Team Assignment #4

For this assignment, you will prepare for and complete an evaluation of two paper prototypes. You will also analyze your data and turn in 1) a PDF report (on blackboard) and 2) your physical paper prototypes.

I. Assignment Instructions

In this assignment, you will create **TWO** paper prototypes demonstrating two different software tools. You can draw upon the ideas generated in T3 or develop new ideas. Your concepts should be innovative, creative, and represent two very different approaches to best addressing your persona's goals, frustrations, and attributes. Provide a paragraph description overviewing the main elements of each prototype—what does it enable the user to do and how does it address your persona's goals, frustrations, and attributes? Each prototype should have at least 3 primary functions (things that it enables the user to do), which correspond to elements of your persona (their goals, frustrations, and/or attributes). Describe the specific strategies/concepts from class and the readings that you have used to refine the design concepts. For example, consider our discussions about cognition (Preece, Rogers & Sharp Ch 3), user experience (Wright *et al.*), brainstorming, etc. Remember, focus on the high level functionality here; putting too much time into low-level details (font, widget placement, etc.) is pointless at this stage as your design concept is still in flux.

Develop two paper prototyping kits. Think about the persona you have developed: what does the user need to do and how will your system help him or her do it? Refer to the course readings on paper prototyping and user test sessions. Remember that you are creating paper tools that allow you to manipulate the interface as a tester "uses" it. You are not just handing in screenshots—this should be an interactive kit with moveable pieces that simulate software interactivity. More specific instructions on building each of your two paper prototypes:

- *Draw* the static background, menus, and other windows. Decide how to implement the dynamic parts of your interface. Very neat hand-sketching is welcome. Use the tips in the readings and discussed in class. Make sure your prototypes support the user in completing the thee primary functions you've described above.
- *Paper Prototype Brief*: Prepare a briefing for test users. This should be at most a page of information about the purpose of your application and any background information about the domain that may be needed by your test users to understand it. These are your notes for the briefing, so make them short, simple and clear, not dense wordy paragraphs. You will read this to your test users. This is not a manual or quick-reference card. It should **absolutely not** describe how to use the interface.
- *Tasks:* For each prototype, develop 3 tasks that your target users will engage in (this is what you will ask test users to do). Just write the concrete goal of the task (e.g. "buy milk, tomatoes, and bread"). Don't write the specific steps to follow, since that's for your users to figure out. Your tasks should not be trivial; in fact, your tasks should be some of the most complex that someone might have to do with your interface. You will read these tasks to your test users.
- *Probing Questions:* Come up with a short list of probing questions for each task. These questions will be a resource during your user tests, as they will help focus your observations by allowing you to be attentive to the important aspects of users' interaction with your prototype. You can also ask these questions directly to users as they are using your interface, probing more deeply how they are interacting with and responding to your interface. During the actual test you may find that other

questions come up as more important or relevant, and that is fine. However, it's valuable to have a set of questions that represent the questions you currently have about how users will react to and use your interface. To come up with these questions, review your persona and your affinity diagram from T3. Also think about which aspects of the interface are you unsure of and what you could ask users to better understand how your prototype is meeting your requirements.

- *Prepare debriefing questions*. Develop a short list of questions (about 3) that you will ask users at the end of the session, related to their experience using your prototypes, and filling in any gaps in your understanding of their needs and desires that arose through your affinity diagram analysis (T3) and your persona development process (T3).

- *As a team, rehearse* going through your evaluation plan (briefing, tasks, prototype, questions asked). Each team member must play a role: one person must play the computer and one should play the facilitator. The other team members will be observers (although they may ask questions during the test if necessary). Each team member should practice playing the computer, learning the steps involved in making the prototype functional, such as rearranging pieces and writing responses. It isn't important to be fast, just competent and confident.

- Once you have rehearsed, *assign a role to each team member* for your evaluation. It may be useful for you to swap roles after every user, so that each of you gets a chance to try each role, but decide how you'll do it in advance.

- When preparing your prototyping kits, tasks etc., keep in mind that **<u>you will have a total of 30 minutes with each participant in which to evaluate both of your prototypes</u>**.

Pilot Test. Practice running each of your paper prototypes with at least 2 family members/friends (using the briefing, tasks, and questions developed in this assignment). Conclude by asking them to share any thoughts and reactions they have. A few trials are enough, here you are making sure that your prototype is robust and easy to use. Keep an eye out for any aspects of the prototype that are unclear, and make sure that the tasks you are giving participants and the questions you ask them are yielding useful insight. If any area of your protocol is lacking (tasks, prototype, questions asked), revise it.

