CPSC 444 Project Milestone IV: Prototype Evaluation, Final Recommendations, and Project Video

March 6, 2019

Overview of Deliverables

You have approximately **3 weeks** to complete parts A and B of this milestone. You have some extra time to complete part C (in parallel with your MSV). See course schedule for exact dates.

Part A

1. **Experiment Report (INDIVIDUAL)**

   (up to 10 pages, not including appendix, which has no page limit)

   A. Experiment Report (up to 10 pages) – *See Steps 1 through 6*

   Appendix A.I - Supplementary analysis, if any (e.g., extra plots for which you didn't have room in the report but feel should be included for completeness).

2. **Blog Update #6 –Experiment Abstract and materials**

   a. Pilot test (up to 200 words) – *See Step 1*

   b. Experiment Abstract (150 words) – *See Step 6*

   c. Revised supplementary experiment materials (no limit) – *See Step 2*

      - List of links to PDFs to any updated materials (e.g., consent form, question list for interviews, questionnaire used for surveys, coding sheets, protocol for other types of observation). Clearly summarize any that have changed since MS III.

3. **Consent, Adherence to Ethics and Raw data: Hardcopy Deliverables**

   For any of these materials that you have in *hardcopy*, submit the physical versions. (See point #4 below for the electronic copy.) For this you need to use your **3-ring binder.** Materials need to be organized and labelled. (SUBMIT IN LECTURE same day as rest of Part A due). – *See Step 2*

   a. Consent forms: Consent forms completed by participants.
   b. Adherence to Ethics Protocol Form: Any team member who did not sign the form in Milestone II must include a signed form here.
   c. Raw data (e.g., completed questionnaires, transcripts, measurements, etc.).

4. **Consent, Adherence to Ethics and Raw data: e-Copy Deliverables**

   Any of the above materials that are in electronic form (e.g., online questionnaires), should be submitted electronically (do not print them to submit in hard copy). They must also be organized and labelled. – *See Step 2*

   Note: only submit any particular material once, either hardcopy or e-copy.

Part B: Blog Update #7 – Final Recommendations & Reflection

a. Final conclusions and recommendations (up to 400 words) – *See Step 7*

b. Reflection on your design and evaluation process (up to 500 words) – *See Step 8*

Part C: Project Video

a. Project Video – *See Steps 9 and 10*.

Individual Statement of Contributions (by Piazza group post, submit at same time as Part C)

After Milestone Submission

Mandatory attendance at design review with course staff.

A. Experiment Execution and Report

You designed an experiment for Milestone III, which included setting evaluation goals, choosing target users, setting hypotheses and identifying the statistical analyses to be carried out. In this part of Milestone IV, you will carry out that experiment.

A reminder about the 444 ethics protocol: this milestone involves working with users. If not already done, each team member must read and sign a copy of the adherence to ethics protocol form (website Resources page). Your project must follow all the ethical guidelines as given in the protocol, including the use of proper consent forms and member signing of the protocol form.

IMPORTANT NOTE ON INDIVIDUAL vs. GROUP WORK: You will work with your teammates to pilot and conduct your experiments, and to perform the initial analysis (e.g., writing R code, identification of themes in qualitative data, etc.). You may also discuss the limitations and conclusions of your experiment with your team. The **Hard Copy Deliverables** and **Blog Update #6** will be also be completed as a team. However, you are responsible for writing your **Experiment Report** *individually*. This means that you must create your own presentation of the results for the report (including tables and graphs), and provide your own interpretation, discussion, and conclusions.

Step 1: Pilot test your experiment (group)

Run your experiment with 2 participants to make sure there are no major glitches in the experiment protocol. In particular, pay attention to overall length of session, clarity of instructions given to the subjects, feasibility and appropriateness of the tasks, usefulness and utility of your other study instruments (questionnaires, interview scripts, coding sheets), your ability to operate the video equipment, and integrity of data collection overall (e.g., if you are using software logs, are they outputting the data correctly?).

Note: you cannot use the data from these two pilot subjects in the analysis of the full experiment, nor re-run them as full participants in Step 2.

Blog Update #6a – Pilot Test: briefly summarize what you learned from your pilot test, and any adjustments you made to the experiment protocol based as a result of the pilot test.

Step 2: Conduct the full experiment (group)

Next you will run the full experiment (adjusted from the pilot study as necessary). Based on your Milestone III deliverable and feedback from the course staff, you should have a clear idea how many participants is reasonable for your particular experiment design.

If you make any changes to your consent forms or evaluation instruments from the MS III versions, you will need to include the new versions with a summary of changes in your group's **Blog Update #6c.** This should be a blank copy of whatever the subject saw – e.g. the actual questionnaire, rather than just a list of the questions that were asked.

