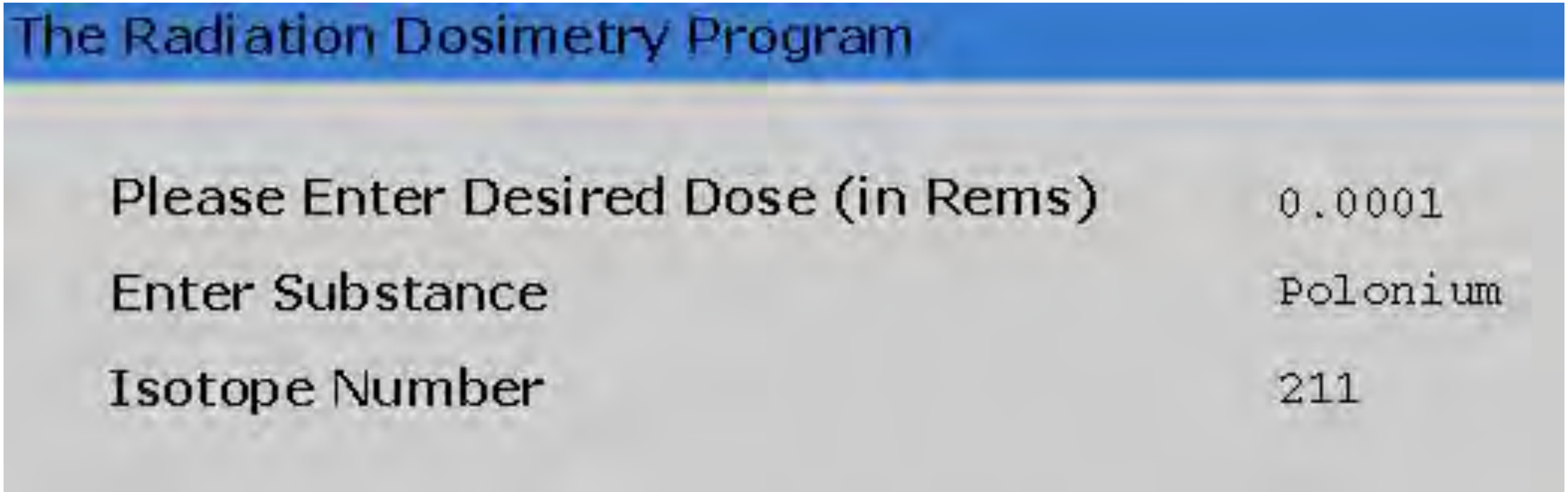
The Radiation Dosimetry Program

Please Enter Desired Dose (in Rems) 0.0001

Enter Substance Polonium

Isotope Number 211

Heuristics



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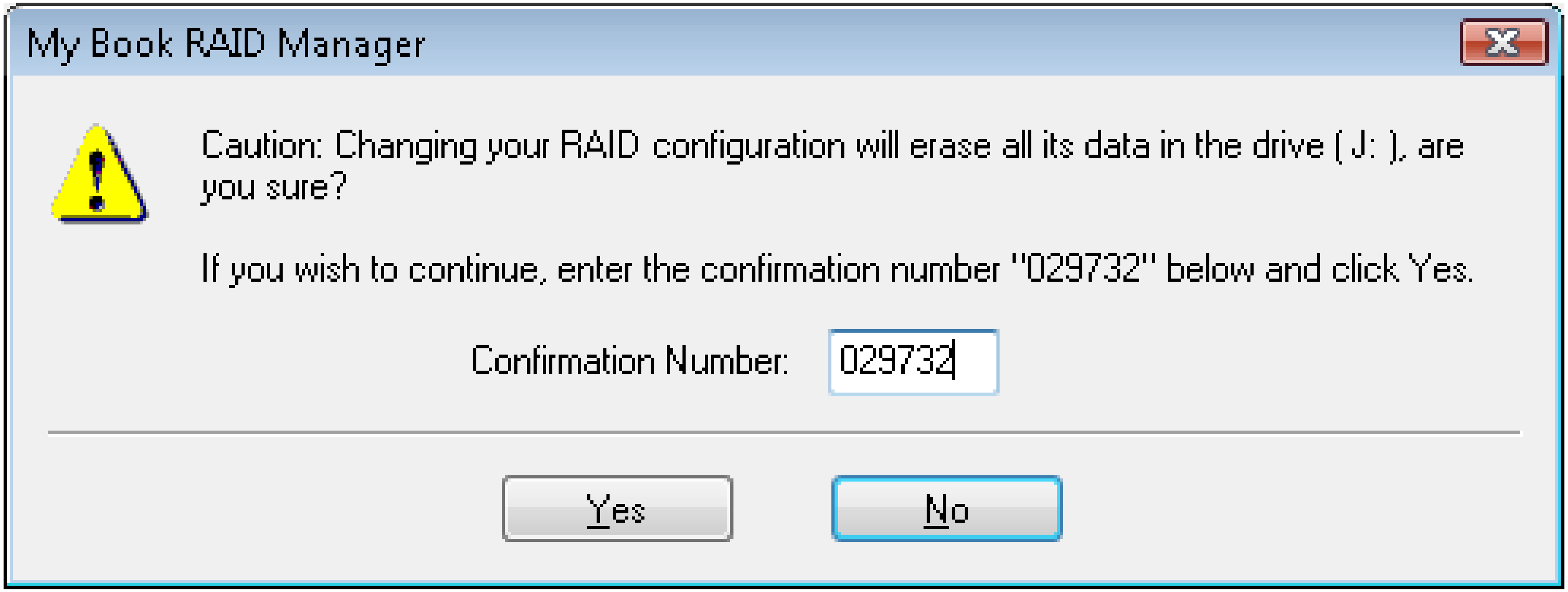
Prevent Errors

