Font Selection in Keynote
Font Selection in PowerPoint

Inspiration: Media Browser

www.kinectemote.net
Review

Course overview

Project theme

Course mechanics

Due Last Friday

Wiki account

Course petition (109)
Enrollment & Waitlist

1. Decisions will be made by next Monday (likely earlier). Will send email to you.
2. Not sure you will stay? Drop by this Wednesday and send private note (to instructors) on Piazza.
3. Official database update has latency.

Due Today (9am)

Reading comment (73)
1 per lecture
 cs160/cs160Reading
Your response should **summarize** the most important **ideas** from the reading and raise questions/thoughts you might have had while reading.

We will occasionally post discussion questions to the wiki you should answer in the response

Responses can be as short as 3-4 sentences (a paragraph) but should be substantive.

**Sketching, Storyboarding, and Critique**

**Readings**


**Optional**

- How to Run a Design Critique. [Scott Birkun.](#)
- How to Give and Receive Criticism. [Scott Birkun.](#)

**Discussion Questions**

- Give an example of a physical device (an "everyday thing" as Norman would call it) with bad design that you have had to use. Do not think about software! Think about household appliances, sports equipment, cars, public transportation, etc. Which of Norman's design principles did this device violate? How would you redesign it to solve the problem?
- Are there any differences in affordances of physical devices versus affordances of software interfaces? In this context, what do Norman mean when he mentions "perceived" versus "actual" affordances?

[add comment]
Due Next Monday at 2pm

Individual Design Exercise
Individual Programming Assignment 1

Design Exercise

The point is NOT to implement one of the examples listed in the assignment

Brainstorm at least 12 ideas – go for breadth (radically different ideas)

Then pick the best idea, prototype and evaluate.
Help with Indiv. Prog. Assignment

Prog. environment should be set up by now!
   Either machines in Cory 125 or your own setup
   Talk to Nick if you are running into problems

Sections: Windows Presentation Foundation
   Attendance is mandatory
Microsoft’s Jerry Nixon will explain WPF & Kinect
   Tomorrow: 1/24: 4-6pm Soda 380

Concepts You Will Learn

Introduction to C# and WPF
Layout managers in WPF
Styling the UI
Basic events

Sample code is online!
Topics for Today

1. The Design Cycle

2. Brainstorming
The Art of UI Design

A soufflé is eggs, butter, milk & flour, but the difference between soaring and sinking is in the execution.
The Design Process [Koberg & Bagnall]

1. Acceptance
2. Analysis
3. Definition
4. Ideation
5. Idea selection
6. Implementation
7. Evaluation
Acceptance

Getting started
Because of a deadline
Because of possible reward
Because you are forced to

Commitment
Time
Resources
Responsibility

Key is to set motivation

Analysis

Understand Users and Tasks
Who are the users?
What are their tasks?
Observe and test, don’t guess

Tools
Notebook
Tape recorder
Camera
Video camera
Definition

Focus on the problem
Choose appropriate level of detail

Not “bicycle cup-holders” but “helping cyclists to drink coffee without accidents”

Ideation

Brainstorming
Stretch mental muscles
Loosen up with simple games
Do homework
Seed with related ideas/objects
Get physical
Sketch
Make models
Act out

IDEO rules
One conversation at a time
Stay focused
Encourage wild ideas
Defer judgment
Build upon idea from others

Aim for quantity
Idea Selection

Define importance of each idea
Does it address problem
Will target users like it
Is hardware available
Is software available
What is the cost
Market window
...

Rank ideas according to your criteria

Pick top N
Choices depend on resources and stage of the project

Implementation

Scale up low → high fidelity
Implementation

Scale up low → high fidelity

Low-fidelity (quick, cheap, dirty)
sketches, paper models, foam core, …

Medium fidelity
(slower, more expensive)
Flash, JavaScript, AJAX, …
Implementation

Scale up low → high fidelity
Low-fidelity (quick, cheap, dirty)
sketches, paper models, foam core, …

Medium fidelity
(slower, more expensive)
Flash, JavaScript, AJAX, …

High fidelity
(slowest, most expensive)
The full interface

Implementation Example: Web Design

Sites created at multiple levels of detail
Sites iteratively refined at all levels of detail
Iterate quickly to see what works

Site Maps → Storyboards → Schematics → Mock-ups
Evaluation

Many types of evaluation:
- Prototype walkthroughs
- Think-aloud studies
- Wizard-of-Oz
- Performance comparisons

Type of evaluation chosen depends on the level of implementation, etc.

