

# Fundamentals of UI/UX

Instructor: Debbie Fierst



# Part I: Defining UI and UX

# UX versus UI

## User Experience Design (UX/UXD)

- Improving the usability, ease of use, and pleasure provided in the interaction between the user and the product

## User Interface Design (UI)

- Visually guiding a user through a product's interface using graphical and interactive elements

# UX Roles

## UX Researcher

- Responsible for *how the product satisfies the needs of the users.*
  - **Deliverables:** User personas, A/B test results, Investigative user studies and interviews
  - **Tools:** Mic, Paper, Docs

*“Research indicates that our typical user wants...”*

## UX Designer

- Responsible for *how the product feels.*
  - **Deliverables:** Wireframes of screens, storyboards, sitemap
  - **Tools:** Photoshop, Sketch, Illustrator, Fireworks, InVision

*“A thank you page should follow the sign-up process.”*

# UI Roles

## UI Designer

- Responsible for *how the product is laid out*.
  - **Deliverables:** A static mock-up of the user interface
  - **Tools:** Photoshop, Sketch, Illustrator, Fireworks

*“The login and sign up links will be placed in the top right corner.”*

## UI Developer

- Responsible for *how the product actually works in real life*.
  - **Deliverables:** A functional implementation of a product's interface
  - **Tools:** Programming languages, CSS, HTML, JavaScript

*“I'm using a 960px 12-column grid system.”*

# UX versus UI Responsibilities

## UX Responsibilities

- **Strategy and Content**
  - Competitor and Customer Analysis
  - Product Structure/Strategy
  - Content Development
- **Wireframing and Prototyping**
  - Wireframing
  - Prototyping
  - Testing/Iteration
- **Execution and Analytics**
  - Coordination with UI Designer(s)
  - Coordination with Developer(s)
  - Tracking Goals and Integration
  - Analysis and Iteration

## UI Responsibilities

- **Look and Feel**
  - Design Research
  - Branding and Graphic Development
  - User Guides/Storyline
- **Responsiveness and Interactivity**
  - UI Prototyping
  - Interactivity and Animation
  - Adaptation to All Device Screen Sizes
  - Implementation with Developer

# Helpful Quotes . . .

*“A UI without UX is like a painter slapping paint onto canvas without thought, while UX without UI is like the frame of a sculpture with no papier-mâché on it. A great product experience starts with UX followed by UI. Both are essential for the product’s success.”*

- Rahul Varshney  
Co-creator of **Foster.fm**

*“Something that looks great but is difficult to use is exemplary of great UI and poor UX, while something very usable that looks terrible is exemplary of great UX and poor UI.”*

- Helga Moreno

**The Gap Between UX And UI Design**



# Part II:

## Humans + Applications = ??

# Personas

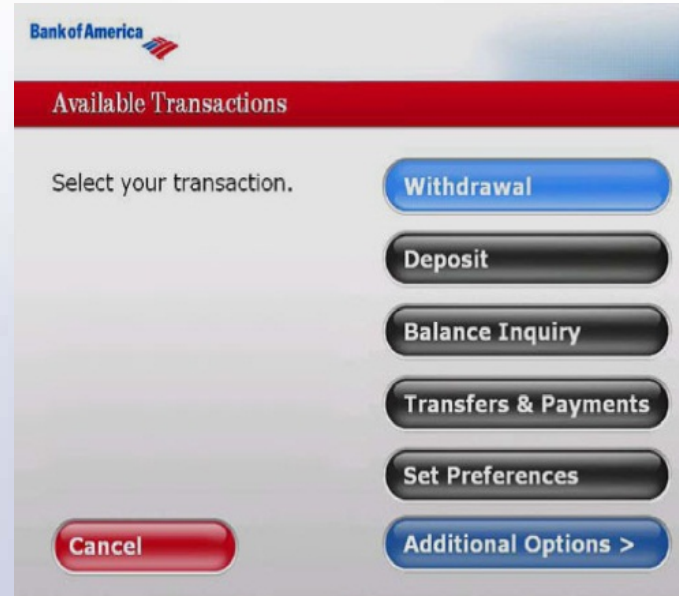
- A persona represents a collection of users who exhibit similar behavioral patterns:
  - Lifestyle choices
  - Purchasing decisions
  - Use of technology or products
  - Customer service preferences
- These behaviors, attitudes, and motivations span typical demographics, such as age, gender, education, etc.

# Who is MY user?

- Sometimes we choose or target a persona and then build an application
  - Example: Gameplay metrics are used to build personas of the “casual gamer” versus the “hardcore gamer”
  - This provides various benefits to developers, giving them quantitative and qualitative data to inform game design.
- Sometimes we have no control over the persona for which we must build an application
  - Example: Help desk application used internally by a large corporation

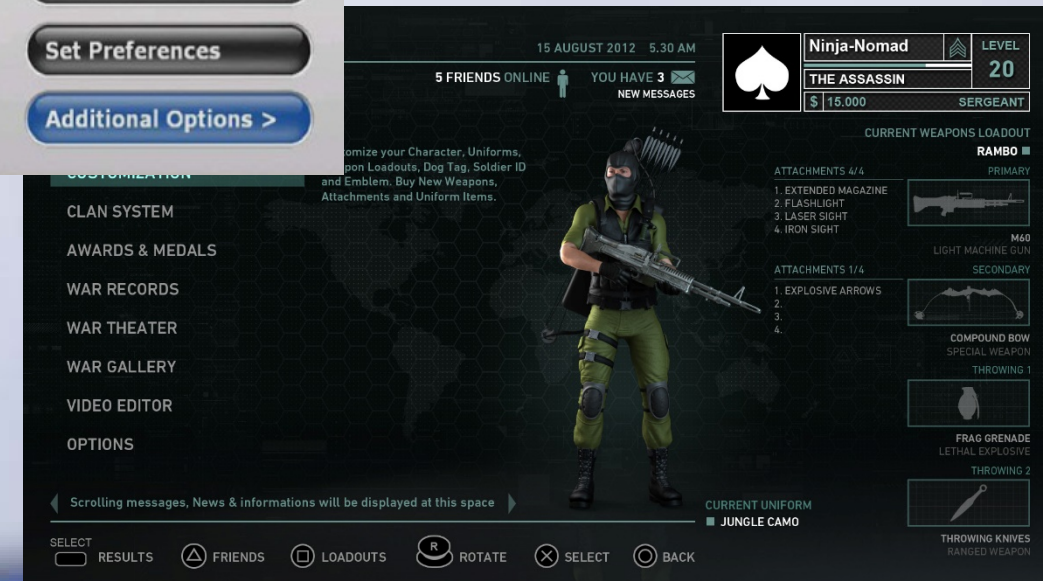
# The Application: A Method or a Goal?

- Understand what the user expects in an application:
  - An ATM application is merely a **method** for obtaining money. The user wants to operate it without thinking and to walk away without ever thinking about it again!
  - A video game application is a **goal**. The user wants to entertain himself by using the application, so visual design and functionality are central to a memorable experience.



← Method

Goal



# What is a Mental Model?

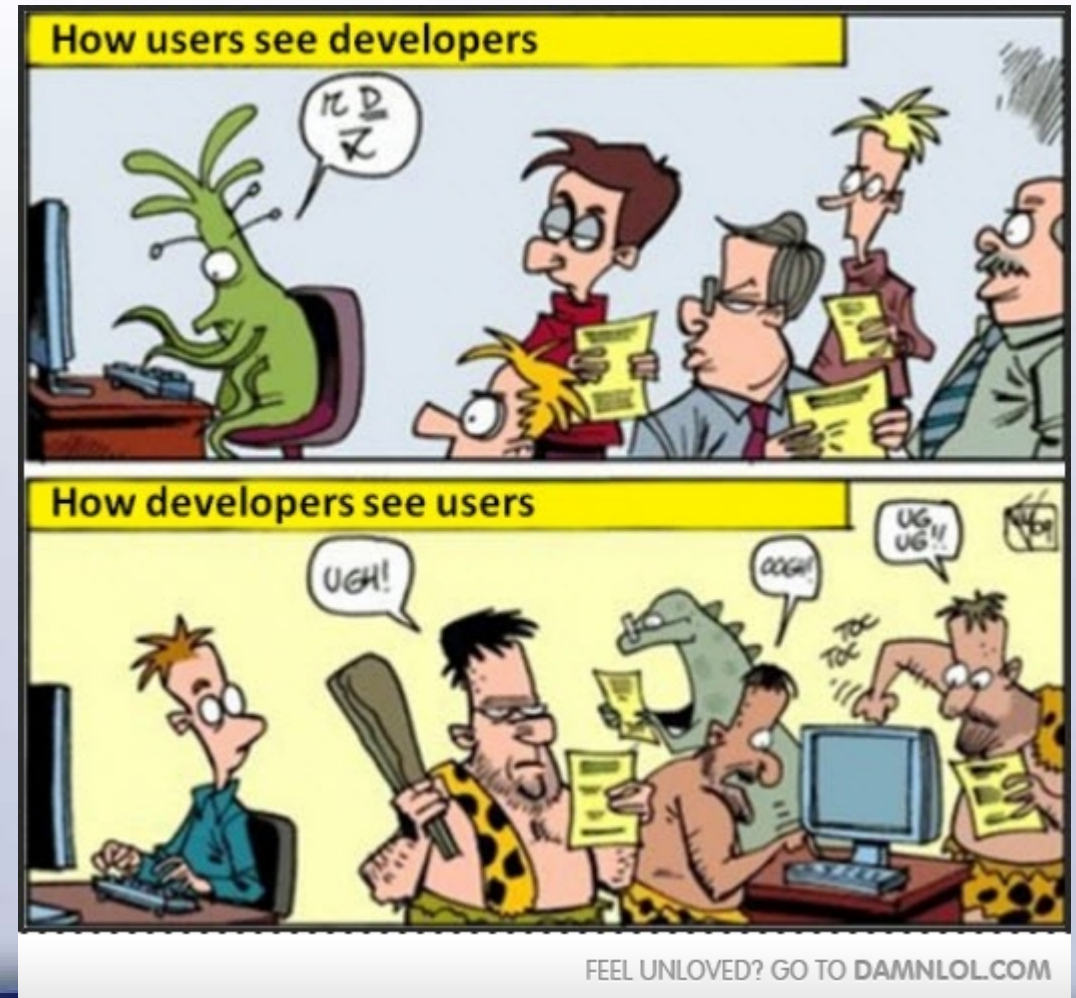
- A **mental model** is **what a person believes** about an application.
  - The mental model is based on **beliefs, not facts**, and is internal and unique to each user's brain.
- A **gap** occurs between the mental models of developers and users.
  - Developers form perfect mental models of their own creations, believing that each feature is easy to understand.
  - Users' mental models are more deficient, increasing the chance for mistakes and finding the application difficult to use.





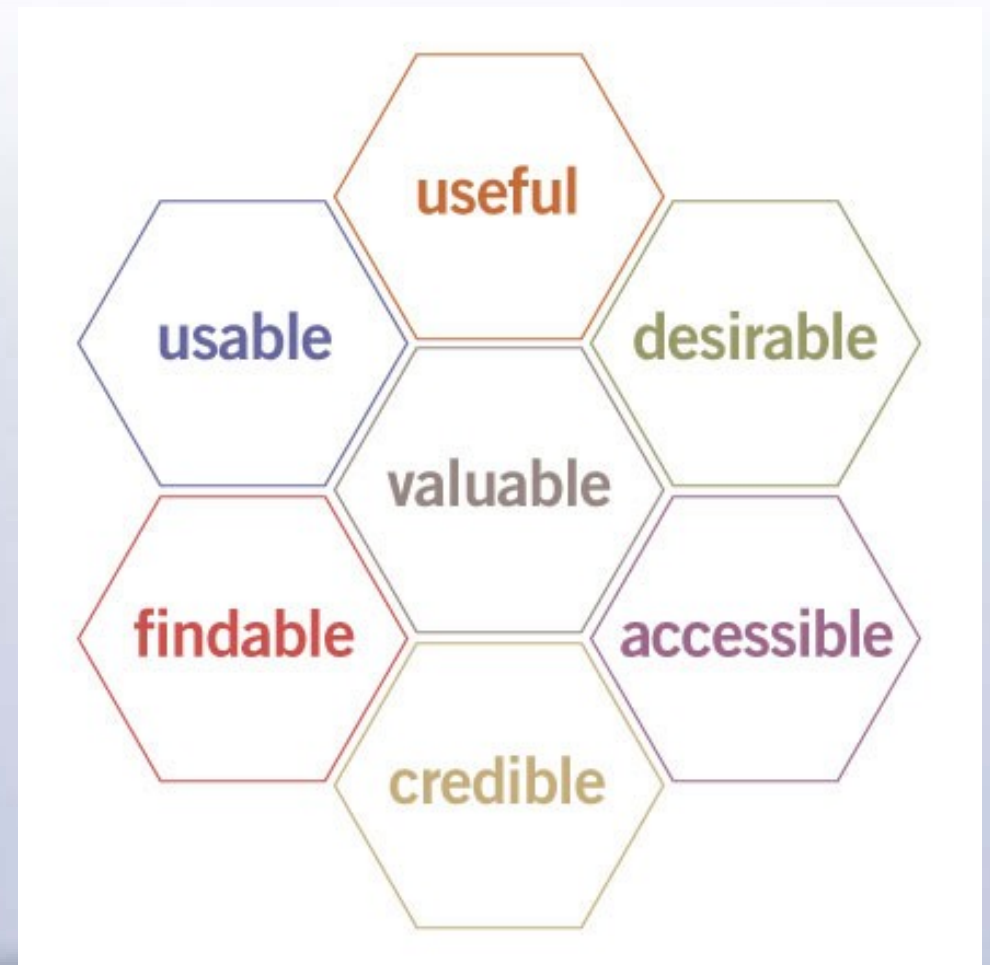
# Developer Model versus User Model

- Developers are the engineers of an application. They understand the entirety of the product's structure. Users do NOT.
- To ensure a successful UX, the developer's mental model and the user's mental model should NOT be drastically different *right from the beginning of the development process*.



