Usability Goals

September 14, 2016
Announcements

A02 notes:

http://www.cs.umanitoba.ca/~umdubo26/COMP3020/

A01 notes:

Announcements

• Project groups
• Assignment 1
• Web tutorials
NEW REPEATED COURSE POLICY

Before you voluntarily withdraw from a course, find out what’s changed

UMANITOBAC.A/ACADEMICPOLICYCHANGES
REMEMBER TO CHECK YOUR U OF M EMAIL
Questions?
Overview of Today’s Lecture

- Finishing up:
  - Why is design hard
- Usability goals
- User experience goals
Reminder: Overview of History of Interaction Paradigms

Paradigms
  Batch interfaces
  Conversational interfaces
  Graphical interfaces
  Ubicomp

Visionaries
  Vannevar Bush, Douglas Engelbart, Mark Weiser
Designer’s Fallacy:

A designer can design into a technology, its purposes and uses.

Reality:

no control, hope for the best

Strategy:

try to understand people and how they already use the technology or similar technologies
Why is Design Hard?

http://vimeo.com/2229299

We’ve never “seen” it before
We aren’t the people using it
We can’t anticipate how people will use it
Why is Design Hard?

Judging/predicting which designs will be successful is difficult

Way more is possible than what is good

Design involves making trade-offs

Good designs are non-obvious
Core Design Skills

To synthesize a solution from all of the relevant constraints, understanding everything that will make a difference to the result.

To frame, or reframe, the problem and objective.

To create and envision alternatives.

To select from those alternatives, knowing intuitively how to choose a good approach.

To visualize and prototype the intended solution.
Monday’s/Today’s Take-Aways

Interaction paradigms having shifted from being machine-centric to people centric

It is not sufficient for computer scientists to think about algorithms only – think about people too

Good design is not easy or obvious, it takes work

The user is not like you
What are the characteristics of a “good” interface/interaction?
Usability & User Experience Goals

Designers produce primary usability objectives throughout the process of requirements gathering.

E.g., Should the system promote efficiency over creativity, both, or any other objective?

These primary objectives are referred to as usability goals and user experience goals.

A *usability goal* addresses the issue of meeting a specific usability criteria.

A *user experience goal* is concerned with the quality of the user’s experience with the system.
Usability Goals

Designing user interactions requires identifying important usability goals for the system

Most common usability goals:
- Effectiveness
- Efficiency
- Safety
- Utility
- Learnability
- Memorability

Parts of a system may have different goals:
- Accounting routines (efficient, safe)
- Scheduling routine (memorable)
Usability Goals

Each usability goal is typically operationalized as a question

A more concrete way for a designer to tell if they are meeting the goal

*Usability criteria*: something that can be measured to determine if the goal is being met
Usability Goals

1) Effectiveness

Most general goal
Concerned with whether the system is doing what it generally says it will do

Question: is the system doing what it is supposed to do?

E.g.,
  word processor
  E-commerce system
  Educational software
Usability Goals

2) Efficiency

Considers how much time it will take users to perform their tasks

Generally the more steps it takes to carry out a task, the less efficient a system is

Question: is the user saving time/being productive with the system?

Criteria: time to complete a task; # of operations to complete a task

E.g.,

Voice mail
Amazon e-commerce
Welcome, Andrea Bunt, to Aurora! Last web access on Sep 20, 2010 at 12:37 pm

Personal Information
Change your PIN. Update address and contact information (students only).

Faculty Services
Access Class Lists, Update Syllabus and Office Hours. Enter Final Grades.

Ask UManitoba
Answers to the most frequently asked questions.

RELEASE: 7.4
Aurora

Faculty Services

Term Select
CRN Select
Access Class List
Enter Final Grades
Setup / Update Syllabus Online
Setup / Update Office Hours Online
View Faculty Detail Schedule
View Week at a Glance
View Active Teaching Assignments
View Teaching Assignment History
Class Schedule
Course Catalog

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Aurora

Select a CRN

CRN: COMP 1010 A04 - 10191 - COMP SCI I
    COMP 1010 A04 - 10191 - COMP SCI I
    COMP 3020 A01 - 10327 - HUMAN COM INT1

[ Enter CRN Directly ]

RELEASE: 7.3
Usability Goals

3) Safety

Does the system

prevent making serious/unrecoverable errors
provide means of recovering from errors
undo options, confirmation dialogs
protect users from dangerous and undesirable conditions

Question: does it prevent users from making/recovering from serious errors? does it jeopardize the well-being of the user or others?

Criteria: number of errors/time to recover from errors

Eg:

Systems in chemical plants
Transferring files
Drawing tools
Usability Goals

4) Utility

Sufficient functionality to accommodate range of users tasks

Will the system provide sufficient fluidity to cover tasks as performed

Question: does it provide sufficient functionality for users to carry out tasks as naturally as possible?