Heuristics

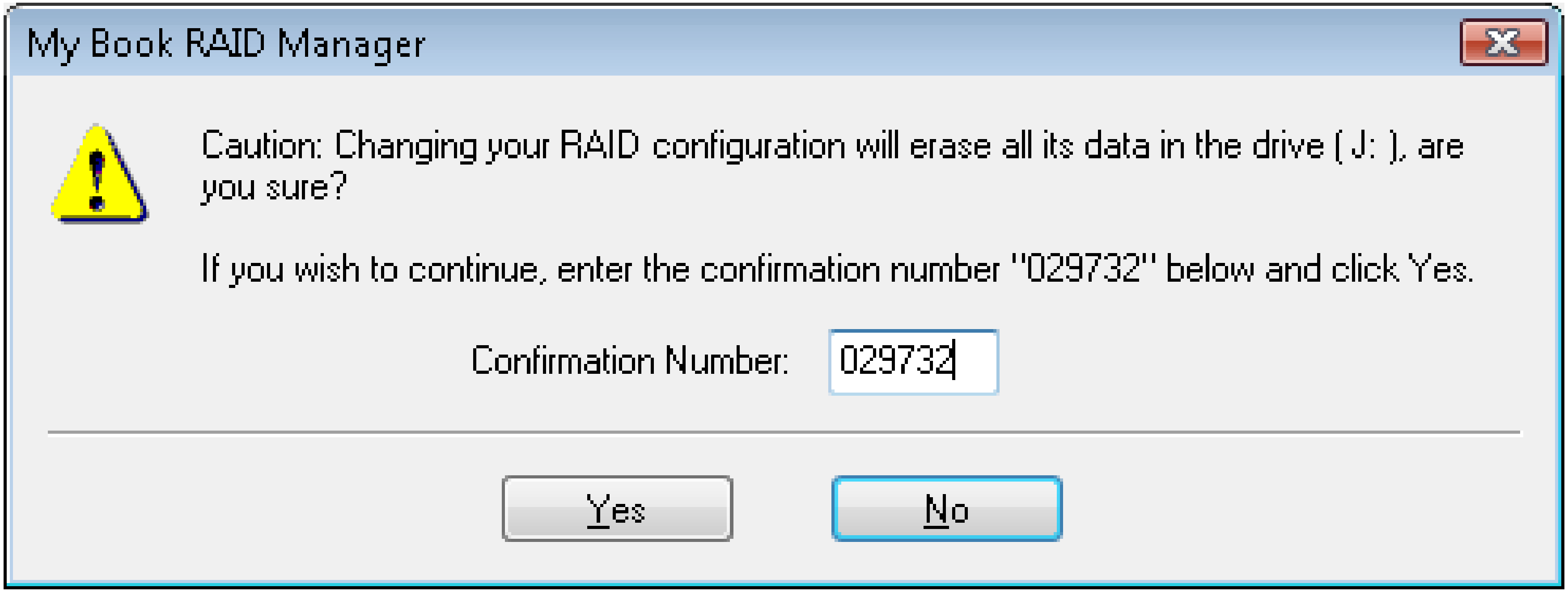


Caution: Changing your RAID configuration will erase all its data in the drive (J:), are you sure?

If you wish to continue, enter the confirmation number "029732" below and click Yes.

Confirmation Number: 029732

Heuristics



My Book RAID Manager

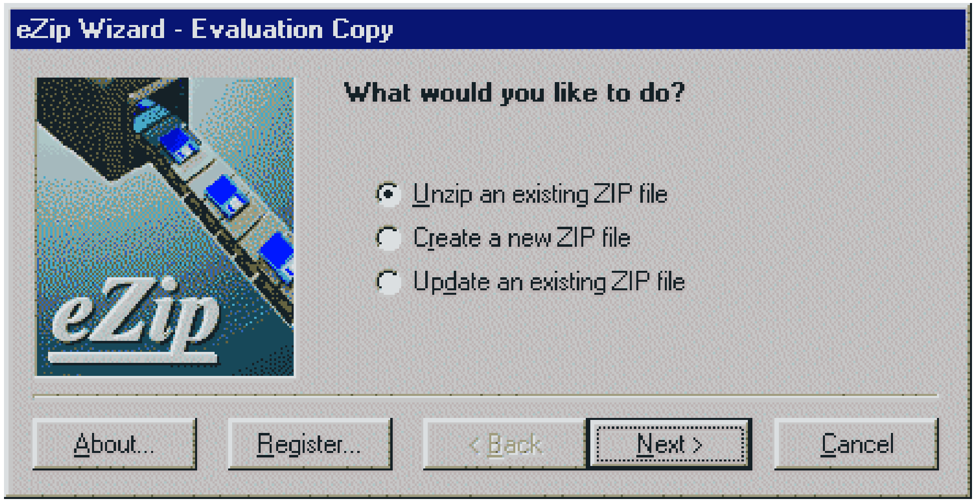
Caution: Changing your RAID configuration will erase all its data in the drive (J:), are you sure?

If you wish to continue, enter the confirmation number "029732" below and click Yes.

Confirmation Number: 029732

Prevent Errors

Heuristics



eZip Wizard - Evaluation Copy

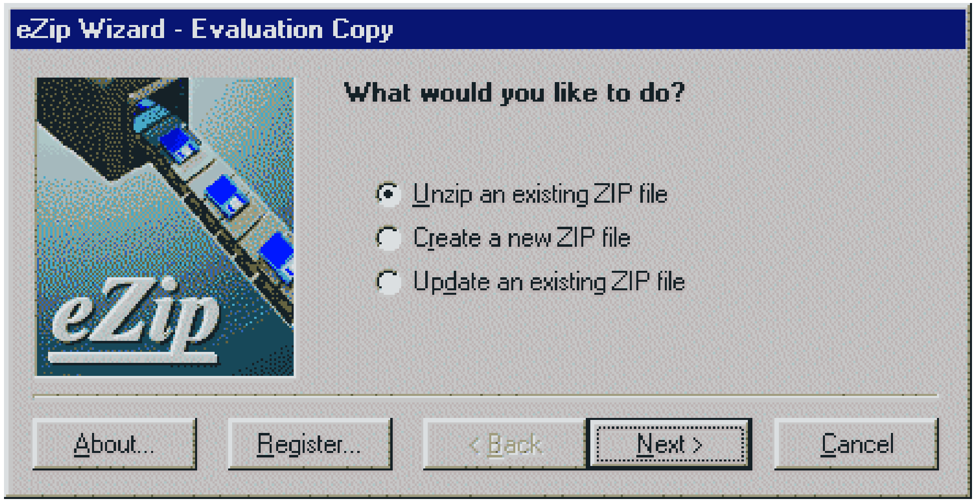
What would you like to do?

● Unzip an existing ZIP file

○ Create a new ZIP file

○ Update an existing ZIP file

Heuristics



eZip Wizard - Evaluation Copy

What would you like to do?

