

Session #3: Task-Centered User Interface Design



Task-Centered User Interface Design

- who are the users? This will lead to user personas
- what are the tasks?
- plagiarize! Look at other sites
- iterative design (week 6)
 - rough descriptions, mock-ups, prototypes
- test design with and without users

Heat Maps



Users & Tasks

- Real people, not hypothetical users.
- Specific tasks
 - concrete, detailed examples
 - design independent
 - scrutinize edges
- Use tasks in design
- Create scenario
 - design dependent

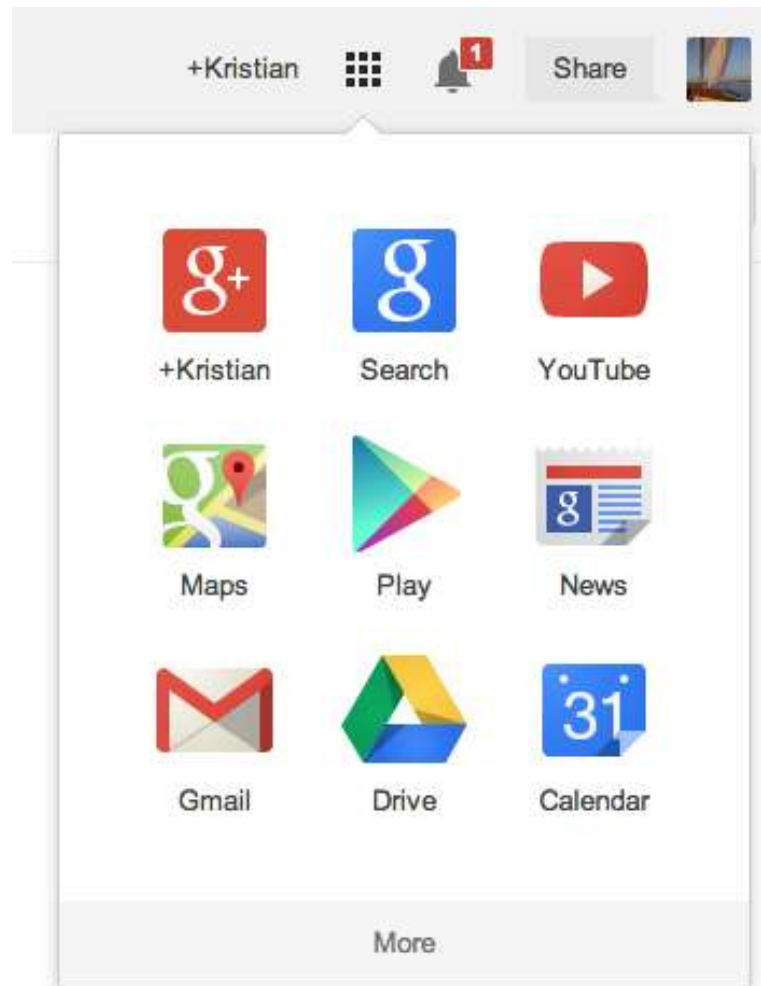
Creating Initial Design

- Intelligent borrowing, it's just smart
- Incorporate other applications
- Copy specific interaction techniques
- only then consider new solutions
- You may end up developing your own pattern.

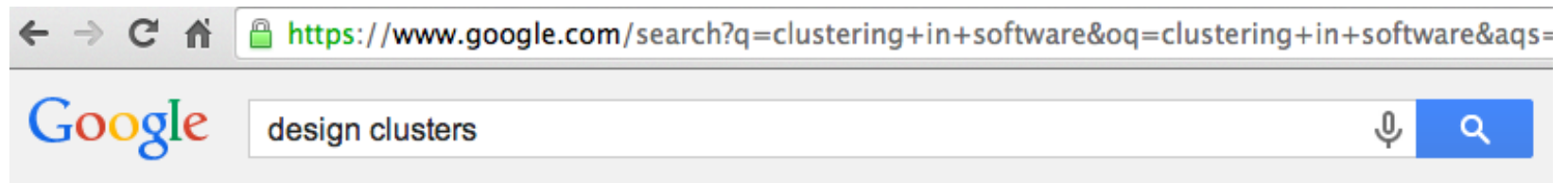
Graphic Design Principles

- clustering
- visibility reflects usefulness
- intelligent consistency
- color as supplement
- reduced clutter