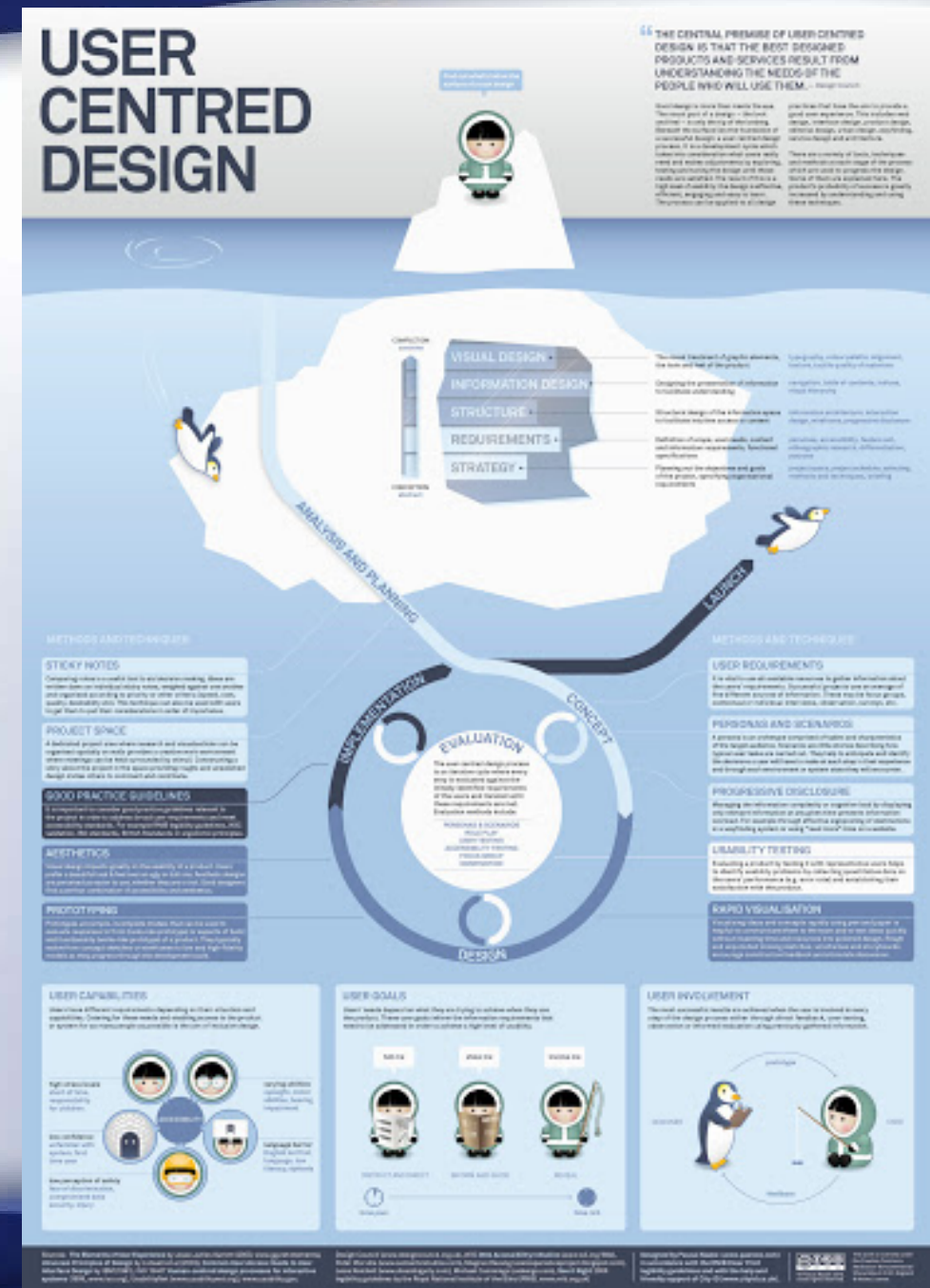
# User Experience (UX) Honeycomb

- User experience is not meaningful or valuable unless information is ...
    - **Useful**  
Does the content fill a need?
    - **Usable**  
Is it easy to use?
    - **Desirable**  
Does it evoke positive emotion and appreciation?
    - **Findable**  
Is it easy to find what is needed at any time?
    - **Accessible**  
Is it usable by people with disabilities?
    - **Credible**  
Is it trustworthy and believable?
- Peter Morville





- <http://www.uxbooth.com/articles/8-must-see-ux-diagrams/>





# Part III:

# UX / UI Principles

Usability Heuristics, LATCH, C.R.A.P, Skeuomorphic Design, etc.

# Usability Heuristics

- Jakob Nielsen's 10 general principles for interaction design.
  - They are called "heuristics" because they are broad guidelines, not specific usability guidelines.
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

# 1. Visibility of System Status

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

Type new password:

Six-characters minimum; case sensitive

Password strength: Strong

San Francisco To Paris 2m Early  
Air France 83

**En Route**

Departure Aircraft 744 Today

**SFO International Airport** SFO >

Departed **3:47 PM** Scheduled **3:30 PM** Terminal **I**

**17m Delay** **DEPARTED** **DELAYED**

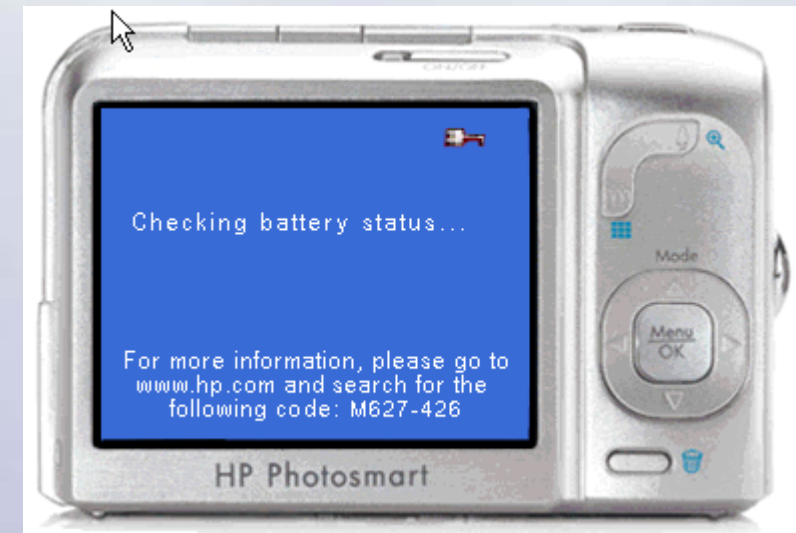
Arrival Airtime 9h 53m Sep 8

**Charles De Gaulle Airport** CDG >

Arrives **10:58 AM** Scheduled **11:00 AM** Terminal **2E**

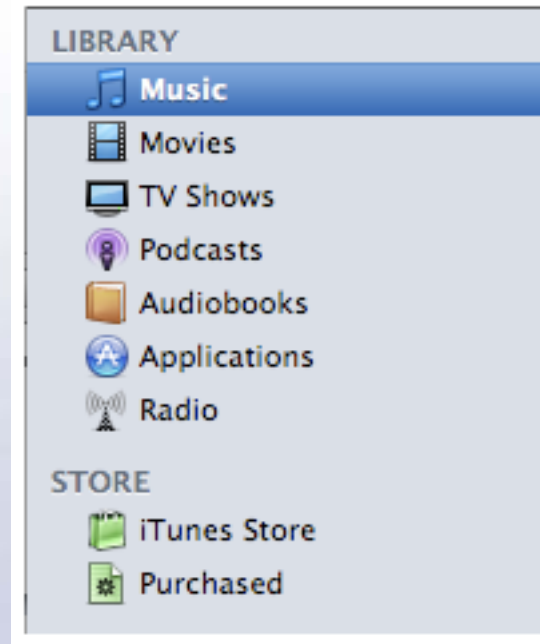
**2m Early** **ON TIME**

Last Updated: 9:55 PM

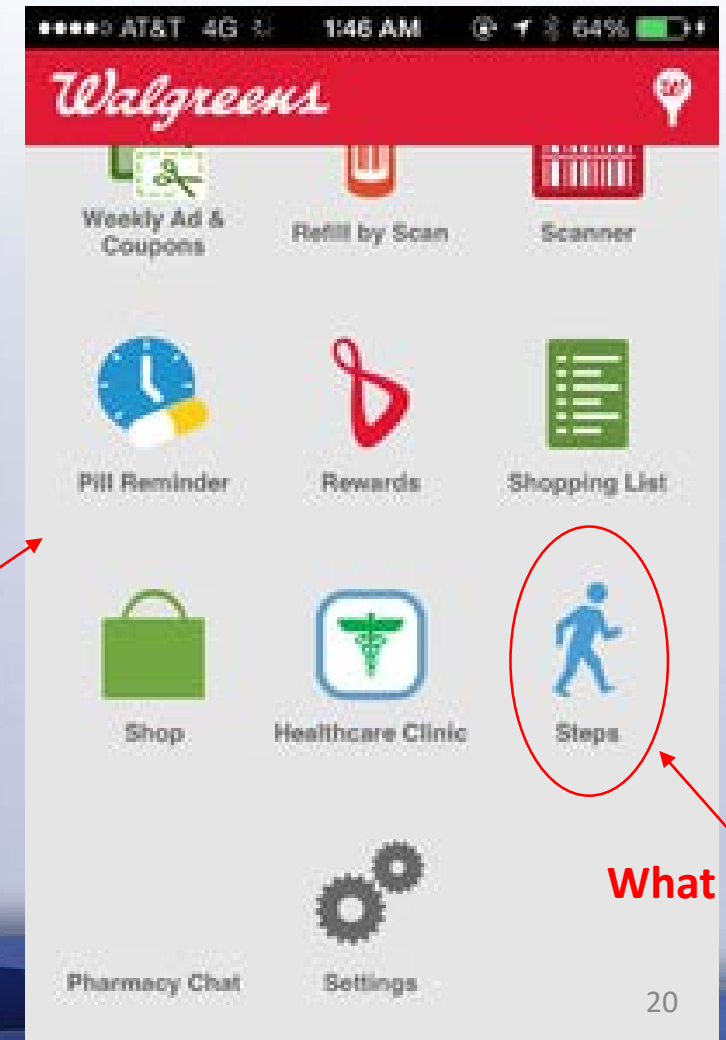


## 2. Match between System and the Real World

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



Features in a logical order?



What is this?

### 3. User Control and Freedom

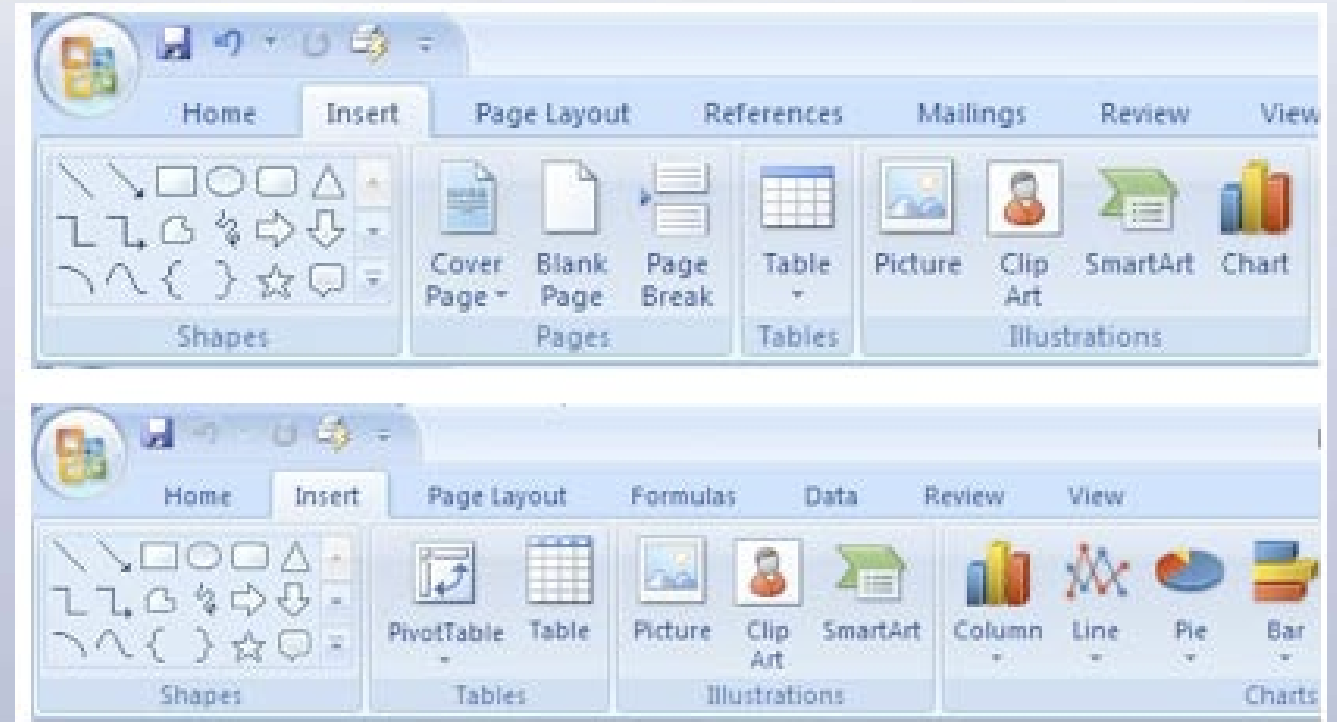
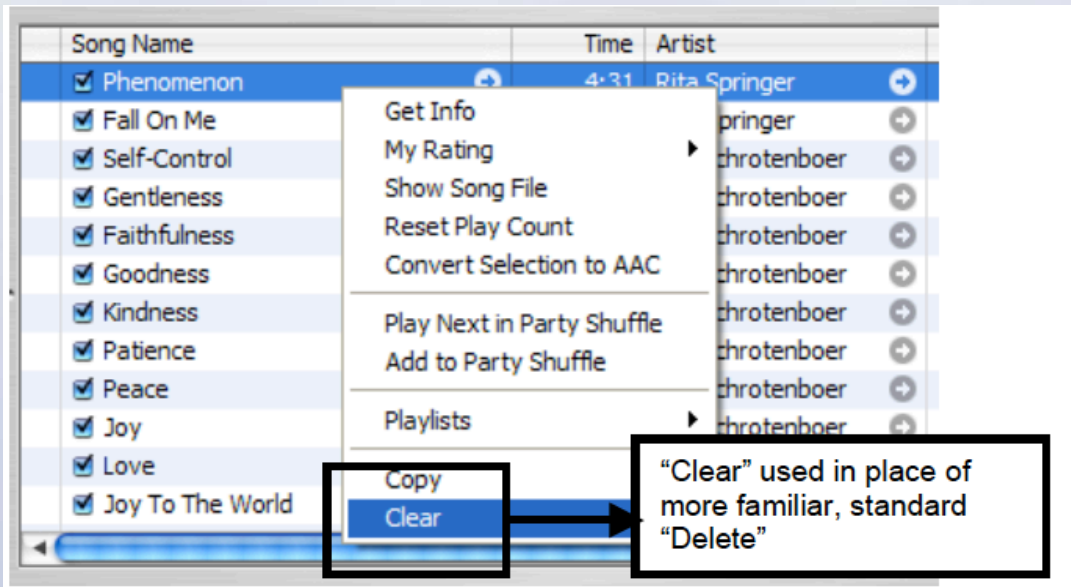
- Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.