● Unzip an existing ZIP file
○ Create a new ZIP file
○ Update an existing ZIP file

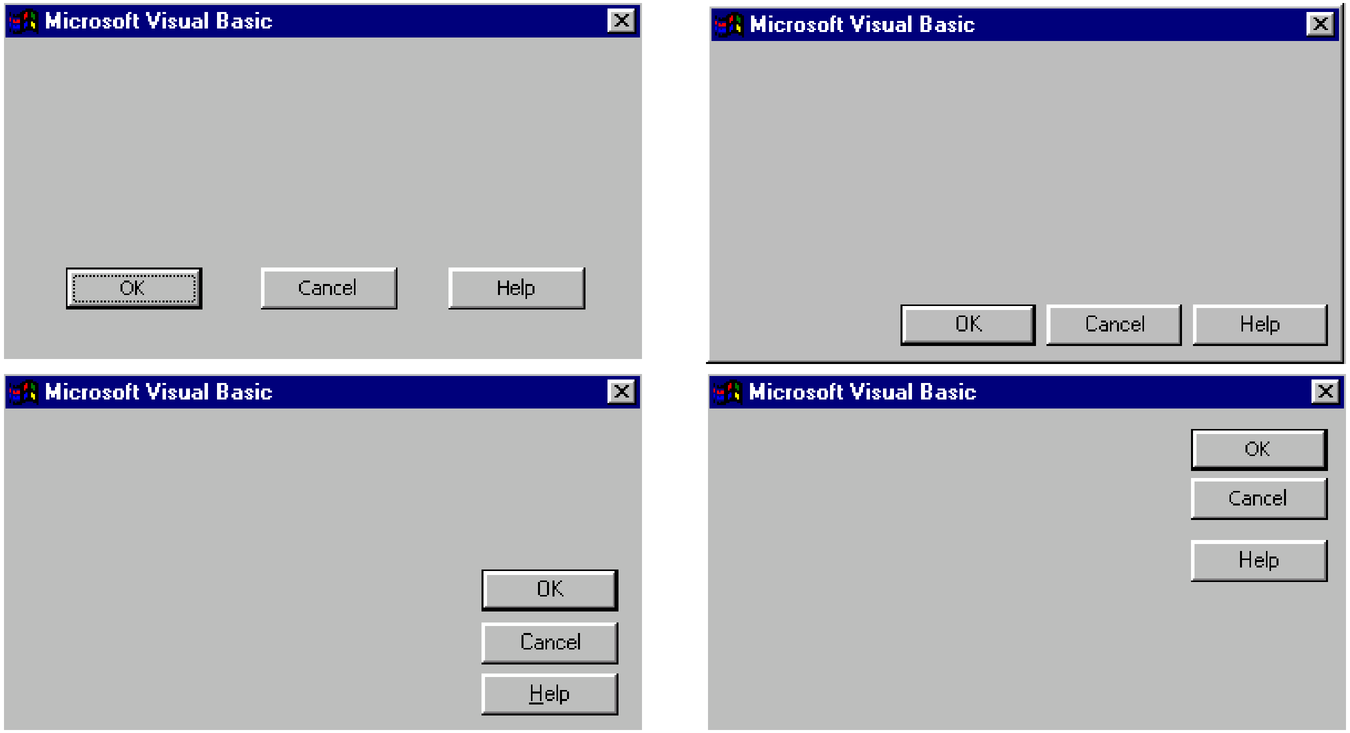
User control & freedom

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

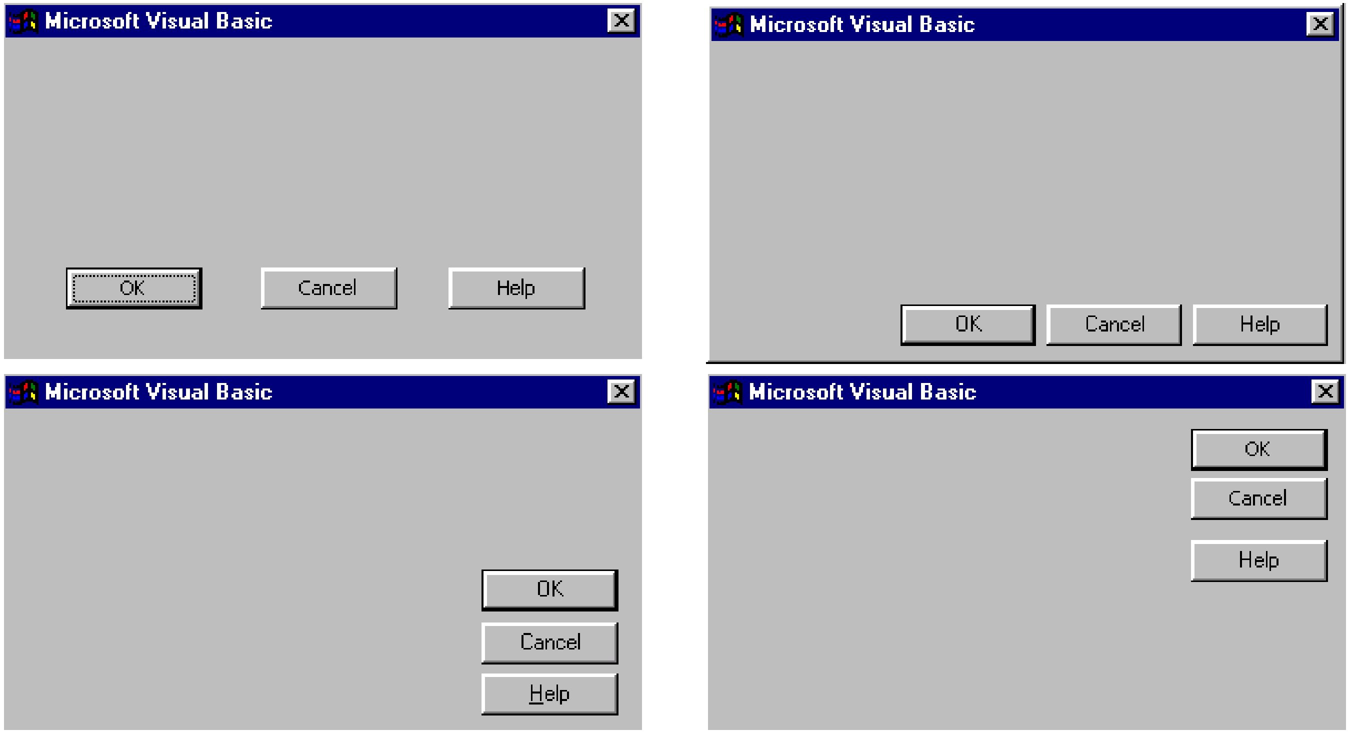
Wizards

- must respond to question before going to next
- good for beginners, infrequent tasks
- not for common tasks
- consider having 2 versions (WinZip)

Heuristics


Microsoft Visual Basic
OK
Cancel
Help
Microsoft Visual Basic
OK
Cancel
Help
Microsoft Visual Basic
OK
Cancel
Help
Microsoft Visual Basic
OK
Cancel
Help

