

HUMAN COMPUTER INTERACTION

LECTURE 9



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LESSON PLAN

- **High-Level Design Guidelines**
- **Jakob Nielsen's Ten Usability Heuristics**

HIGH-LEVEL DESIGN GUIDELINES

- **Ensure early focus on users and tasks**
- **Perform empirical measurement**
- **Create iterative designs:**
 - Create the interface design
 - Test the user interface
 - Analyze the test results
 - Repeat

1. Rubin, Jeffery, Dana Chisnell, and Jared Spool. *The Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests*. Indianapolis: Wiley Publishing, Inc, 2008

GENERAL INFORMATION

- **Heuristics are collection of rules and guidelines**
- **Aimed to help designing good user interfaces**
- **Traditionally quite large collections**
 - Brown 1988: 302 rules
 - Smith & Mosier 1986: 944 rules
- **Sets of hundreds of rules are impractical for heuristic evaluation**
- **Designers abandon rules and rely on their intuition**
- **Nowadays lighter methods have become used**
 - Nielsen
 - Schneiderman

GENERAL INFORMATION

- **Heuristics can be applied to either finished product or prototypes**
- **Evaluation of prototypes is useful**
 - Errors are found at early stages
 - Money and time are saved
- **Even crude prototypes provide useful information**
- **Heuristics are often applied in an iterative fashion**
 - Evaluation session
 - Errors are found
 - Error are corrected
 - Back to evaluation until results are of satisfying quality

GENERAL INFORMATION

- **According to Nielsen a single evaluator is able to find ~ 35 % of usability problems**
- **Therefore is necessary to use several persons to evaluate a product**
- **Amount of problems found increases rapidly when five evaluators are used instead of one**
- **When more than one evaluators are used**
 - each one goes trough interface
 - after all evaluators have finished a summary is produced
 - no discussions between evaluations prevents evaluators for getting stuck in earlier findings/opinions

JACOB NIELSEN HEURISTICS

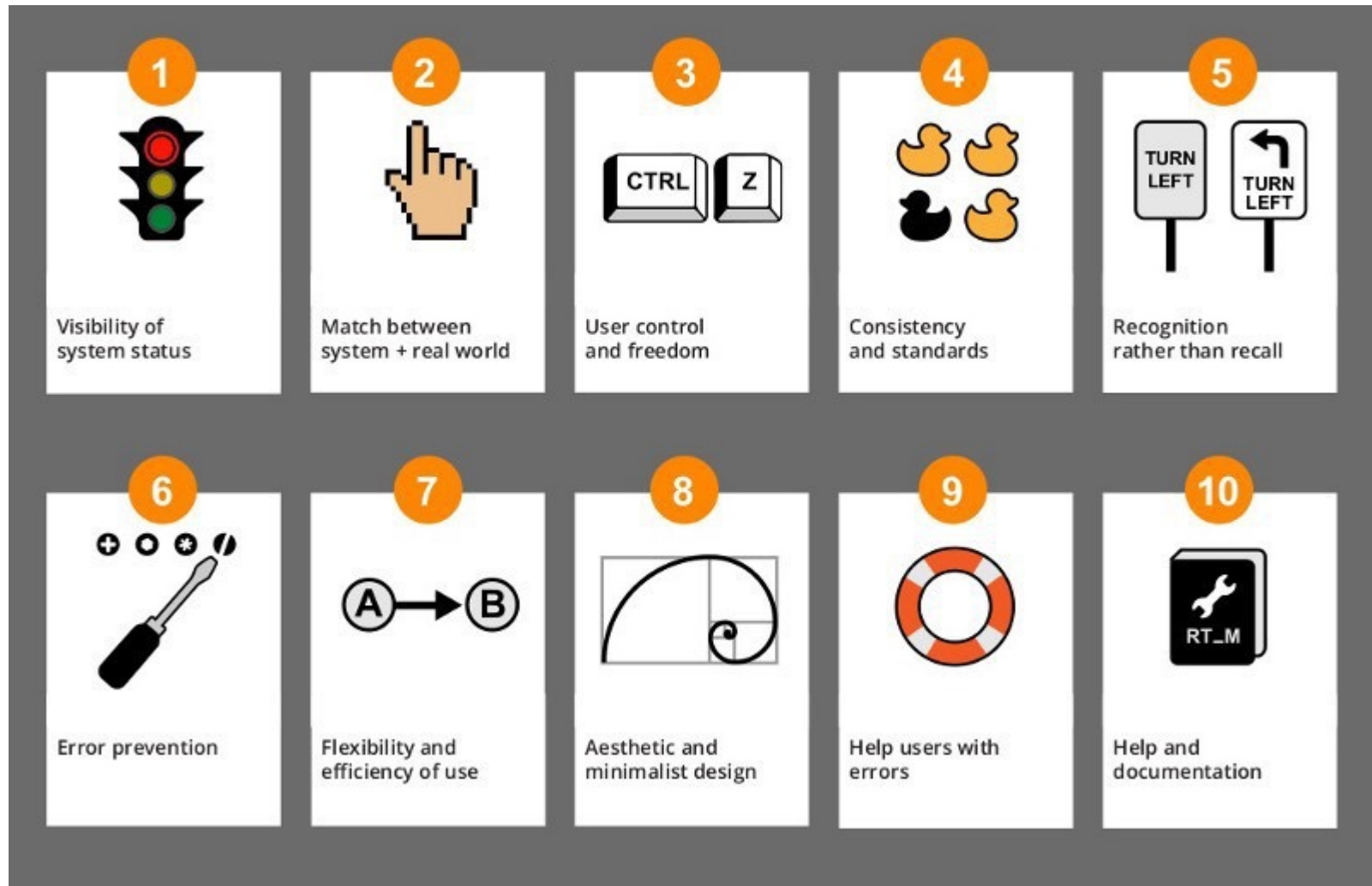
- **Jacob Nielsen Heuristics is a quick way to explore the interface and discover usability problems.**
- **There are also well-established research methods:**
 - The First Principles of Interactive Design by Bruce Tognazzini;
 - The 8 Golden Rules for Interface Design by Ben Schneiderman.
- **Nielsen's rules are probably the most commonly used in heuristic evaluation**
- **Exact format of rules may vary slightly according to a source**
- **The original set of rules was published 1990**
- **A result of heuristic evaluation is list of weaknesses and errors**
- **Each problem must be connected to a specific heuristic rule**
- **Evaluator can be either untrained person or a heuristics specialist**
- **A specialist finds usually considerably more errors than an untrained person**

JAKOB NIELSEN'S TEN USABILITY 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**

http://www.useit.com/papers/heuristic/heuristic_list.html

JAKOB NIELSEN'S TEN USABILITY HEURISTICS



1. VISIBILITY OF SYSTEM STATUS

Keep users aware and informed about what is going on, through appropriate feedback within reasonable time :

- What is going on
- What the system is doing
- The system's status
- **E.g. WWW forms should be able to immediately inform the user of misfilled fields**
- **Error messages should vanish from screen after error has been corrected**
- **If a task takes a long time, a task progress indicator should be used to inform the user**

1. VISIBILITY OF SYSTEM STATUS

The screenshot shows a web browser window titled "Attach Files". The address bar contains the URL: `https://inet.icarnegie.com/owa/?ae=Dialog&t=AttachFileHc`. Below the address bar, there is a section titled "Include Attachments" with a help icon. The main text reads: "To include an attachment, click 'Browse', and then select the file. After you've selected the file, click 'Attach'. The file will be uploaded to your message." Below this text is a text input field containing the path: `/Users/leannie/Dropbox/SDP07/Course Documents/SDP07_Cou`, followed by a "Browse..." button. A blue link "Choose more files" is positioned below the input field. A status box with a green progress indicator and the text "Please wait while your files are uploaded..." is centered on the page. At the bottom, there is a status bar with the text "Waiting for inet.icarnegie.com...", a yellow "Attach" button, and a blue "Cancel" button.

