HCI 440: Introduction to User-Centered Design

Assignment 6: Prototyping and Evaluation

Description

This assignment focuses on creating a navigable low-fidelity product prototype, planning a usability evaluation of your product, and performing usability evaluations with representative users. In this assignment your team will:

- In order to inform your navigation map design, perform a card sort on your application content. Your conceptual model can inform the types and names of the application content. You may perform either an in-person, paper-based card sort or use a Web-based online tool. You may use either an open or closed card sort. You may need to iterate your card sorts in order to get a stable, consistent classification of application content. Summarize and report the results of your card sorting.

- Based on the results of your card sort, create a navigation map of the content for your product. This must include a complete top level tier ('home page'), but you need only expand the rest of the navigation map to encompass your two conceptual task scenarios and two personas. Parts of your product that are not covered by your two conceptual task scenarios need not be expanded in the navigation map.

- Create a navigable ('clickable') prototype with at least one horizontal screen ('breadth'—the 'landing' screen) and with as many vertical screens ('depth') as needed to carry your two focus conceptual task scenarios to completion. To help you decide on the level of detail to incorporate into your prototype, consider the filtering and manifestation dimensions and prototyping principles discussed on slides 7-8 through 7-12. Create your navigable prototype in Axure or another prototyping tool and export the prototype to a PDF file or submit an axshare link for assignment submission.

  Note: 'Navigable' means that the screens are linked to each other as the user navigates the prototype to complete their task. In the desktop version of the prototype, navigation occurs by clicking on active links in the Axure prototype. For a mobile version of the prototype, navigation occurs by the facilitator placing appropriate pages on the mobile device physical prototype.

- Plan your usability evaluations using slides 8-13 through 8-16 and the guidance text in the 'Evaluation Planning' section of the Evaluation Report Microsoft Word template.
- Create an evaluation script and a user experience questionnaire/survey to be used by all team members to conduct their usability evaluations. The evaluation script should include the process description (similar to the example on Slide 8-21); a note to complete the informed consent statement process; task scenarios; measurements; questions; debriefing and closing guidance; and any other guidance for conducting the evaluation. This script is needed to ensure as much consistency as possible among the team's usability evaluations. Use the supplied HCI 440 Informed Consent Form template. The user experience survey should include about 5-10 questions that probe both general and specific user experience aspects of your product.
- Perform 6-8 usability evaluations—two evaluation subjects per team member—using your Mockups /Axure prototype. To minimize the chances of bias, it is best to select subjects who have not participated in either your Contextual Inquiry or Card Sort activities. The relevant slides for conducting a usability evaluation are 8-17 through 8-37.
- Evaluate, analyze, present, and interpret the data collected in your usability evaluations using the guidance text in the 'Evaluation Results' section of the Evaluation Report Microsoft Word template.

- Identify the changes you would make to your product design in order to address issues uncovered by your usability evaluations.
- Perform a process retrospective for your prototyping and evaluation work in this assignment.
- Perform a project-wide retrospective (Assignments 3 through 6), reflecting on the user-centered design process as a whole. Focus on the actual work that you did (e.g., 'Based on our usability evaluation results, we feel a closed card sort would have given us a more effective information architecture') rather than the logistics (e.g., 'We should have started our card sorting tests with users earlier').
- Create a short presentation that touches on the highlights and lessons learned from your project. Highlights might include interesting or surprising results or findings. A highlight might be a product feature that several users identified as a great idea. An example of a lesson learned would be the observation about the card sorts mentioned in the previous bullet item. Do not attempt to give a full report on your project. The length of the presentation should not exceed five (5) minutes. All members of the team must contribute to the presentation, though only one team member need narrate the presentation.

The deliverables for this assignment are the card sort, sitemap, completed low-fidelity, navigable prototype; the completed Evaluation Report document based on the Microsoft Word template; and a 5-minute presentation.

Assignment Content

As noted in the **Description** above, there are three deliverables for this assignment. The specific practical requirements for each deliverable follow.

Deliverable 1*: *Report

- Card Sort Summary & Report. Summarize and report the results of your card sorting. Discuss the tools you used, how you selected your test subjects, the process you followed, and the results you achieved. You need not detail your categories and content items here—these should be incorporated into the Site Map (following). You may use a conventional index cards and Post-ItTM notes approach, or use a Web-based tool. The best Web-based tools is Optimal Workshop: http://www.optimalworkshop.com/pricing (A free, limited plan is available.)

- Navigation Map. Use the results of your card sort to create a navigation map of the content for your product. The map must include a complete top level tier ('home page'). However, you need provide additional navigation map content only for those elements that encompass your two conceptual task scenarios and two personas.