In the **Experiment Report**, you will very briefly summarize the evaluation design components, clearly highlighting any differences from the more comprehensive evaluation plan provided in Milestone III. It should be very easy for the course staff to determine what

has changed. For example, include a description of the representative users that you *actually* used as subjects, number of observations *actually* made, etc. (As with earlier milestones, you should not name the actual participants, but provide sufficient detail for the reader to assess their representativeness.)

Blog Update #6c – Revised Supplementary Experiment Materials: Blank versions of changed evaluation instruments or consent form that changed from blog update #5 (e.g. question list for interviews, questionnaire used for surveys, coding sheets, protocol for other types of observation). Clearly indicate what has changed.

Hardcopy OR e-copy Deliverables:

- Consent forms: Consent forms completed by participants.
- Adherence to Ethics Protocol Form: Any team member who did not sign the form in Milestone II must include a signed form here.

Step 3: Analyze the data (group) and present the results (individual)

Based on what you have learned in class to date conduct: (1) the planned quantitative statistical analyses, (2) any additional quantitative summarization (e.g., of numerical data, such as questionnaire responses), and (3) your qualitative summary of the data, which looks for themes, key representative examples, or any particularly interesting outlier responses. Where appropriate, you should be triangulating the quantitative and qualitative data.

Think carefully about how to present your results for maximum visual impact. Use plots/graphs whenever it makes sense; these are usually easier for the reader to understand, and often have more impact. Raw data should go into the **Hardcopy or c-copy Deliverable**, which isn't subject to a page limit.

In the **Experiment Report** you will individually *report your quantitative and qualitative results*. Include mention of any outliers, any interesting demographic differences, and more generally any surprises.

Hardcopy or e-copy Deliverable:

- Raw data (e.g., completed questionnaires, interview transcripts or measurements taken).

Experiment Report Appendix A.I: Supplementary analysis, if any (e.g., extra plots for which you didn't have room in the report but feel should be included for completeness).

Step 4: Identify limitations to the experiment (individual)

At this stage you should be able to identify several limitations to the experiment you conducted (and you may have predicted some of them already in MSIII). The following questions may help guide you in this process. Were there any threats to validity (of any of the different forms discussed in class)? To what extent did your prototype support the needs of the experiment? Were there procedural breakdowns that occurred during study execution? Did your hypotheses play out as you expected? If not, can it be explained by some problem in the way the experiment was run? Were the participants biased in any way (e.g., were any

of them classmates, or were they the same as participants you used in an earlier stage of the project)?

In the **Experiment Report** you will individually *summarize the limitations to your experiment*.

Step 5: Formulate experiment conclusions (individual)

Summarize what you learned from the experiment. You may find it helpful to reflect on your original research questions. This report will constitute the last item in the **Experiment Report**. Note that we ask you to stop short of making explicit recommendations here: these will be the focus of Part B**.**

It is important that your report clearly distinguish the summary of your experiment findings from your decision of how to act on them. The latter might be influenced by additional considerations and this must be clear to you and others.

This part of the report needs to *summarize the key insights* gained from the experiment in terms of the key strengths and weakness of your interface (or interfaces, if you compared more than one prototype), the relative importance of these strengths and weaknesses as you have learned them from users, and how your view of the situation changed from prior to the evaluation. It is useful at this point *to reiterate positive characteristics of the current interface(s),* as well as to *note deficiencies*.

Step 6: Write report (individual) and abstract (group)

With your team, write up a short abstract that provides an overview of the experiment and the key results that you have identified. Refer to the examples of research papers from the course readings for examples of good abstracts.

Blog Update #6b - Experiment Abstract: Provide a short 150-word abstract that provides a high-level description of your experiment and findings.

Then, write up your individual report. The content of the experiment report should follow the outline given in Saul Greenberg's outline for reports (W08 reading): Introduction, Description of the Experiment, Results, Discussion, Conclusions and References. You do not need to include abstract or acknowledgements sections in your report.

Note that some of what you include in the Description of the Experiment section can be cut and pasted directly from your team's MSIII blog (changing the tense from future tense to past tense to reflect what you actually did). *Divergence* in the experiment methods from MSIII must be clearly marked, so that the reader can easily determine what has changed since that milestone. *The remaining sections should be written entirely in your own words*.

Experiment Report (INDIVIDUAL): Describe the key details and the outcome of your evaluation.

B. Final Project Conclusions, Recommendations, and Reflection

Step 7: Formulate final *overall* project conclusions and design recommendations.

Depending on the scope of your experiment and write-up, some/much of what is included in this step may already have been completed individually. But your project is broader than what your experiment could evaluate. You need to have project-level conclusions and recommendations. Work with your teammates to synthesize these overall project-level conclusions and recommendations.