Attach Files

`https://inet.icarnegie.com/owa/?ae=Dialog&t=AttachFileHc`

[Include Attachments](#)

To include an attachment, click 'Browse', and then select the file. After you've selected the file, click 'Attach'. The file will be uploaded to your message.

`/Users/leannie/Dropbox/SDP07/Course Documents/SDP07_Cou`

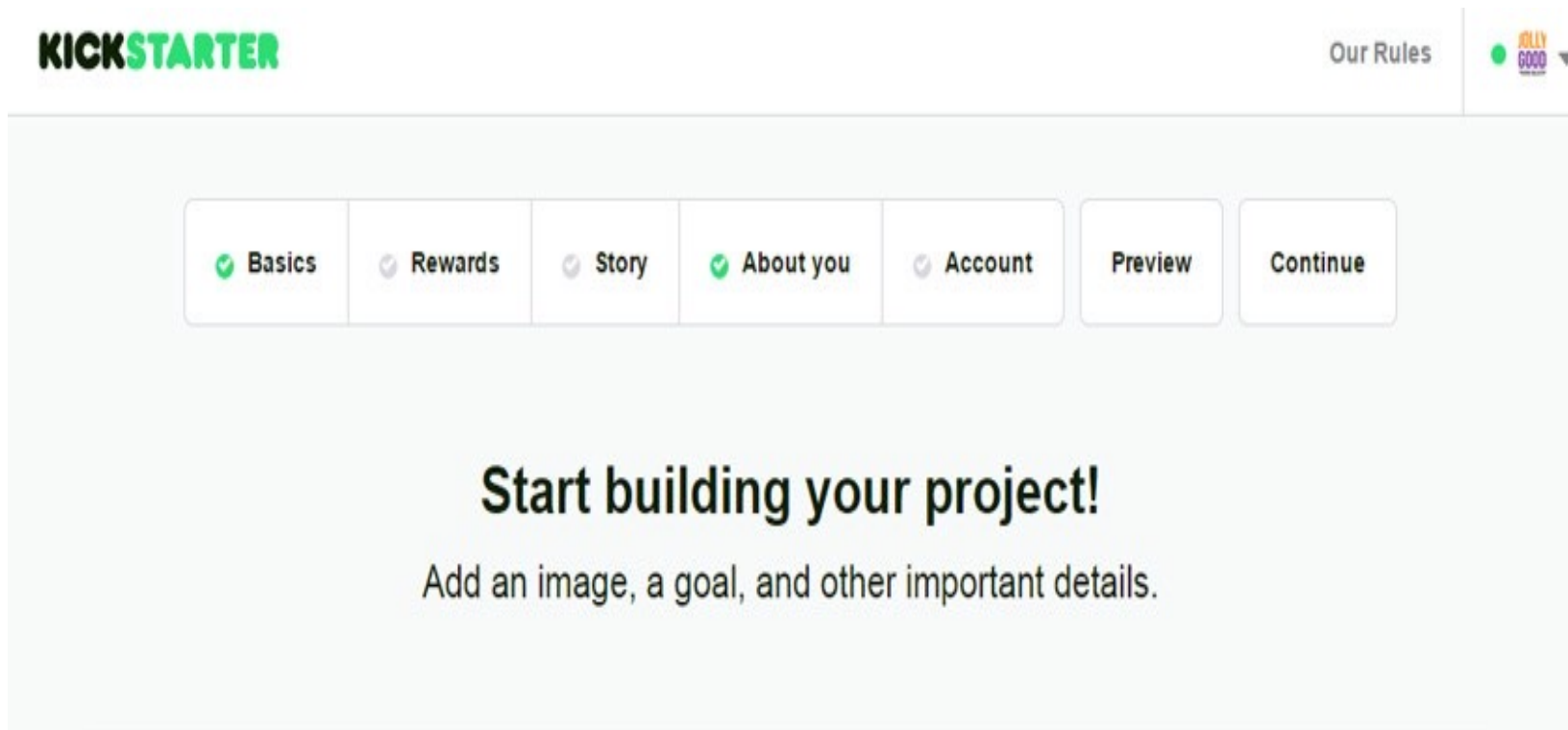
[Choose more files](#)

Please wait while your files are uploaded...

If you don't like waiting to type while your files are being uploaded, [install or upgrade Silverlight](#).

Waiting for inet.icarnegie.com...

1. VISIBILITY OF SYSTEM STATUS



The image shows a progress bar for creating a project on Kickstarter. The progress bar consists of seven steps: Basics, Rewards, Story, About you, Account, Preview, and Continue. The 'About you' step is highlighted with a green checkmark, indicating it is completed. The other steps are marked with a grey checkmark, indicating they are not yet completed. Below the progress bar, the text reads: 'Start building your project!' followed by 'Add an image, a goal, and other important details.'