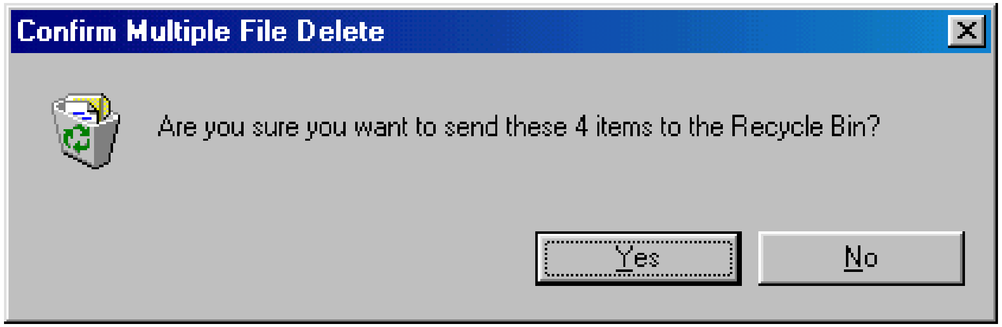
Heuristics



Consistency & Standards

Heuristics

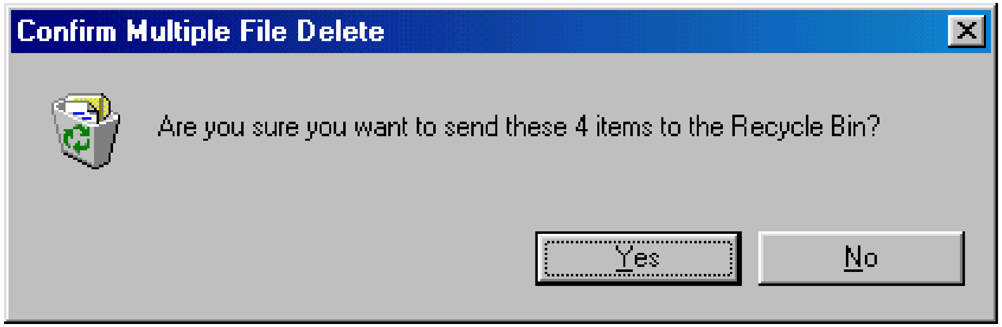
```
% rm cse440*
%
```



Are you sure you want to send these 4 items to the Recycle Bin?

Heuristics

```
% rm cse440*
%
```



Confirm Multiple File Delete

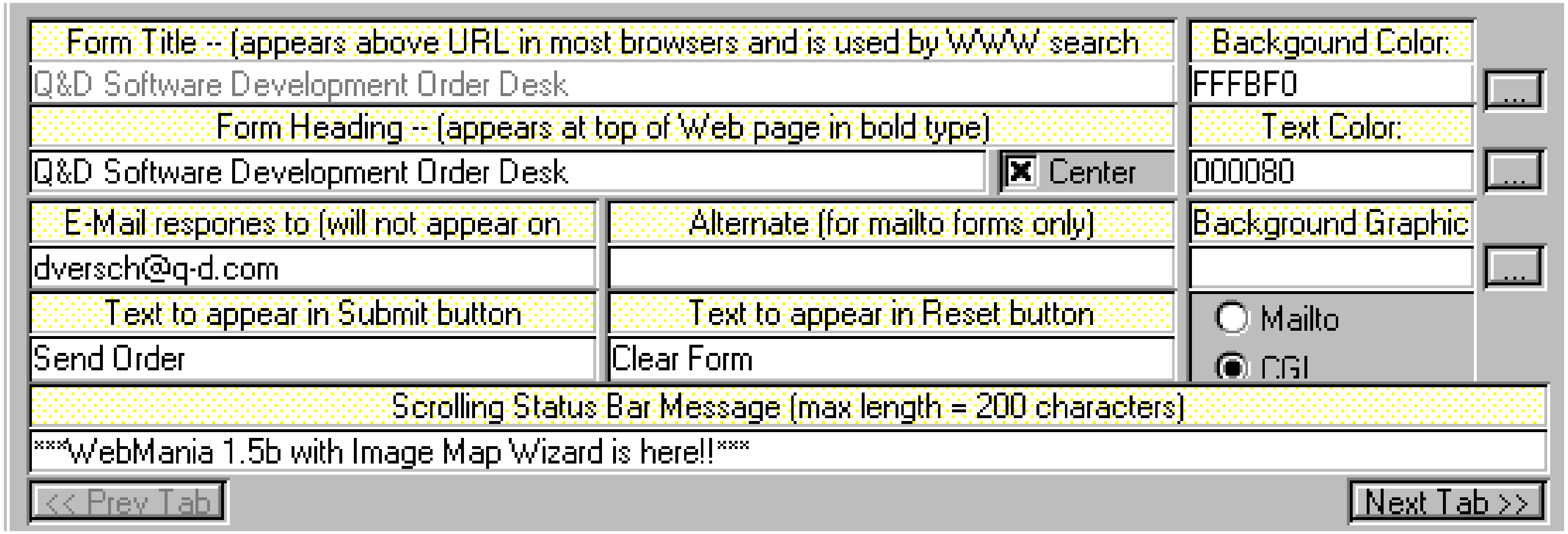
Are you sure you want to send these 4 items to the Recycle Bin?

Error prevention

Recognition rather than recall

Visibility

Heuristics



Form Title -- (appears above URL in most browsers and is used by WWW search

Q&D Software Development Order Desk

Form Heading -- (appears at top of Web page in bold type)

Q&D Software Development Order Desk

☒ Center

Backgound Color:

FFFBF0

Text Color:

000080

Background Graphic

E-Mail respones to (will not appear on

dversch@q-d.com

Alternate (for mailto forms only)