- *Navigable Prototype*. Create a navigable prototype with at least one horizontal screen ('breadth'—the 'landing' screen) and with as many vertical screens ('depth') as needed to carry out to completion your two focus conceptual task scenarios. The *Logica* Diagnostic Tool prototype (created for another class and provided as a sample with this assignment) is a minimal example of such a prototype—your prototype should be richer and more complete. The prototype should be in Adobe PDF or a link to your interactive prototype via Axshare or whatever tool you are using. Do not Zip the Prototype and Evaluation Report together.
- Complete the *Evaluation Report* Microsoft Word template associated with this assignment, or create your own document. The provided template is a minimal but functional version; feel free to create your own richer version. However, if you create your own template, you must include *exactly* the same information (including heading names) in *exactly* the same order as the provided template.

Please remove all helper/guidance text in the template before submission. Please refer to **Description**, above, and the guidance in the template for details on *Evaluation Report* content.

Deliverable 2*: *Presentation

- *Content*. The presentation should consist of a set of narrated slides. Include an opening slide that includes a title and the names of your team members, and a blank ending slide. Actual content (excluding title and ending slides) may range from 5-10 slides; the lower end is more realistic given the five-minute time limit. Practice your presentation in order to assure meeting the 5-minute time limit. Figures, tables, and diagrams are welcome; be sure to explain them thoroughly. If you wish to include a video in your presentation (such as a demonstration of some aspect of your prototype), it is best to embed the video as a media file in your presentation file. Both PowerPoint and KeyNote provide this ability and allow you to play the video directly from within the presentation. This saves time and allows the presentation to flow more smoothly, compared to switching between PowerPoint and an external media player.
- *File format*. Any file format is acceptable. This can include a narrated powerpoint presentation or keynote, a vimeo/youTube link or any other video-based format.

- *Presentation posting*. In the D2L discussion forum *Project Presentations*, start a new thread, using the title of your presentation as 'Subject.' Post a two- or three-sentence description of your project (perhaps gleaned from the *System Concept Statement* in Assignment 5). Finally, post the link to your presentation. Be sure to select the 'Subscribe to this thread' option so that you can reply to questions or comments about your presentation.
- *Team Member Contributions*. In the table, provide the name and email address for each team member, along with the *specific* contributions made by that member toward the final, submitted form of the assignment.

Submission Requirements

- Submitted documents must follow the order and content guidelines as outlined in *Assignment Content*, above.
- Include your team number and assignment component name in each of the two submission file filenames; *e.g.*, HCI 440 A6 (Prototype_17) and HCI 440 A6 (Evaluation_Report_17).
- Submit both of your assignment files to the D2L dropbox by the indicated time and date.
  - ➡ *Reminder*: Assignments may be submitted up to 48 hours late with a 20% grade deduction. Assignments submitted more than 48 hours late receive no credit but will be graded as time permits.
  - ➡ There is no need to submit the completed evaluation scripts or informed consent statements to the D2L dropbox. Retain these for your records.
- The main *Evaluation Report* document must be in MS Word (.doc or .docx) format or Adobe PDF only. The prototype **must** be in Adobe PDF.
- Please submit the *Evaluation Report* document and prototype file as two separate files in the D2L dropbox. ***Please do NOT bundle these files together in a Zip file.***
- If you make a submission error, you can resubmit your assignment files to D2L, but the latest submission files will be the ones that are graded.

General Grading Criteria

For course assignments, I expect high-quality, professional reports, including proper spelling and grammar. It is up to you to properly compose and format the report within the constraints of the assignment template so that it is readable and allows the reader to quickly extract essential information.

I will use the following specific rubric to evaluate Assignment 6.

Assignment 6 Grading Rubric

Prototype

Navigable Prototype. Clearly represents a horizontal and vertical design that traverses the two task scenarios; includes sufficient realistic detail; all intended navigation works properly.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Evaluation Report

Card Sort. Tools, subject selection, and process are described. Results are summarized and reported.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Navigation Map. Includes complete top level ('homepage') tier and additional map content for all elements encompassing focus scenarios and personas.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Evaluation Planning (Completeness). Includes subject information for all subjects; two task scenarios; planned measurements; other logistics.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Evaluation Planning (Quality). All elements are clear; task scenarios are concise; measurements provide explanations of their appropriateness.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Evaluation Results (Data Evaluation). Considers data's ecological validity and potential biases; discusses how these might have affected results.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Evaluation Results (Analysis & Presentation). Provides a clear, complete, and concise summary of the quantitative and qualitative results of the usability testing, focusing on *what* happened, not *why*.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Evaluation Results (*Interpretation)*. Clearly identifies design issues—the *whys*—that might have led to the results reported in *Analysis and Presentation* subsection.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Design Changes. Concrete changes are identified and clearly relate to issues noted in *Evaluation Results Interpretation* subsection.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Appendix. Contains a blank copy of the evaluation script, including the process description and evaluator guidance for conducting evaluation. Contains a blank copy of informed consent statement. Contains a blank copy of user experience survey.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

