

CS 315 – Intro to Human Computer Interaction (HCI)

A decorative graphic consisting of a solid blue horizontal bar that spans the width of the slide. Below this bar, on the right side, there are several horizontal lines of varying lengths and colors (light blue and white) that create a stepped, layered effect.

Expert Reviews

Expert Reviews

- Experts (experienced in application domain and/or UI domain), commonly consultants or staff, perform a review of the UI
- General issues:
 - **When:** Early or late, in general during several points of the development process (time and number depending on progress, availability of experts, design team ready?, budget)
- **Who:** The same or new experts for every review (tradeoff)
- **Duration:** From a couple of hours to weeks
- **Outcome:** (A) Formal report including identified problems and recommendations for changes and/or (B) Presentation and discussion with the design team

Expert Reviews

- **Heuristic Evaluation:** Review UI to determine compliance with a short list of design heuristics (e.g., “The 8 golden rules of UI design”)
- **Guidelines Review:** Review UI for conformance with the guidelines document
- **Consistency Inspection:** Verify consistency across several UIs, within a UI, or within a tutorial
- **Cognitive Walkthrough:** Simulate user, use typical tasks (e.g., high frequency task, critical tasks, error handling)
- **Formal Usability Inspection:** Experts participate in a meeting/discussion with a moderator who presents the interface and asks specific questions

Review Approaches / Reporting

- After choosing a review method you need to select the right approach/means and/or reporting style to implement it. Some examples:
 - Ranked Recommendation (assign priorities)
 - Birds-Eye View (study printed screens from distance)
 - Use of Software Tools (speed up the review process)
- General challenge: Experts may lack an understanding of the task domain and/or user community, or may be biased. Hence it is crucial to choose knowledgeable experts that are familiar with the project and organization.

Heuristic Evaluations

Heuristic Evaluation

- Developed by Jakob Nielsen
- 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

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

Heuristics

- Could use Schneiderman's Golden Rules
- Nielsen's heuristics
 1. **Visibility of system status:**
 2. **Match between system and the real world:**
 3. **User control and freedom:**
 4. **Consistency and standards:**
 5. **Error prevention:**
 6. **Recognition rather than recall:**
 7. **Flexibility and efficiency of use:**
 8. **Aesthetic and minimalist design:**
 9. **Help users recognize, diagnose, and recover from errors:**
 10. **Help and documentation:**

Visibility of system status

picnik



Fluffing clouds....

Upload the file or **Cancel**



Password Confirm

Your Password has been sent to your Email Address.

Login

Change Password

	Password	<input type="password"/>	Password Strength	Very Strong
	Confirm password	<input type="password"/>	<input type="button" value="Ok"/>	<input type="button" value="Cancel"/>

Match between system and the real world



User control and freedom



Consistency and standards

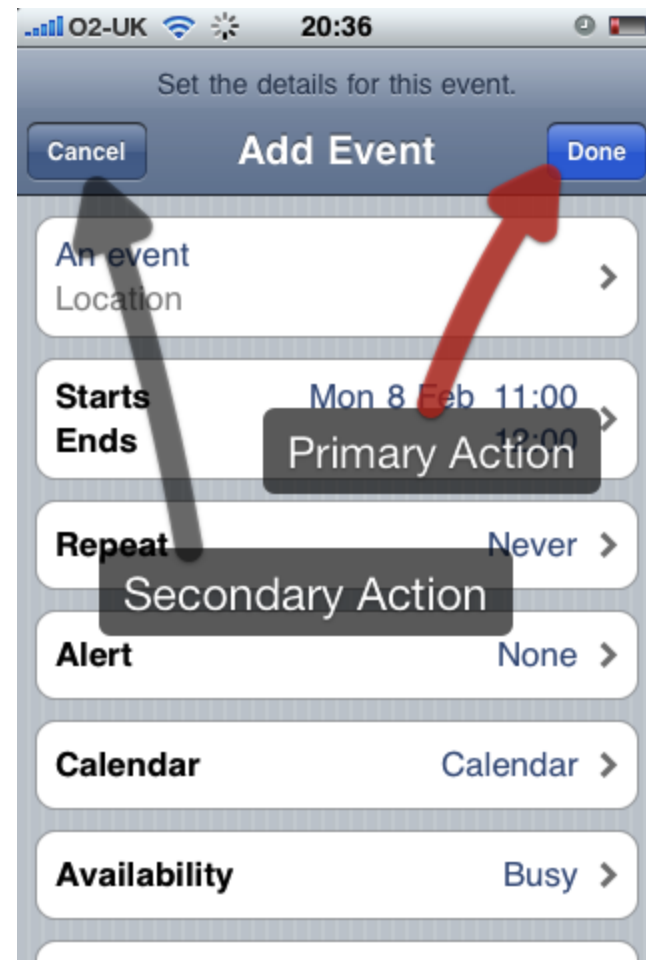
The screenshot shows the Gmail web interface. On the left is a navigation sidebar with links for Compose Mail, Inbox, Starred, Feeds (100+), Chats, Sent Mail, Drafts, All Mail, Spam, Trash, and Contacts. The main content area displays search results for '100+ new items'. The top result is 'Blue Screen of Death Top 10 Images from Digg', with a snippet: 'Hilarious Blue Screen of Death images you have to see Blue Screen of Death!'. Below the snippet are action buttons: Add star, Share, Email, Mark as read, and Edit tag.

