

CSI 60: User Interface Design

Designing Help, Program Flow and the Web 4/16/2012

Berkeley
UNIVERSITY OF CALIFORNIA

Foldable Displays

Lee, J., Hudson, S, "Foldable Interactive Displays" *Proceedings of the ACM Symposium on User Interface Software and Technology*, October 2008.

http://www.youtube.com/watch?v=nhSR_6-Y5Kg&feature=player_embedded#

Due Soon

Pilot Usability Study (Apr 18) now due Apr 23

Evaluate your implementation

Refine your implementation

Today

Errors and Help

Aesthetics and Visual Flow

Visual Design for the Web

Errors and Help

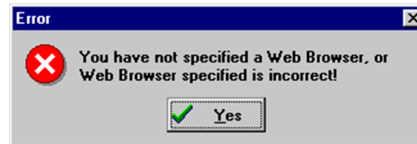
Errors and Help

Exercise (2 minutes)

List 4 different errors that can occur in your group project's user interface

How many of these are *system* errors, as compared to *user* errors?

System Errors



Write in the user's language

Not "winword.exe" caused a segmentation fault at #F34EA01.
You need to understand your users to do this well

Precisely indicate the problem

Constructively suggest a solution

User Errors

Slips

User formulates correct goal, but carries it out incorrectly

Mistakes

Failure to formulate the correct goal

Lapses

Failure to carry out action (often part of a sequence is skipped)

Mode errors

Action would be correct if the interface had been in different mode

Why categorize?

Slips

User formulates correct goal, but carries it out incorrectly

Mistakes

Failure to formulate the correct goal

Lapses

Failure to carry out action (often part of a sequence is skipped)

Mode errors

Action would be correct if the interface had been in different mode

Category indicates method needed to fix the user interface

Mistakes

There are two common types of mistakes:

Knowledge-based mistake: Incorrect decision/action because of a failure to understand the situation

Rule-based mistake: Understand the situation, but making a wrong decision

Possible Causes of Errors

Incorrect mapping of cause to effect

Inadequate background to understand information

Unclear understanding of system status

Misjudging information importance

Helping Users Learn

How do we help users learn our system so they make fewer errors?

Help (doesn't)

Extra feature that can confuse users

Spreading expensive jam onto stale toast isn't going to make it taste better

In a 1987 study of 52,576 help sessions:

23% of all requests found no help

36% of people who found help reported the help was useful
(28% of total requests)

Helping Help Help

People want answers, and want them quickly

Descriptive questions; "What is this?"

Procedural questions; "How do I do this?"

Guidance questions; "What should I do?"

Interpretive questions; "Why did that happen?"

Navigational questions; "Where am I?", "Where is X?"

Types of Help

FI help
Hover-over help
Separate window help
Keyword search
Google
Balloon help
Apple Guide – step-by-step
Clippy
Wizard
Tutorials – videos, embedded in the program, Video Professor
Friends
Manuals

Cost of Help

What is the least expensive form of help?

A computer interface that doesn't need help

What is the most expensive form of help?

Asking a friend (overall, not necessarily for user)

Experts and Beginners

Who are they?

How do we design for them?

Beginners

User Description

System knowledge:

None

Domain Knowledge:

Unknown

Proficiency:

Low

How Beginners will Behave

Few tasks

Many errors

Dependence on help (not just heavyweight help/manual pages)

Limited use of options or alternatives

Supporting Beginners

Few options

Visible help

At most one task per screen

Wizards

Provide acquisition facilities

Highly visible

Aesthetically pleasing

Concentrate on ordinary, standard, typical tasks

Experts

User Description

System knowledge:

High

Domain Knowledge:

High

Proficiency:

High

How Experts will Behave

Many tasks

Few errors

Little use for Help

May have idiosyncratic style of interaction

High use of options or alternatives

Primary concern is efficiency and productivity

Supporting Experts

Efficient Interaction

Fast

Many tasks per screen

Provide production facilities

Conventional techniques to support expert use:

Ctrl+x, ctrl+c, ctrl+v

Uncluttered, customizable workspace

Simple icons on toolbars and dockable toolbars

Features that rely on user's memory rather than visibility

E.g. Unix-style Command Line

How many people are beginners?

```
% cp ~/Desktop/myhouse.png ~/Desktop/pictures/myhouse.png
```

How many people are experts?

```
% for file in $(find . -name \*.png -print ) ; do convert \  
-size 800x800 ${file} -resize 800x800 ${file//.png}-small.png \  
; done
```

Most users of software are “perpetual intermediates” or “improving intermediates”

How Intermediates will Behave

- Expanding number of tasks
- System limitations become frustrating
- Intermittent need for help
- More extensive experimentation
- Evolving and changing patterns of interaction

Interfaces for Intermediates

- Allow exploration through interaction
- Show alternate mechanisms to perform tasks
- Provide transitional facilities
- Visible shortcuts
- Customizable interface

Aesthetics and Visual Flow

Aesthetics and Visual Flow

How do we design something that is aesthetically pleasing?

How do we make our design easy to comprehend?

Designing for Visual Flow

Proximity

- Keep related items together

Alignment

Nothing should be placed arbitrarily

Repetition

- Repeat visual elements throughout the design (widgets, etc)

Contrast

- Either the same, or **Very Different**

Proximity

Group related items together

Keep unrelated items apart

<p>Seth Marley</p> <p>Ph: 555-1234</p> <p>Interfaces 'R Us</p> <p>Fx: 555-6543</p> <p>Office 115</p>	<p>Interfaces 'R Us</p> <p>Seth Marley</p> <p>Office 115</p> <p>Ph: 555-1234</p> <p>Fx: 555-6543</p>
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Proximity

Some principles of proximity

Limit how much you put on one page

Avoid filling all corners

Make whitespace unequal, use it to emphasize elements

Group related things, don't group unrelated things

Alignment

Visually connect elements to something else in the design

The image shows two blue rectangular boxes side-by-side. The left box contains text at the top-left, top-right, bottom-left, and bottom-right corners, and text centered in the middle. The right box contains text at the top-right and bottom-right corners.

Seth Marley	Ph: 555-1234	Interfaces 'R Us Seth Marley
Interfaces 'R Us		Office 115 Ph: 555-1234 Fx: 555-6543
Fx: 555-6543	Office 115	

Alignment

Some principles of Alignment

Find a **strong line and use it**

Align with something else

Even if it is far away

Avoid combining multiple alignments

Left, centered, right, justified

Use centered alignments sparingly

Alignment

Some principles of Alignment

Find a **strong line and use it**

Align with something else

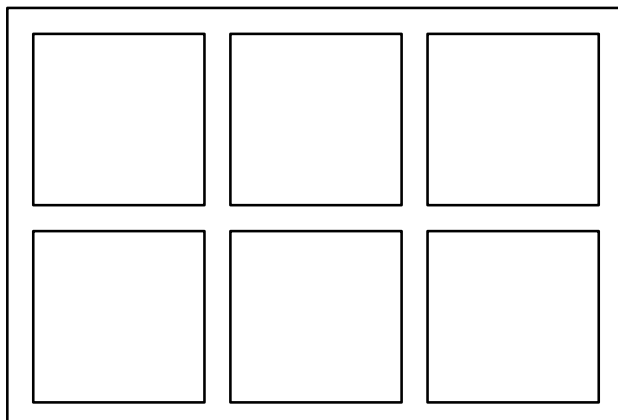
Even if it is far away

Avoid combining multiple alignments

Left, centered, right, justified

Use centered alignments sparingly

Alignment: Grids



Repetition

Repeat aspects throughout your design

Layouts, fonts, grids

Look and Feel

Consistent, repeated elements of software or web site

Interaction design, and visual design

Consistency gives a sense of “place”