KICKSTARTER

Our Rules

JOLLY GOOD

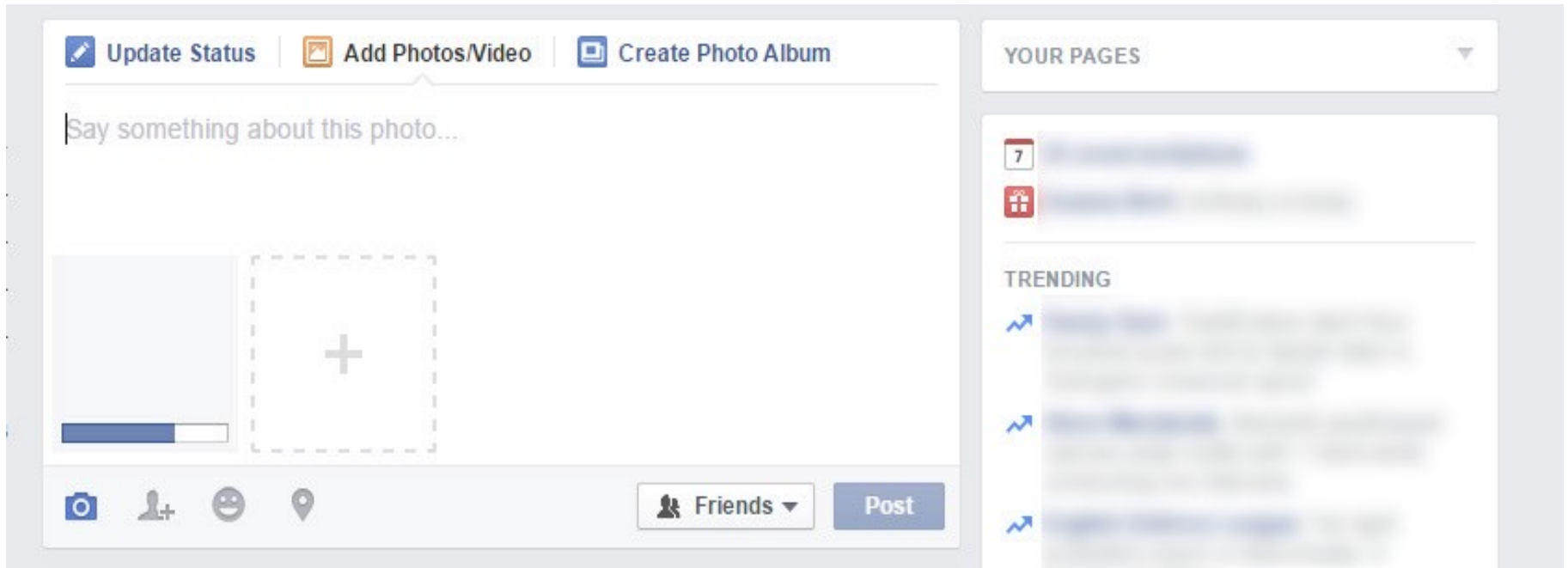
Basics Rewards Story About you Account Preview Continue

Start building your project!

Add an image, a goal, and other important details.

Starting a project on Kickstarter is a complicated process so it's important that they've made it as easy as possible. I can clearly see which sections of the form I have completed and which are still to be done.

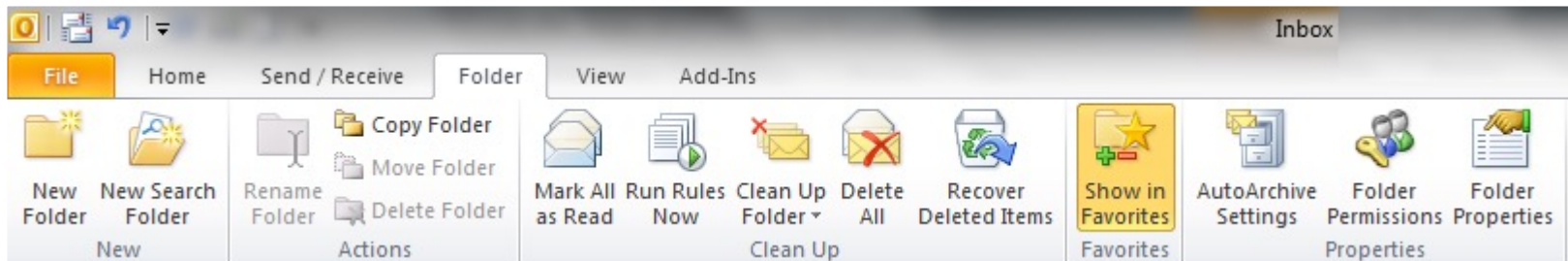
1. VISIBILITY OF SYSTEM STATUS



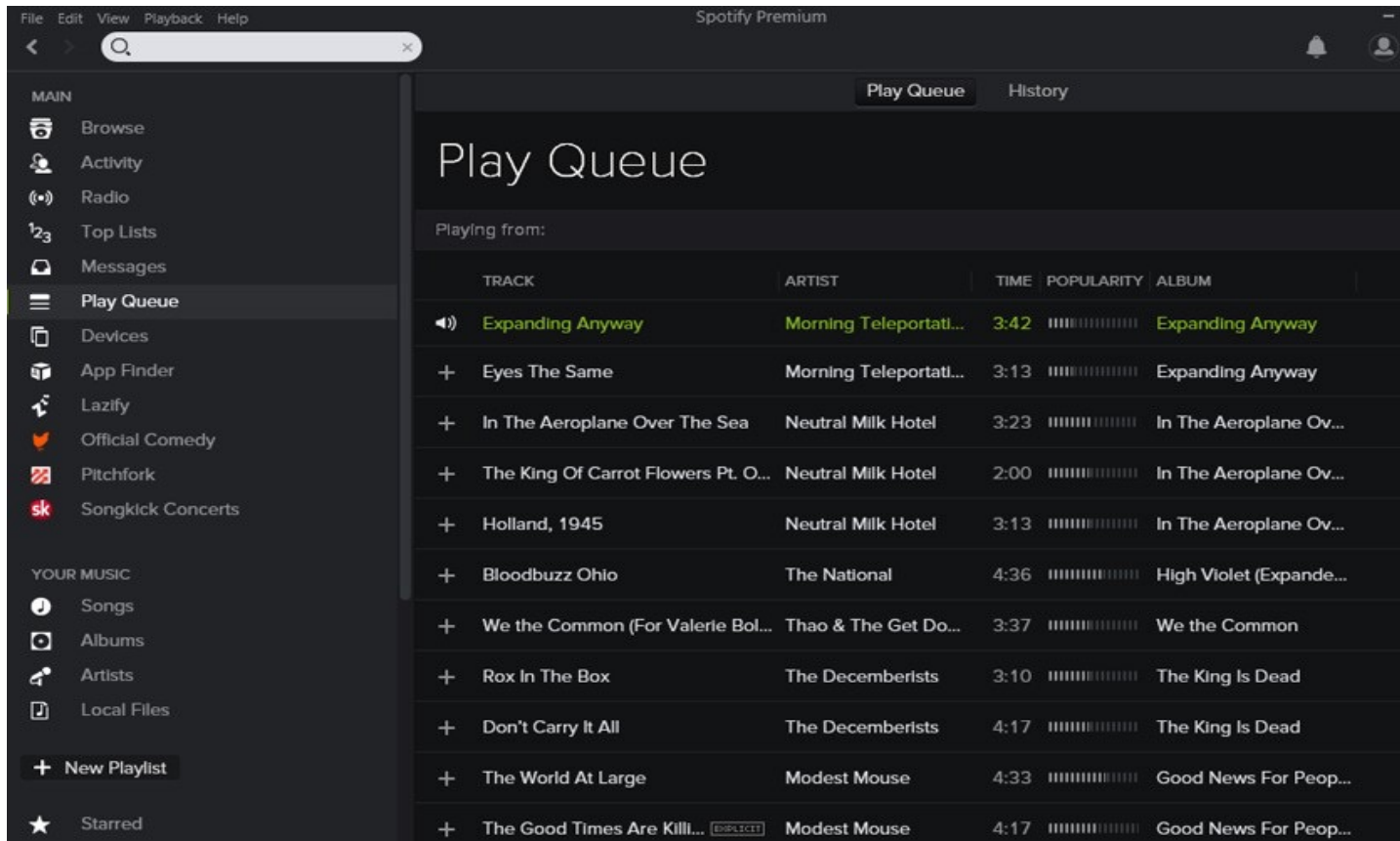
Uploading a single photo usually only takes a couple of seconds but, even so, Facebook shows me a progress bar so I know it's working and I can see when it will be complete.