Text to appear in Submit button

Send Order

Text to appear in Reset button

Clear Form

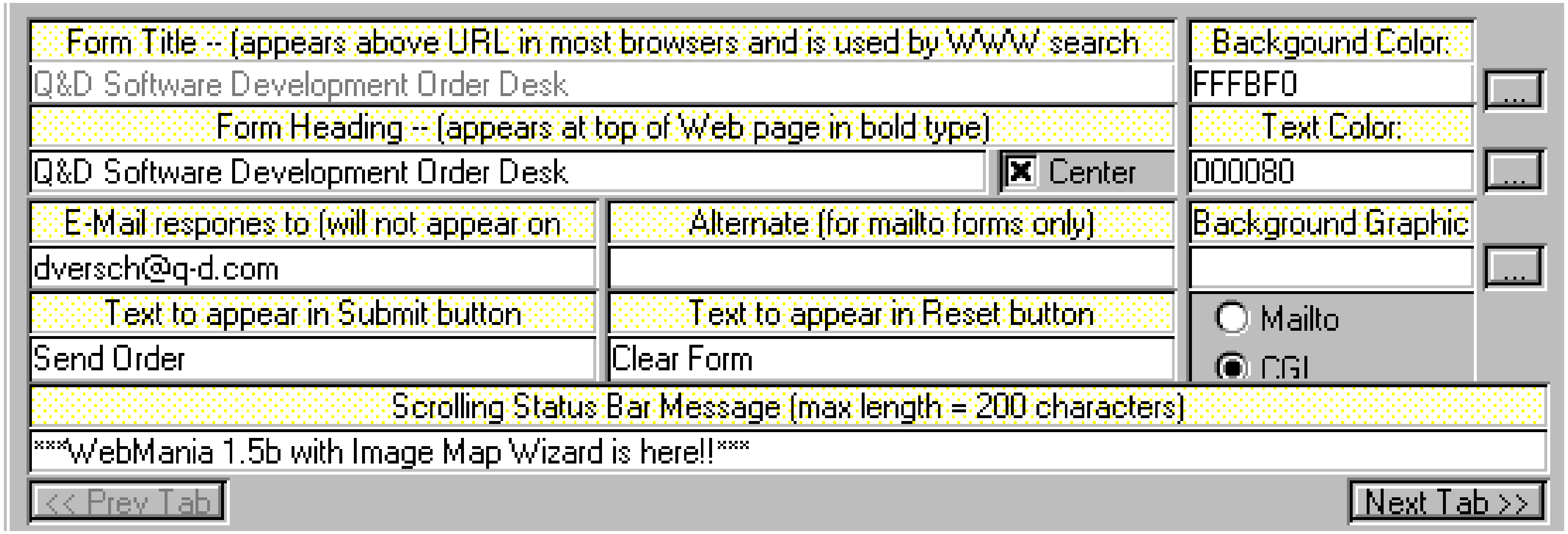
○ Mailto

● CGI

Scrolling Status Bar Message (max length = 200 characters)

WebMania 1.5b with Image Map Wizard is here!!

Heuristics



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● CGI

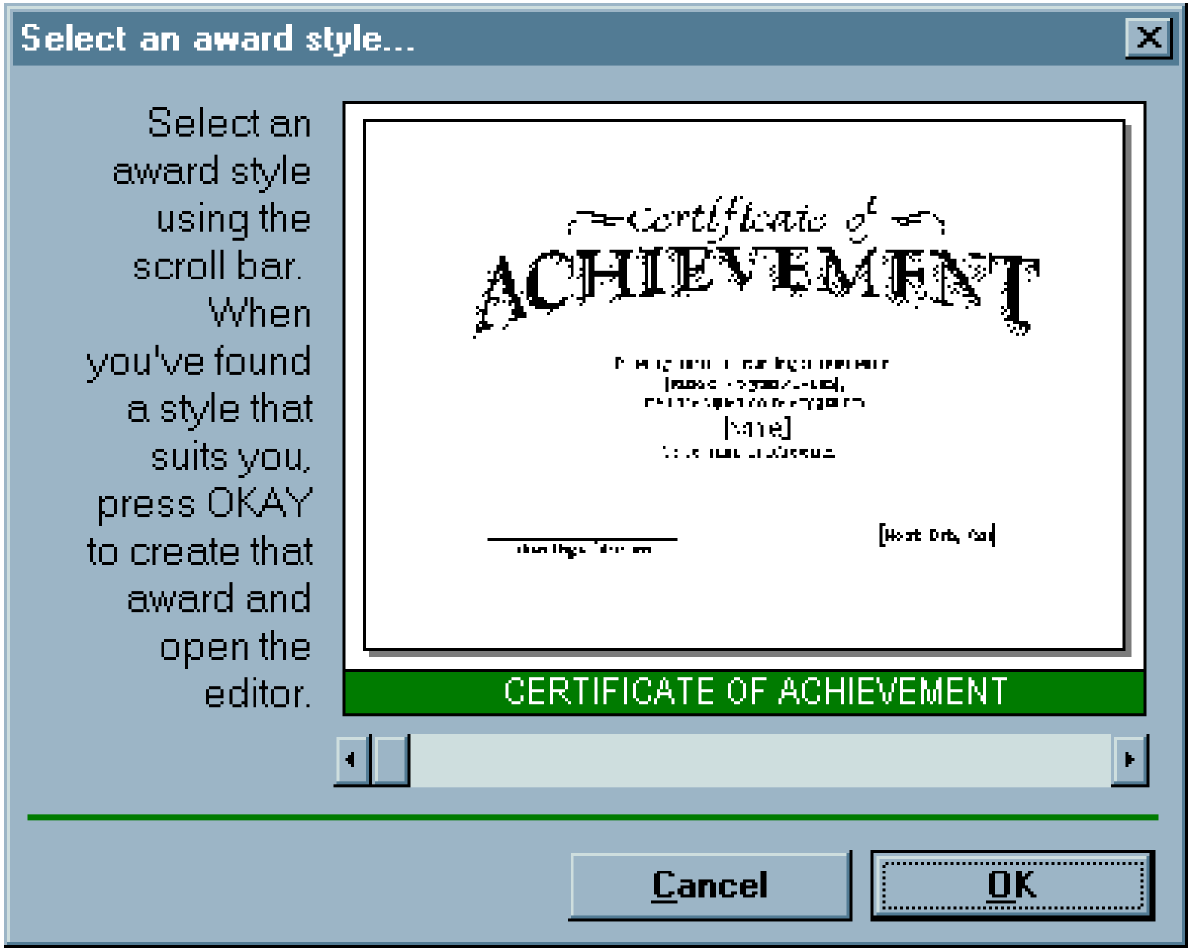
Scrolling Status Bar Message (max length = 200 characters)

WebMania 1.5b with Image Map Wizard is here!!