You know where you are

You know which program you are using

You don't have to learn new pages from scratch

Increases learnability and thus usability

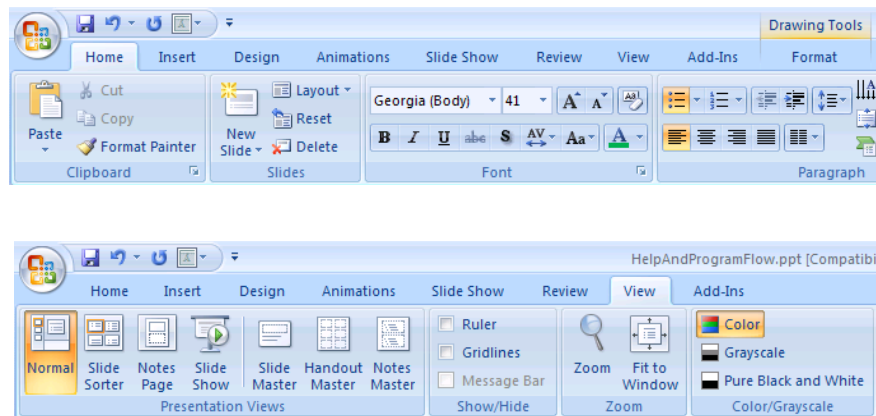
Contrast

If two items are not the same, you can make them Really Different

The image shows two business cards side-by-side. The left card has a blue background with white text. The right card has a purple top section with white text and a blue bottom section with white text.

Seth Marley	Ph: 555-1234	Interfaces 'R Us	Seth Marley
		Interfaces 'R Us	
Fx: 555-6543	Office 115		Office 115 Ph: 555-1234 Fx: 555-6543

Designing for Visual Flow



Color

Use color to reinforce, not as primary code

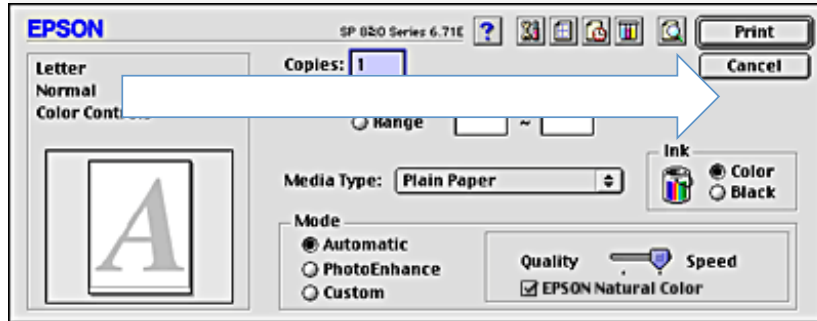
~10% of males (<1% females) have some color-blindness

Keep in mind that color contrast affects readability

black on cream works well	
blue on cream is pretty safe	red text can be painful
colors opposite on the ...	color wheel cause problems
or fatigue	avoid similar colors

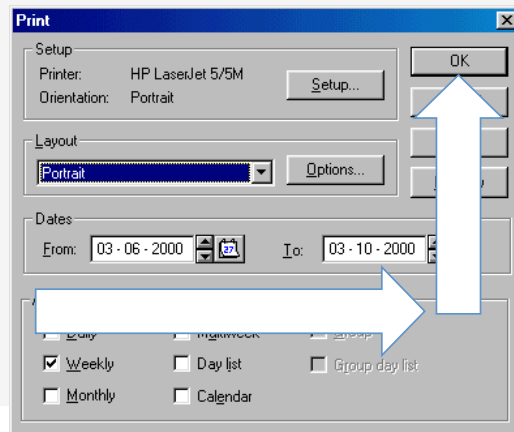
Visual Flow

Interfaces have a visual flow



Visual Flow

Interfaces have a visual flow



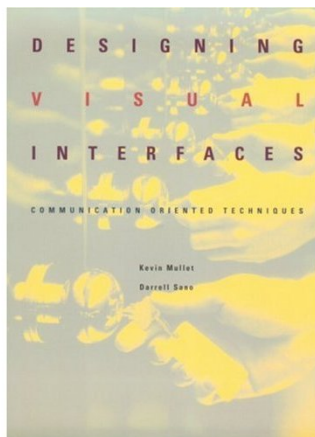
Visual Flow

This is especially important when designing for the web

How do you determine the flow people draw from your design?