Clustering



Visibility Reflects Usefulness



Remember our dropdown of apps in the previous slide

Navigation as an Applications

Navigation is an application



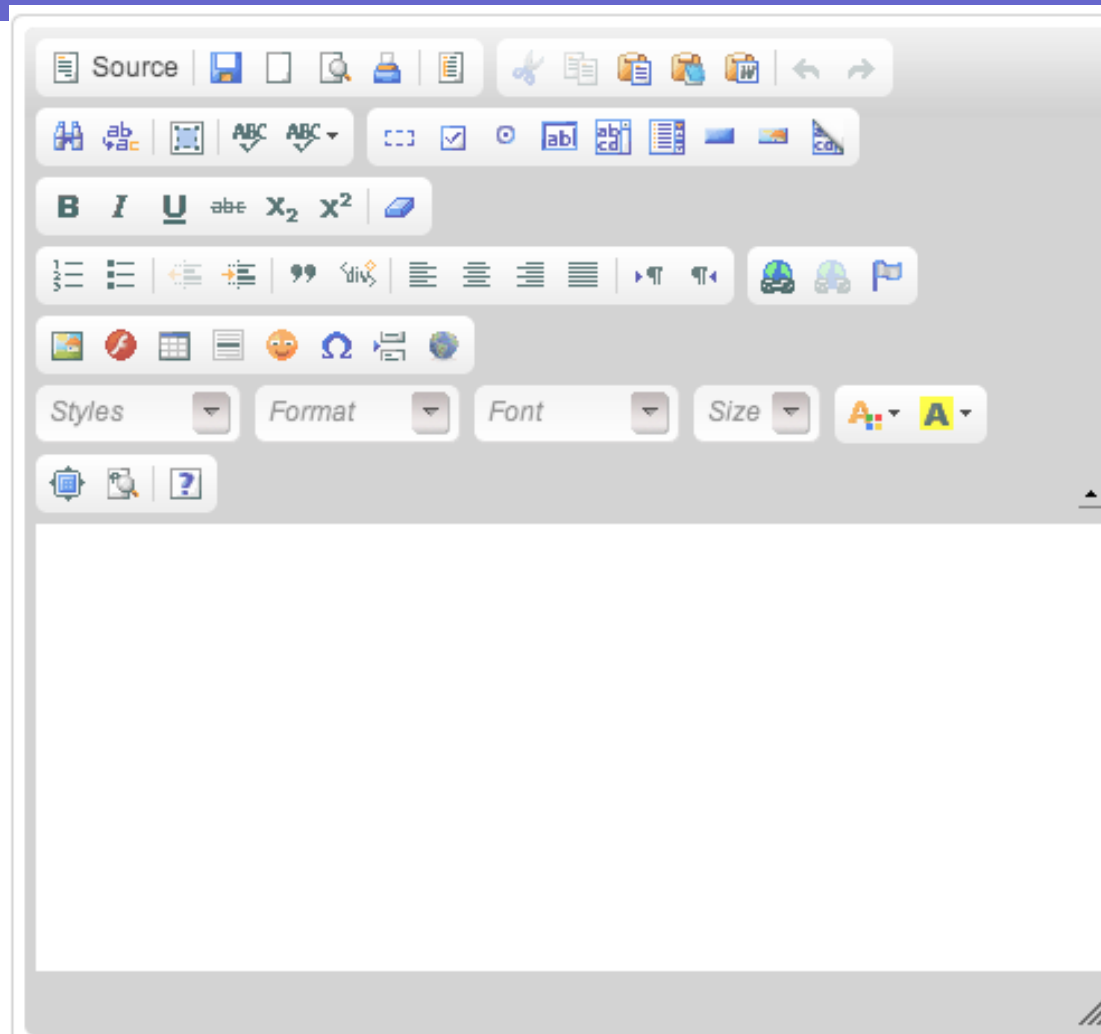
Supplementing with color



Reduced Clutter



More Clutter? Too Much?



Evaluating the Design Without Users

- respect user's time
- good evaluation can catch problems missed with only a few users
- 3 approaches
 - cognitive walkthrough
 - action analysis
 - heuristic evaluation

Cognitive Walkthrough

- Create a believable scenario about a user using your design
- Choose one of your design tasks described earlier
- Articulate each of the thoughts and actions needed to complete the task

Action Analysis

- formal, or keystroke-level, analysis
 - extreme detail allows for task completion time predictions of within 20 minutes
 - isn't easy to do
 - level of keystroke
 - GOMS modeling (Card, Moran, & Newell)
- back-of-the-envelope analysis
 - doesn't take a lot of effort
 - detects large-scale problems
 - level of 'action' (2-3 seconds)

Heuristic Analysis

- General principles that can guide design
- Jacob Nielsen and Rolf Molich
- nine general heuristics
- experienced evaluators can catch 75% of problems that violate one heuristic
 - average of past results

Heuristic Analysis (cont.)

- Simple and natural dialog
- speak the user's language
- minimize user memory load
- be consistent
- provide feedback
- provide clearly marked exits
- provide shortcuts
- good error messages
- prevent errors

3 Forms of Analysis/Caveats

- Cognitive Walkthrough and Action Analysis task-oriented
 - problems in context of job show up
- HOWEVER:
- coverage limited to task
 - doesn't identify cross-task interactions
 - heuristic analysis can compensate

Testing The Design With Users

- Choose real users
- choose tasks that reflect real tasks (hopefully the ones identified earlier)
- use mockups (low-fidelity prototypes) and prototypes
- Wizard of Oz techniques

Collecting the Data

- **Process Data**
 - observations of users (what they are doing, thinking)
 - qualitative
- **Bottom-line Data**
 - summary of what happened
 - quantitative

Thinking Aloud Method

- Ask users to talk as they perform task
- give users categories of potential comments
 - things they find confusing
 - decisions they are making ...
- ensure users know they are NOT being tested, the system is
- ethics and privacy

Role of Observer

- Prompt for comments
- help when absolutely necessary
- beware of shaping responses
- make a note of help given
- record session
 - take notes
 - video/audio
 - system

Summarizing Data

- Based on data, update your analysis of tasks
 - were users interacting with system as expected?
 - anything missed in cognitive walkthrough?
- Prioritize errors and difficulties
 - importance
 - difficulty of fix

Conclusion: Task-centered User Interface Design

- use real users and specific tasks
- at each iteration, first test design without users, then with users
- use analysis from test data in next iteration of design
- qualitative (process) is more critical than quantitative (bottom-line) data unless comparing or designing time critical system

Case Study Assignment 1

- Due at the end of this week
- See Rubric
- Ask for Help
- Be thorough with imagery
- Look at examples
- If you have found a problem and offer a solution, there's a good chance you've done well.