The screenshot shows the Microsoft Outlook desktop application. The title bar reads 'Outlook Today - Microsoft Outlook'. The menu bar includes File, Edit, View, Go, Tools, Actions, and Help. The toolbar contains icons for New, Print, Refresh, and Search address books. A red box highlights two buttons: 'Import New Assignments' and 'Update Project Web Access'. The left pane shows the 'Mail' section with 'All Mail Items' selected. The right pane shows 'Personal Folders - Outlook T...' with a 'Calendar' view.

Error prevention

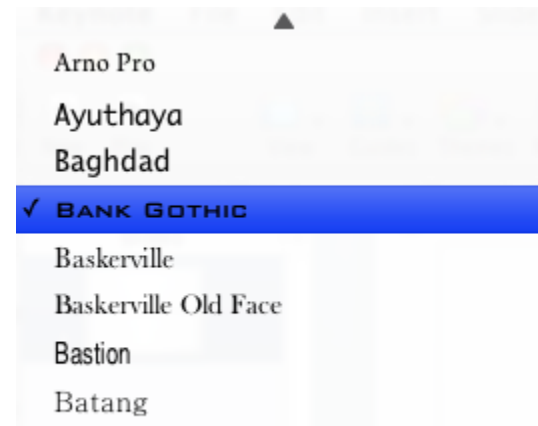


Secondary actions buttons
blend in with the background,
primary action button does not.



Recognition rather than recall

```
12 | $maxcol = 5;  
13 | st  
stat  
str_pad  
str_repeat  
str_replace  
str_rot13  
strcasecmp  
strchr  
strcmp  
strcoll  
strcspn  
strftime  
strip_tags  
);$i++){  
case ". $pendin  
3C//DTD HTML 4  
title>  
-Type" content  
content="Quanta :  
type="text/css" :  
ler="0" cellpadding  
ght">
```



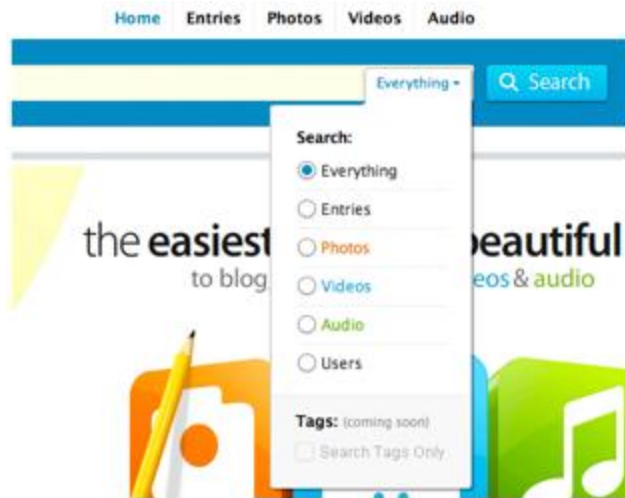
Flexibility and efficiency of use

Common Shortcuts

Add Action	Return
New Window	⌘N
Synchronize with Server	⌘S
Clean Up	⌘K
Planning Mode	⌘1
Context Mode	⌘2
Inbox	⌘1
Quick Entry	⌘Space

