

# CIS 443/543 User Interfaces

## Exercise #6

**(Team-work: Presentation, Written Report, Graded)**  
**Due: Tuesday, March 9 at 10am**

### Introduction and Motivation

The sixth step in the scenario-based development process is called *usability evaluation: empirical methods* (chapter 7.3, 7.4.2-7.4.4). Its purpose is to evaluate the user's interaction by testing real users with prototypes of the interaction design products (chapter 5). In particular, the technique known as *usability testing* greatly aids discovery of usability problems before full software implementation has occurred.

Empirical usability evaluation methods include *field studies*, *usability testing* and *controlled experiment*. We will be performing usability testing on prototypes of your design. Usability testing is done after the use of analytic methods (Exercise #5) to check for conformance to usability guidelines. Testing has designers or usability experts examine in detail users' behavior in response to working prototypes of the proposed system. Usability testing begins by the development team creating a set of usability specifications based on the interaction scenarios. Real users are selected to participate in the study. Usually the participants are matched with the range of people in the population. For example, if the users cover a wide range of ages, then there should be some users in those ranges. The users are brought into a lab or quiet area, given a brief background survey, given instructions including the task(s), and then recorded on videotape as they attempt to perform the task. They are also be given a brief interview or questionnaire to assess their satisfaction with the experience and UI. The developers then review the videotape and interview material looking for any detailed usability problems and for conformance to the usability specifications.

After evaluating the design with usability testing, the design specifications may change to improve usability. Note that given the iterative nature of UI design invites further testing to make sure the problem is indeed fixed. Also, testing of the core tasks may occur first, and then secondary tasks may be prototyped and tested. This divide and conquer approach simplifies the complexity of validating the UI design.

NOTE: The text website has several case studies illustrating usability testing. Look under "usability testing" for VSF. See <http://ucs.cs.vt.edu/default.asp?button=2>

### Assignment

1. Read Chapter 7 in the Rosson and Carroll text.
1. Read Reading #3 "How to do usability testing" by Sarah Douglas.
1. Using the on-line election problem, prepare a team presentation and written report.

### Presentation (5 minutes/group)

1. Pick one *interesting* usability problem from Question 5 Written Report (see below) that your group discovered doing this exercise.
  - a. Describe the usability problem. You might want to show a portion of the videotape if possible. Explain why this is a problem.
  - b. Show the interface BEFORE you discovered the problem. Use the mockups and a walkthrough of the mockups or interaction network to describe the issue.

- c. Describe the possible alternative changes you considered.
- d. Show the interface AFTER you discovered the problem. Use the mockups and a walkthrough of the mockups or interaction network to describe the issue.

Written Report (16-20 pages)

CAUTION: These questions should be done in sequence!

1. Provide (a) your interaction design scenarios for your core groups of voters; (b) your storyboards for voting; and (c) your user interaction network from Exercise #5 for voting. Be sure we have mockups of all the needed screens. This will be the starting design specification from which you will do the usability testing. (5 pages)
2. Implement the voting activity only of your interaction design. Provide us with the URL to this working prototype. (1/4 page)
3. Using the methods in the text, plan a usability testing of your proposed design for the voting activity scenario using three pairs of people. (5 pages)
  - a. Define the goals of your usability testing session (1/2 page)
  - b. Define usability specifications (1 page)
  - c. Describe how you will select the participants (1/2 page)
  - d. Develop an informed consent form (1/2 page)
  - e. Develop a background survey for the participants (1/2 page)
  - f. Develop general participant instructions (1/2 page)
  - g. Develop task specific instructions (1/2 page)
  - h. Develop a user reaction survey (1 page)
 Provide us with copies of the documents from 2a-2h.
4. Conduct a usability test with three pairs of participants using video recording. If you don't have a video camera, you can check one out from UofO Library Media Services, < [http://libweb.uoregon.edu/med\\_svc/](http://libweb.uoregon.edu/med_svc/)>, or call 346-3091. In case you need to demonstrate that the checkout is required is for a class, you can just show them this assignment. The CRN for this course is #25199 for CIS 443; and #25203 for CIS 543.  
Provide us with
  - a. A brief description of how you made the videotapes (1/2 page)
  - b. Video tapes you made
  - c. Log (summary) of the usability incidents keyed to the videotapes (1 page)
  - d. Summary of responses to user reaction survey (1/2 page)
5. Report the specific usability problems reported in 4b. above
  - a. Describe each one and *why* it is a usability problem using any necessary mockups etc. (1/2 page for each problem)
  - b. Discuss how to improve the design to fix each problem using any necessary mockups etc. (1 page for each problem)
6. Report your comparison with the usability specifications you wrote in 3. above.
  - a. Describe how well the UI did in regard to time, errors and satisfaction (1 to 2 pages)
  - b. Discuss how to improve the design to improve overall performance. Note, only show us the revisions relevant to the discussion. (1 to 2 pages)
7. Be sure and provide the COMPLETE final set of your revised mockups, storyboards, user interaction network and interaction scenarios that reflect your final design for the voting task only. (5 pages)
8. Each member fills out a Group Membership Evaluation (GME)

TURN-OVER

## Grading

You will be graded on (1) completing all the parts of the assignment, (2) correctly applying the methods and techniques, (3) having the content make sense and be representative of the real world, and (4) the quality of your presentation and writing—communicating ideas clearly, concisely, completely, and correctly (spelling and grammar).

See the Grading Sheet for Exercise #6.

## Check-List

Interaction scenarios, mockups, storyboards and network as revised after Exercise #5

Interaction scenarios, mockups, storyboards and network as revised after Exercise #6

URL for prototype tested for voting task

Videotapes used for testing

Report

1. Describe the usability testing
  - a. Define the goals of your usability testing session (1/2 page)
  - b. Define usability specifications (1 page)
  - c. Describe how you will select the participants (1/2 page)
  - d. Copy of informed consent form (1/2 page)
  - e. Copy of background survey for the participants (1/2 page)
  - f. Copy of general participant instructions (1/2 page)
  - g. Copy of task specific instructions (1/2 page)
  - h. Copy of user reaction survey (1 page)
2. Data collection
  - a. A brief description of how you made the videotapes (1/2 page)
  - b. Log (summary) of the usability incidents keyed to the videotapes (1 page)
  - c. Summary of responses to user reaction survey (1/2 page)
3. Results: Specific usability problems you found
  - a. Describe each one and *why* it is a usability problem using any necessary mockups etc. (1/2 page for each problem)
  - b. Discuss how to improve the design to fix each problem using any necessary mockups etc. (1 page for each problem)
4. Results: Overall usability by comparing to usability specifications
  - a. Describe how well the UI did in regard to time, errors and satisfaction (1 to 2 pages)
  - b. Discuss how to improve the design to improve overall performance. Note, only show us the revisions relevant to the discussion. (1 to 2 pages)

This report must **COMMUNICATE** your design and its usability evaluation. Keep that goal in mind.

TURN-OVER