Project (Part II): Medium Fidelity Prototyping and Evaluation
Weeks 11, 12, and 13


Part II - Overview

This document describes the second part of your design project, which spans the last 3 weeks of the course. In Part I (previous 3 weeks), you created alternative conceptual designs for which you developed low fidelity prototypes, evaluated these, and developed a plan for your next steps.

In Part II, you will build a medium fidelity prototype, and evaluate it with users in a usability study.

Part II has weekly in-workshop design reviews, and a final set of deliverables as follows:

W11 Checkpoint design review – Evaluation Plan + Prototyping Progress. Submit an evaluation plan for a usability study and associated materials. Present your in-progress prototype to your workshop classmates for peer critique.

W12 Checkpoint design review – Medium Fidelity Prototype + Analysis Plan. Present your completed prototype to your TA and discuss your plans for completing the project.

W13 Report – Usability Study and Recommendations. Conduct a small usability study on your medium fidelity prototype. Document this prototype in a video. Report your findings, and propose recommendations that future design iterations could address.

Checkpoints, Reports, and Planning

There are two ungraded checkpoints (goals: keep on track, get fast feedback); and one final report. Review this entire document before beginning: assess what’s coming and plan your time.

Note on time management

You will need to work on your evaluation plan (Steps 1-2) and medium fidelity prototype (Steps 3-4) in parallel. The medium fidelity prototype will take more than one week of effort, and it will probably be necessary to divide these steps among teammates.

Part II - Overview .......................................................... 1
Part II - Outline of Steps ......................................................... 2
W11 CHECKPOINT DETAILS – Evaluation Plan & Prototyping Progress (Steps 1-4) ... 6
W12 CHECKPOINT DETAILS – Analysis Plan (Steps 5 - 7) ........................................ 7
W13 REPORT – Usability Study Report + Video (Steps 6-10) ........................................... 8
Part II - Outline of Steps

Step 1: Finalize evaluation goals and choose evaluation methods.
Finalize your Part I evaluation goals (questions you want to answer) based on TA feedback. This evaluation will be a usability study that includes an assessment of a user’s performance on a set of predefined tasks, using your medium-fidelity prototype.

Step 2: Develop a study protocol and study materials
You will conduct your study with a minimum of 1 participant per group member. Your study protocol should briefly summarize the results of these additional planning questions:
- Who will you recruit for participants? Will you be able to recruit users representative of your task examples? If not, who will you use instead? Justify your choice.
- What evaluation methods will you use?
- What will you measure (metrics) and what data will you collect with each method?
- Work out details of the task the user will complete.
- Plan how you will conduct the evaluation in order from start to finish.
- Decide where the evaluations will be conducted.
- Decide how you will analyze your data (e.g. collate questionnaire responses; quantify and summarize interview / observation results). Record data in a way that supports this analysis.
- Determine the session time your study requires, and verify it is reasonable for your subjects.

Step 2 outcome must include any study instruments, e.g. interview questions or coding sheets.

If you do a questionnaire: We recommend using the UBC-hosted Qualtrics.

Ethics: Review posted 344 ethics instructions and materials. Use 344 templates for your consent form and recruitment (if advertising for participants).

Step 3: Continue planning your medium fidelity prototype.
Continue to develop your initial prototyping plan from Part I, incorporating your TA feedback and making changes based on your evaluation plan as necessary.

Your team will build one med-fi prototype. We generally don’t expect you to build everything in terms of features and functionalities. Aim for highly useful (given your evaluation goals) with the least amount of production effort.

Step 4: Implement the medium fidelity prototype
Embody your design in a medium fidelity prototype.

W11 CHECKPOINT (Steps 1-4)
Peer Sharing and TA Design Review: Present your in-progress medium fidelity prototype to the class, and your evaluation plan to your TA (evaluation goals, participant pool, protocol, and rationale).
See the W11 Checkpoint Design Review Details (below) for more specifics.
Step 5: Pilot your study, finalize evaluation and analysis plan and their materials

Your TA will review your ethics materials and study instruments submitted at the W11 checkpoint design review within ~48 hours and either sign-off or request revisions via Piazza/email.