Quick Entry's shortcut can be customized in Preferences

Aesthetic and minimalist design



A screenshot of the OpenTable website. The header includes the OpenTable logo and the text "Restaurant Reservations - Free • Instant • Confirmed". Below the header is a large image of a restaurant table setting. To the right of the image, there is a promotional message: "Make restaurant reservations the easy way: Find a restaurant » Choose a table » Book online. Trusted by 14,000 restaurants & 160 million diners." Below this is a section for "Featured Areas: Select a location to begin" with a grid of city links: Atlanta, Baltimore, Boston, Chicago, Dallas - Ft. Worth, Denver, Houston, Las Vegas, London, Los Angeles, Miami, Minneapolis - St. Paul, New Orleans, New York City, Philadelphia, Phoenix, San Diego, San Francisco Bay Area, Seattle, Toronto / Ontario, Vancouver / BC, and Washington, D.C. Below the featured areas is a section for "Restaurants in the United States" with a grid of state links: Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, Washington, D.C., West Virginia, Wisconsin, and Wyoming.

Help users recognize, diagnose, and recover from errors



Oh no!

It seems the page you were trying to find on my site isn't around anymore (or at least around here).

[Report it missing using my contact form](#) and I'll see what I can do about it.

Whilst your here why not check out my [articles listing](#) or [browse my blog](#)? You never know - you may just

Or start a new account

Choose a username (no spaces)

bert

⚠ bert is already taken. Please choose a different username.

Choose a password

⚠ Passwords must be at least 6 characters and can only contain letters and numbers.

Retype password

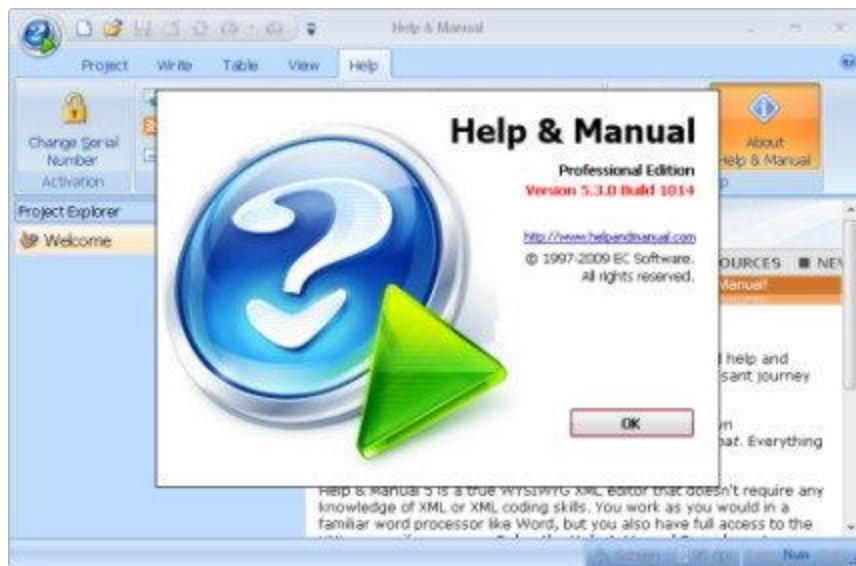
Email address (must be real!)

not an email

⚠ The email provided does not appear to be valid

Send me occasional Digg updates.

Help and documentation



Phases of Heuristic Evaluation

- Pre-evaluation training
 - give evaluators needed domain knowledge and information on the scenario
- Evaluation
 - individuals evaluate and then aggregate results
- Severity rating
 - determine how severe each problem is (priority)
 - can do this first individually and then as a group
- 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 or other information
 - be specific and list each problem separately

Examples

- Typography uses mix of upper/lower case formats and fonts
 - violates “Consistency and standards”
 - slows users down
 - probably wouldn’t be found by user testing
 - fix: pick a single format for entire interface

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

Example

- 1. [H Consistency] [Severity 3][Fix 0]
- The interface used the string "Save" on the first screen for saving the user's file, but used the string "Write file" on the second screen. Users may be confused by this different terminology for the same function.

