

DEPARTMENT OF COMPUTER SCIENCE  
UNIVERSITY OF TORONTO

CSC 318S

## THE DESIGN OF INTERACTIVE COMPUTATIONAL MEDIA

Winter Term, 1997-98

Assignment 5

### USEFULNESS AND USABILITY EVALUATION OF PROTOTYPE SYSTEM

HANDED OUT: Monday, March 2, 1:10 p.m.  
DUE BACK IN: Friday, March 27, 1:10 p.m.  
WORTH IN MARKING SCHEME: 12 points

The purpose of this assignment is to give you some experience in developing and carrying out an evaluation of the usefulness and usability of your prototype and of its look and feel.

#### USEFULNESS AND USABILITY

Our emphasis on the user interface to new computational media should not blind us to the fact that elegant interfaces cannot make up for unimpressive and inappropriate functionality. In other words, our systems must be both **useful** and **useable**.

*Usefulness* refers to the extent to which the system's functionality meets the needs of the user and of the task he or she is carrying out. *Usability* refers to the degree to which the interface facilitates carrying out of the task, and incorporates such criteria as ease of learning, ease of use, protection against catastrophic errors, and provision of user support.

#### EVALUATING USEFULNESS

Your work on assignment 3 should have included a careful development of appropriate system functionality based in part on discussions with prospective users and in part on a task analysis. On the other hand, users and clients often cannot really evaluate the sufficiency of stated requirements and functional specifications until the implications of these can be seen in the context of a working system prototype. You are now at a stage where you can show a working system prototype to prospective users.

Find **at least three (3)** individuals who are not working as part of your team. These can be other students in the class, friends, or **ideally** individuals who have some relevant and significant expertise in the application domain for which your system is intended. In other words, at least one (1), preferably two (2), and ideally three (3) of them will be senior citizens, or people who spend a great deal of time with and possibly work with senior citizens. Describe the purpose of the system you are building. Ask them to describe,

however they choose to, the capabilities they believe would be required if they were going to use the system for the stated purpose. This is called a *free-form interview*.

Later (see below) you should carry out a structured inquiry about their reactions to your proposed functionality. We return to this topic below.

## TESTING USABILITY

You are now ready to look at usability. Ideally this should be done with the same individuals.

Sit each individual down at your prototype. Demonstrate and explain (1) its capabilities in general terms and (2) how to use the mouse and keyboard to work the Director application. Then allow them to explore it on their own. This is called *free-form exploration*.

Next, ask them to carry out 2 or 3 pre-designed tasks without your help. Carefully design these tasks to emphasize key functionality and the basic interface style of your system. Ask your informants to *think aloud* as they are carrying out the tasks. Look for *critical incidents* in the interaction, in other words, serious errors or stumbling blocks.

As a third step, inquire about the *conceptual model* they have acquired while working with the system. Is this conceptual model identical to your *designer's model*, in other words, have they understood the system as you intended?

Finally, ask them if they have any suggestions for improving the interface.

## EVALUATING USEFULNESS (REVISITED)

We now return to the evaluation of usefulness. Make up a structured description of the functionality of your system. For example, a word processor has capabilities for entering and correcting text, for formatting text, and for saving, retrieving, and printing text. The tools for entering and correcting text include insertion, deletion, substitution, and iterative search and replace. The tools for formatting text include .....

Go through this functional description with your informants. Ask them to comment on the importance of each item. Then ask them if they can think of anything you've forgotten.

Throughout all these tasks, you should be taking detailed notes. Videotaping the sessions would be better, but we don't have the equipment and facilities to make this possible for such a large class. (It is possible in CSC 428.) Of course, you are welcome to use your own video equipment, and this is likely to help you get a better grade.

## YOUR TASK

Your task is to design and carry out usefulness and usability tests for your prototype system, and to write a report describing your work. Put as much of the "original data" as you can in Appendices to the report, for example, a photocopy of the original notes from your interviews or observations, or copies of the questionnaires that were filled out. The body of your report, not counting the appendices, is likely to be on the order of 10-15 pages, double-spaced.) **You need not follow the above procedure precisely, if you believe you see a better way to proceed. If so, explain your methodology. However you proceed, you will need to describe carefully what you did and what you learned.**

**KEEPING THIS ASSIGNMENT WITHIN BOUNDS**

If you spend more than 15-25 hours per person on this assignment, you are spending too much time.

**WHAT YOU SHOULD HAND IN**

**Your report must be typed and submitted on 8.5"X11" paper stapled at the top left-hand corner. It must be written in English prose. Structure and organization, spelling, grammar, word usage, and document appearance will count for roughly 15-20% of your grade.**

**Each submission must include a title page with a meaningful title, your names, your student ID#s, your tutor's name, the course name and number, and the date. The second page should contain a one paragraph executive summary of the document, and a table of contents.**

You must also post a note to the Computer Conference indicating a Web page where the report can be found.