How do I get out if I decide NOT to proceed?

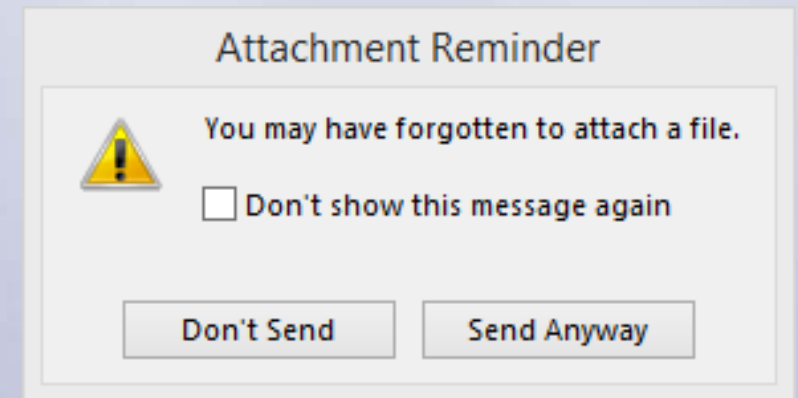
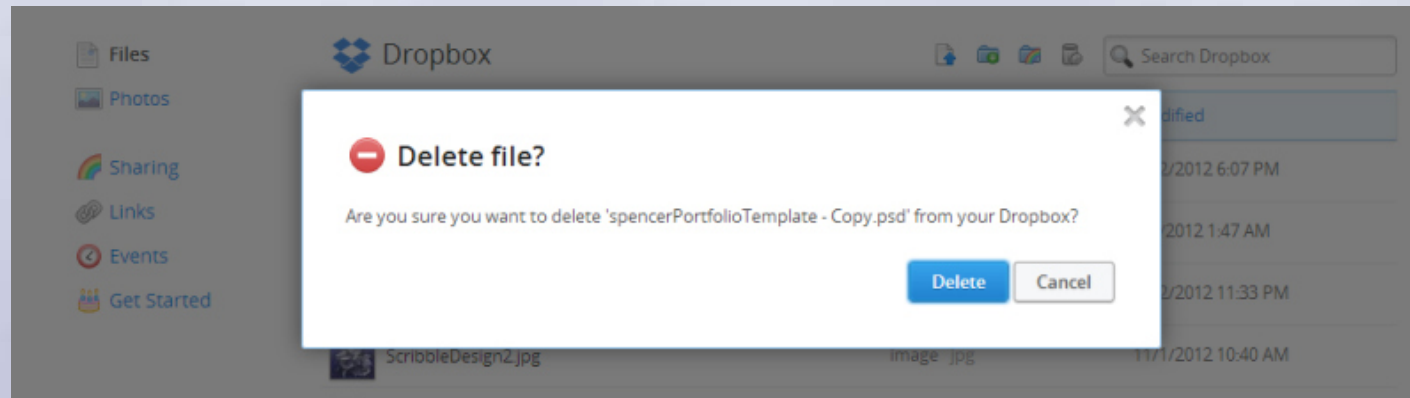
## 4. Consistency and Standards

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



## 5. Error Prevention

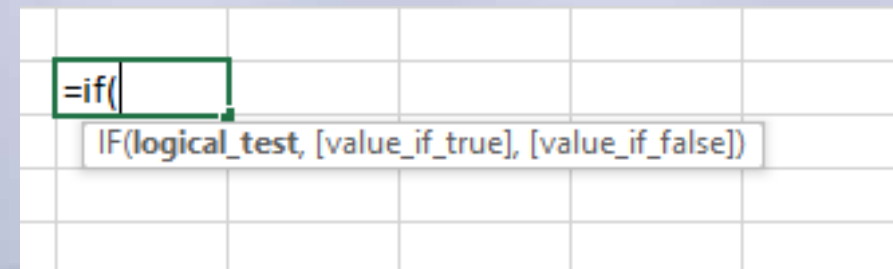
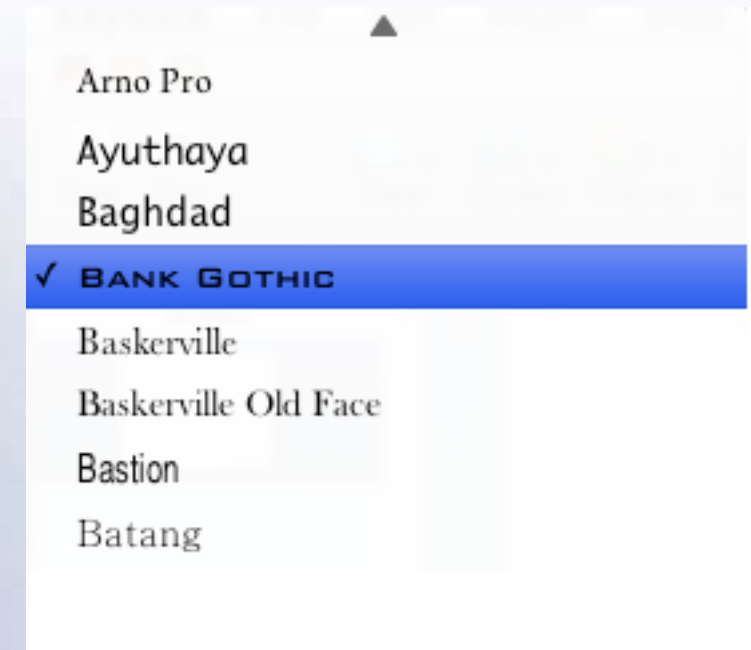
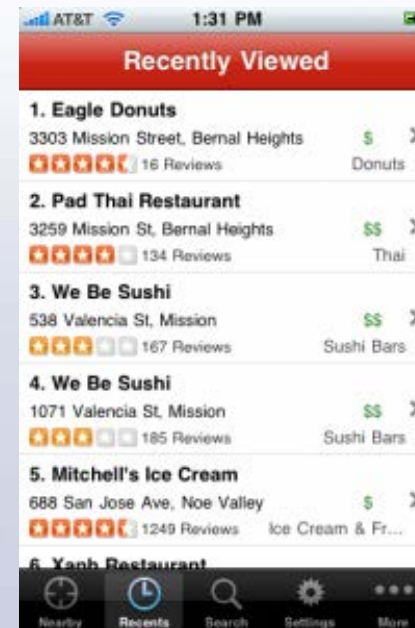
- Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.





## 6. Recognition rather than Recall

- Minimize the user's memory load by making objects, actions, and options visible. The user 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.



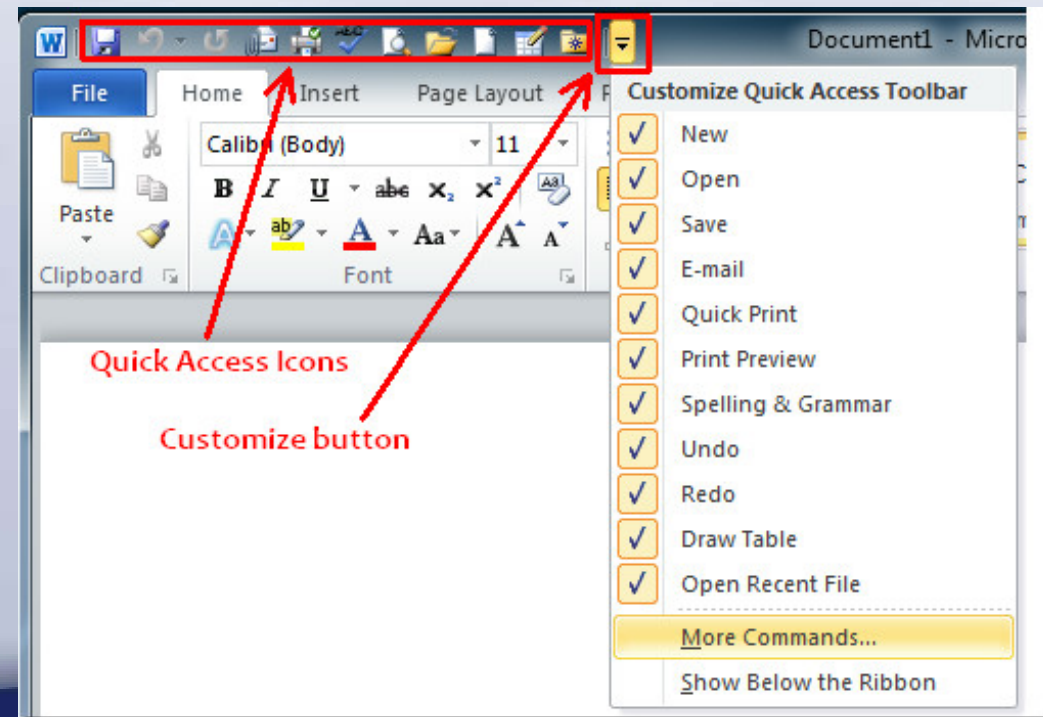


# 7. Flexibility and Efficiency of Use

- Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

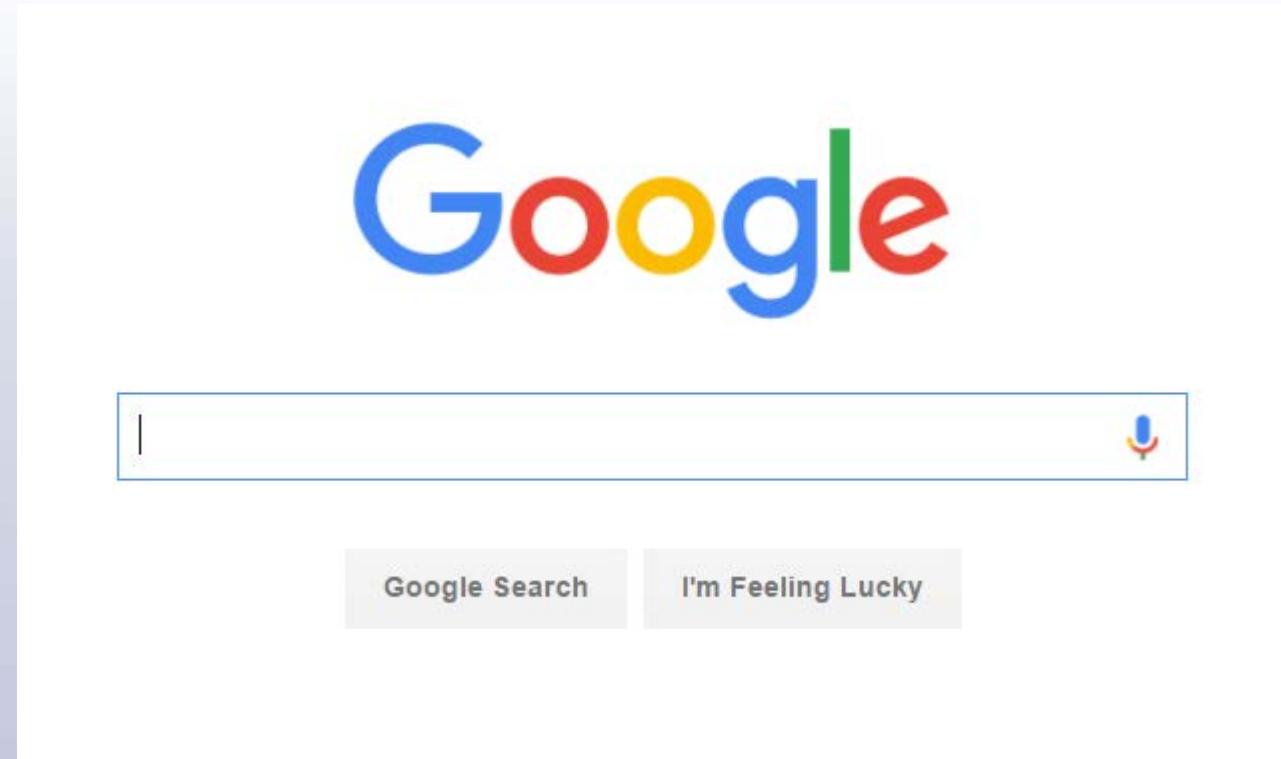
Common Shortcuts	
Add Action	Return
New Window	⌘N
Synchronize with Server	⌘S
Clean Up	⌘K
Planning Mode	⌘1
Context Mode	⌘2
Inbox	⌘1
Quick Entry	⌘Space

*Quick Entry's shortcut can be customized in Preferences*



# 8. Aesthetic and Minimalist Design

- Less is more.
- Remove information that is irrelevant or rarely needed.
- Beware: a minimalist visual design without meaningful consideration of user tasks will not result in a successful interface.
  - Ex: Windows 8
  - <http://www.nngroup.com/articles/windows-8-disappointing-usability/>



## 9. 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.

Or start a new account

Choose a username (no spaces)

bert

Choose a password

...

Retype password

Email address (must be real)

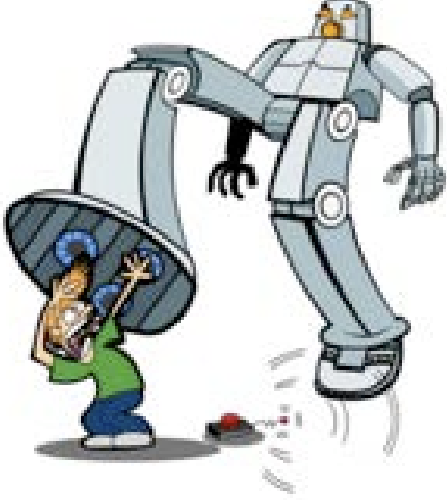
not an email

☒ Send me occasional Digg updates.

bert is already taken. Please choose a different username.