In Summary

- Expert reviews are produced by individuals and subject to pitfalls:
 - Insufficient knowledge of the application domain and user base
 - Conflicting opinions among experts (“For every Ph.D., there is an equal and opposite Ph.D.”)
 - Experienced experts may lose sight of how first-time users might behave

Usability Labs



Usability Testing

- Once considered a nice luxury in the presence of extra time and resources, in-house testing procedures are increasingly integral to the development process
- Distinction between traditional controlled-experiment testing (i.e., the scientific method) and advertising- or marketing-influenced approaches — in one case, the goal is to validate/invalidate a hypothesis; in the other, the goal is to find areas for “improvement”
- In the end, lab testing is still lab testing — it doesn’t replace real-world environments and sustained use

Usability Lab

- Large development shops may maintain a general purpose usability laboratory that can test the full spectrum of possible products, equipped with:
 - One-way mirror for live observation
 - Video-recording equipment for later study, particularly to capture users “thinking aloud”
 - Software instrumentation, also for later study

Google's Usability Lab

- <http://blog.jeffsoo.com/post/527106760/touring-gogogles-usability-lab>

Blink Interactive - Seattle

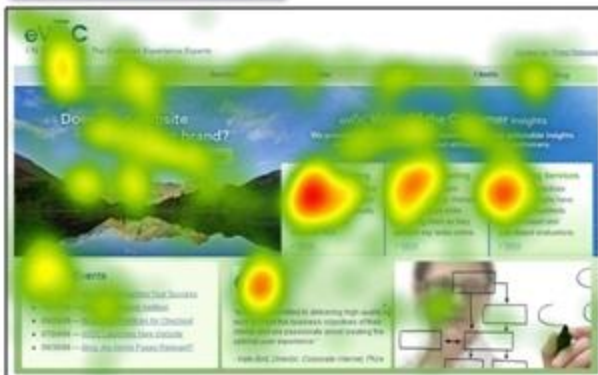
- <http://www.youtube.com/watch?v=etxJTHiUrc>

Building a Usability Lab

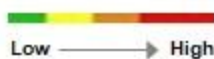
- <http://www.noldus.com/human-behavior-research/solutions/stationary-usability-lab>

Eye Tracking

Aggregated Heat Map

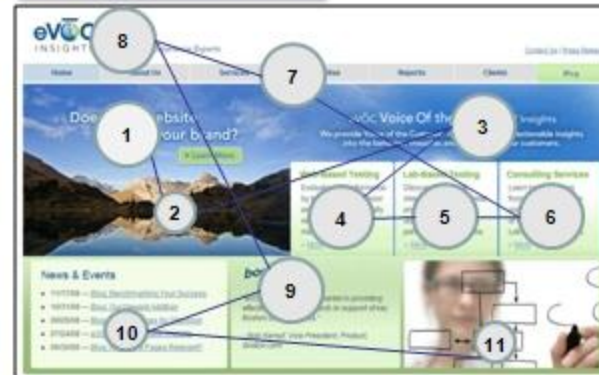


Intensity of Viewers



Sample	12
Time of Snapshot	20 sec

Chronological Gaze Plot



of Viewers Per Area



Sample	12
Avg. Time on Page	20 sec

Eye Tracking

Troll Tours: Reisen nach Skandinavien, Alaska, Grönland - Mozilla Firefox

http://www.trolltours.de/applicator/index.cfm?CID=1756197KCFOTKZE1=62576849

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Willkommen bei TROLL TOURS - Ihrem Nordland Spezialisten

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Reisezeitpunkt * bitte auswählen	Reisezeitpunkt * 7 Tage
Reisezeitpunkt * (optional)	Reisezeitpunkt * 7 Tage
Reisezeitpunkt * optional	Reisezeitpunkt * 7 Tage

Beratung und Buchung: 01805 09 29 29 (14cent/min)

2 starke Kataloge für Ihren nächsten Urlaub!