Develop any other materials you need to conduct the study that were not submitted for review (e.g., coding sheets). Then, pilot your study to work out any kinks. See the ethics guidelines on the course website for information about piloting.

Your finalized evaluation plan should include consideration of your intended analysis process (planned in Step 2).

Plan your recruiting now. It is acceptable to recruit subjects from among your classmates.

Your TA must sign off on your final materials BEFORE you conduct your study. If you make revisions to previously signed-off materials, post these to Piazza for a quick verification.

Be ready to start running your evaluation by the W12 workshop (at the latest) to ensure enough time to conduct the study, analyze your results, and complete your final report.

W12 CHECKPOINT (Steps 4-5)
Completed: Steps 4-5. TA Design Review: Briefly present your completed medium fidelity prototype and the specifics of your evaluation plan (first presented in W11 checkpoint). Focus on discussing your analysis, and ensure your prototype and evaluation are going to answer your questions.

See the W12 Checkpoint Design Review Details (below) for more specifics.
Step 6: Conduct evaluations. Note any changes from your plan, to document in your report.

Step 7: Analyze and present evaluation data
For informal techniques, analysis usually consists of collation of any quantitative results, summarizing, looking for themes, and looking for key representative examples.

Quantitative results: Summarize numerical data (questionnaire responses, time on a task). Provide sample size and standard deviations where appropriate, e.g. on plots.

Qualitative results: Report themes and insightful details from your qualitative findings, e.g.:
- Reactions shared by many of your subjects; responses typified by subject demographic.
- “Outlier” responses – specific reactions out of line with most other users
- Other responses that provided extra feedback and useful design ideas.

Analysis includes presenting, interpreting, and discussing your results. Present data for maximum readability. Use plots when they will add clarity and be compact. Use words to interpret the plots. Structure findings into a frame (Do not present a laundry list). Critique your method and data sources; to what degree do you trust your data?

Step 8: Formulate evaluation conclusions
Summarize what you learned from the study, given your data considered all together. Your conclusions should address your evaluation goals, but may also include unexpected findings that came to light. Distinguish your findings from your decision of how to act on them (next). The latter might be influenced by additional factors, such as feasibility and cost effectiveness.

Step 9: Formulate design recommendations.
Reflect on your interface design. What parts work well, versus needs improvement? What evidence do you have that the system will work well for your users / tasks, in what ways?

Recommend the next design step. You can choose a subset of the following options and give details: validated as is; overall approach validated and minor adjustments required; serious problems worth investigating; approach not validated.

Step 10: Reflect on your process
Since the first workshop, what has changed in your perspective? What have you learned about the user-centered design process? What did / didn’t work? This part is free-form, no right answer. We want your candid reflections on your experiences.

You might try doing this in a brainstorm session with your group. E.g.:
- Did the methods you chose for your evaluation and prototyping get at what you were looking for? In hindsight, would a different design process approach have been better?
- What seemed the most and least valuable among the activities you’ve tried, generally or specifically for your project?
- How might you approach your next design project differently?
- And so on.
**W13 REPORT (Steps 6-10)**

**Completed:** Steps 6-10. **Submit:** a report detailing your evaluation, results and reflection on the entire project + a med-fi prototype video. *See the W13 Report Deliverables for details.*
W11 CHECKPOINT DETAILS –
Evaluation Plan & Prototyping Progress (Steps 1-4)

Type: In-workshop peer sharing + TA design review

Length, peer sharing [13 min]: 6 min to present design/prototype to the class + 5 min questions + 2 min buffer/change

Length, TA design review [10]: 5 min to present evaluation plan to TA + 5 min for questions and document checks.