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

The email provided does not appear to be valid



### 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

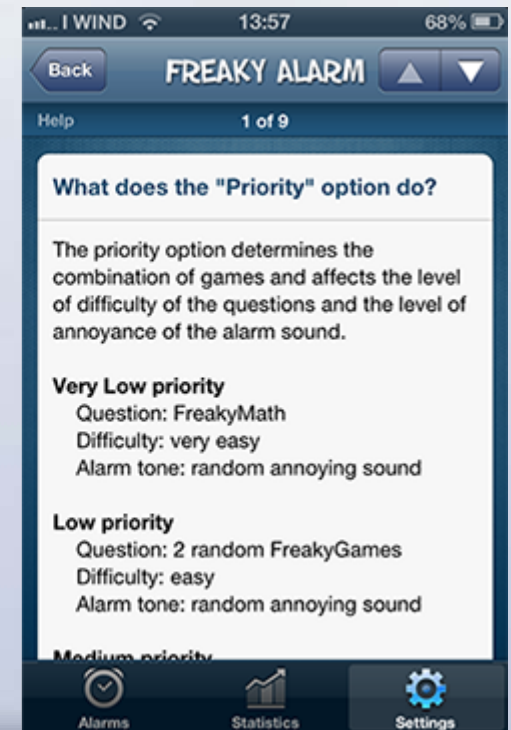
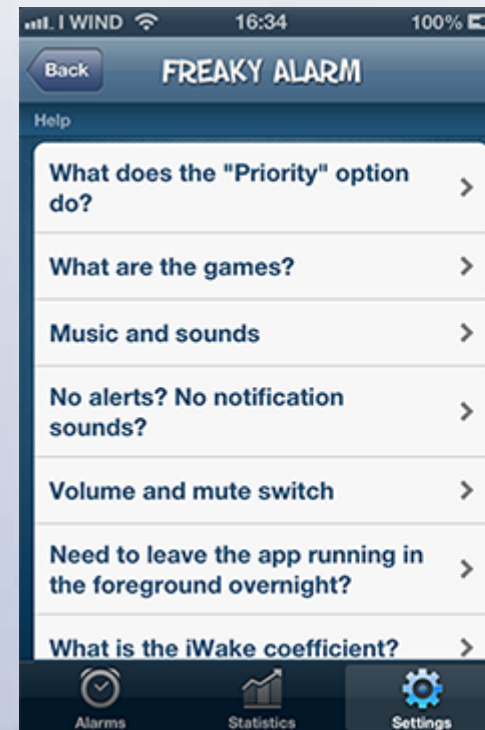
# 10. Help and Documentation

- Help documentation should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Before



After



# Examples of Heuristic Evaluations:

- [http://husk.eecs.berkeley.edu/courses/cs160-sp14/index.php/HeuristicEvaluation-Gavin\\_Ch](http://husk.eecs.berkeley.edu/courses/cs160-sp14/index.php/HeuristicEvaluation-Gavin_Ch)
- [http://www.adamatorres.com/docs/Portfolio/Projects/syntax20/Syntax2.0\\_Heuristic\\_Evaluation.pdf](http://www.adamatorres.com/docs/Portfolio/Projects/syntax20/Syntax2.0_Heuristic_Evaluation.pdf)
- <http://www.usabilityfirst.com/usability-methods/heuristic-evaluation/>
- [http://teaching.paulos.net/cs160\\_FL2015/lectures/cs160-fl15-04A.pdf](http://teaching.paulos.net/cs160_FL2015/lectures/cs160-fl15-04A.pdf)

## Free Heuristic Evaluation Templates

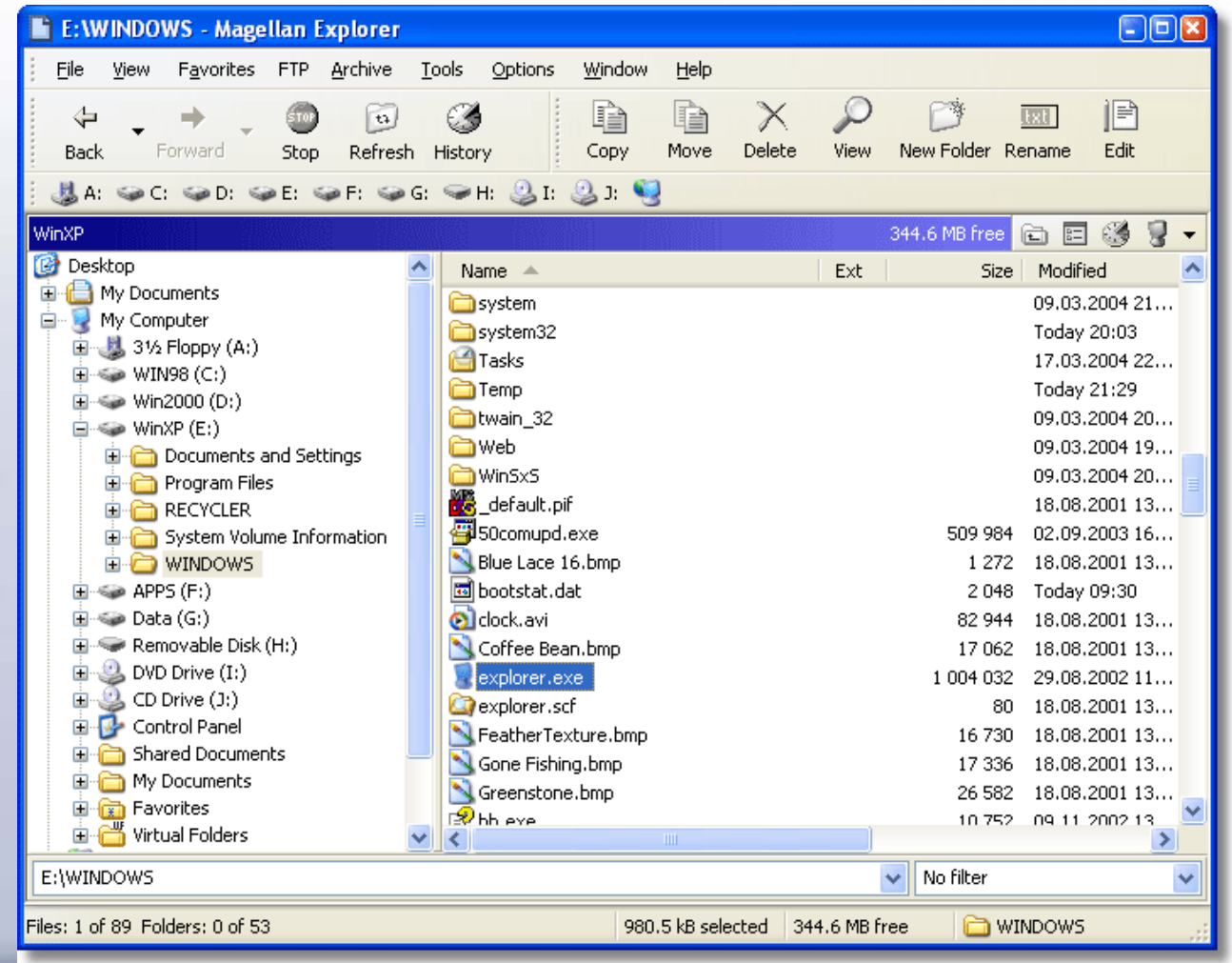
- <http://www.sampletemplates.com/business-templates/heuristic-evaluation-template.html>



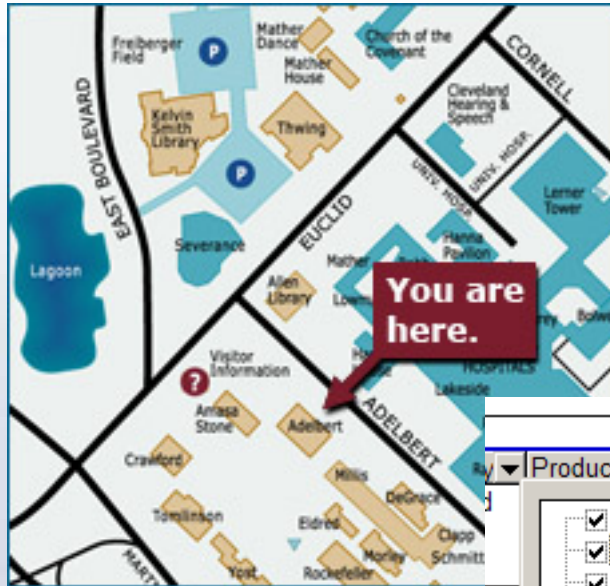
# Wurman's LATCH Concept

- Richard S. Wurman, an information architect known for his innovative organization methods, is most renowned for a method called LATCH, an acronym for the following:

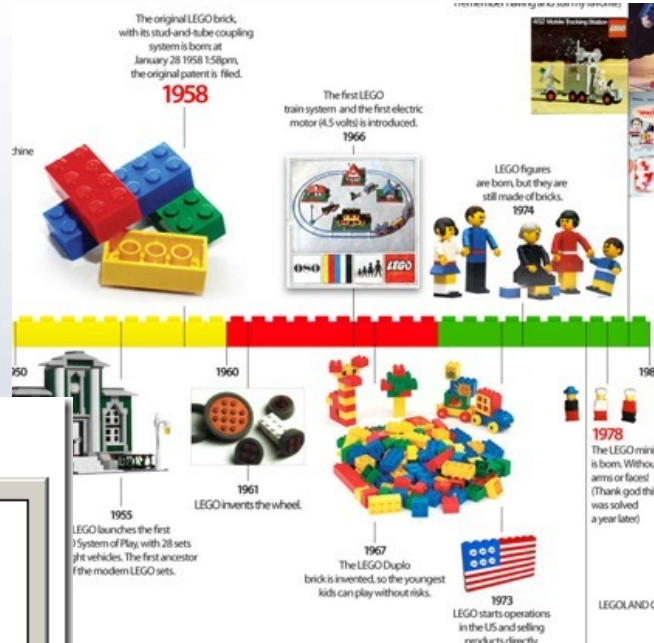
- Location
- Alphabet
- Time
- Category
- Hierarchy



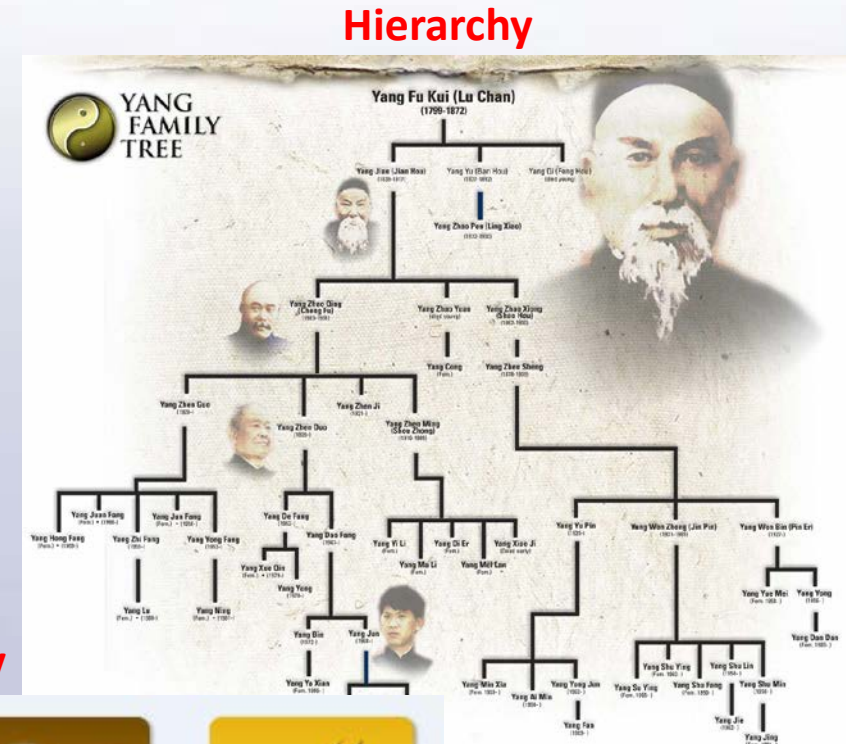
# Wurman's LATCH Concept (continued)



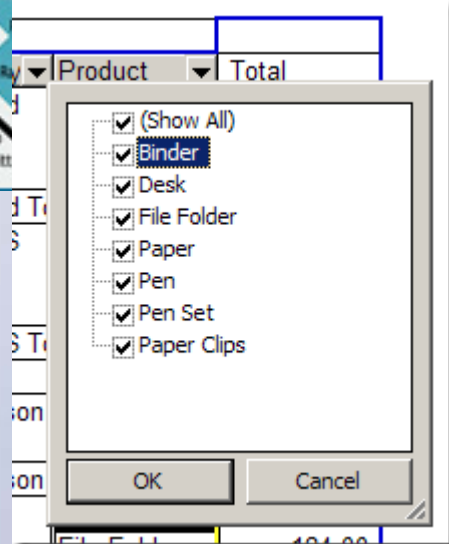
Location



Time



Hierarchy



Alphabet

Category



HERBS/SPICES



DAIRY



NUTS/SEEDS



GRAINS

# LATCH Example

The organization of information is finite.

Consider this example for a television station.

- Hierarchy
  - Shows by popularity
- Alphabet
  - Names of shows
- Time
  - Shows by time
- Category
  - Comedies, Sports, etc.
- Location
  - Channel on the dial

The screenshot shows the iPlayer website interface with several annotations pointing to specific features:

- Hierarchy:** Points to the 'Most Popular' section, which lists shows like 'EastEnders' and 'Waterloo Road' by their popularity.
- Alphabet:** Points to the 'A-Z of TV Programmes' section, which lists programmes alphabetically from A to Z.
- Location:** Points to the 'TV Channels' section, which lists channels like 'BBC TV Channels' and 'Other TV Channels'.
- Time:** Points to the 'Time' section, which lists programmes by time slot (e.g., 6:00pm, 6:30pm, 7:00pm).
- Category:** Points to the 'Categories' section, which lists programmes by genre (e.g., Drama & Soaps, News & Current Affairs, Entertainment, Films).