Aesthetic & Minimalist design

no irrelevant information in dialogues

Heuristics

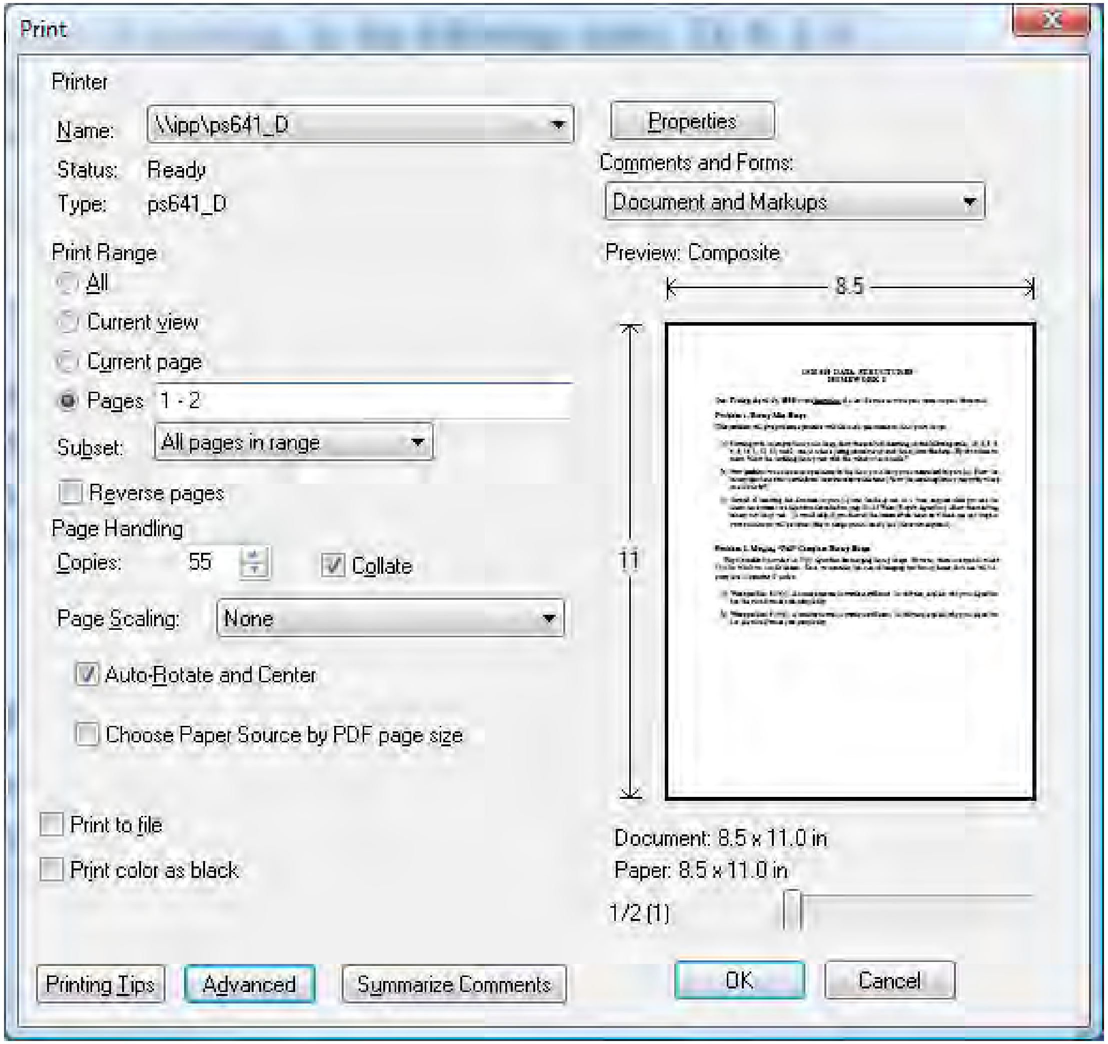


Select an award style...

Select an award style using the scroll bar. When you've found a style that suits you, press OKAY to create that award and open the editor.

CERTIFICATE OF ACHIEVEMENT

Heuristics



Print

Printer

Name: \\ipp\ps641_D

Status: Ready

Type: ps641_D

Print Range

○ All

○ Current view

○ Current page

● Pages 1 - 2

Subset: All pages in range

□ Reverse pages

Page Handling

Copies: 55 ☑ Collate

Page Scaling: None

☑ Auto-Rotate and Center

□ Choose Paper Source by PDF page size

□ Print to file

□ Print color as black

Comments and Forms: Document and Markups

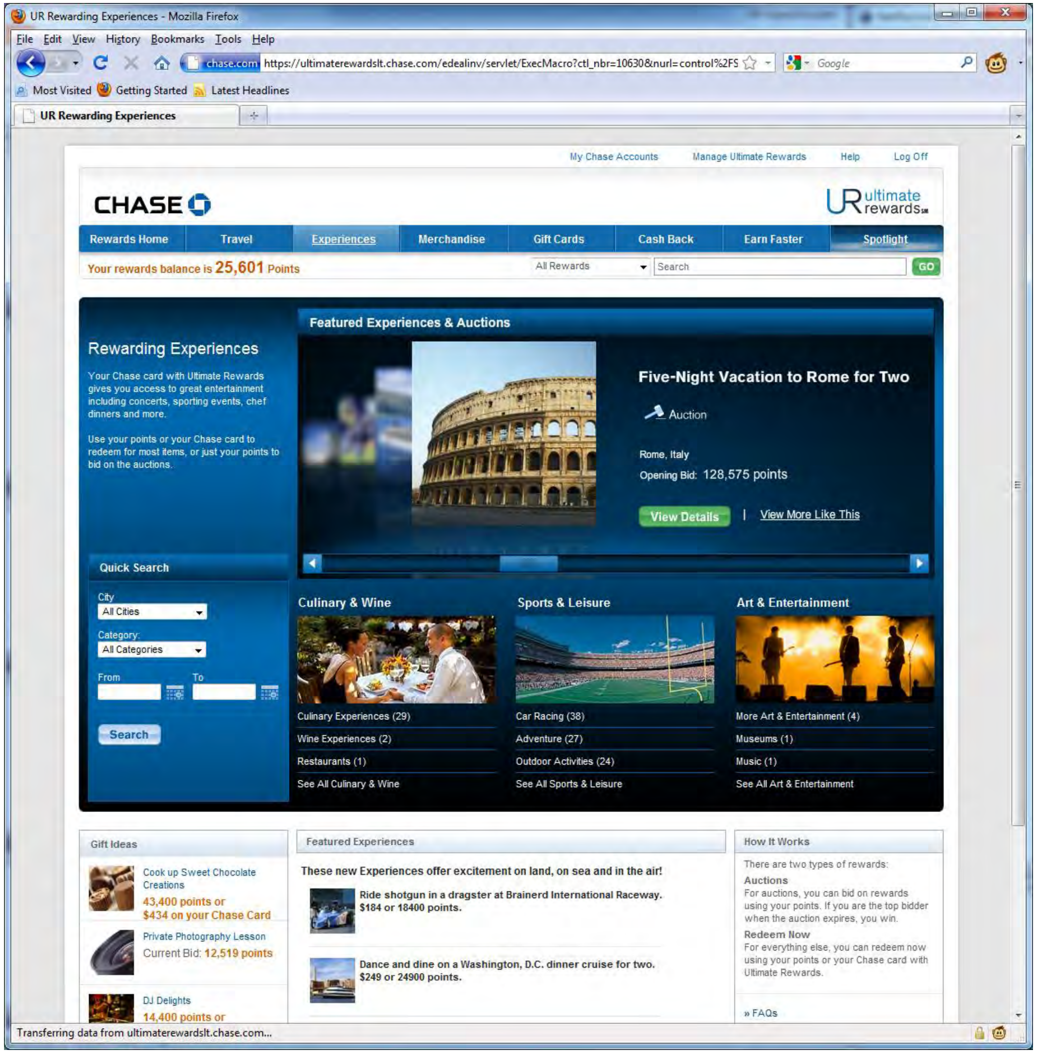
Preview: Composite

Document: 8.5 x 11.0 in

Paper: 8.5 x 11.0 in

1/2 (1)

Heuristics



UR Rewarding Experiences - Mozilla Firefox
File Edit View History Bookmarks Tools Help
chase.com
https://ultimaterewardslt.chase.com/edealinv/servlet/ExecMacro?ctl_nbr=10630&nurl=control%2FS
Google
Most Visited
Getting Started
Latest Headlines
UR Rewarding Experiences

My Chase Accounts | Manage Ultimate Rewards | Help | Log Off

CHASE

UR ultimate rewards

Rewards Home | Travel | Experiences | Merchandise | Gift Cards | Cash Back | Earn Faster | Spotlight

Your rewards balance is **25,601** Points

All Rewards ▾ | Search | GO

Rewarding Experiences

Your Chase card with Ultimate Rewards gives you access to great entertainment including concerts, sporting events, chef dinners and more.