Conclusions: Discuss what you can conclude about the quality of your *overall* interface concept and its design.

Recommendations: Decide what your results mean in terms of your interface's validation and next logical design step. Possible outcomes of this step would be, for example, (a) design validated as is; (b) minor adjustments needed, overall approach validated; (c) concept still worth investigating but serious problems identified; (d) design approach not validated. In the real world, the resulting action from any of these conclusions would obviously depend on many other factors as well.

Blog Update #7a - Final conclusions and recommendations: report your final conclusions and recommendations. There may be some overlap in conclusions with your group members' experiment reports - you should work with your teammates to synthesize these into your final conclusions.

Step 8: Reflect on your overall design process and your experience designing an interactive system.

The goal of this step is to first reflect openly on *the design process* you followed in this project. What aspects of the user-centered design process worked well for your project? What aspects did not work so well? This part is free-form, and there is no specific right answer. We are interested in your honest thoughts about what you've learned at the end of the day; and equally, where and how the project has *not* worked for you and has *not* helped you see the point or methodology of user-centered design.

It is effective to do this in a brainstorm session with your group. Here are some questions to get you started:

- What were the most significant ways in which the design concept and the actual interface design changed under the influence of user involvement? What were the biggest surprises for you – the things you learned from or about users that you would not have predicted based on your own experience and intuition?
- Did the methods you chose for your evaluation and prototyping get at what you were looking for? In hindsight, would a different approach (process, not specifics of your interface) have been better?
- What were the most, and least, valuable among the methods you used, either generally or specifically for your project?

Blog Update #7b - Reflection on your design and evaluation process: report your reflections, as described above.

C. Project Video

Step 9: Plan your project video.

As is common with many HCI research endeavors, your team will create a 3-5 minute video that documents your project. The video should motivate your design concept and briefly cover your design methodology, salient aspects of your prototype's design, the evaluation conducted, and conclusions recommendations.

The reading https://chi2018.acm.org/guide-to-submitting-a-video-as-supplemental-material/ provides an effective overview on how to construct a good project video. In addition, sample videos will be shown in class as exemplars.

Planning for the video involves creating a rough script and/or storyboard that you can follow in Step 10.

Step 10: Create project video.

To create your video you will need to judiciously select clips collected from the video data recorded in your experiment, as well as create new clips (e.g., motivating scenario), and do narration. These media components will be combined together according to your script/storyboard (from Step 9) using video editing techniques. (Some online resources for video editing techniques will be posted to piazza.)

For those students who are interested in finding employment in HCI, a project video is a particularly effective way to showcase your project to future employers.

Important notes about Ethics:

(1) Recall that you must delete any raw video media within 6 months of the course ending (the same applies for all data you collect that identifies participants). We recommend that once your project video has been created that you erase all your original video data from your media so that you do not need to worry about this deadline. If you would like to keep your raw video data for some reason, please consult the instructor.

(2) Recall that you may not show your project video outside of the class if it contains footage (or still images) of identifiable participants. If you would like to be able to show your video in the future (for example, in a project portfolio to show prospective employers), then you need to mask the participants identity to a point where they are unrecognizable or use "actors" to stand in and film a recreation.

Deliverable C - final project video on a USB stick: A 3-5 minute video on a USB stick that runs without glitch on the X360 computers. The video should consist of a single video file such that the instructor can easily copy the file to a computer. Clearly label the USB stick: your team name, CPSC 444 2018W2, and submit it in an envelope to the instructor's mailbox in the main computer science office (room 201).

Note that the USB stick will be kept as an archive by the course instructor. It will not be returned.

E. Statements of Contributions

Step 7: Document individual contributions to the milestone

Team members each *briefly* document with a piazza "group" post (i.e., visible only to their team members and the course-staff in that group) their individual contributions to the group components of the milestone. These are not to be written or edited by any one other than the team member him/herself. This should include a bulleted list of contributions. Example contributions include: "wrote the R script for the analysis", "co-wrote the final conclusions for blog post #7a", "did the storyboard for the video"

Marking

Tentative High-Level Marking Scheme

Evaluation Report:	45%
Blog #6: Experiment Abstract and Materials:	7.5%
Blog #7: Final Recommendations:	7.5%
Project Video:	40%

Milestone IV Design Review

Course staff will conduct a design review with each team at a lab session shortly after the deliverable's due date. The intent of this *final design review* is for you to discuss the results of your evaluation and your final recommendations in a more detailed and interactive discussion than will be possible in the class presentation, and to get feedback on your plans for your project presentation (Milestone V). This will also be your opportunity to get feedback on the progress of your project video, and to discuss with the TA which clips will be most appropriate to include in your presentation.

** Be prepared that your prototype (which may have advanced since Milestone III) should be available to demo, on request**,** at the MSIV design review. **