# C.R.A.P.

- **Contrast**

If the elements (type, color, size, line thickness, shape, space, etc.) are not the same, then make them **very** different. Contrast is often the most important visual attraction on a page.

- **Repetition**

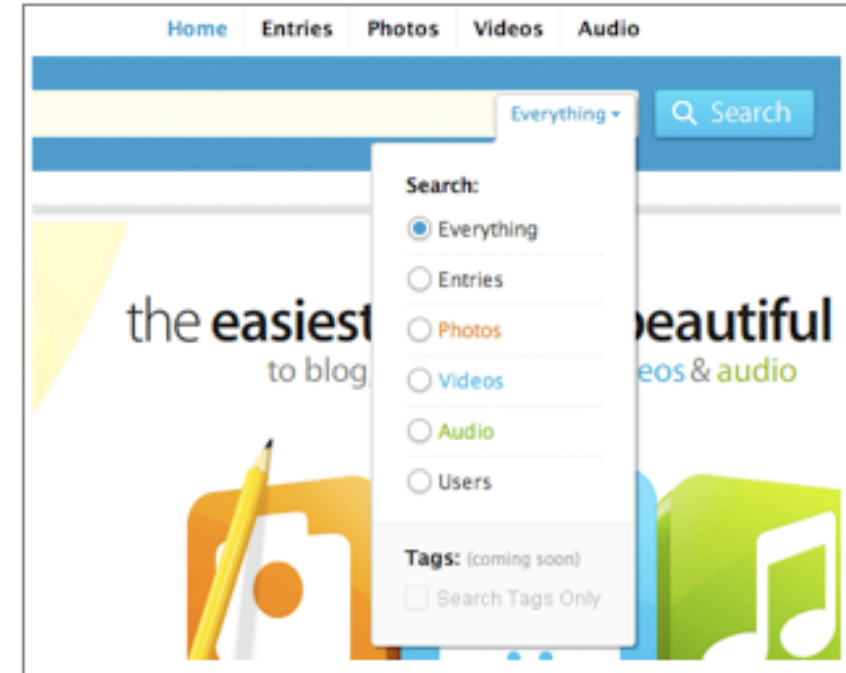
Repeat visual elements throughout the application. Repeat color, shape, texture, spatial relationships, patterns, sizes, etc. to develop the organization and strengthens the unity.

- **Alignment**

Line things up and make it clean. Every element should have some visual connection with another element on the page.

- **Proximity**

Related items should be grouped close together. When several items are in close proximity to each other, they become one visual unit rather than several separate units. Organize and de-clutter!



## 8.0 Kontain

Kontain' search menu exemplifies the four principles of visual design:

Contrast: bold text is used for the two labels in the search

Repetition: the orange, blue, and green text match the media types

Alignment : strong left alignment of text, right aligned drop down

Proximity: a light rule is used to separate tags from the other options

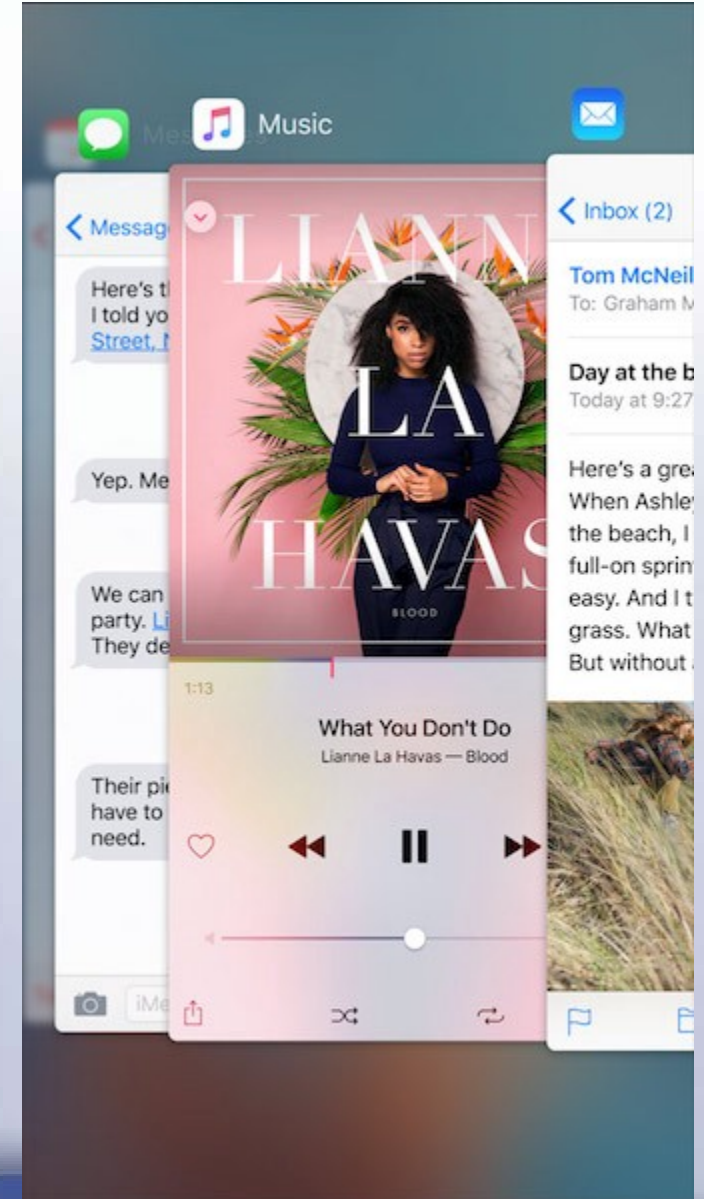
# Skeuomorphic Design

- Skeuomorphic designs take their cues from the physical world.
- All of these details are *mimetic*; they mimic real-life objects in digital space.
- Skeuomorphism represents what usability expert Don Norman, author of *The Design of Everyday Things*, describes as a "perceived affordance," or a design detail that tells you, the user, that some action is possible on your screen.



# Skeuomorphic Design Example

- iOS 9's app switcher uses skeuomorphic elements to bring flat design to life.
- Apps look like physical cards, with soft shadows demarcating where each card ends and another begins.
- The blurring of the background, as well as distant app cards, mimics our retina's (or camera lenses') focus on the apps vis-à-vis the background.



# And many more theories, models, etc . . .

- Human-Computer Interaction (HCI) integrates concepts and methods from computer science, design, and psychology to build interfaces and user experiences that are accessible, easy to use, and efficient.
- So, let's look at some of the things we know based on thirty years of everyday computing thus far . . .

# Part IV:

## UX / UI Lessons Learned

What do UX / UI experts recommend based on our understanding of users and human behavior?

# Perception, Comprehension and Operation

- When users utilize applications, they undergo three steps:
  - Perception
  - Comprehension
  - Operation
- If there are complications in any of these steps, the user experience is impacted negatively.



# Font

- Serif (best for print)
  - English speaking people read serif type styles nearly twice as fast as sans serif *in print*.
- Sans Serif (best for online)
  - English speaking people read sans serif type styles nearly twice as fast as serif *online*.



- Two Most Critical Factors:

- Scalability
- Readability

Lucida Grande

milliliter

Helvetica Neue

milliliter

Ubuntu

milliliter

# Font Size

- Take into account:

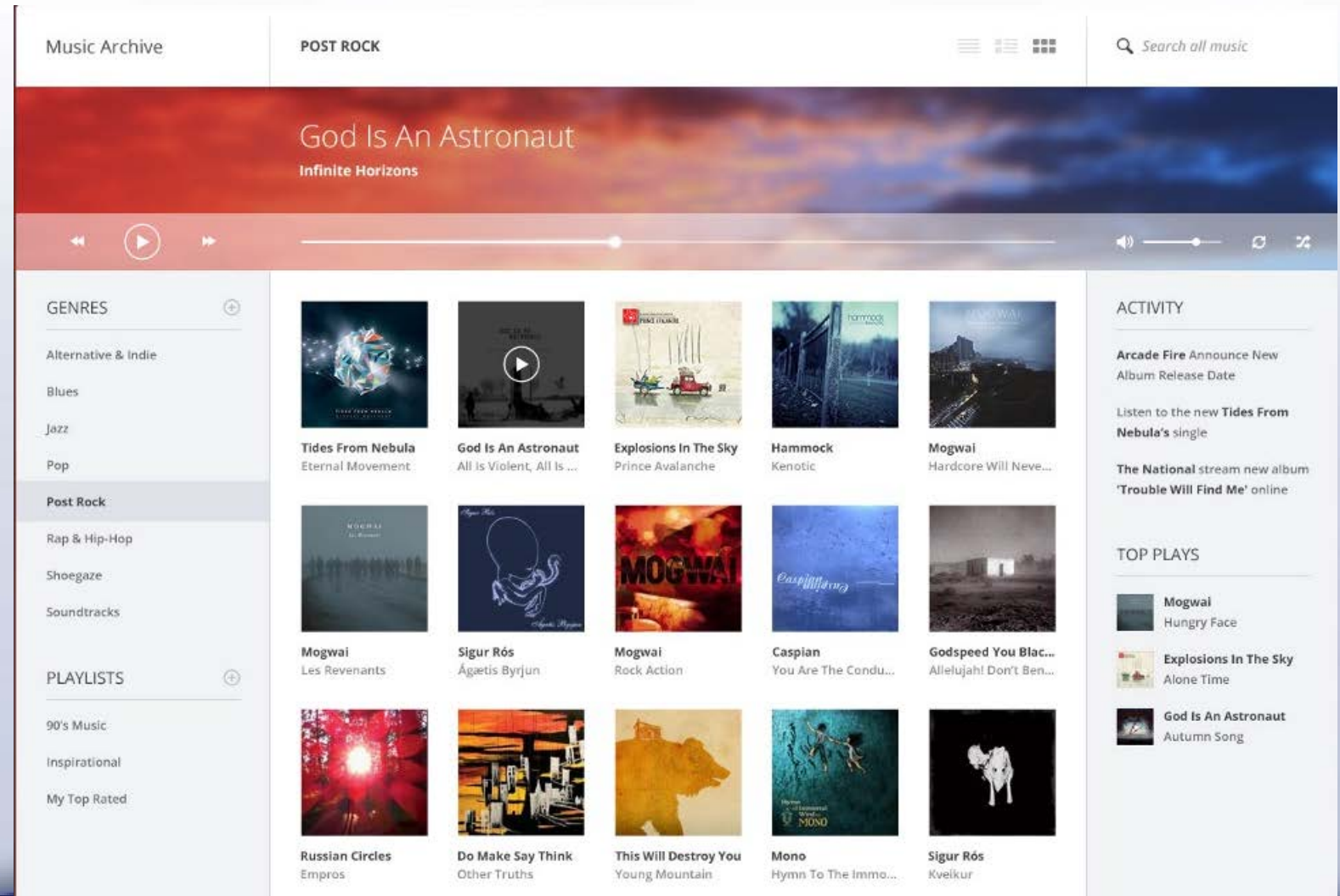
- The distance between the user and the device screen (ex. GPS screen while driving)
- The angle at which the user views the screen (ex. Standing at ATM machine)
- User's age (ex. Elderly need larger size)

Device Class	Type size in points		
	Minimum	Basic Content	Enhanced Content
Small phone	4	5.5	7.2
Large phone	6	8.5	10.8
Phablet	7	9.8	12.6
Small tablet	8	11.2	14.4
Large tablet / desktop	10	14	18



# Line Spacing (White Space)

- Line spacing is an important factor that determines readability.
- Spacing that is too wide or too narrow can make reading unnecessarily difficult.



# Contrast Between Character and Background

- The brightness of the font color and background color should be adequately different.
- Use a tool like Chrome's Color Contrast Analyzer to test your application.



The font color and background color must have enough contrast so that the content is easy to read.

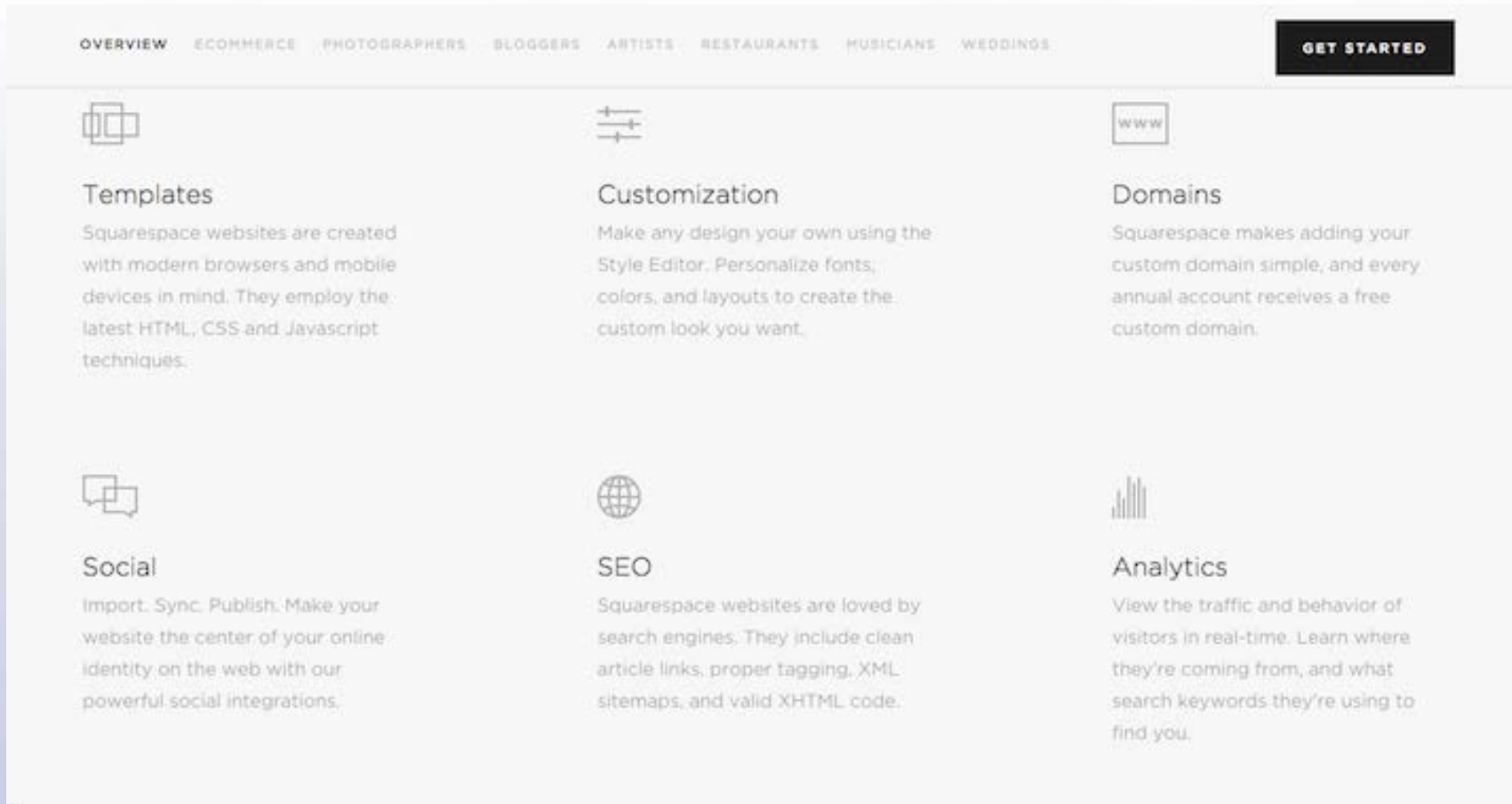
Example with low contrast



The font color and background color must have enough contrast so that the content is easy to read.