Design Review Components

The two-part structure of this workshop (peer sharing of prototype followed by TA review of your evaluation plan) aims to both give you an opportunity to see what your peers are working on, and get explicit TA feedback to ensure your project is on the right track. Your evaluation plan and materials should be complete and ready for sign-off, and your prototype in progress.

Timing is tight. Follow timing guidelines closely; come prepared to begin immediately.

Part I. Peer sharing: Informally present your design and prototype to the class. See time limit above. Your demonstration should cover the following points (1-5), supported with slides (~1 / point):

1. Describe your interface topic, briefly
2. List your evaluation goals. If changed from W10, summarize modifications.
3. Describe your prototype’s conceptual and interface design
4. Demonstrate what the prototype does so far (i.e. screens, functions implemented)
5. Questions for the group and/or areas you would like feedback on

Part II. TA Design Review: Plan to cover the following points (6-7). Support an initial informal presentation (time limit above) with ~1 simple slide / point. Each slide can have just a list on it; DO think about what you will say, and the feedback you want.

6. Planned evaluation methods and protocol (Step 2 items). List on slide, and prepare to describe.
7. Study materials that TA will need to check – list on slide.

Required Materials:

(A) A slide deck (handin) with two sections, which cover the points for Parts I and II respectively. Precede each section with a title slide (<Teamname: Part I. Peer Sharing>, etc).

(B) Your prototype, ready to demonstrate, and tested on the classroom projector (bring your own adaptor).

(C) Paper copies of your study materials (e.g., finalized questionnaire and consent forms) for check-off. Your TA will respond within ~48 hours to approve or give feedback/request changes.

Evaluation Scheme

Your group will be evaluated on preparation and quality of presentations (coverage as listed above), content and progress, and teamwork. Your individual mark will be affected by your participation in the design review and ability to describe personal contributions to the project.
W12 CHECKPOINT DETAILS – Analysis Plan (Steps 4-5)

Type: In-workshop design review with TA

Length: 5 minutes to present to TA + time for discussion, TA questions

Design Review Components

At this checkpoint, your prototype should be finished. Your team will give a brief status update, remind your TA of your evaluation plan, then walk them through your plans for analyzing the data you will collect. The goal is to ensure you’re on track, and to give you a chance to ask questions about the evaluation or final deliverables.

By the end of the workshop you should be ready to start running your evaluation to ensure enough time to conduct the study, analyze your results and complete your final report. You may plan to use the remainder of the workshop time to conduct the study.

Format

The design review will start with your informal presentation to your TA. You’ll need to:

- Demonstrate the completed med-fi prototype that you will use for the usability study; if you ran into complications, discuss how/if this will affect your study.
- Outline your planned timeline for completing your evaluations, analyzing the results and completing your final report + video.
- Describe your proposed strategy for analyzing the data from your usability study.
- Ask questions you have regarding analysis, the final report, the video, etc.

Required Materials:

(A) Slide deck (handin) that covers the points listed under “Format” above. Include a title page with your team, member and deliverable names and the date on it.

(B) Completed medium fidelity prototype ready to demonstrate to your TA.

Evaluation Scheme

Your group will be evaluated on preparation and quality of presentations (coverage as listed above), content and progress, and cohesiveness of group.

Your individual mark will be affected by your participation in the design review and ability to describe personal contributions to the project.
W13 REPORT – Usability Study Report + Video (Steps 6-10)

Type: Group assignment
Hand-in: Group hand-in

Deliverables
1) A report that covers (see template for report organization):
   - A summary of your evaluation, and rationale for your evaluation and prototyping efforts
   - Analysis and conclusions from your evaluation
   - Overall recommendations and reflections on your design process

2) A short video demonstrating your medium fidelity prototype

Report Components
For details, check the W13 report template file (.docx) linked on the deliverables page.

