Upload Assignment: Qualitative Evaluation

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1. Assignment Information

Name: Qualitative Evaluation

Instructions

Assignment 1: Qualitative Evaluation (Usability Study)

In this assignment, your task will be to design and perform a usability study for two similar, yet different, systems. The idea is to give you experience with conducting a usability study, including conceptual model discovery, observation, think-aloud, questionnaires and interviews.

The scenario is to pretend that you are an employee of a usability study company. You have been paid by a client to evaluate their system. Your deliverable will be a report written for the vice-president of the client company, who is in charge of that system's use and development.

Your client is interested in knowing the usability problems of his system. In addition, he is also interested in knowing how his system compares against a potential competitor's.

The output of your assignment will be a report. Your report should describe how you set up your experiments (e.g. how and why you selected the tasks), how you executed the experiments (e.g. number of people, amount of time, etc), what problems you uncovered, and what changes you recommend.

Part A: Before the study

Step 0: Complete the Scenario

Usually, with undergraduate subjects, I will specify the systems that I wish them to evaluate. That's because they're kids :-). Since we are all adults here, I will let you complete the scenario -- that is, you decide what system that you wish to evaluate (which means that you also decide on your client company). The only condition is that it must be a real, functioning, Computing system.

Potential examples of systems include: travel websites (e.g. try Travelocity), or NGO websites (e.g. Department of Computing's webpage), software (e.g. Microsoft Word), or special-use systems (e.g. ATM machines).

In addition to your system, you must pick a competitor to the system. If at all possible, pick a system that targets a demographic of users that is different from your first system. The most obvious would be a cultural difference. For example, suppose you decided to evaluate Taobao, which is geared towards the PRC market. A valid contrasting system would then be EBay, which is designed for the US market.

Step 1: Role Division

After you have defined your scenario, you need to define the roles in your team. You

need 1-2 people to be the evaluator(s). The other persons can be experiment subjects.

The evaluators decide what tasks to investigate. They should try the system ahead of time and then come up with at least 4-5 different tasks to give to the experiment subjects.

Step 2: Select your core set of typical tasks

As you saw in the video in class, usability studies require the observer to watch somebody go through the system doing some "typical" tasks. The evaluators' job is to prepare this set of typical tasks ahead of time for the subjects to perform. These tasks should be realistic ones that typical users might try to do with the system, or those that try out different parts of the system's functionality. For example, a frequently-used task in MS Word would be to make a new version of an existing publicity leaflet by updating the date in it. An example of a task that tries out a particular part of the system's functionality would be to insert a photo and a caption into the leaflet.

How do you come up with these tasks? Well, the most obvious way is for you yourself to try out the system and to think up tasks on your own. Of course, these tasks may not be the most representative (remember what we have been saying in class: never ever assume that you are like a typical user). However, this may be the only choice you have. Another way is to ask a random sample of people who are using the system what they would typically do with it, and then generalize from those. This would work if you were evaluating a system that is in popular use, obviously.

*Important Note: It is **very, very important** that the evaluator must have tried out the tasks by himself or herself, and know how they work. Otherwise, you won't know when to intervene when the tester gets stuck; nor will you be able to make a good case why the interface is good or bad.*

Step 3: Prepare the questionnaires

Create a short pre-test questionnaire of about 10 questions, testing the subject's experience and background as related to the task and the system. The questionnaire should ask the user to indicate their prior experience with computers, the OS, and the system being tested, at a minimum. They should also indicate their expectations. Some example experience levels are:

- Never used the system
- Used it once or twice over the last few years
- Used it around 5-7 times this year, but not regularly
- Use it regularly (how often?)