Example with ideal contrast

# Low Contrast



**Squarespace.com wants users to click that high-contrast button in the corner to Get Started.**

**But do they also want customers to read about the features or interact with the navigation? The gray text on the light-gray background makes it difficult.**

**The top-navigation contrast and body contrast are so poor that few users will stick around to read it.**

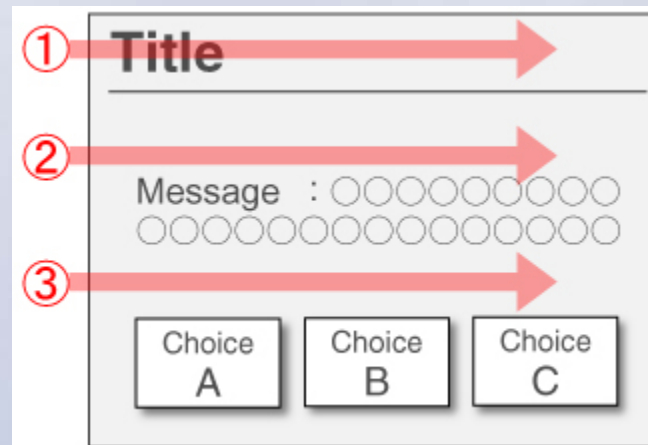
# Light Source

- Light comes from the sky!
  - Shadows help the user's brain understand UI elements.
  - Placing the light at the bottom of an element is unnatural.



# People Read Left to Right, Top to Bottom

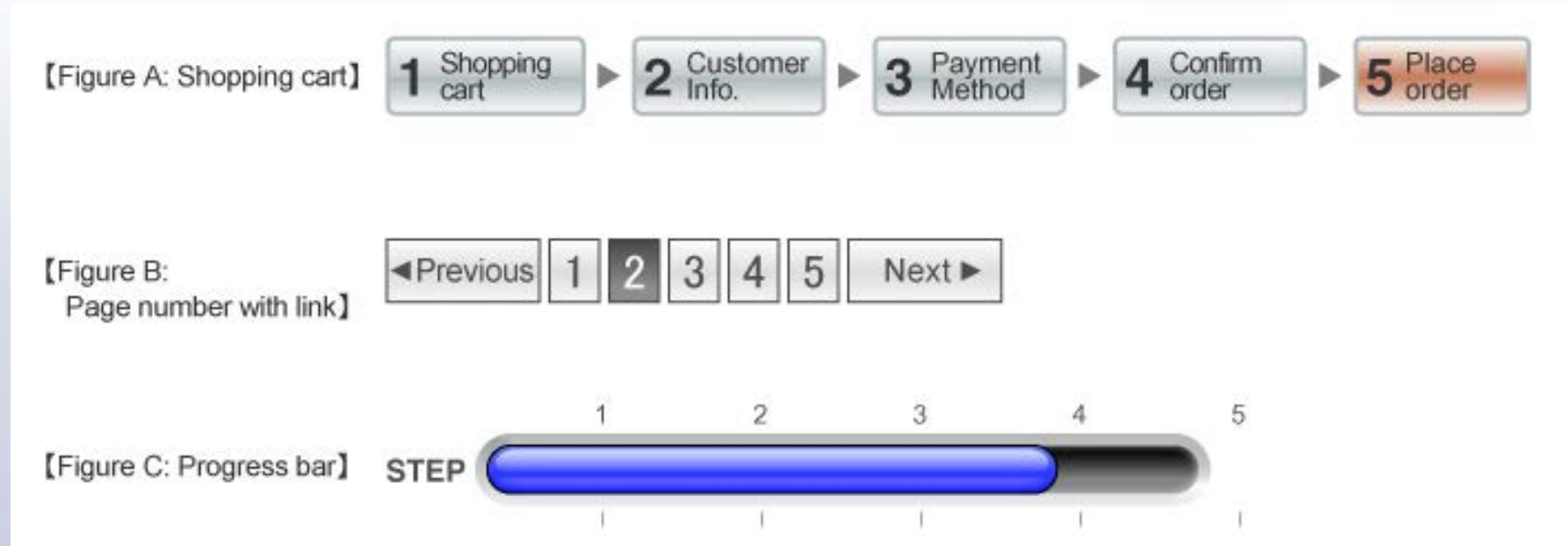
- Here is the basic pattern in which users interact with any interface:
  1. Try to understand the purpose by reading the header or main title.
  2. Grasp the gist of the content by skimming through the screen.
  3. Choose a solution by clicking on a button or typing in necessary information.





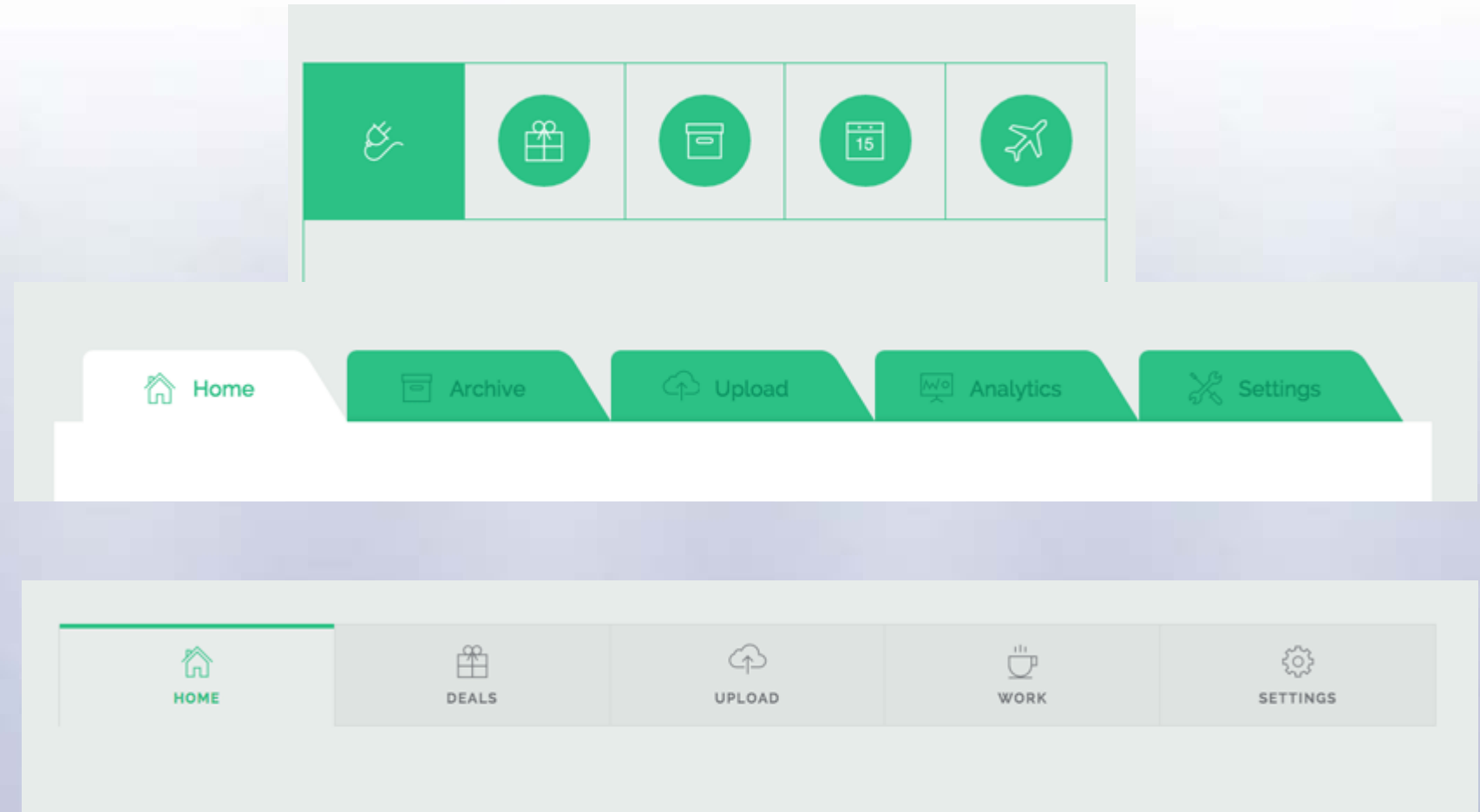
# Overall Progress

- Display both the overall progress and where the user currently stands.
- Communicate the user's current step and how many steps are left to complete the process.



# Tabs

- Tabs are a well-received option for menus.
- Tabs are easy to use, especially with a default tab component.
- Clearly distinguish between selected and non-selected tabs.





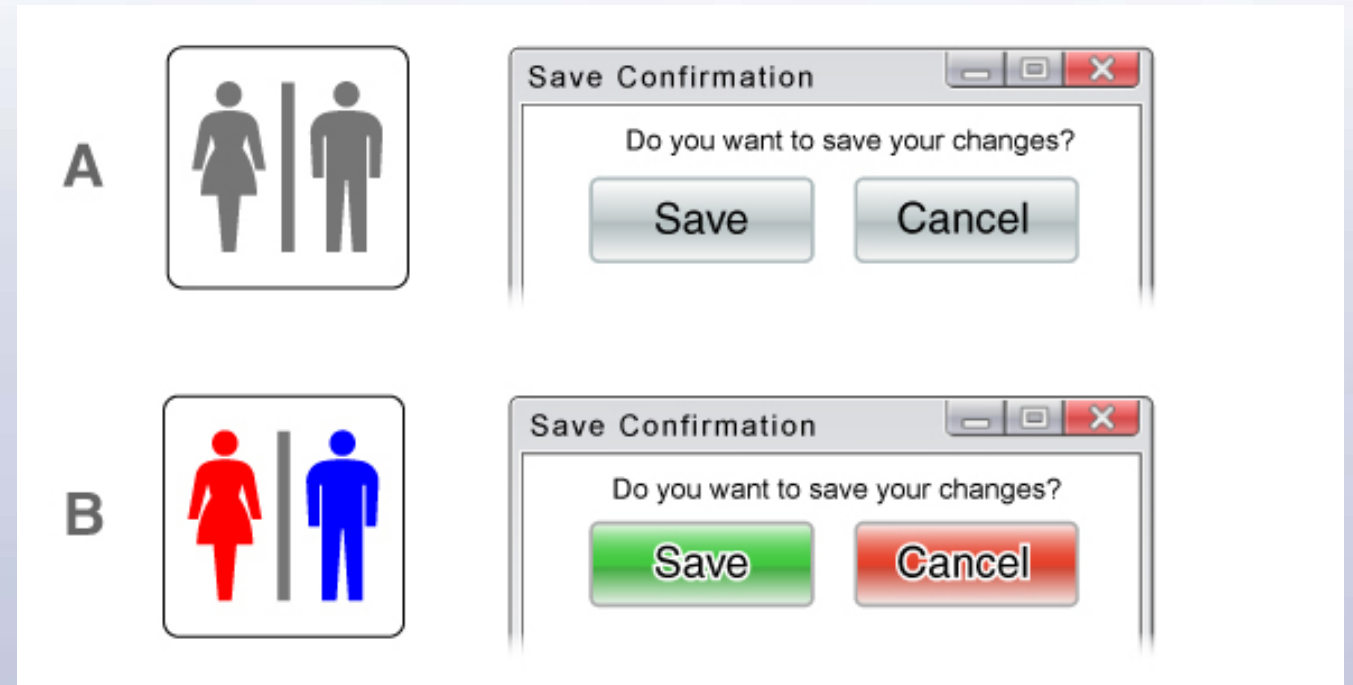
# Using Icons

- An icon on a user interface can be Metaphor, Metonymy (an associated object) or Synecdoche (a part representing the whole).
- Consider using fonts rather than images, such as Google's material icon font:
  - 900+ icons all from a single, small file.
  - Served from Google Web Font servers or can be self hosted.
  - Supported by all modern web browsers.
  - Colored, sized and positioned entirely with CSS.
  - Vector-based: Looks great at any scale, retina displays, low-dpi display screens.



# Mix Color and Shape

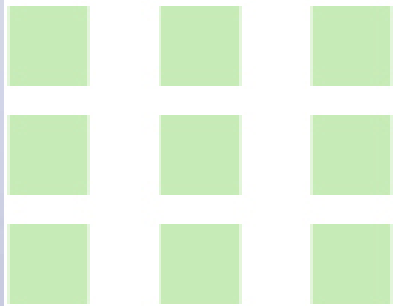
- Start with NO color.
- Then implement color and shape selectively.
- Color should not be the only factor that visually separates the information: there are people with conditions such as color-blindness, or others using monochromatic computer screens.



