UI/UX Design and Usability Study

Overview

The goal of this assignment is to design and conduct a usability “study” for your project.

Your team should create a paper-based (or other type of rapid) prototypes designed for two types of users: end users and admin users, and consider their particular points of view. The team should design a usability study specifying a hypothesis, tasks, and experiment. You will need to identify users, not in your team and ideally not necessarily CCIS students, and perform a usability “study” capturing values of interest while users perform three distinct tasks.

Create a UI Prototype that realizes the UX goals

Using paper prototypes or using hand-drawn prototypes on a tablet, design a user interface for two types of user: an end user and an admin user. An end user is someone who might purchase and/or use the product and is not expected to be familiar with the product beyond what they might learn from the documentation provided with the product (should they read the documentation). An admin user is someone who is familiar with the product and can manage more advanced tasks and features not available to end users. For instance, admin users can create or remove end users, they can create and update constraints for other users. Create at least one user interface for each of the users, i.e., one for an end user and one for an admin user.

Conduct a Usability Study – Participants

Identify volunteers, not in your team, who would be willing to participate in your usability “study.”

There are rules and ethical concerns about how one may conduct a study. At Northeastern, the university’s Institutional Review Board (IRB, http://www.northeastern.edu/research/hsrp/irb/) oversees all of this. Given that this is classroom research work being done for the learning experience, you will not need formal IRB approval for your “study,” which is why the term study has been in quotes. Had this been a formal project, IRB approval would be required. However, we will conduct this assignment in compliance with IRB policies and practices. Please read this section closely and adhere to its policies and practices.

You need to provide advisory note as hard copy to each subject. The template you should use is available on the website, https://course.ccs.neu.edu/cs4500/ssl/pdf/unsigned-consent.doc. The places you need to fill in are marked. If you were to do this in practice, you would select an advisory template from the university’s Institutional Review Board (IRB) and adapt it to fit your study. Templates are available at http://www.northeastern.edu/research/hsrp/forms/. We are using the unsigned template (template 3). Sometimes you need a record of consent, which would require a signed consent form (template 1).
Please include the instructor’s name and email on the form in a way that is clear should the subject have a concern. The IRB advises:

Consent documents should be written at an 8th grade reading level or less for the average adult population. Avoid technical or professional language used in grant submissions or with peers. Use short, clear sentences. Use bullets or timetables for multiple visits or procedures. Select an easy-to-read font size. Use second person (you) statements rather than first person. Use correct spelling and grammar. If the consent is more than one page, use footers: page 1 of 3, page 2 of 3, etc.

You must review the consent document with the subject before you start the study. This means walk the subject through the following:

1. Introduce yourself
2. Explain what you want to do
3. Explain what you will do with the information you collect

If you take video, advise that “I may capture your face, but we really want to record this to study how you interact, and then aid in analysis.”

4. Explain what your subject’s participation means.
5. Ask if the volunteer has any questions.

If the volunteer declines, you must accept this decision and find a replacement.

If the volunteers agree, conduct the study.

The easiest approach to respecting your subjects’ privacy is to record observations through taking copious notes. However, you may opt for recording the session using video. If you opt for video, you should focus the recording on the interaction between the volunteer subject and the interface. It is strongly preferred that you emphasize recording the subject’s hands and the interface. While there is a chance you may include the subject’s face or other easily identifiable features, and while this is acceptable, you should not emphasize or focus on recording these features.

You may and should collect demographic information such as: age, gender, education level, major, technical competency, or prior experience with the product. You should not collect any private information such as name, ethnicity, sexual preference, religion, hometown, and the like. If you are in doubt about any boundaries, please ask your instructor (or you can reach out to the IRB).

Task Scenarios

Based on the use cases discussed in class, design three tasks for the volunteers to perform. For instance, for the admin user you might consider tasks to create users, remove users, update user profiles, change user preferences, etc. Simply logging in, while technically often is a use case, will not count as a use case. A task is just that, something you ask the subject to do. Do not coach or explain how to do the task.