Video Component
Length: max 4 minutes

Create a short video documenting your medium fidelity prototype. It must be understandable and clear enough to see the details of your prototype, and communicate the following information:
   i. Introduce the topic your prototype focuses on and briefly describe the requirements/tasks and evaluation that the prototype is meant to support.
   ii. Justify your overall prototyping approach (what is faked, what works, etc.), major design decisions and important limitations.
   iii. Overview the functionalities your prototype supports, and walk through the steps of the tasks covered in your usability study.

Before you start, prepare your points (see marking scheme) and address them succinctly. You may not be able to say/show everything you did, so make it count!

Resources for recording video and editing for submission
   - Video production tips from TAs: link
   - Video recording and analysis tips: [courseweb]/res/resources_Video_Editing_Pointers
   - Use any device to record your video. Phone/digital camera video are fine, or try screen capture software (e.g., Camtasia - https://lhub.ubc.ca/guides/camtasia/).

Formatting and Submission

   Submit a .zip file that contains two files as follows (do NOT include video file here):
   1. Report including Appendix A (a PDF file) – Filename: <team_name>_<W13_Report>
   2. Appendix B (a ZIP file with readme.txt in it or a PDF file) – Additional documentation (consent forms + raw data)
      Filename: <team_name>_<W13_AppendixB>

2) Video: Post online and submit a link to your video in Appendix A.1
• Post your video to a website that supports streaming (e.g., YouTube or Vimeo). We should not need to create an account to view it. You may NOT change your video after the deadline. Evidence that you have done so will result in a mark of 0.

Marking Scheme
[Tentative rubric at end of this document]
<table>
<thead>
<tr>
<th>LEVEL</th>
<th>MARK</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prototype</td>
<td>0.0%</td>
<td>30%</td>
</tr>
<tr>
<td>Video of prototype describes prototype and tasks, explains major design decisions and limitations, and provides a clear walkthrough of major goals/tasks</td>
<td>←</td>
<td>10.0%</td>
</tr>
<tr>
<td>Creativity, resourcefulness, effectiveness, reuseable, appropriateness for purpose, etc. as evident from video</td>
<td>←</td>
<td>10.0%</td>
</tr>
<tr>
<td>Usability of design (appears efficient, easy to use, memorable, etc.) as evident from video</td>
<td>←</td>
<td>10.0%</td>
</tr>
<tr>
<td>Report</td>
<td>0.0%</td>
<td>55%</td>
</tr>
<tr>
<td>(b) Evaluation goals - impact, relevance, completeness, measurability, (c) Evaluation summary - quality of evaluation actually conducted, details of evaluation included, (d) Justification of the evaluation plan - evaluation goals, methods and protocol</td>
<td>←</td>
<td>18.0%</td>
</tr>
<tr>
<td>(e) Justification of the prototyping plan - scope, functionality, etc.</td>
<td>←</td>
<td>6.0%</td>
</tr>
<tr>
<td>(f) Data analysis and presentation and (g) Evaluation conclusions</td>
<td>←</td>
<td>18.0%</td>
</tr>
<tr>
<td>(h) Design recommendations and (i) Critique of process</td>
<td>←</td>
<td>13.0%</td>
</tr>
<tr>
<td>Appendix</td>
<td>0.0%</td>
<td>5%</td>
</tr>
<tr>
<td>Appendices A.1 and A.2, and all of Appendix B present and prepared correctly. If A.3 is included, prepared correctly and adds effectively to content in report.</td>
<td>←</td>
<td>5.0%</td>
</tr>
<tr>
<td>Overall Quality</td>
<td>0.0%</td>
<td>10%</td>
</tr>
<tr>
<td>Overall quality of work as presented as a whole e.g., creativity, organization, coherence, preparedness, etc.</td>
<td>←</td>
<td>10.0%</td>
</tr>
<tr>
<td>Bonus/Penalties</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 5% bonus point for exceptional creativity and resourcefulness.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to 5% deduction for issues with any of: Submission; Presentation, Formatting (coverpage, length, etc.); Organization and quality of writing; Visuals and other supporting materials (understandable, annotated where necessary, etc.);</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 0.0% 100%