Use your points or your Chase card to redeem for most items, or just your points to bid on the auctions.

Featured Experiences & Auctions

Five-Night Vacation to Rome for Two

Auction

Rome, Italy

Opening Bid: 128,575 points

View Details | View More Like This

Quick Search

City: All Cities ▾

Category: All Categories ▾

From | To

Search

Culinary & Wine

- Culinary Experiences (29)
- Wine Experiences (2)
- Restaurants (1)
- See All Culinary & Wine

Sports & Leisure

- Car Racing (38)
- Adventure (27)
- Outdoor Activities (24)
- See All Sports & Leisure

Art & Entertainment

- More Art & Entertainment (4)
- Museums (1)
- Music (1)
- See All Art & Entertainment

Gift Ideas

Cook up Sweet Chocolate Creations
43,400 points or
$434 on your Chase Card

Private Photography Lesson
Current Bid: 12,519 points

DJ Delights
14,400 points or

Featured Experiences

These new Experiences offer excitement on land, on sea and in the air!

Ride shotgun in a dragster at Brainerd International Raceway. $184 or 18400 points.

Dance and dine on a Washington, D.C. dinner cruise for two. $249 or 24900 points.

How It Works

There are two types of rewards:

Auctions
For auctions, you can bid on rewards using your points. If you are the top bidder when the auction expires, you win.

Redeem Now
For everything else, you can redeem now using your points or your Chase card with Ultimate Rewards.

» FAQs

Transferring data from ultimaterewardslt.chase.com...

Phases of Heuristic Evaluation

1) Pre-evaluation training

   give expert evaluators needed
   domain knowledge & information on the scenario

2) Evaluation

   individuals evaluate interface
   and make lists of problems

3) Severity rating

   determine how severe each problem is

4) Aggregation

   group meets and aggregates problems (w/ ratings)

5) Debriefing

   discuss the outcome with design team

How to Perform 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
  - be specific & list each problem separately

Example Heuristic Violation

1. [H4 Consistency]

The interface used the string "Save" on the first screen for saving the person’s file, but used the string "Write file" on the second screen.
People may be confused by this different terminology for the same function.

How to Perform 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 interface
- two or more locations that need to be compared
- problem with overall structure of interface
- something that is missing
  - common problem with paper prototypes
  - (sometimes features are implied by design documents 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 evaluations are in

Should be done independently by all judges

Severity Rating

0 - Do not agree this is a problem.

1 - Usability blemish.
Mild annoyance or cosmetic problem. Easily avoidable.

2 - Minor usability problem.
Annoying, misleading, unclear, confusing.
Can be avoided or easily learned. May occur only once.

3 - Major usability problem.
Prevents people from completing tasks. Highly confusing or unclear. Difficult to avoid. Likely to occur more than once.

4 - Critical usability problem.
People will not be able to accomplish their goals.
People may quit using system all together.

Example Heuristic Violation

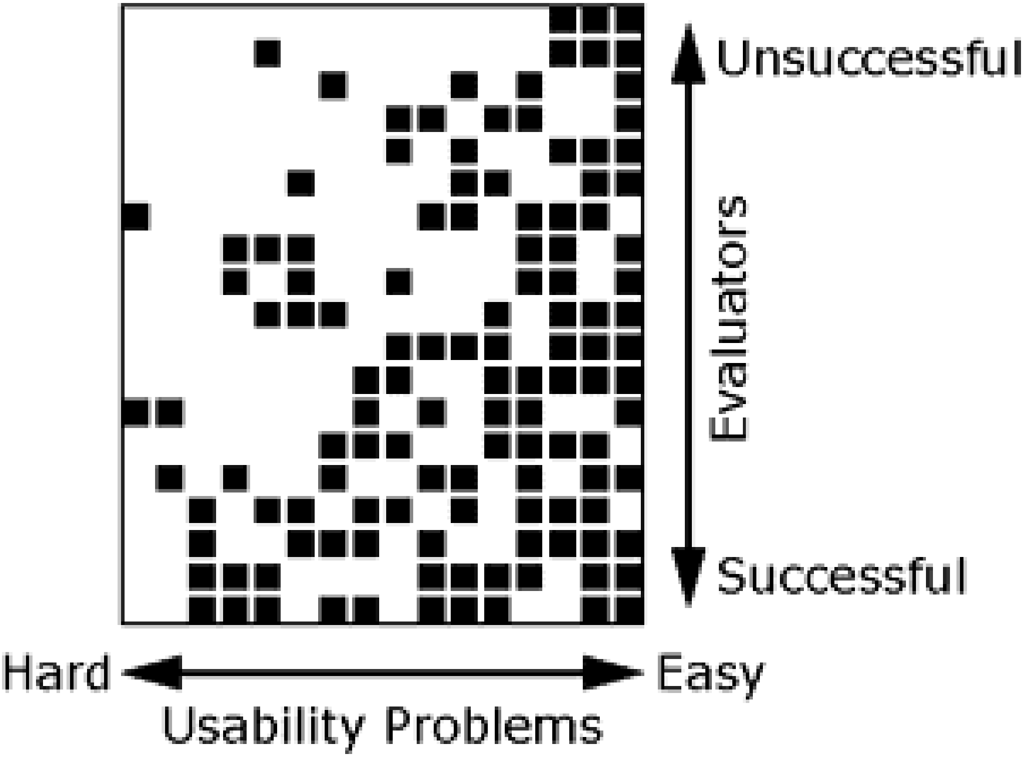
1. [H4 Consistency] [Severity 3]

The interface used the string "Save" on the first screen for saving the person’s file, but used the string "Write file" on the second screen. People may be confused by this different terminology for the same function.

Why Multiple Evaluators?

Every evaluator does not find every problem

Good evaluators find both easy & hard ones



Debriefing

Conduct with evaluators, observers,
and development team members

Discuss general characteristics of interface

Suggest potential improvements to address major usability problems

Development team rates how hard to fix

Make it a brainstorming session

Fixability Scores

1 - Nearly impossible to fix. Requires massive re-engineering or use of new technology. Solution not known or understood at all.

2 - Difficult to fix. Redesign and re-engineering required. Significant code changes. Solution identifiable but details not fully understood.

3 - Easy to fix. Minimal redesign and straightforward code changes. Solution known and understood.

4 - Trivial to fix. Textual changes and cosmetic changes. Minor code tweaking.