2. MATCH BETWEEN SYSTEM AND THE REAL WORLD

- Users should interact with the system in their own language
- Use words, phrases, and concepts familiar to the users
- Avoid terminology that is specific to the system
- Familiarity with potential user groups is essential
- Limitations, like 8 character filenames, are harmful
- Metaphors should be used in a way that corresponds to the user's world



2. MATCH BETWEEN SYSTEM AND THE REAL WORLD



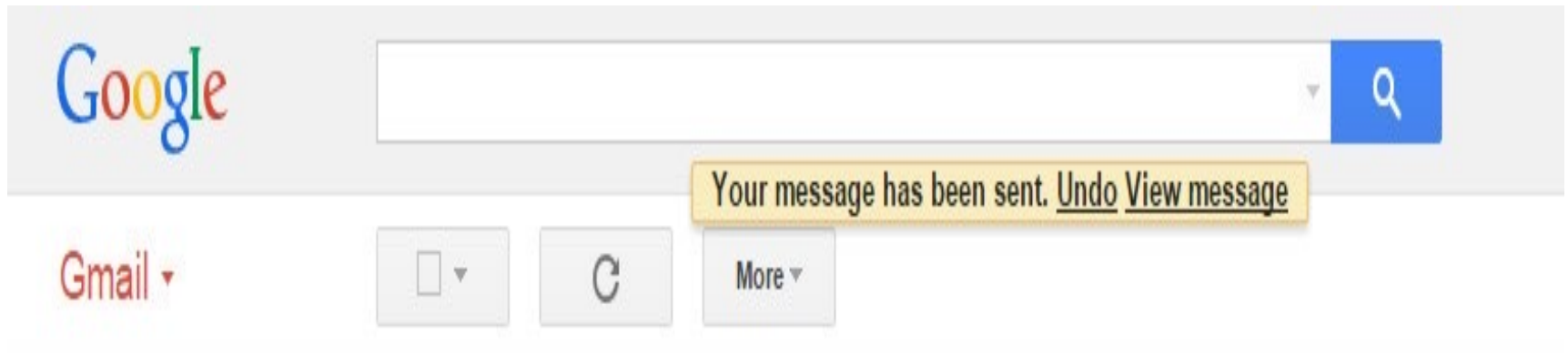
Spotify uses words and concepts like “Queue”, “Playlist”, “History”, “Lists” etc. All of these are things we’re familiar with from the real world, and they are words used in music listening offline too.

3. USER CONTROL AND FREEDOM

Users should feel:

- Free to make choices
 - That they are in control of their choices
 - Like they have the ability to quickly and smoothly recover or undo a wrong choice
-
- **User must not get trapped inside an application**
 - **If possible, a multi level undo/redo should be implemented**
 - **If an operation takes more than 10 seconds, the user should be able to cancel it**

3. USER CONTROL AND FREEDOM



**EMAIL LETS ME UNDO SENDING AN EMAIL —
EVEN AFTER I'VE SENT IT!**

RUNNING

RUNNING CENTRAL

CLOTHING

SHOES

RUNNING ACCESSORIES

MINIMALIST

CYCLING & TRIATHLON

SHOP RUNNING

RUNNING SHOES


- Running
- Trail Running
- Crosstraining
- Track and Field
- Triathlon
- Walking
- [view all...](#)

WOMEN'S SHOES

- Neutral
- Stability
- Minimalist
- Motion Control
- [view all...](#)

MEN'S SHOES

- Neutral
- Stability
- Minimalist
- Motion Control
- [view all...](#)



MEN'S RUNNING SHOES
FIND THE LATEST & GREATEST FROM TOP RUNNING BRANDS!

SHOP NOW

1 2 3

FEATURED BRAND



SHOP ASICS

NEW BRAND

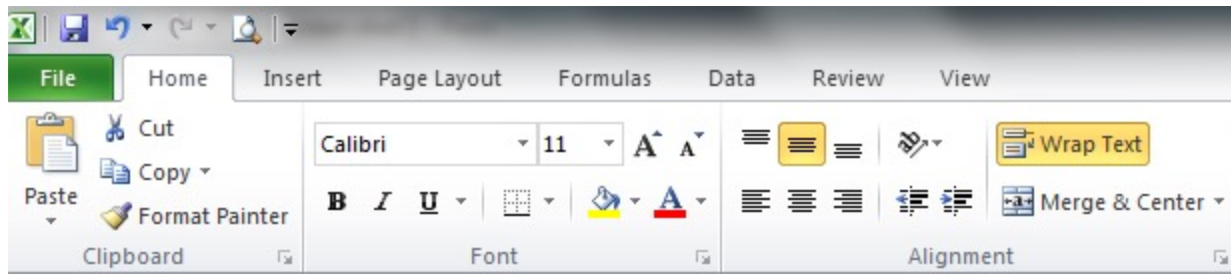
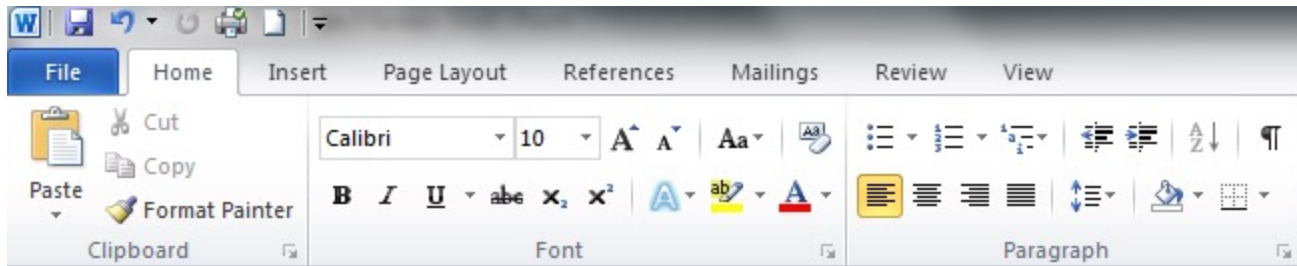