Observe!

If you want to learn more...



Designing Visual Interfaces:
Communication Oriented
Techniques

Kevin Mullet, Darrell Sano

Visual Design for the Web

Visual Design for the Web

People read web pages in an “F-Shaped” pattern



useit.com

Implications of the F Pattern

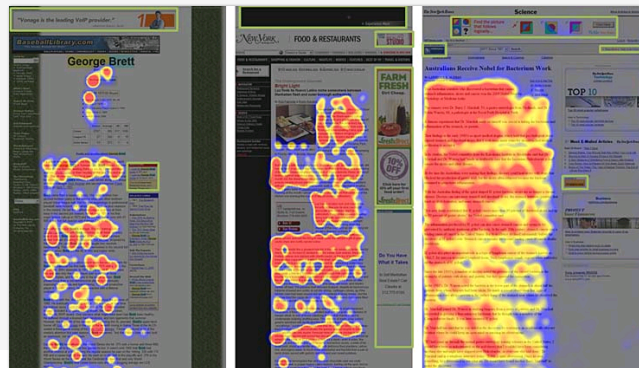
People won't read your text thoroughly
Word-by-word and exhaustive reading is rare.

The first two paragraphs must state the most important information

Start subheadings, paragraphs, and bullet points with information-carrying words

“Banner Blindness”

Scanning is more common than reading
People ignore things that look like ads



Implications of Banner Blindness

Avoid putting important information in the header or side bars

Assume that users will not see most of the fancy details you put at the top and sides

Corollary: people consider pages that appear to have ads less reliable and authoritative

Representing Numbers

Show numbers as numerals

Numerals catch the wandering eye

Numbers represent facts

Numbers look different than the surrounding text

2415 looks different than two thousand fifteen in a block of text

Numbers larger than a million are special

Represent one million as 1,000,000

Represent two trillion as 2 trillion, not 2,000,000,000,000

Generally, explain numbers over a billion

“1 trillion (or 1 million millions)”

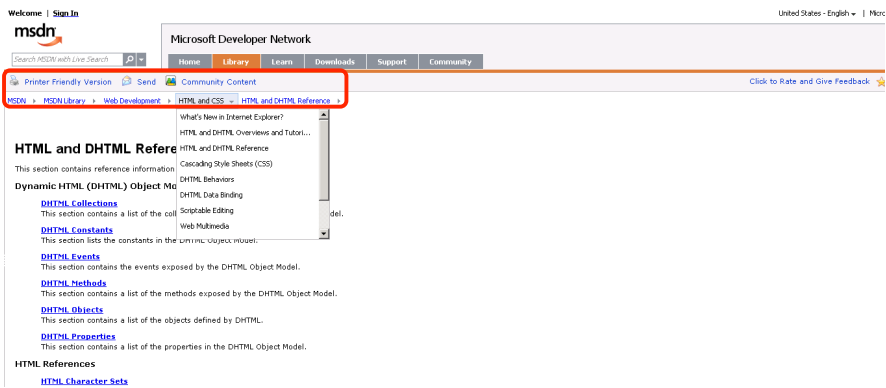
Formatting

Fancy, non-standard formatting is often counter-productive
 Over-emphasis causes data to be perceived as decoration



Breadcrumbs

“Breadcrumbs” are a way to show system status



Breadcrumbs

Term comes from Hansel and Gretel

More than just being able to backtrack, shows where the user is in the hierarchy

Allow people to get to something else they saw

Gives people an idea of how they got there