Similarly, you also need to prepare a post-test questionnaire. Good questions will give you information about how participants judge the system's usability, where they think they had the most problems, etc. You may want to leave space after each question for comments, so people can elaborate on why they answered a question a certain way. For example, you could do something like this:

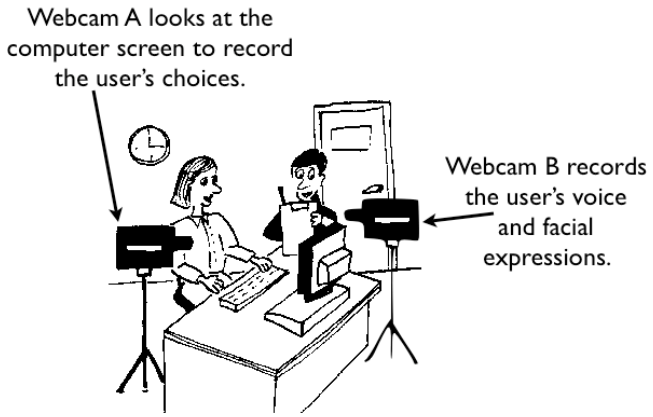
I found the system: easy to use 1 2 3 4 5 hard to use.
Reason for your rating:

Step 4: Set up your "usability lab"

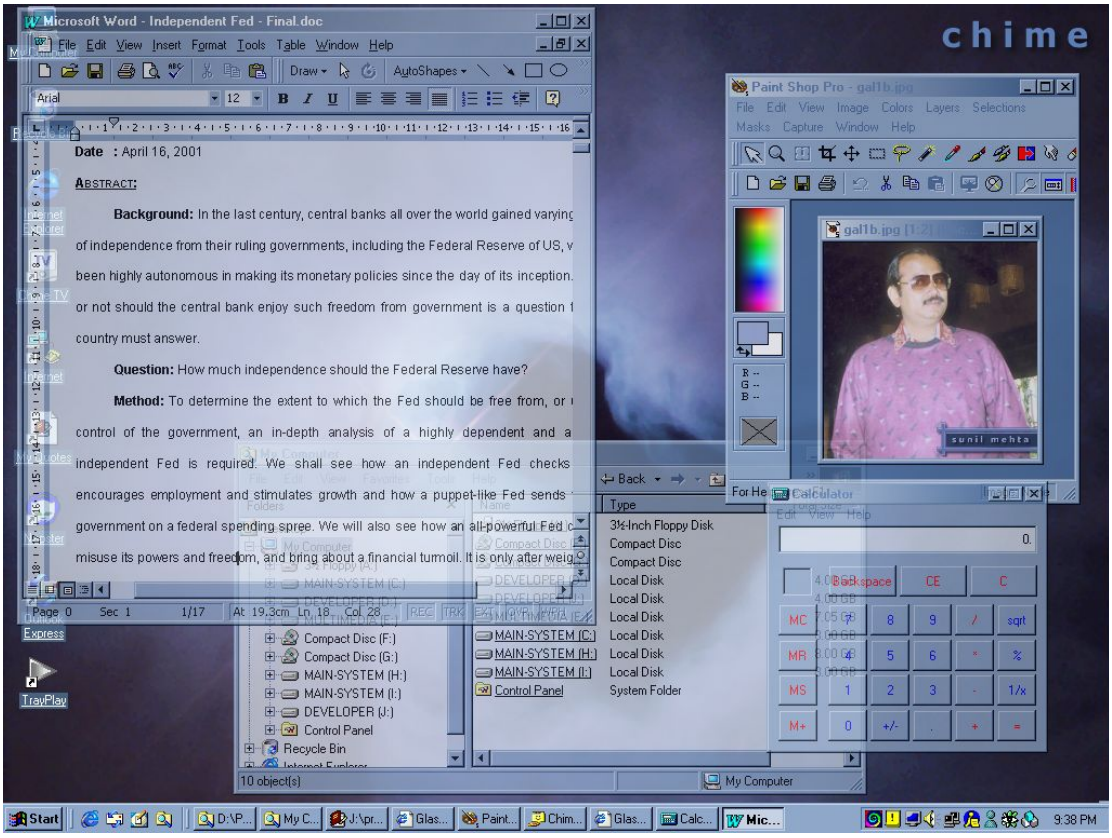
Since we want the assignment to be as close to a real usability test as possible, you are going to have to record your usability test on video and turn that in as part of your assignment deliverables. This means that you will have to create a "usability lab environment" and tape the test somehow.