Example Heuristic Violation

1. [H4 Consistency] [Severity 3] [Fix 4]

The interface used the string "Save" on the first screen for saving the person’s file, but used the string "Write file" on the second screen. People may be confused by this different terminology for the same function.

Fix: Change second screen to "Save".

Results of Using HE

Discount: benefit-cost ratio of 48

- cost was $10,500 for benefit of $500,000
- how might we calculate this value?
- in-house → productivity; open market → sales

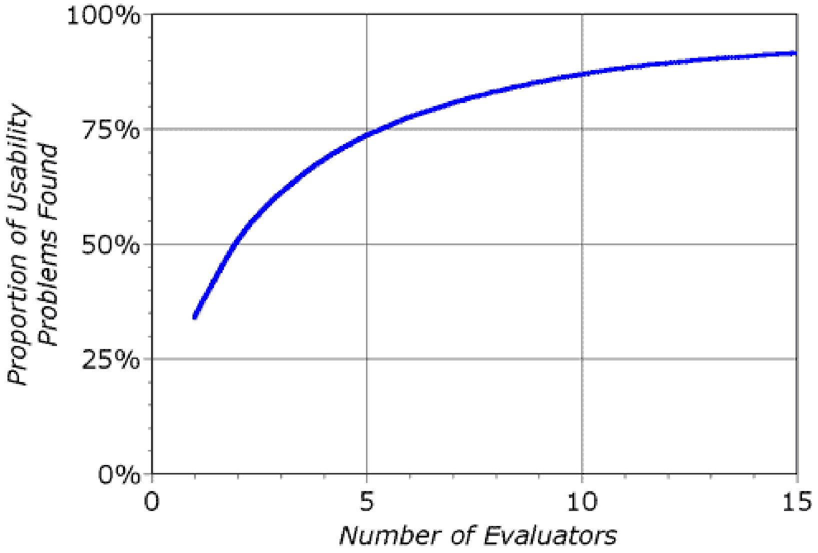
Single evaluator achieves poor results

- only finds 35% of usability problems
- 5 evaluators find ~ 75% of usability problems
- why not more evaluators?

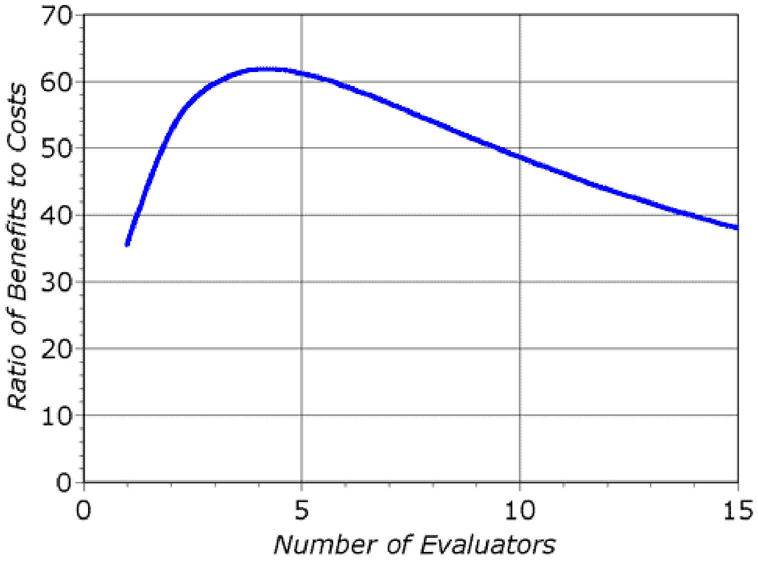
Nielsen, 1994

Decreasing Returns

problems found



benefits / cost



Nielsen, 1994

Alternative Inspection-Based Methods

Cognitive Walkthrough

- Surfaces different types of usability problems
- Consider as a complement to heuristic evaluation

Action Analysis

- Low-level modeling of expert performance
- Be aware of GOMS, but may never encounter it

Cognitive Walkthrough

Evaluation method based on:

A person works through an interface in an exploratory manner

A person has goals

The person is applying means-ends reasoning to work out how to accomplish these goals

Evaluation by an expert, who goes through a task while simulating this cognitive process

Preparation: Need Four Things

1) Person description, including level of experience and any assumptions made by the designer
2) System description (e.g., paper prototype)
3) Task description, specifying the task the expert has to carry out, from a person’s point of view
4) Action sequence describing the system display and the actions needed to complete the task. One system display and one action together are one step.

Cognitive Walkthrough Process

Designer/Developer prepares the required documents described on previous slide

Gives these documents to the usability expert

Expert reads the descriptions, and carries out the task by following the action list

At each step in action list, asks four questions

Record problems similar to heuristic evaluation

Believability

1) Will the person be trying to produce whatever effect the action has?
2) Will the person be able to notice that the correct action is available?
3) Once the person finds the correct action at the interface, will they know that it is the right one for the effect they are trying to produce?
4) After the action is taken, will the person understand the feedback given?

Action Analysis / Cognitive Modeling

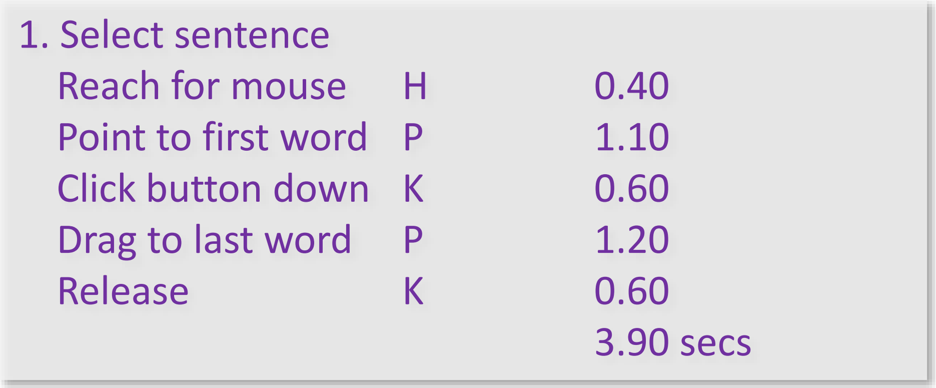
GOMS: Goals, Operators, Methods, Selection

Developed by Card, Moran and Newell

Walk through sequence of steps

Assign each an approximate time duration

Sum to estimate overall performance time



1. Select sentence

Reach for mouse	H	0.40
Point to first word	P	1.10
Click button down	K	0.60
Drag to last word	P	1.20
Release	K	0.60
		3.90 secs

Inspection vs. Usability Testing

Inspection is

- Is much faster
- Does not require interpreting participant actions
- May miss problems or find false positives

Usability testing is

- More accurate, by definition
- Account for actual people and tasks

One approach is to alternate between them

- Find different problems, conserve participants

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 13:
Inspection-Based Methods

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar

Tuesday / Thursday
10:30 to 11:50