SHOP NEWTON RUNNING

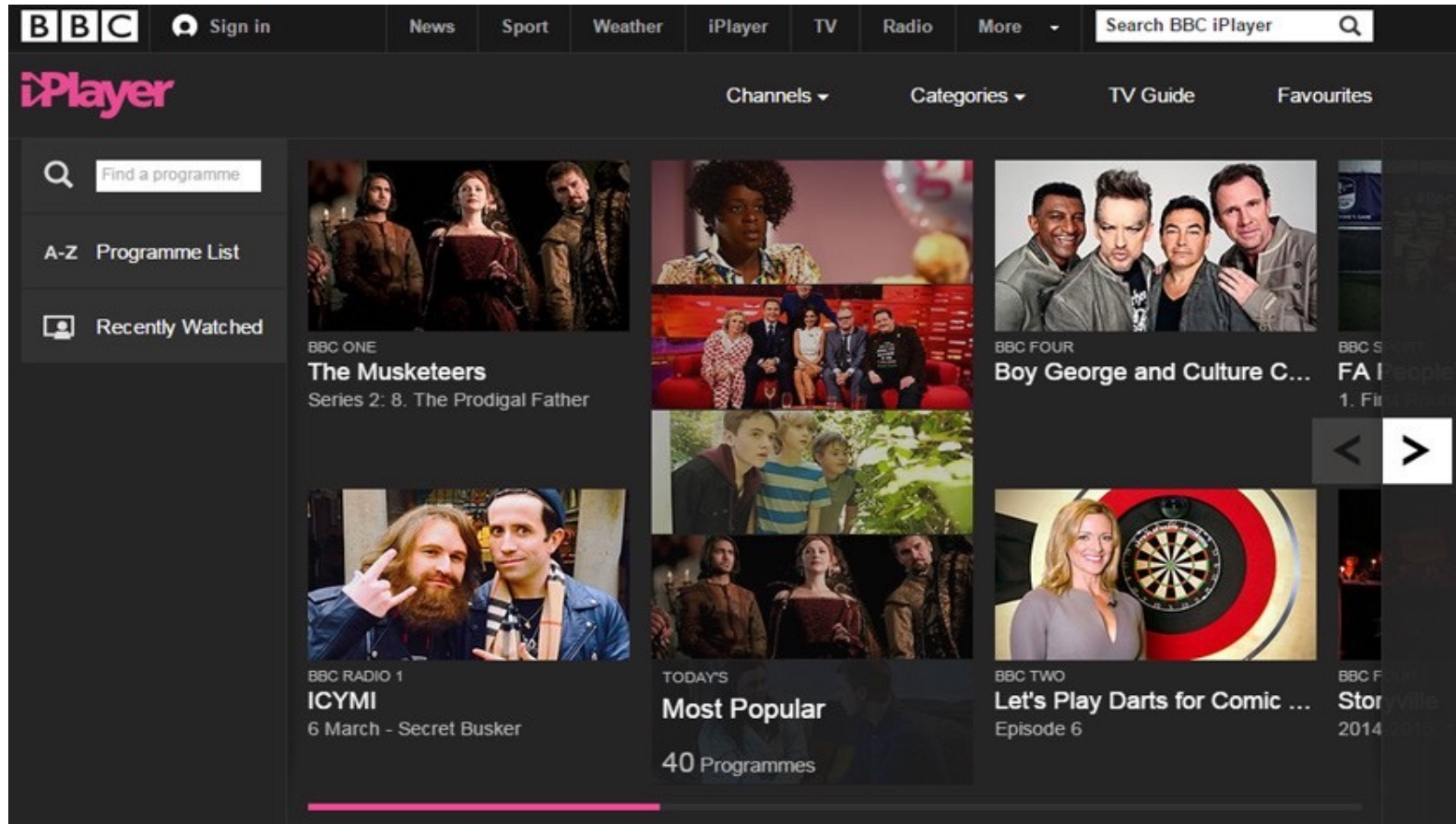
OUR BRANDS

4. CONSISTENCY AND STANDARDS

- Design should follow the guidelines and conventions of similar systems, applications, or websites
- Users should be able to make inferences about labels and terms by drawing from their experiences with similar interfaces and systems



4. CONSISTENCY AND STANDARDS



It is easy to use because they've included huge buttons directing me to what's going on, and it is consistent across every page of iPlayer.

5. ERROR PREVENTION

- Design to prevent errors
- 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 users with a confirmation option before they commit to the action

Fields marked with an asterisk (*) are required

Name*:

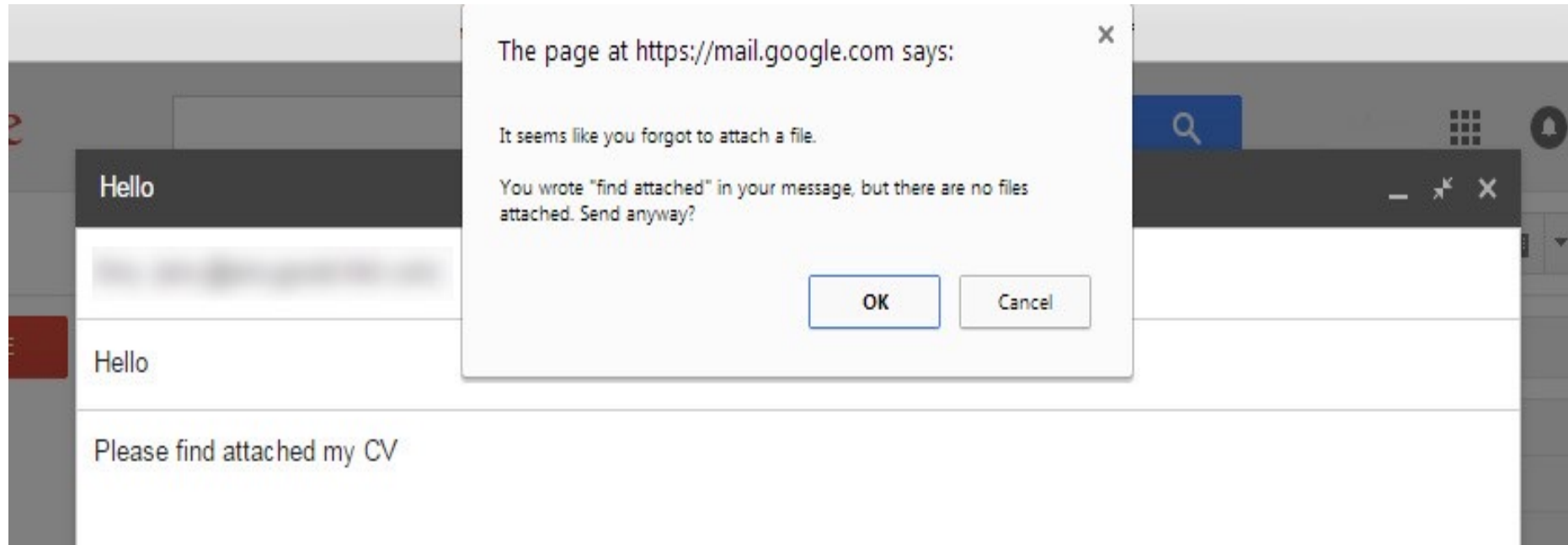
Address*:

City*: State: Postal Code:

Country*:

Primary Phone Number*:

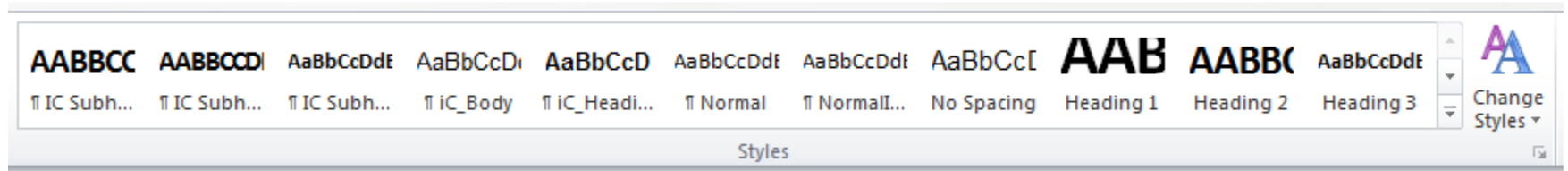
5. ERROR PREVENTION



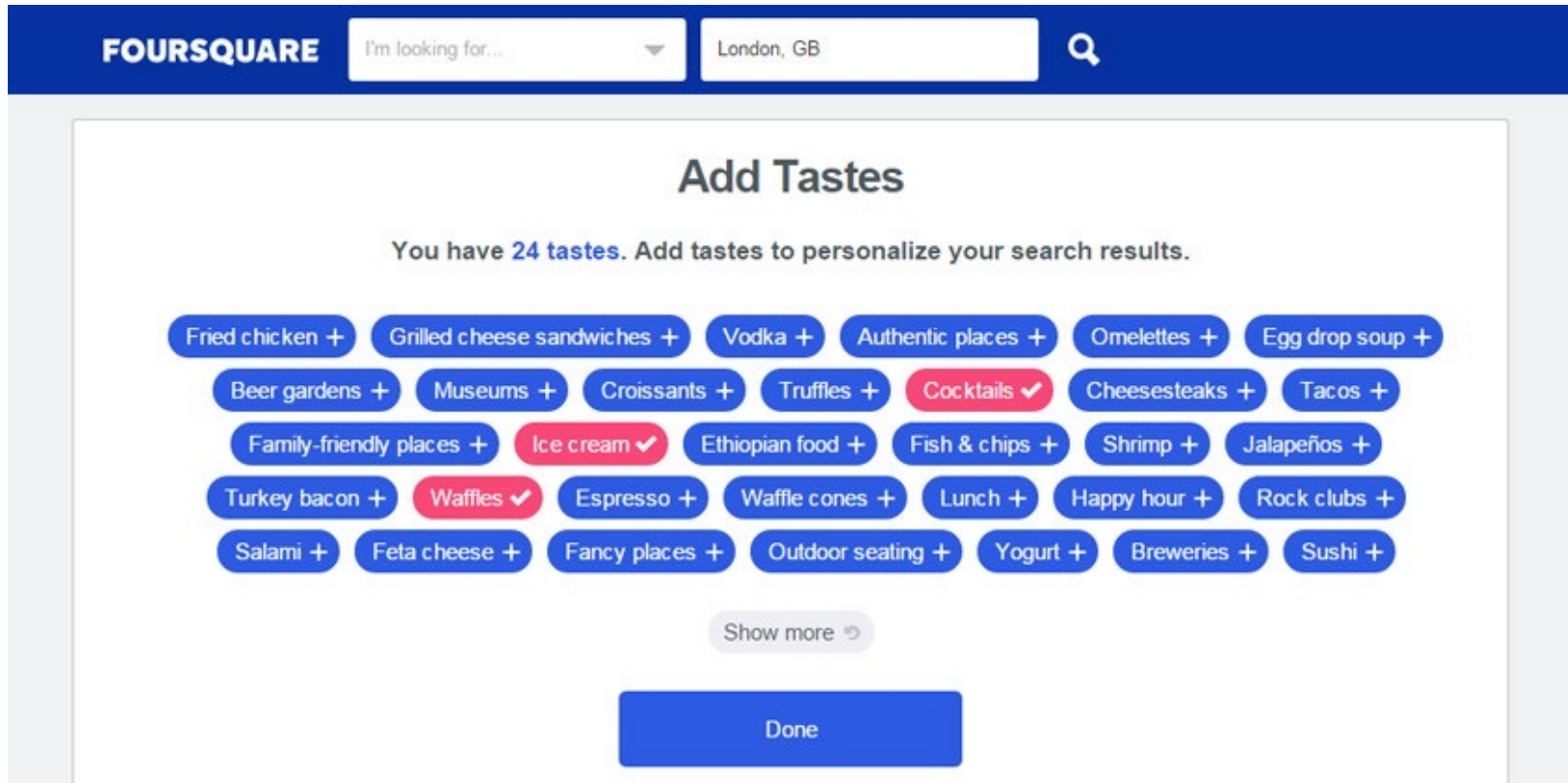
When writing an email and talking about an attachment, Gmail lets me know if I've forgotten to actually attach anything.

6. RECOGNITION RATHER THAN RECALL

- Keep the amount users have to remember to a minimum
- Don't expect users to remember specific, detailed information about system
- Interface should be designed to allow users to easily recognize or intuit functionality
- Short term (7 +/- 2) memory should not be overloaded
- If possible, use computer's memory capacity instead of user's
- E.g. when an input of certain format is expected, show the correct format to the user



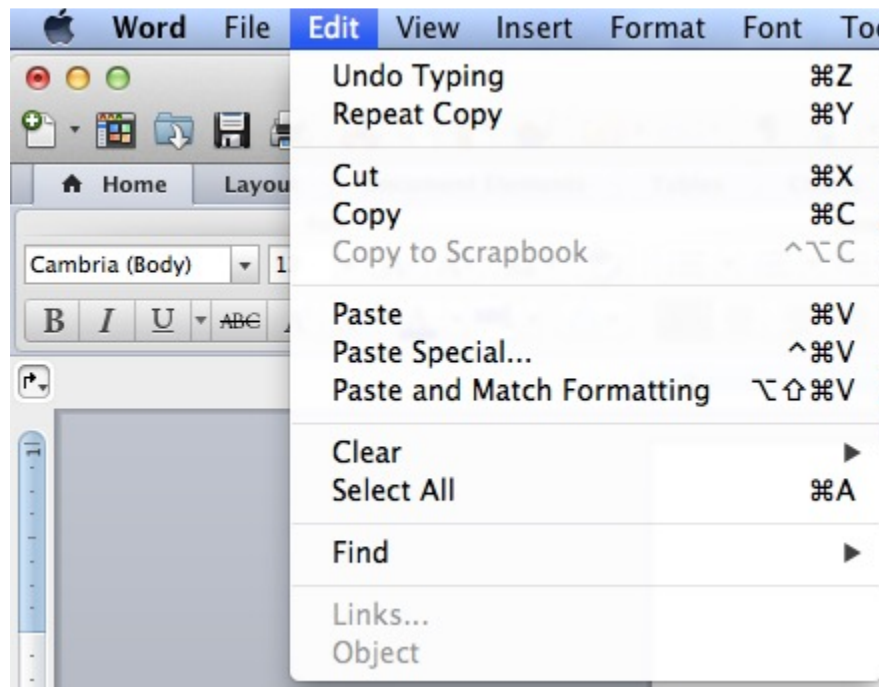
6. RECOGNITION RATHER THAN RECALL



Foursquare, needs to know what I'm into so they can give me good recommendations — but they don't just ask me to come up with ideas. They suggest a bunch of popular things, so I simply have to click on them.

