

# **CSC 484 Lecture Notes Week 2**

## **The Process of Interaction Design (ID)**

# I. Relevant reading.

A. Textbook Chapter 9.

B. Paper of the fortnight:

*Investigating attractiveness  
in web user interfaces*

## **II. Assignment 1 presentation schedule.**

**A.** Unless teams want to volunteer otherwise:

<b>Day</b>	<b>Time</b>	<b>Team</b>
Mon, Apr 14	12:10 - 12:34	Sports
	12:34 - 1:00	PDF
Wed, Apr 16	12:10 - 12:34	IM
	12:34 - 1:00	Mail
Fri, Apr 18	12:10 - 12:34	Music
	12:34 - 1:00	Word

# **A1 presentation schedule, cont'd**

**B.** Ordering rationale: smaller teams later.

**C.** All written deliverables, including slides, due Monday.

### **III. This week's lab schedule:**

- A. Mon:** discuss A1 progress; free time for A1
- B. Wed:** full-class discussion of current research paper; some time for A1 work
- C. Fri:** 25 minute quiz; remaining time for A1 team work.

## **IV. More on Wed lab discussion.**

**A.** Please read it by then.

**B.** Bring your opinions.

**C.** Specifically,

**1.** Do you buy it?

**2.** Is there any real science going on here?

**3.** Overall, thumbs up or down?

## **V. Intro to ID process (Sec 9.1).**

- A.** Much in common with the SE process.
- B.** Both have goal of developing a product.
- C.** High-level steps of ID process:



## **Intro to ID Process, cont'd**

- 1. Identify needs and establish requirements.**
- 2. Develop alternative designs.**
- 3. Build interactive versions.**
- 4. Evaluate throughout the process.**

# **Announcement**

**Computer Science Fee Allocation Committee**  
seeks members for next year.

Applications available on department website.

## **VI. What is involved in ID? (Sec 9.2)**

**A.** User-centrality is fundamental tenet of ID.

**B.** Should be fundamental to good SE process.

## What's involved in ID?, cont'd

- C. Some software involves no HCI.
  1. Systems and embedded software.
  2. User-centered design not appropriate here.

## What's involved in ID?, cont'd

- D.** Concrete examples are highly effective.
  1. Show users sketches.
  2. Describe things in prose.
  3. Draw diagrams, in users' appl'n domain.
  4. Show them interface prototypes.

## What's involved in ID?, cont'd

- E. Critique of book's Box 9.1 on "The value of prototyping".
  1. Yes indeed, it can be very valuable.
  2. Chosen example may not motivate well.
  3. What they're getting at is attaining *full user engagement*.

## What's involved in ID?, cont'd

4. A delicate balancing act to
  - build prototype as rapidly as possible
  - show everything the user cares about
  - leave out time-consuming imple'n detail

## **VII. Importance of involving users (Sec 9.2.1).**

**A.** We said it plenty in 308.

**B.** We'll say it plenty here in 484.



## Involving users, cont'd

C. "Expectation management" simply means:

1. Don't build up expectations with hype.
2. Rather, show users what it will look like, and deliver them that.

## Involving users, cont'd

- D.** User involvement helps develop sense of ownership -- psychologically important.

## **VIII. Degrees of user involvement (Sec 9.2.2).**

### **A. Involvement levels, high to low:**

- 1. Users are paid permanent members of development staff.**
- 2. Users are interim paid members.**

## Degrees of user involvement, cont'd

3. Users are involved on voluntary basis
4. Users participate indirectly, through paid representative(s).
5. Users are regularly surveyed and studied.

## Degrees of user involvement, cont'd

6. Users are recruited "off the street".
7. Users are "simulated" by product marketing staff and/or other development team.

## Degrees of user involvement, cont'd

**B.** Choosing level(s) is very organization and product/project specific.

**C.** Broadly,

## Degrees of user involvement, cont'd

1. For particular organization, involve real end users who work for the organization.
2. Off-the-shelf products have represented users, with actual users recruited.

# Announcements

- Team presentations next week in lab.
- A1 written material due Monday, 11AM.
- See recent clarifications in A1 writeup.