Criteria: availability of core tasks
  e.g. Accounting packages
  Drawing tools
Usability Goals

5) Learnability

How easy is the system to learn

Important if system will be adopted by the user
particularly if used infrequently

Need to identify how much time users are willing to spend
to learn the system

Question: can primary (core) and secondary tasks be
learned quickly and easily?

Criteria: time to learn a task, errors made in learning a
task

E.g.,

iPhone?
ABM
Usability Goals

6) Memorability

Once learned, how easy is the system to remember

Particularly important if system will be used infrequently

Can users remember with the aids of appropriately designed icons, command groupings, etc.

Question: will users remember all the steps to carrying out a task?

Criteria: errors made in carrying out a task after system is learned

E.g. an interface to a digital camera
Activity

How long should it take to learn to use the following products? How long does it actually take? How memorable are they?

a) Using a DVD to watch a movie
b) Using an authoring tool to create a simple website
c) Setting up a wireless router
Activity

a) Should be as simple as turning on a radio and should be very straightforward to remember how to do it the next time. In most cases this is true. However, some require the TV to be on a certain channel.
Activity

b) A user should be able to produce a basic web site in 20-30 mins. Most packages do achieve this goal (e.g., allowing the user publish content in web format). Some more complex operations will take longer, but users can learn and remember basic functionality relatively easily.
Activity

c) Setting up a wireless router or access point is difficult to learn. It typically requires completing many steps, with terminology that is unfamiliar to most users. Many users are not able to do this at all and have to call for help from the “Geek Squad”. If its memorable, its because the user really wants to learn how to do it.
User Experience Goals

One goal could be to build systems that are more than usable

They should also enhance the user’s experience

User experience goals relate to how the user feels using the system
User Experience Goals

Some experience goals include:
- Satisfying: productive
- Motivating: did not feel like giving up
- Enjoyable: no frustrations were encountered
- Aesthetically pleasing: subjective
- Fun: excited about using it again
- Supportive of creativity: drawing tools
- Entertaining: games
- Rewarding: sense of productivity
- Helpful: clueless but still made it through
- Emotionally fulfilling: evokes emotions/online chatting
Usability vs. Experience Goals

Usability goals could take primary importance but not always
User experience goals are not easily measured
In some cases less usable systems increase the user experience, indirect relationship (nintendo foot pads for racing vs. hand pads/joysticks)
Have to balance the tradeoffs between user experience and usability goals
Be selective about which goals to pursue for designing a system or parts of a system
Activity

What are the key usability and user experience goals of these systems:

a) an Internet application that allows the general public to access their medical records
b) a CAD system for architects and engineers
c) an online community to support people who are bereaved
d) an in-car GPS
e) a cinema ticket dispenser
f) climate control system

Provide one criteria for each of the usability goals for item (e)

Reminders:

Usability: Effectiveness, efficiency, safety, utility, learnability, memorability

User experience: satisfying, motivating, fun, enjoyable, helpful, support creativity, aesthetically pleasing, entertaining, rewarding, emotionally fulfilling
## Activity

<table>
<thead>
<tr>
<th>Usability Goals</th>
<th>User-experience goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Safe, memorable, efficient, effective</td>
<td>Helpful</td>
</tr>
<tr>
<td>b) Easy to learn, efficient, memorable, good utility, effective</td>
<td>Support creativity, aesthetically pleasing</td>
</tr>
<tr>
<td>c) Easy to learn</td>
<td>Motivating, emotionally satisfying, rewarding</td>
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<tr>
<td>d) Safe, good utility, easy to learn, efficient</td>
<td>Motivating</td>
</tr>
<tr>
<td>e) Easy to learn, memorable, efficient</td>
<td>Satisfying, motivating</td>
</tr>
<tr>
<td>f) Easy to learn, memorable, good utility</td>
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</table>
Activity

The following are criteria for the usability goals of a cinema ticket dispenser:

Learnability: can a user of the cinema’s automated ticket dispenser learn to use the system for the first time in less than 2-3 minutes?

Memorability: if a user of the ticket dispenser has not used the dispenser in months, will he/she be able to user it properly again?

Efficiency: will the user of the ticket dispenser be able to select, purchase and get a ticket in less than a couple of minutes?

Note: when you select a criteria for a particular goal, it has to be measurable or provide specific answers.
Exercise

Think about two devices or applications you use frequently

1) What would be the most important usability and user experience goals for these devices/applications?

2) Translate the core goals outlined above into two or three criteria (specific and measurable)

3) Do you feel the designers of these devices/applications satisfied the goals you outlined above?
Exercise

An example of the first: an on-line banking system which is not *fun* and *enjoyable* but yet more *efficient* than driving the car to a bank, finding a spot to park, waiting in line and paying the bills.

An example of the second: a drawing utility used by artists, which can support *creativity* (user experience goal) but will not provide the same level of *efficiency* or even as *effective* as if done manually.
Usability Goals: Recap

Usability goals involve defining important usability objectives for a particular system or part of a system.

Usability criteria are specific metrics that can be used to test whether the goals have been achieved.

User experience goals relate to the subjective experience and are more difficult to measure.