7. FLEXIBILITY AND EFFICIENCY OF USE

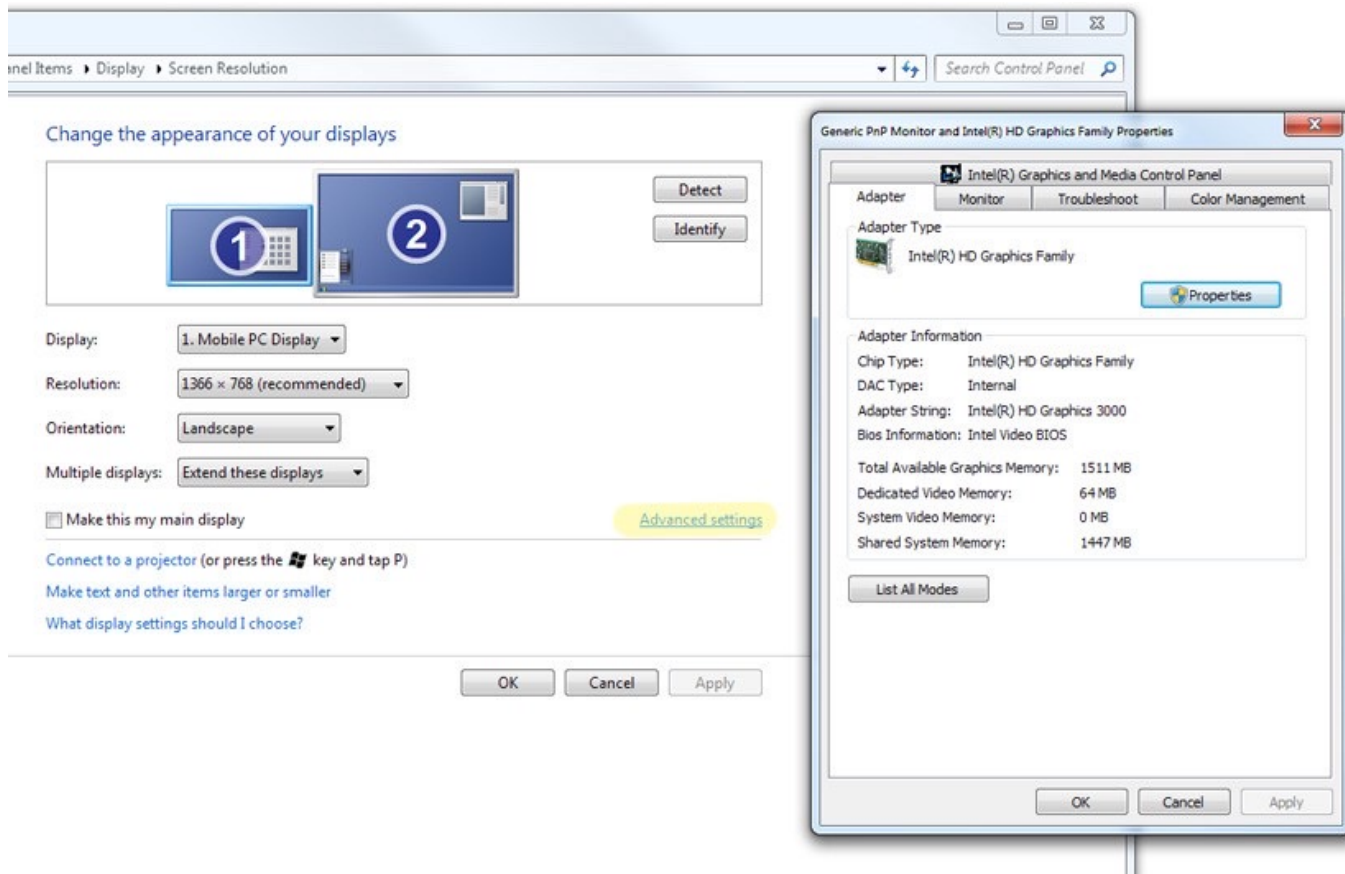
Design should accommodate both experienced and inexperienced users



7. FLEXIBILITY AND EFFICIENCY OF USE

- **Many modern applications offer many possibilities for tailoring of UI**
- **UIs can be of an adaptive kind**
 - User's actions are observed
 - UI automatically adjusts itself to the most suitable form
- **UIs could, for example, automatically progress from novice level to expert level**

7. FLEXIBILITY AND EFFICIENCY OF USE



The use of an “advanced settings” link is common. Here’s windows shows me the simpler display settings and hides the more complicated options behind a quick link. They’re still accessible in a separate window to users that need them, but they won’t confuse or scare off the beginners.

8. AESTHETIC AND MINIMALIST DESIGN

- Design should include only relevant, minimally needed information
- Unnecessary information:
 - Makes it harder to see important information
 - Decreases design's overall usability
- New versions of applications include more and more features
- In practice 80 % of users use only 20 % of features
- Users are overwhelmed with information (feedback)



8. AESTHETIC AND MINIMALIST DESIGN



Google Search

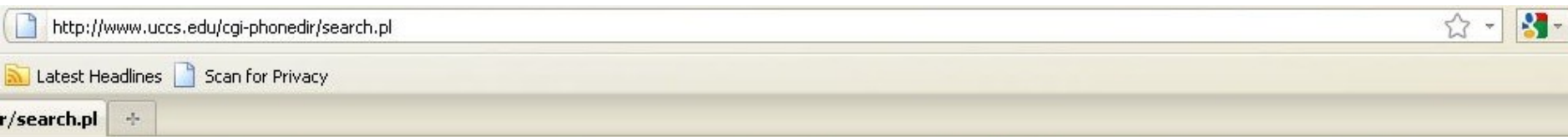
I'm Feeling Lucky

What advice would you give your younger self? [#DearMe](#)

There's a beautiful simplicity to Google's search page. It provides everything the user needs (and only a little more). They show personality by changing the logo to celebrate various special days. This one is for International Women's Day 2015.