Evaluation Example:
Paper Prototype Walkthrough

Observer (or video camera)

User

“Computer”

Interface

Interface elements
Evaluation reveals problems with design. Re-design requires cycling the process.
Prototype implementations eventually increase in fidelity to reach final product.

Comparison

[Lewis & Rieman]
Who will use?
What are their tasks?
Plagiarize
Rough out a design
Think about design
Create a prototype
Test it with users
Iterate
Build a production version
Track use
Evolve the design

[Koberg & Bagnall]

Design Process
Comparison

[Lewis & Rieman]

Who will use? [2]
What are their tasks? [2]
Plagiarize [4]
Rough out a design [4,6]
Think about design [5]
Create a prototype [6]
Test it with users [7]
Iterate [7->1]
Build a prod. version [6]
Track use [7]
Evolve the design [7->1]

[Koberg & Bagnall]

1. Acceptance
2. Analysis
3. Definition
4. Ideation
5. Idea selection
6. Implementation
7. Evaluation

Design Process

Design
Prototype
Evaluate
Waterfall Model (Soft. Eng.)

Initiation

Application Description → Analysis

Requirements Specification → Design

System Design → Implementation

Product

Comparison

Focus differs
WF has no feedback
High cost of fixing errors: increases by 10x at each stage

Iterative design finds problems earlier

True for modern web applications!
Video: The Deep Dive

How well do they follow the cycle?
What do they do for each step of the cycle?
How many cycles do you think they went through?

Brainstorming
The Psychology of Creativity

Conformity: the enemy of creativity

Groups and organizations encourage conformity

Part of “brand” or “corporate identity”

The Psychology of Creativity

Pressure to conform affects judgment and perception:
The emperor’s new clothes
McCarthyism: if you’re not one of us, you’re one of them…

People in minority will adopt majority opinion and even manufacture their own explanation of it.
Creativity and Dissent

Authentic dissenters – people who really disagree with group – can enhance group creativity

Their opinion needn’t be right – but they can free the group from stagnant thinking.

The originality of the minority stimulates the majority
Dissent and Authenticity

The benefits of dissent are weakened if

Dissent is not real: A deliberate “devil’s advocate” in the group can actually stifle dissent, because the majority know the opinion is manufactured

Dissent is not encouraged: Polite or pro-forma acceptance is not enough

Enhancing Creativity

Thinking outside the box:

Draw a series of 4 straight lines through all the points below, without lifting pen from paper:
Why Is This Hard?

We adopt expectations about the solution
Based on conventions
Based on what we believe the questioner expects

IDEO’s Brainstorming Rules

1. Sharpen the Focus
2. Playful Rules
3. Number your Ideas
4. Build and Jump
5. The Space Remembers
6. Stretch Your Mental Muscles
7. Get Physical

Aim for quantity
Hope for quality
Sharpen the Focus

Posing the right problem is critical
Neither too narrow, nor too fuzzy

Not “bicycle cup-holders”

But “helping cyclists to drink coffee without accidents”

Number Your Ideas

Obvious but very useful

Helps keep track of them when the brainstorm is successful (and 100 or more ideas are in play)

 Allows ideas to take on an identity of their own
Build and Jump

Build to keep momentum on an idea:
“shock absorbers are a great idea; what are other ways to reduce coffee spillage on bumps?”

Jump to regain momentum when theme tapers out:
“OK, but what about hands-free solutions?”

Concept Refinement

Premature idea rejection is a serious barrier to good design

A big differentiator between good designers and great ones is the latter’s ability to successfully develop unusual ideas

This requires a strong instinct to be able to distinguish fatal vs. minor flaws in an idea
The Space Remembers

Covering whiteboards or papering walls with text is extremely useful in group work.

It's a very effective form of external (RAM) memory for group

Even better, it's shared RAM. Helps group share understanding

Stretch your Mental Muscles

Warmups: word games, puzzles

Get immersed in the domain: go visit the toy shop, or the bicycle shop, phone shop etc…

Bring some examples of the technology to the brainstorm
Get Physical

Sketch
Make models
Act out

Next Time

Lecture Topic: Sketching, Storyboarding & Critique
Bring pens+paper! (Ideally unlined).

Reading:
Don Norman, The Design of Everyday Things.

Don’t forget!
Read, then submit a response through the wiki (by 9am Wed)
Individual Design Assignment  Due Monday, 2pm
Individual Programming Assignment 1  Due Monday, 2pm