## **IX. More on user-centeredness (Sec 9.2.3).**

### **A. *Early focus on users and tasks.***

- 1. Users' tasks and goals are driving force.**
- 2. Users' behavior and context are studied.**
- 3. Users' characteristics are captured.**
- 4. Users are consulted throughout.**
- 5. Design decisions made in users' context.**

## User-centeredness, cont'd

### **B. *Empirical measurement.***

1. Identify and agree upon usability goals.
2. Use them to evaluate continuously.

# User-centeredness, cont'd

## C. *Iterative design*

1. Show the users something concrete.
2. Get their feedback.
3. Repeat until done.

## **X. Practical issues (Sec 9.3).**

- A.** Who are the users?
- B.** What do we mean by "needs"?
- C.** How do we generate alternative designs?
- D.** How do we choose among alternatives?

## **XI. Identifying users (Sec 9.3.1).**

**A.** Book broadens discussion to *stakeholders*.

**B.** Term well known in SE circles, includes:

## Identifying users, cont'd

1. *end users* -- actual product users
2. *customers* -- people who buy it
3. *domain experts* -- people who know a lot

## Identifying users, cont'd

4. *developers* -- people who build it
5. *evaluators* -- people who test it
6. *managers* -- people who nag
7. *visionaries* -- people with "vision thing"
8. *other interested parties* -- any imaginable

## **XII. Identifying user needs (Sec 9.3.2).**

- A.** Some articulated directly by users.
- B.** Others observed, measured characteristics,
  - physical
  - behavioral
  - psychological
  - social



## Identifying user needs, cont'd

- C. Can often understand new needs based on how current needs are met
- D. CHI study found non-electronic habits good for understanding web-based needs.

## **XIII. Generating alternative designs (9.3.3).**

- A.** Start by looking at what else is out there.
- B.** Consider incremental improvements to existing solutions.
- C.** Talk to people with different backgrounds.

## Generating alternative designs, cont'd

- D.** Introspect on your own creative processes.
- E.** Draw analogies from other problems.
- F.** And, alas, talk to your lawyer about potential copyright and patent infringements.

## **XIV. Choosing among alt designs (Sec 9.3.4).**

- A.** Examine external factors -- *does user like it?*
- B.** Examine internal factors -- *implementable?*
- C.** Determine how to present design alternatives:

## Choosing among alt designs, cont'd

1. Prose descriptions and diagrams.
2. End-user scenarios.
3. Prototypes.

## Choosing among alt designs, cont'd

**D.** Clearly define quality criteria.

1. Performance.
2. Functional characteristics.
3. Aesthetic characteristics.

## Choosing among alt designs, cont'd

- E.** Develop quantifiable usability criteria  
(more in coming weeks).

## **XV. Lifecycle models -- ID process meets SE process (Sec 9.4).**

- A.** Familiar territory from SE.
- B.** Sec 9.4.1 sketches simple ID process model.
- C.** Sec 9.4.2 is rehash of known SE processes.
- D.** Sec 9.4.3 is HCI wrinkle on things.



**XVI. ID process mapped to SE processes  
(Sec 9.4.1 + 9.4.2).**

*Drawn on board during class.*

## **ID mapped to SE, cont'd**

- A.** Agile process involves frequent iterations.
- B.** Design is often not explicit step of Agile.
- C.** Evaluate step often not explicit in SE.

## **ID mapped to SE, cont'd**

### **1. Difference between Evaluate and Test:**

- former focuses purely on end-user evaluation
- latter focusing on functional system testing, e.g., JUnit.

## **ID mapped to SE, cont'd**

2. End-user evaluation could be considered part of a pervasive testing step.
3. It's worth emphasizing that ID evaluation is different than software system testing.

## **XVII. Process models in HCI (Sec 9.4.3).**

### **A. The *Star* model.**

- 1. Do traditional steps in any order.**
- 2. Always do evaluation after each step.**
- 3. An iterative SE process, where steps can be skipped, and evaluation is pervasive.**

## **B. *Usability engineering* model.**

- 1. Can be mapped to any SE model.**
- 2. Adds more details to requirements analysis**
- 3. More clearly defines user-centered eval.**

## Usability engineering, cont'd

- C. *ISO 13407* human-centered design standards
  - nothing really new here.

## **XVIII. General observations from SE side.**

- A.** ID process in book is very skimpy on details.
- B.** To get a real product to market, one must *manage* things
  - version control
  - bug tracking
  - regression testing



## General observations from SE, cont'd

- C. Value-added of ID process is user evaluation as explicit and pervasive.
- D. SEs under appreciate user involvement less today, than 10 or 15 years ago.
- E. SEs probably do under appreciate quantified usability analysis.