TROLL TOURS Nordland 2009
Dänemark, Finnland, Grönland, Island, Norwegen und Schweden.*

TROLL TOURS Großbritannien & Irland 2009
England, Wales, Schottland, Jersey und Irland.*

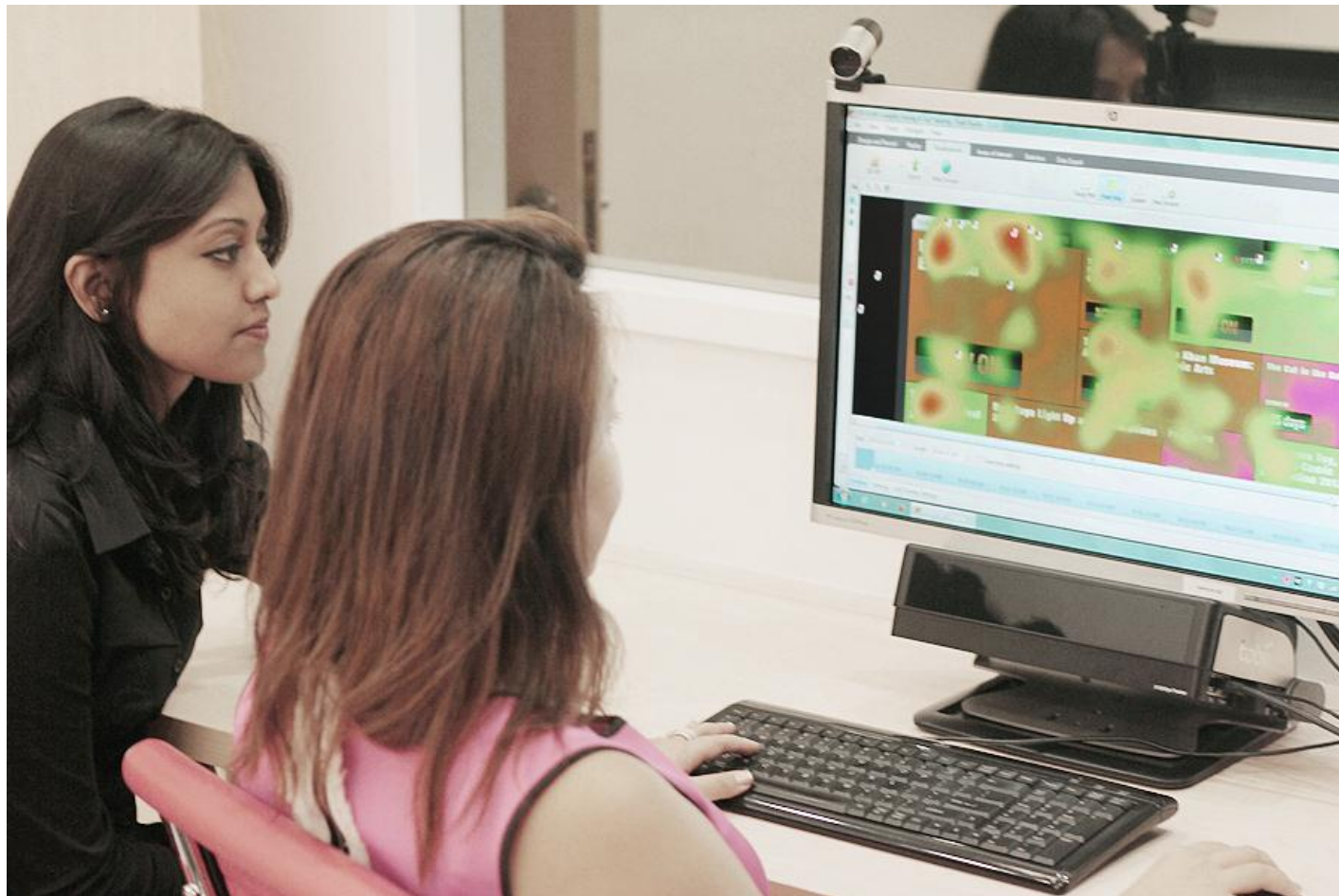
>> Jetzt Katalog anfordern!
* über Ihre Navigation online buchbar

Schönen Urlaub...!!
Sonne, Strand & Meer gibt's hier!

Verlangung des Frühbucher rabatts

Fertig

Eye Tracking



Mobile Devices



Mobile Devices



Mobile Devices



Think Aloud

- Concurrent think aloud
 - Invite users to *think aloud*
 - Nothing they say is wrong
 - Don't interrupt, let the user talk
 - Spontaneous, encourages positive suggestions
 - Can be done in teams of participants
- Retrospective think aloud
 - Asks people afterwards what they were thinking
 - Issues with accuracy
 - Does not interrupt users (timings are more accurate)