A6 Process Retrospective. Presents a realistic and constructive analysis of the prototyping and usability evaluation process.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Project Retrospective. Presents a realistic and constructive project-wide analysis of the UCD process, focusing on actual work and not logistics.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Presentation

Presentation. Touches on the highlights and lessons learned from project; narration and video are clear and understandable; link and description posted to D2L.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

All other elements of the assignment not specifically identified above are correct and complete; document meets relevant **Submission Requirements**, is well edited, neatly formatted, and easy to understand and interpret.

1 Unsatisfactory 2 Satisfactory 3 Good 4 Very Good 5 Excellent

Individual Criterion Descriptions:

- Excellent (5): *Greatly exceeds minimum assignment quantity or quality requirements.*
- Very good (4): *Significantly exceeds minimum assignment quantity or quality requirements.*
- Good (3): *Exceeds minimum assignment quantity or quality requirement.*
- Satisfactory (2): *Meets minimum quantity or quality assignment requirements. A* ***Satisfactory*** *rating is given when a criterion meets, but does not exceed, the* ***minimum*** *assignment requirements described in the Assignment Content section of this document and/or in the assignment template.*
- Unsatisfactory (1): *Does not meet minimum assignment quantity or quality requirements.*

Overall Assignment Score (a point score of 60 is the maximum):

- Excellent: 60 (normalized score: 100)
- Very good: 48 (normalized score: 90)
- Good: 36 (normalized score: 80)
- Satisfactory: 24 (normalized score: 70)
- Unsatisfactory: 23 or below
- Note: The formula for converting the points score to a normalized (0-100 scale) score:

$$\text{normalized score} = ((5/6) * \text{points}) + 50$$

Appendix: Notes from Previous Assignment 6 Workshops

Note: These notes are from quick follow-up emails from previous workshops. Text may be a bit rough and contain minor typos.

- To make the evaluations sufficiently realistic, you should target having at least 4 or 5 screens per task scenario—the more the better. These don't need to be linear, *e.g.*, starting at screen 1 and ending at screen 8. You can have a depth of only three screens but have selection options for a couple of the screens. These screen counts are for actual functional screens—they do not include the 'This function not implemented' screens needed for functionality outside the scope of your task scenarios.
- Do not create step-by-step task scenarios, e.g., "Do A, then find B, then chose a C, then purchase a D." Instead, set a goal—purchase D—and give just as much info to make sure the subject can fulfill the goal: "Show me how you would choose a C and then purchase a D." A step-by-step scenario gives too much info to the subject so that it ends up not testing your information architecture, plus it is difficult for the subject to remember all the details in the proper order.
- It's perfectly OK to evolve your project artifacts from A4 and A5 into A6. If you realize you need to adjust you information architecture or labels, that's fine—incorporate the revisions in A6 and include a note somewhere in the report. Likewise, if the wireframes don't translate well to the low-fi prototype, then make the appropriate changes. Incidentally, such evolution is potentially good material for some interesting points to discuss in your presentation.
- For the presentation, it's probably a good idea to include a project info slide after the title slide. Keep this VERY high-level. Tell what your project is ("An app for planning a visit to the International Crane Foundation"), who your personas represent ("... a high-school biology teacher and one of the students in the biology class..."), and what the tasks are ("The teacher uses the Web version of the app to select and schedule specific activities at ICF for the class, and the student fulfills class requirements by doing these activities during the class visit to ICF.") Don't go into more detail than this. Instead, talk about the interesting stuff you encountered anytime during the project—during user research, card sorting, usability testing, etc. Or, as mentioned above, discuss what motivated you to evolve your design artifacts as you went.
- The evaluation script should include the process description and essential evaluator guidance: the task scenarios to pose (slide 8-24) and what should be measured (slide 8-15), along with any other suggestions for how to conduct the evaluation. The user experience questionnaire should ask the subject questions about how they felt about using the application—5-10 questions should be enough. I suggest printing the questionnaire on paper and giving the subject space while filling it out so they don't feel pressured to give flattering answers. Also, have them fold the questionnaire in half when completed to hide their responses and further reduce the social issues associated with the questionnaire.