# Law of Pragnanz

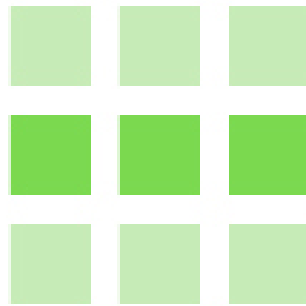
- When users view a given page, they analyze its general layout, whether intuitively or knowingly, by using the Law of Pragnanz.
  - See <http://www.smashingmagazine.com/2014/03/design-principles-visual-perception-and-the-principles-of-gestalt/>

① Proximity Factor



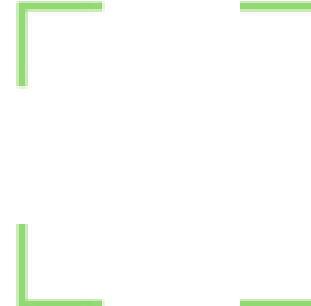
Objects in close proximity are easy to arrange together.

② Similarity Factor



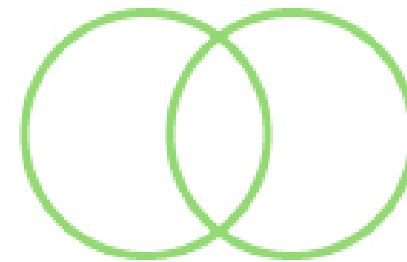
Objects that are similar are easy to arrange together.

③ Enclosure Factor



Objects that enclose each other are easy to arrange together.

④ Sequence Factor



Two circles in sequence are often perceived as one unique shape. The above figure would not be perceived as a combination of two partial circles and a football-like shape in the middle.

# Law of Pragnanz (continued)

- On forms, for example, the connection between labels and corresponding fields should be obvious.

No!

Great use of proximity and enclosure

Username	<input type="text"/>
First Name	<input type="text"/>
Last Name	<input type="text"/>
E-mail	<input type="text"/>
Phone	<input type="text"/>

Sign up Already have an account?

**Your account**

Your name

E-mail address

Password

Username

**Subscription plan**

<b>Basic</b> Free	<b>250 MB storage</b> Unlimited items	<input checked="" type="radio"/>
<b>Pro</b> \$4/month	<b>25 GB storage</b> 1 year subscription (\$48)	<input type="radio"/>

**Why go Pro?**

Get the most out of Dropmark with 25 GB storage and early access to new features.  
**Limited offer: get a copy of Feeds ofr free!**

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# Convey Information in Multiple Ways

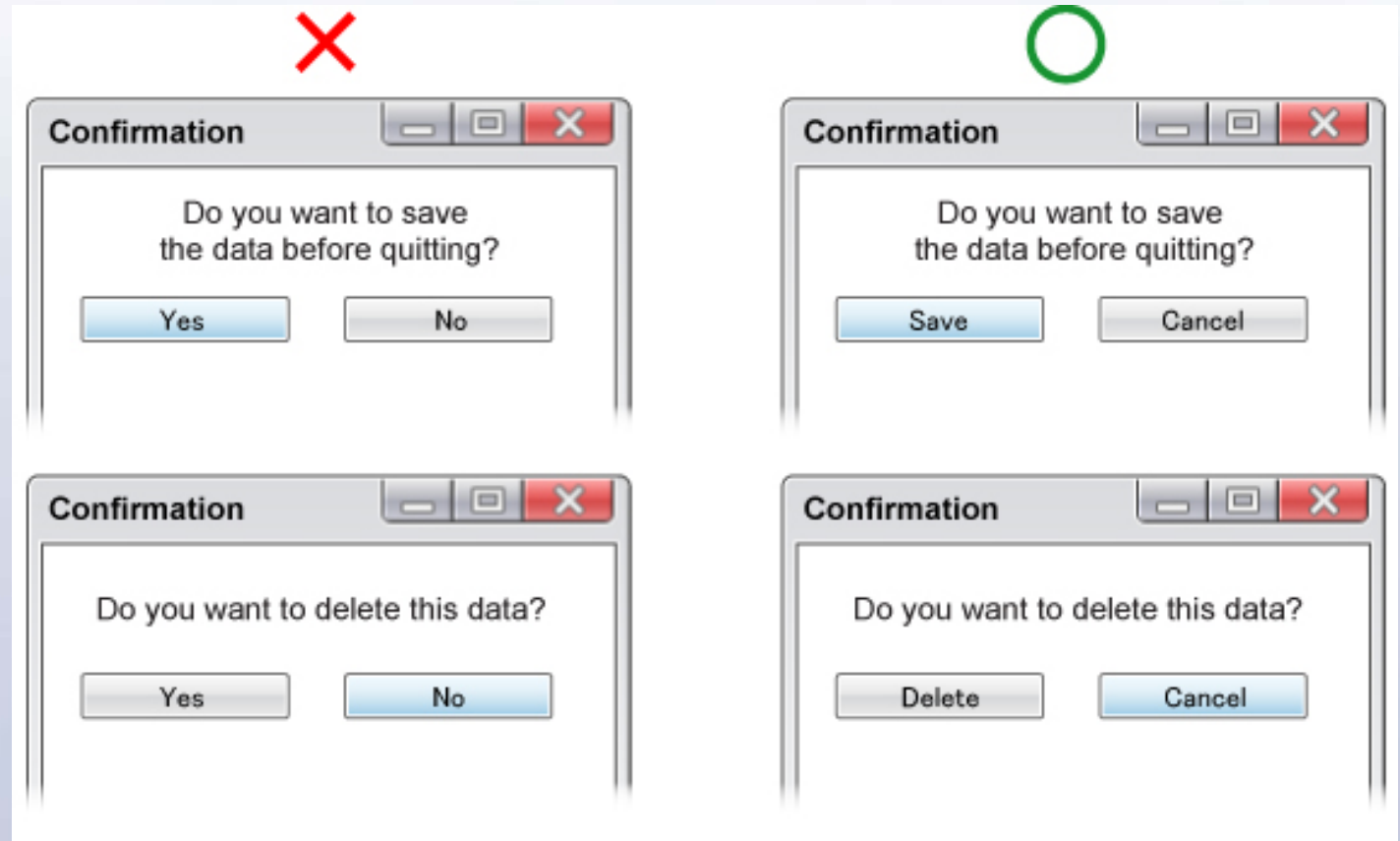
- A favorable example of text manipulation is text boxes with the hint function, seen below. These were first introduced in Microsoft's Office series.
  - Does not take up much space
  - The gray hint function makes it easier for users to understand what is being asked.

Name (in kanji)	<input type="text" value="Ichiro Hinomoto"/>
Furigana (in katakana)	<input type="text" value="Ichiro Hinomoto"/>
Postal code (in half-width numbers)	<input type="text" value="1234567"/>
Address Line 1 (Prefecture)	<input type="text" value="Autofill"/>



# Yes or No: Which comes first? Wording?

- What matters most is uniformity. Be consistent so that users are not left in confusion.
- Be Specific.



# Correct Grammar

- Always check for unclear grammar.
  - “Please fill in the new member’s phone number.” Which is new, the member or the phone number?
- Unclear grammar can make users misinterpret the message.



**Edit Profile**

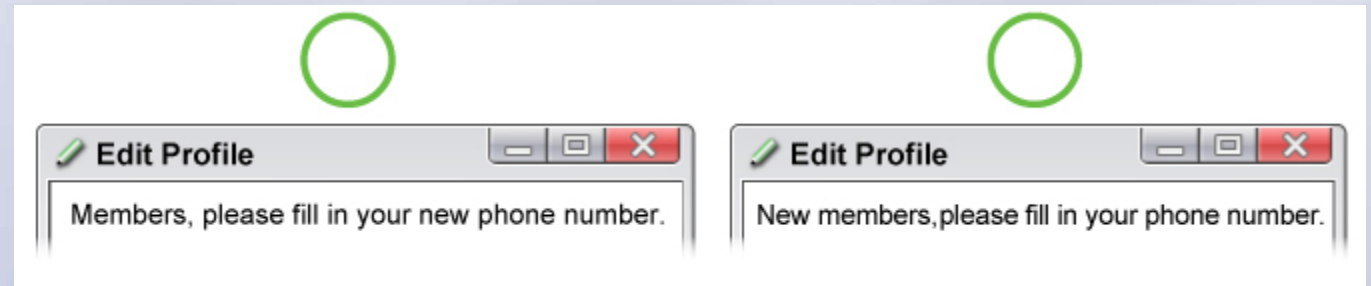
Please fill in the new member's phone number.

Membership Number

Name

Phone Number

Membership Group



**Edit Profile**

Members, please fill in your new phone number.

**Edit Profile**

New members, please fill in your phone number.

# Contrast Alterable and Unalterable Sections

- Draw a distinction by using contrasting colors, shades or fonts.



■ Please update your information.  
(Some parts may not be changed.)

No.	036
Group Name	Work
Name	Taro Yamada
Phone Number 1	090-1234-5678
Phone Number 2	06-1234-5678
Email Address 1	abc@docomo.ne.jp
Email Address2	abc@yahoo.co.jp

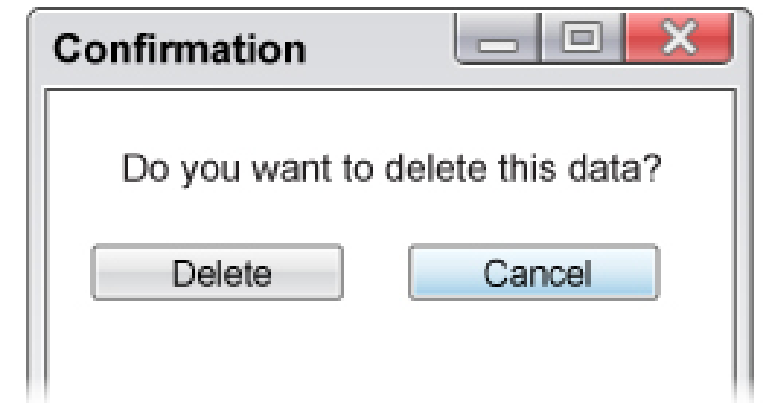
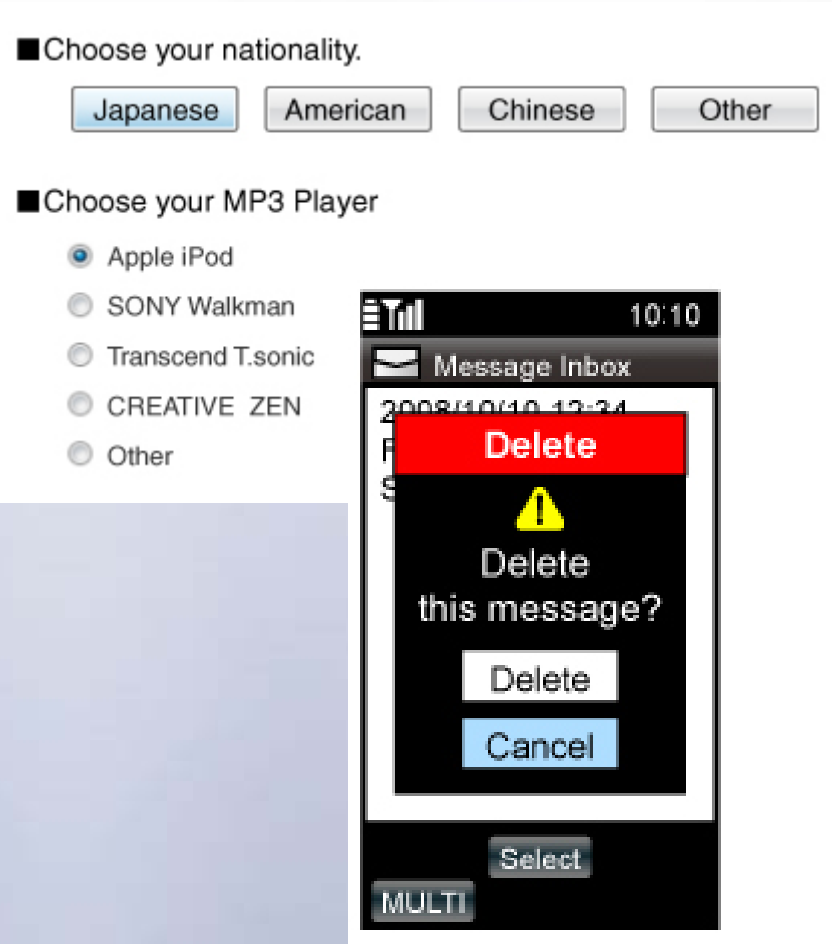


■ Please update your information.  
(The sections highlighted in gray may not be changed.)

No.	036
Group Name	Work
Name	Taro Yamada
Phone Number 1	090-1234-5678
Phone Number 2	06-1234-5678
Email Address 1	abc@docomo.ne.jp
Email Address 2	abc@yahoo.co.jp

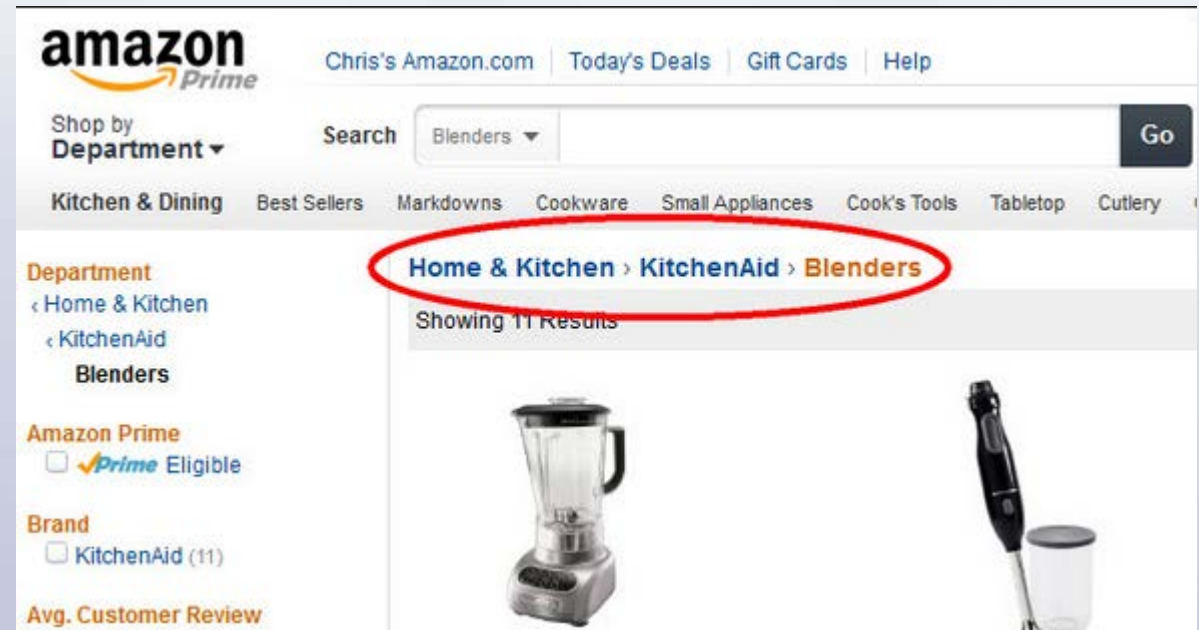
# Set Default Focus to Common Choice

- Set Default Focus to the most frequently selected option.
- Decide which button has a more “harmful” outcome when selected and set the default to the safer option.