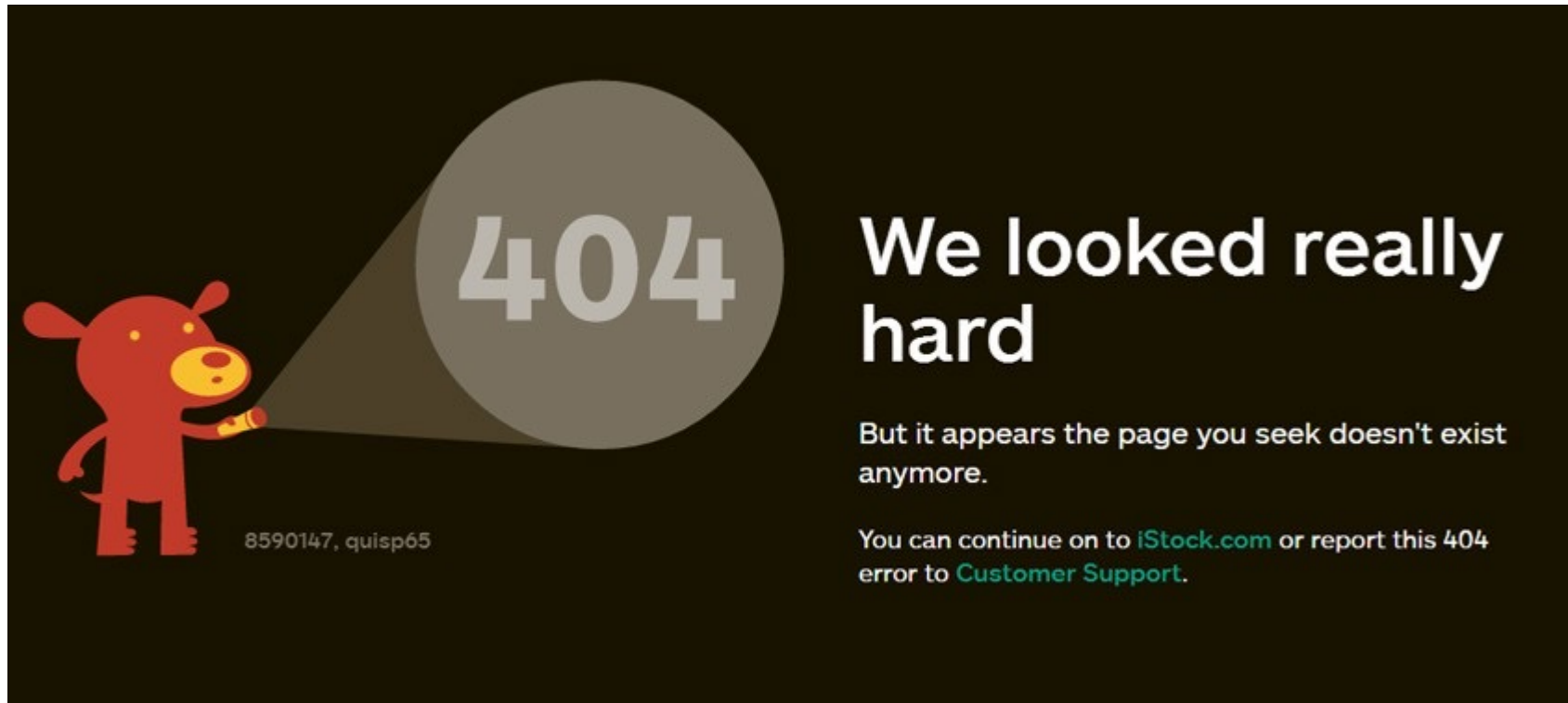
9. HELP USERS RECOGNIZE, DIAGNOSE, AND RECOVER FROM ERRORS

- **Use plain language to indicate problem and suggest solution**
- **Error messages should:**
 - Be clear, specific, easy to understand
 - Be meaningful to the user
 - Provide immediate feedback and specific guidance on how to recover from the error



Something has gone wrong and someone has been notified please try back in a few hours, sorry

9. HELP USERS RECOGNIZE, DIAGNOSE, AND RECOVER FROM ERRORS



Cute 404 pages are kind of a “thing” now, here’s one from iStockphoto. They show me a nice image (from one of their own artists, of course) and speak in language that humanises the site and doesn’t imply the problem was my fault. Then they also suggest some links that might help me out.

10. HELP AND DOCUMENTATION

Documentation should be:

- Helpful and relevant in the user's context
- Focused on the user's task
- Easily searchable and accessible

The screenshot displays the iTunes website's help and documentation page. At the top, there are navigation links: "What is iTunes", "What's on iTunes", "iTunes Charts", "How To", and a prominent blue button labeled "Download iTunes".

The main content area is titled "Download and Install iTunes" in large white text. Below this title is a screenshot of the iTunes application interface on a Mac. A large green arrow points from the "Click to Play" button in the screenshot towards the "Featured Tutorials" section on the right.

The "Featured Tutorials" section lists several video guides:

- Download and Install iTunes**: 1:12 duration, with a thumbnail showing the iTunes 10 logo and a "Download iTunes" button.
- iTunes in the Cloud**: 2:40 duration, with a thumbnail showing a grid of album covers.
- Explore your iTunes Library**: 2:14 duration, with a thumbnail showing the iTunes library interface.
- Import CDs**: 0:53 duration, with a thumbnail showing a hand holding a CD.
- Playlists**: 2:14 duration, with a thumbnail showing a playlist titled "Sunday Morning Road Trip" with a "Workout Mix" option.

10. HELP AND DOCUMENTATION

The screenshot shows the Etsy help and documentation page. At the top, there is the Etsy logo, a search bar with the placeholder text "Search for items or shops", a "Search" button, and a "Browse" dropdown menu. To the right, there are links for "Register", "Sign In", and a "Cart" icon. Below this is a section titled "How can we help you?" with a search bar for help topics and a "Search help" button. The page is organized into three columns of links: "Getting Started" (Etsy Guidelines, Confirming Your Etsy Account, Search for Items and Shops, Purchasing an Item, Contacting a Seller), "Tools and Features" (Receiving Gift Cards, Reporting a Site Bug, Get Faster Shipping, Refunds and Returns, Report a Problem with an Order), and "Become a Seller" (Setting up a Shop, Getting Paid, Fees for Selling on Etsy, Listing a Physical Item, Choosing Payment Methods in Your Shop). Below these columns are two large icons: an envelope with an @ symbol for "Contacting the Seller" and a pencil for "Sign Up to Sell". At the bottom, there is a section titled "Still have questions?" with three options: "Check the FAQs", "Ask in the Forums", and "Site Policies". A final message at the bottom says "No luck? Contact us and we'll get back to you as soon as possible."

Etsy Search for items or shops Search Browse Register Sign In Cart

How can we help you?

Search for help by topics, keywords or phrases Search help

Getting Started
Etsy Guidelines
Confirming Your Etsy Account
Search for Items and Shops
Purchasing an Item
Contacting a Seller

Tools and Features
Receiving Gift Cards
Reporting a Site Bug
Get Faster Shipping
Refunds and Returns
Report a Problem with an Order

Become a Seller
Setting up a Shop
Getting Paid
Fees for Selling on Etsy
Listing a Physical Item
Choosing Payment Methods in Your Shop

Contacting the Seller
Got a question about an item? We'll show you how to ask the seller.

Sign Up to Sell
Turn your passion into a business, open up an Etsy shop.

Still have questions?

Check the FAQs
Find an overview of popular help topics.

Ask in the Forums
Learn from our knowledgeable community.

Site Policies
Read the ins and outs of selling on Etsy.

No luck? Contact us and we'll get back to you as soon as possible.

This page is beautifully designed, with a large search box at the top (with a tip inside to help me out), then they provide links to some of the most commonly needed resources, in a few different ways. Firstly organised into categories, then with large icons. Then for more detailed help, they direct me towards the FAQ, the forums and the site policies.

NIELSEN'S HEURISTICS

Nielsen published an update at 2005

Nowadays Nielsen's principles are often connected to Web usability

Nielsen has been criticized for being too puritanic

END OF LECTURE