Real usability tests are usually taped with a video recorder, and they will record the screen activity as well as the face of the experiment subject(s) and evaluators, plus the noises from the environment (including, obviously, what the experiment subject(s) and evaluators are saying, and any audio feedback from the system). To set this up cheaply, my suggestion is that you use two USB webcams and a separate computer as the "recording machine". Set up the webcams so that one of them is pointing over the experiment subject's shoulder and "looking" at the screen.

The other one should be placed on top of the monitor, looking back at the experiment subject(s). The picture below should give you an idea of what I mean.



On the computer that's doing the recording, set up the windows with the video feed so that they are side by side, and as big as possible. Turn off the audio feed from **one** of the webcams. Then, use a screen recording software such as CamStudio or Camtasia or Super Screen Capture to record the desktop display on the computer. That will give you a movie recording of both the screen as well as the people. The picture below gives a rough idea of what I am talking about.



Note: I don't really care which software you use to record your usability test, there are tons of them out there, but your recording must contain both the experiment subject and evaluators' faces (i.e. the video feed from your webcam), as well as the screen recording. To save yourself some frustration, test out your setup before you do the usability test (remember how we said in class that a pilot test is essential). Also, to ensure that your video can be played on our computers, you must convert your video into either mp4, mov or wmv format before handing it in. No bizarre file types please.

I know that this is going to be a lot of trouble, and in previous years, it seems that a

lot of people spent a lot of time on video editing. To avoid misunderstandings, let me clarify things here:

- The video is to make sure that you're doing the usability test correctly, you will **NOT** be graded on the quality of your video editing. You will, however, be graded on the quality of your evaluation test -- which I will do by watching the video.
- You do **NOT** need to put in subtitles.

Part B: Do the Usability Study

The next step is to do the usability study. The usability test should contain the following steps:

Before the Test

Pre-test Questionnaire: Have the experiment subjects fill this out before they start.

Throughout the test:

1. **Active intervention and conceptual model formation.** As part of the test, you need to see what initial conceptual model people have of the system, based on their prior experience and their interpretation of the visuals on the screen. You are looking for places where the model is incorrect. You need to start doing this from the very beginning (i.e. as soon as you start the system, or as soon as the first screen appears.)

Basically, what you need to do is this:

- Have the experiment subject explain what things mean on the introductory page.
- Have them do their task
- Ask them if they can now explain things that they couldn't before

All subjects should start with this step, and this step should be repeated at intervals -- for example, after major dialog steps such as reading documentation, or after doing a transaction, as well as at the end of their session.

The reason for doing this step is that it allows you to see how a person's conceptual model develops (correctly and incorrectly) during system use. A person's conceptual model is formed from prior experiences and their interpretation of the visuals on the screen. So what you're looking for here are places where the model is incorrect. For example, it could well be that people don't understand the meaning of labels and icons and what they're supposed to do. These problems may be related to insufficient or bad visual affordances, constraints, mappings, etc.

Now, note that when you are doing this, you are actively intervening in the experiment by disrupting them in the middle of their task, and this act of explaining the screen to you might actually result in extra learning by the experiment subjects. Therefore, you should do this carefully and at the appropriate moments. Use your own judgement and be sensible.

2. **Observe the user's thought process.** In this assignment, we will use the Think Aloud Method. The experiment subject should carry out one or two tasks on the system (remember, these tasks were created ahead of time by the evaluator, so the experiment subject should not have any knowledge of them), with the observer taking notes of the process and the subject's behavior, and where the system appears to break down or have problems. The subject is encouraged to voice aloud his/her thoughts, and also to elaborate on any problem that he/she is having. For example, he/she might say something like this:

"I'm going to try the task... ok, this looks like the menu I should select. Hmmm... it's not doing anything, what's wrong with it?"

The evaluator should take notes of the subject's behavior and key comments. The audio/video recording will help you with this, but if you are also taking notes during the experiment, this will aid you tremendously with remembering "key" events. You also should encourage the subject to talk freely ("what are you thinking?" "Why did you do that?"), but remember that you are not to interfere or help the subject in any way!