Follow a script as you explain the interface so all participants get the same explanation. For each scenario/task, explain the goal they are trying to achieve, but do not explain how to accomplish it. That is, explain WHAT they are trying to achieve, but do not say HOW to do it. If they need a break between tasks, that’s fine, but all volunteers should complete all tasks.
Measurements

Before the volunteers start their tasks, define what you want to measure for each scenario. For this assignment, you can focus on measuring subject’s success and ease of accomplishing the task. By this, have the subject think aloud while he or she works the task. Note errors or difficulties accomplishing the task. You can learn a lot by observing troubles the subjects have.

For example, consider the following scenario:

**Study conductor:** “Assume you’ve logged into the TotallyRad application on your smart phone and the application brings you to the following window/page. Pulls out the paper prototype or brings up a tablet with the “rapid” prototype. “Now, I’d like you to send birthday greetings to your BFF.”

**Subject:** “Err, ahh, I don’t really see any button here that says sends a birthday greeting. I see 47 buttons and it’s hard to read the text that’s on each one. Oh wait, I see one. No, it says call police… [searches over 10 buttons] I just don’t see anything that I can use. You know, this isn’t very much fun. I’d probably quit by now. <sighs> Oh wait, I see this button that looks like a cake, but it says natal anniversary announcement. I don’t think that’s it, but this interface is really weird, so who knows. I guess I’ll try it…”

The write-up should note all the issues the subject had completing the task in as much detail as you can.

Subject 3 cannot read the buttons easily. The subject scanned 10 buttons and then wanted to give up. The subject expressed frustration that she couldn’t solve the task. The subject found the button (after X seconds or after looking at 12 buttons), but didn’t recognize that it was the right button.

**Bonus opportunity:** Many studies measure much more about the subject’s interaction with the system, such as: task time, number of errors, etc. Using the same approach as described above, ask the volunteers to think aloud. But in addition to noting how well the user moves through the steps needed to address the task, keep a log when the users begin, when they complete a task or subtask, of the measurements of interest, as well as critical incidents, both positive or negative. Keep track of the time volunteers complete specific tasks. Volunteers should not have access to clocks, and should just focus on their task. Have an interview when the volunteers complete their task. Ask them about their overall satisfaction of the interface design. Alternatively, have the volunteers to fill out a form with scales 0 through 5, short answers, and essays, where you can ask for more open ended details. Or, if you prefer, use both.

Deliverables

Turn in a report to your team’s github.ccs.neu.edu repo under a folder called **usability**. Write up your results reporting your raw data, responses, summary of your interviews, discussion of observations, and conclusions. The final submission must be professionally typeset and submitted as a PDF. Your document should be single spaced pages. Writing is an important part of this assignment. It is expected that your document will reflect a sense of professionalism in both your writing and document formatting.

Each person on the team should conduct at least one (1) usability “study” with at least one (1) user. Each subject should be unique and each subject should do at least three tasks. Across the team, you should cover the two user types: **end user** and **admin user**. Each person should put his or her study data in the repo in one or more sub-directories under **usability**. It is up to you how to organize this, but it should be easy to see and attribute each person’s contribution.
Rubric on the Report

1. (10 pts.) Introduction - describe the system under study and describe the methodology of the study

2. (25 pts.) Paper/Rapid prototypes - provide images of the hand-drawn interfaces, paper or digitally created. If you created wire-frames by a tool, include those. Submitting links to the content is not OK.

3. (10 pts.) Participants - demographic information such as, age, gender, education level, major, technical competency, prior experience with the product, etc

4. (20 pts.) Tasks - describe the tasks the volunteers executed

5. Bonus: (10 pts.) Measurements - list and describe the variables of interest and how you measured them

6. (20 pts.) Test Results - list and describe the raw data that was captured

7. (15 pts.) Discussion - discuss what was learned from the study and conclusions