User Testing. After you have updated your prototype as discussed above, evaluate your prototype with the participants who have been assigned to you. You will lead them through at least three tasks in each interface. With each user, you should do the following:

1. Introduce the user to the purpose of this session (to learn more about them and obtain their feedback on two design concepts).
2. Ask initial questions to obtain some relevant background information about the user (this should not last more than a couple minutes).
3. For each of your prototypes:
   a. Brief the user. Use your brief to describe orally the purpose of the application and background information about the domain. Don't waste too much time on this: one minute should be enough.
   b. Present one task. Hand the index card describing the task to the user, read it, and let them read it. Make sure they understand the task.
   c. Watch the user do the task. Take notes of your observations. You may ask brief questions to probe how they are reacting to the interface (refer to questions you developed in this assignment).
   d. Repeat with the other tasks. Run as many tasks on the user as you have time for (at least 3). Bring extra materials. Having extra blank Post-it notes, correction tape, and index cards on

hand will help you improvise if a user does something unexpected, or help you make small fixes to your prototype between users. Use the tips discussed in class and in the Rettig reading.

  e. Conclude by asking them any remaining questions you have and giving them the chance to share any thoughts and reactions they have.

4. Videotape the session. You must ask the user for permission to videotape the session - if they are not comfortable with it, do not video tape them. Let them know that the video is for your the project and potential subsequent analysis by the professor and her research team. The video will not be shown beyond the class without their express permission. **Do not include the user in the video, just their use of the prototype.**

Analysis. Perform an affinity diagram analysis using the written notes from your test session. You may supplement your in-session notes with notes compiled after the session as well (*e.g.,* by reviewing the video recording of the test session). **Your goal is** to learn about participants' reaction to and understanding of specific interface details as well as higher level feedback about the value of these various interface components and your design idea more broadly. Your themes may also reflect a deeper understanding of your participants' needs, goals, and desires.

II. What to Turn in

A. **Your PDF report** should contain the following (post to blackboard):

1. **Description of your two chosen design concepts.** Describe the two design concepts you've chosen to pursue and why, as described above.

2. **Paper prototype briefs and tasks (described above).** For each of your prototypes, include the final versions of your briefing and the tasks used (exactly as written on the index cards) during your user test.

3. **User Test Report.** Include:
 - A brief description (one paragraph) of each person you tested with.
 - Questions you asked participants pre-test (introductory questions), during test (probing questions described above), and post-test (debriefing questions)
 - In your discussion, <u>be sure to describe what you have learned by explicitly referring to concepts learned in class and themes that arose in your affinity diagram analysis.</u>

4. **Analysis Description.**
 - Provide a photo (or photos) of your completed affinity diagram.
 - Describe the top-level themes ("green labels"), as well as the subcategories ("pink" and "blue" labels) that make up each top-level theme. Provide concrete examples from your data (your "affinity notes") to help explain the various themes. Your analysis should discuss what participants liked and disliked, shortcomings and strengths of the interface. Your goal is to a) clearly describe your affinity diagram, b) convince us that your findings are valid by providing sufficient evidence from your affinity diagram analysis to support the explanation of each theme, and c) <u>expound upon your analysis by explicitly referring to concepts learned in class</u>. Regarding the last point: we want to see how you are able to connect your analysis to concepts learned in class. For example, to what extent were problems related to the Gulfs of evaluation and execution? In what ways was your persona development sufficient or insufficient for helping you create a prototype that met participants needs?

5. **Requirements Selection.** Based upon your analysis, articulate 3 *functional requirements* and 3 *non-*

functional requirements for the final software prototype you will develop in this class. Refer to the textbook reading on establishing requirements (Preece, Rogers & Sharp). Discuss explicitly how each requirement is important, substantiating and motivating it by discussing your personas' goals, frustrations, and/or attributes and your affinity diagram themes. (Note: you may find that you need to update your persona to reflect your new affinity diagram findings.)

6. A few sentences describing each team member's contribution to this assignment.
7. Include a link to a video of one session.

B. Bring your paper prototyping materials to class in two large, sealable envelopes (one for each prototype) labeled with your team number and team member names. Include a concise description of how the prototype works. Be sure to label the different interface pieces so that the instructor and TA are able to easily understand how to navigate the prototype.