(Remember: if the subject has spent more than the alloted amount of time on the task, have him/her skip the task and go on to the next one. Remember that our task is not to evaluate the user, but to evaluate the system. Never let the user feel that he/she is stupid -- it's always the system's fault, not the user's.)

After the Test:

Post-Test Questionnaire and Interview: The subjects should take the post-test questionnaire. The evaluator should then interview the subject(s) and ask them how they think that they performed, where the errors were made, how the system helped them, where the system was weak, etc. As when during the test, you should be taking notes of all this. Use the things that you saw during the test to guide your interview. You may also use the filled-in questionnaire as a discussion tool (i.e. why did you answer in this way?)

Repeat with other users: At this stage, you should repeat the tests with as many friends, family and other users as you can manage. The more people, the better! You might also want to experiment with open-ended tasks where the experimental subjects solve their own goals.

Part C: Write up your report

Now that you have completed your test, you need to write up the report for the VP of the company. This report should be detailed, we are expecting around 10 pages. Your report should be formal -- remember, even though this is a homework assignment, I am expecting you to treat it as if it were a real report to a real company.

Your report should contain the following sections:

Section 1: Scenario

This section motivates the entire report. In this section, you should give a reminder to the VP on what the system is (maybe the company has more than one system that he is in charge of), and then explain your role.

Section 2: Methodology

Explain what you did in this section. Include things such as the task description, the pre-test evaluations, questionnaires, etc. Along with the things that you included, you need to provide reasons for why you included them. For example, for the questionnaires, you must explain why you included each question. Likewise for the task description: justify why you included each task.

Section 3: Observations

In this section, you should summarize your observations. If necessary (and appropriate), you can use the data that you collected, such as user comments and questionnaire and interview results. However, use these sparingly -- this is supposed to be a section for your observations and summary, not somewhere for you to dump all your collected data into!

Section 4: Interpretation: System strengths and weaknesses

Here is where you identify common and important problems, as well as the strengths of the system. Now this should not just simply be a checklist of the problems that you have seen. Try to generalize from your observed instances into system-wide problems. In other words, what you have observed should be quoted as examples that illustrate the system's strengths and weaknesses.

Section 5: Suggested Improvements

This is where you suggest changes to the VP. Describe give important

changes that you would make to the design of the system, and justify and support your choices.

When you make your suggestions, there may be situations in which you feel that a complete overhaul of the system's design is necessary. For example, maybe there's somewhere in the system where there's a form-filling interface that you feel is really unusable. You may wish to suggest that they change this design into a graphical map. That's fine, but if you make these suggestions, I'd like you to also give the VP an alternative (e.g. stay within the current design but change it to make it more usable). You may wish to use the competitor's design as a reference.

Section 6: Conclusions

This is a summary of the entire report. Summarize your findings here, and give your recommendations.

Section 7: Comparative Study

This is not a section that would usually be found in a real report, but I'm including it here because I think that it's interesting. Put in a section that contrasts the two systems that you have studied, and make observations on how each system is a better fit for their user demographic. If at all possible, make references to the language, culture, expectations of the target users.

Appendix 1: Raw Data

This is where you should be putting all your raw data, recordings, etc. If necessary, parts of this may be on CD-ROM. Please also attach a copy of your questionnaire forms, task descriptions, etc here.

Part D: Grading

You will be graded on both the execution as well as the report. For the execution, I will be looking at the quality of the tasks that you selected (e.g. do your tasks make sense), the way in which you conducted the usability study (e.g. did you encourage the user adequately to think aloud, did you over-hint to the user, etc).

For the report, I will be grading it on both presentation as well as writing. Your report should be a professional document. I want you to do the report in Microsoft Word and hand in both the soft and hard copies of the report. The soft copy of the report should go to Blackboard. The hard copy of the report and the CD-ROM of the recordings should be handed in during next class following the assignment's due date.

Note: The report must be written in English. The usability study with your groupmates should be conducted in English; the one(s) where external people are used may be conducted in Chinese.

Due Date	October 30, 2011 11:30:00 PM CST
Points Possible	100

2. Assignment Materials

Submission