# Users Need Floor Maps

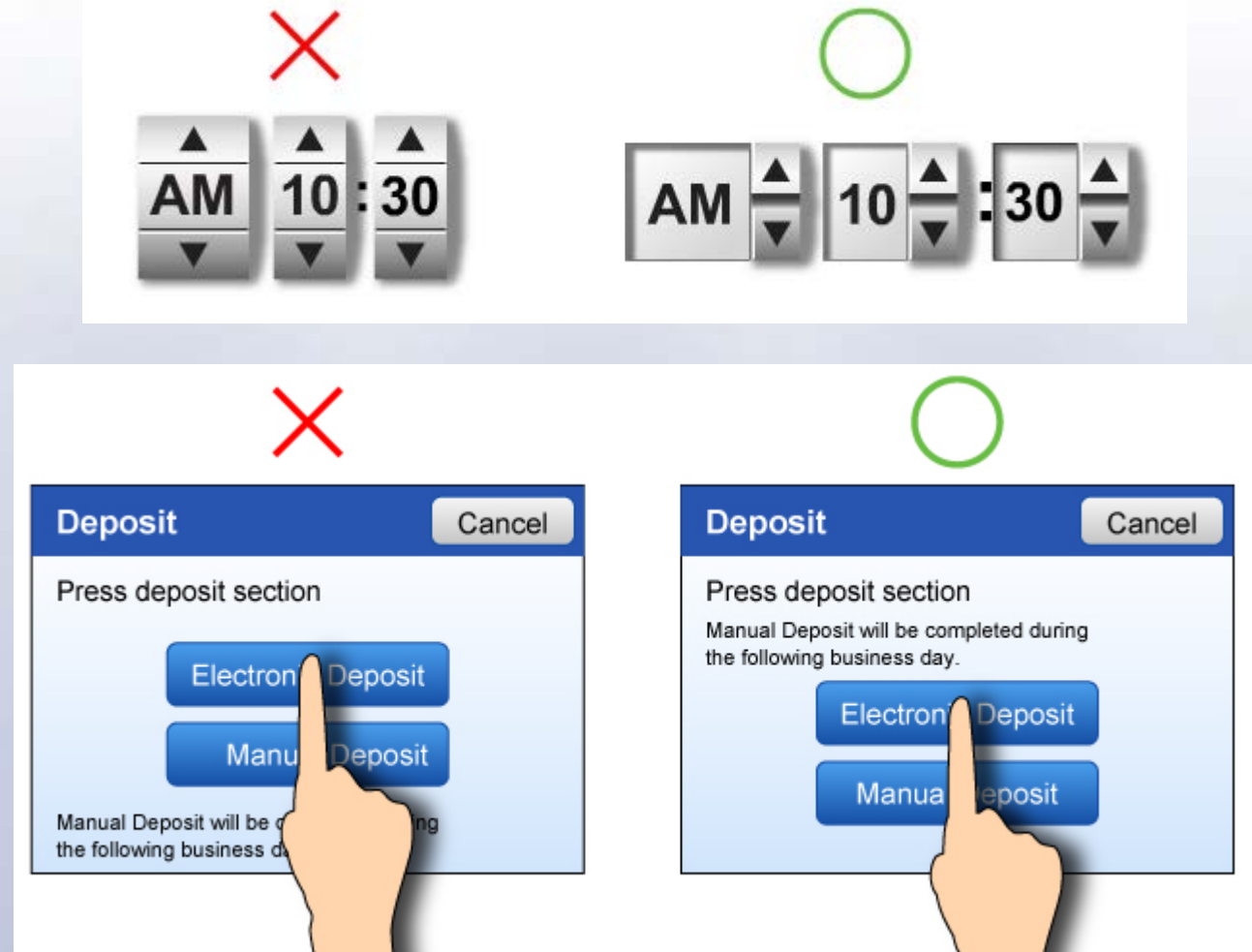
- If users are unable to sense distance or direction inside an application, they will become lost.
  - Give users a Home or Menu option, breadcrumbs, etc.
  - When designing an application, create a branching structural diagram or page design diagram.





# Button Position

- Do not position buttons above alterable elements.
  - The user's hand may cover the controls as changes are made.
- Place instructions above buttons.
  - Users can read the instructions while operating the buttons.



# Google's Material Design

- <https://www.google.com/design/spec/material-design/introduction.html>
- <http://www.wired.com/insights/2014/12/google-material-design/>
- <http://www.sitepoint.com/top-5-material-design-frameworks-use-2015/>
- <http://materialdesignblog.com/>

# Part V: Progressive Disclosure

Examples by Alexander Dawson

# What is Progressive Disclosure?

- Progressive disclosure is a software design approach that breaks content into smaller, more digestible blocks and only showing them when required.
- Example:

The image shows two side-by-side panels illustrating progressive disclosure in a banking interface. Both panels have a dark teal background with rounded rectangular buttons.

**Left Panel:** Under the heading "I want to:", there are four buttons arranged in a 2x2 grid: "Withdraw cash", "Make a deposit", "See balances", and "Transfer money".

**Right Panel:** Under the heading "I want to:", there are four buttons arranged in a 2x2 grid: "Withdraw cash", "Make a deposit", "See balances", and "Transfer money". Below this, under the heading "From:", there are two buttons: "Checking" and "Savings".

The "Withdraw cash" button in the right panel is highlighted with a lighter teal background, indicating it is the selected option.

# Pros of Progressive Disclosure

- Clean, simple interfaces (great for small displays)
- Minimize clutter
- Important content is emphasized, and less important content is hidden from view to avoid confusion
- Time is saved if scrolling is reduced and fewer refreshes are needed
- Fewer errors occur because novice users will take easier, more manageable steps



# Cons of Progressive Disclosure

- Accessibility can be challenging (example: screen readers trying to navigate to page sections)
- Increased page-loading times
  - Example: Layouts where content is merely hidden until needed (content that is not in use is still being loaded). Ajax alleviates this via asynchronous requests, but it can cause high amounts of persistent network traffic, which can slow down a website.
- Client-side technologies (JavaScript, CSS3 or Flash could be disabled by the user)
- Too many navigation choices could cause confusion
- Indexing by search engines and social networks could be negatively affected

# Progressive Disclosure Basics

1. Prioritize your content into primary and secondary categories.
2. Create your design so that primary content appears immediately and is highly visible in the normal flow of the page.
3. Create your design so that secondary content appears in one of three ways:
  - a) Takes up a part of the window when requested (example: slides down when requested)
  - b) Replaces visible content in the layout (example: tabbed interface or flip boxes)
  - c) Overlays the primary content (example: lightbox/modal window)

# Progressive Disclosure Methods

1. Hyperlinks
2. Scrolling
3. Media Queries
4. Server-side Techniques
5. Mouse and Focus Events
6. Conditional CSS
7. Ajax (allows you to request new content based on user decisions and then embed it without needing to refresh the page)
8. Pop-up and Modal Windows

# Acting on Mental Models

- When users make mistakes in an application, the cause is an erroneous mental model.
- Two options:
  - **Make the system conform** to users' current mental models
    - Example: If people look for something in the wrong place, move it to the place where they look for it.
  - **Improve users' mental models** so that they more accurately reflect your system.
    - Example: Explain things better and make labels clearer to make the UI more transparent even though the underlying system remains unchanged.

# Part VI: Resources

# UX Research Methods

Source: <http://www.nngroup.com/>

- **Usability-Lab Studies:** participants are brought into a lab, one-on-one with a researcher, and given a set of scenarios that lead to tasks and usage of specific interest within a product or service.
- **Ethnographic Field Studies:** researchers meet with and study participants in their natural environment, where they would most likely encounter the product or service in question.
- **Participatory Design:** participants are given design elements or creative materials in order to construct their ideal experience in a concrete way that expresses what matters to them most and why.
- **Focus Groups:** groups of 3-12 participants are lead through a discussion about a set of topics, giving verbal and written feedback through discussion and exercises.
- **Interviews:** a researcher meets with participants one-on-one to discuss in depth what the participant thinks about the topic in question.



# UX Methods (continued)

- **Eye tracking:** an eye tracking device is configured to precisely measure where participants look as they perform tasks or interact naturally with websites, applications, physical products, or environments.
- **Usability Benchmarking:** tightly scripted usability studies are performed with several participants, using precise and predetermined measures of performance.
- **Moderated Remote Usability Studies:** usability studies conducted remotely with the use of tools such as screen-sharing software and remote control capabilities.
- **Unmoderated Remote Panel Studies:** a panel of trained participants who have video recording and data collection software installed on their own personal devices uses a website or product while thinking aloud, having their experience recorded for immediate playback and analysis by the researcher or company.
- **Concept Testing:** a researcher shares an approximation of a product or service that captures the key essence (the value proposition) of a new concept or product in order to determine if it meets the needs of the target audience; it can be done one-on-one or with larger numbers of participants, and either in person or online.

# UX Methods (continued)

- **Diary/Camera Studies:** participants are given a mechanism (diary or camera) to record and describe aspects of their lives that are relevant to a product or service, or simply core to the target audience; diary studies are typically longitudinal and can only be done for data that is easily recorded by participants.
- **Customer Feedback:** open-ended and/or close-ended information provided by a self-selected sample of users, often through a feedback link, button, form, or email.
- **Desirability Studies:** participants are offered different visual-design alternatives and are expected to associate each alternative with a set of attributes selected from a closed list; these studies can be both qualitative and quantitative.
- **Card Sorting:** a quantitative or qualitative method that asks users to organize items into groups and assign categories to each group. This method helps create or refine the information architecture of a site by exposing users' mental models.
- **Clickstream Analysis:** analyzing the record of screens or pages that users clicks on and sees, as they use a site or software product; it requires the site to be instrumented properly or the application to have telemetry data collection enabled.

# UX Methods (continued)

- **A/B Testing** (also known as “multivariate testing,” “live testing,” or “bucket testing”): a method of scientifically testing different designs on a site by randomly assigning groups of users to interact with each of the different designs and measuring the effect of these assignments on user behavior.
- **Unmoderated UX Studies**: a quantitative or qualitative and automated method that uses a specialized research tool to captures participant behaviors (through software installed on participant computers/browsers) and attitudes (through embedded survey questions), usually by giving participants goals or scenarios to accomplish with a site or prototype.
- **True-Intent Studies**: a method that asks random site visitors what their goal or intention is upon entering the site, measures their subsequent behavior, and asks whether they were successful in achieving their goal upon exiting the site.
- **Intercept Surveys**: a survey that is triggered during the use of a site or application.
- **Email Surveys**: a survey in which participants are recruited from an email message.

# Usability Testing

- The **thinking aloud method** of user testing gives insights into a user's mental model.
  - When users verbalize what they think, believe, and predict while they use your design, you can piece together much of their mental model. In any case, simple user testing is certainly the first step to take if you suspect that erroneous mental models are costing you business.
- Understanding the concept of mental models helps you **make sense of usability problems** in your application.
- Mental-model formation is enhanced when concepts are simultaneously presented in both visual and verbal form.

# Resources

## ➤ Websites:

- <http://www.uxbooth.com/>
- <http://uxmag.com/>
- <http://52weeksofux.com/>
- <http://www.smashingmagazine.com/>
- <https://www.goodui.org/>
- <http://www.uxness.in/>

## ➤ Tools:

- <http://bohemiancoding.com/sketch/>
- <http://www.uxpin.com/>
- <http://uxchecklist.github.io/>
- <http://fortawesome.github.io/Font-Awesome/>

# Resources (continued)

- Books:

- The UX Book: Process and Guidelines for Ensuring a Quality User Experience – By Pardha S. Pyla
- Undercover User Experience Design – by Cennydd Bowles and James Box
- Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability (3rd Edition) – By Steve Krug
- A Project Guide to UX Design: For User Experience Designers in the Field or in the Making – by Russ Unger and Carolyn Chandler
- Simple and Usable Web, Mobile, and Interaction Design – by Giles Colborne
- Seductive Interaction Design: Creating Playful, Fun, and Effective User Experiences – by Stephen P. Anderson



# Resources (continued)

- Books:

- Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics – by Thomas Tullis and William Albert
- Designing Web Usability: The Practice of Simplicity – by Jakob Nielsen and Hoa Loranger
- Sketching User Experiences: Getting the Design Right and the Right Design – by Bill Buxton
- The Elements of User Experience: User-Centered Design for the Web and Beyond – by Jesse James Garrett
- Handbook of Usability Testing: Howto Plan, Design, and Conduct Effective Tests – by Jeffrey Rubin, Dana Chisnell and Jared Spool
- When Search Meets Web Usability – by Shari Thurow and Nick Musica

# Resources (continued)

- Books:

- Designed for Use: Create Usable Interfaces for Applications and the Web – by Lukas Mathis
- Designing Web Interfaces: Principles and Patterns for Rich Interactions – by Bill Scott and Theresa Neil
- Designing Web Interfaces: Principles and Patterns for Rich Interactions – by Bill Scott and Theresa Neil
- Rocket Surgery Made Easy: The Do-it-yourself Guide to Finding and Fixing Usability Problems – by Steve Krug
- Designing the Obvious: A Common Sense Approach to Web & Mobile Application Design – by Robert Hoekman
- The Design of Everyday Things: Revised and Expanded Edition – by Donald A Norman