Sketching, Low-fi Prototyping & Pilot Usability Testing

**Goal: Learn how to use low-fi prototyping techniques in the early stages of user interface design.**

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## Assignment Overview

1. **Explore 3 realizations of your selected solution with 10 – 15 concept sketches**. (Explore a wide variety of *modalities* (e.g., speech, wearable, AR/VR, gestural, etc. – not just phone screens). Create 3 – 5 rough sketches for each realization for a total of 10 – 15 sketches. Don’t be afraid to go for some novel realizations!
2. Pick the top 2 diverse realizations and sketch 3 – 5 key screens for each. The entire interface does not need to be fleshed out, but you should start to explore more of the user interface details. Specify the transitions between screens.
3. **Pick your best idea with which to move forward**. To do this, make a list of pros and cons for each of the 2 realizations you fleshed out. These points should be founded in your knowledge about your user base and design fundamentals.
4. **Storyboard 3 complete task flows**: simple, moderate, and complex[[1]](#footnote-1). These will show how each task is performed in your selected design realization. Label each screen, show the transitions, and include annotations explaining important interactions and states.
5. **Construct your low-fidelity paper prototype**. Use the techniques described in the Snyder chapter (pwd: hcid) as a guideline. If you user test remotely[[2]](#footnote-2) (only in rare circumstances), upload photos of your paper prototype into a tool like Marvel POP or Figma and send the prototype link to your participants.
6. **Submit your low-fi prototype to your team channel before you test**. This checkpoint helps ensure that your prototype is of the right fidelity so your testing won’t be in vain and assess the level of novelty. The earlier you submit to your CA, the sooner you will be able to start testing. While you wait, you should finalize scheduling your testing participants and work on your presentation deck.

By the final due date:

1. **Implement any changes and test your prototype with 1 participant per team member**. For clarity, if you have 4 team members, you are responsible for 4 tests, etc. Participants should fall within your target user base. You may test with at most 1 HUST student (preferably none) unless you have permission to do otherwise from your professor. Avoid testing with people you know well and people who have already seen your project. Have each participant sign a consent form (copy and edit this document).

## Testing Procedures

### Pre-testing Preparation

* **Determine team member roles**. For example, facilitator, observer/note-taker, or computer. Practice these roles together in advance so everything runs smoothly.
* **Set up/plan your testing environment**. If remote (again, only if absolutely necessary), send your participants a link to your prototype and use one of the following methods to observe the testing session:
* Participant runs the prototype on their device and screen shares. Note: if your prototype is for a mobile app, try to get participants to test on a mobile device, etc.
* **Write a script for your demo and test procedure**. You should follow the same script with each participant to ensure validity across your tests.
* **Devise *goals* and *metrics* to assess the effectiveness of your prototype.** Come up with 2 usability goals (see Lecture 1 and parts of this reading) and a key measurement for each that will help you continually assess whether your prototype is achieving its goals. Consider both *process data* (i.e., *what is happening*) and *bottom-line data* (e.g., *time spent per task* or *# of errors*).

### In-test Procedure

* Demo the system. At a high-level, **show** the participant how they can interact with your prototype (e.g., how buttons or scrolling works), but do **NOT** show them how to perform any tasks. **Demonstrate** speaking aloud.
* **Have your participant test your tasks**. Tell them what they are trying to achieve, **NOT** how and provide adequate context (e.g, you had an account and had login). Only test one task at a time and remind your participant to think aloud. Make sure your observer is taking note of both *positive* and *negative critical incidents* that occur (e.g., mistakes, quotes, emotions, etc.). When the participant finishes a task, give them directions for the **NEXT** and so on.
* **Wrap up**. Collect any final thoughts and answer any questions they might have.

### Post-test Procedure

* **Synthesize a log of *critical incidents***. These are both positive and negative events during the test. Prioritize these incidents by assigning each a severity rating (0 = no problem, 1 = cosmetic problem, 2 = minor usability problem, 3 = major usability problem, 4 = usability catastrophe).

## Presentation Guidelines

### Expected Content

1. Intro
   1. Project title and team
   2. Value proposition
   3. Problem/solution overview
   4. Outline of talk
2. Sketching explorations
   1. Overview images of 10-15 concept sketches – no need to talk in detail about these while presenting, just meant to capture your process
   2. 2 further fleshed out realizations
3. Selected interface & rationale
   1. Present the most relevant pros and cons and have the full lists in the appendix
   2. Relevant data, constraints of the platform, and findings that shaped your decision
   3. Why is the design you chose superior?
4. Low-fi prototypes construction
   1. How the prototype was built and operated; its features and interactions
5. Low-fi prototype: 3 task flows
   1. Simple, moderate, and complex
   2. Complete and clear with use of *captions*, *labels*, *transitions*, and *annotations* as required (can use a different color if helpful)
6. Testing methodology
   1. Participants: demographics, recruitment, compensation
   2. Environment and apparatus
   3. Procedure: team member roles, description of process
   4. *Usability goals* and *key measurements*
7. Testing results
   1. Process data (what’s happening in the big picture)
   2. Bottom-line data (usability goal key measurements)
   3. Other relevant observations[[3]](#footnote-3)
   4. How **well** did you **achieve** your usability goals based on the key measurements?
8. Discussion
   1. What are the implications of your findings?
   2. Based on the results, how will you **CHANGE** your design?
   3. Was there **anything** that the testing **couldn’t** reveal?
9. Appendix
   1. Full list of pros and cons for selected interface rationale
   2. Image of your low-fi prototype, (or link to the low-fi prototype on Figma, etc. (if applicable))
   3. Any preparation you did for the testing (e.g., *script*)
   4. Organized **LOG** of critical incidents from testing
   5. Other figures, etc.

## Sketching Report Guidelines

Since it’s DIFFICULT to see the details of a sketch when included as an image in a slide deck, we ask that you produce an additional document. All images should be **LARGE ENOUGH** to see the details and captioned and annotated as required for understanding by an outside audience (other students in our class).

### Expected Content

1. Title page
2. Project title
3. Value proposition
4. Team member names
5. Concept sketches
6. 2 further fleshed out realizations
7. Low-fi prototype
8. **Birds-eye view image** of the entire system
9. **Task flows** with transitions and interactions labeled

## Deliverables

Upload deliverables to a subdirectory titled “Assignment 5” in your team’s folder.

1. Presentation

Google Slides deck presented by 1 team member during studio.

1. Participant consent forms[[4]](#footnote-4)

Combined into a single PDF.

1. Sketching report

## Examples

[Budder](https://hci.stanford.edu/courses/cs147/2022/au/projects/FindingFocus/budder/A5.pdf)

## Grading Criteria

**Group deliverables (100 pts)**

!!! Based on the presentation, rapport, appendix (image, short video, …)

Sketching (20)

* 10-15 concept sketches that capture 3 diverse realizations
* 2 realizations are fleshed out; key screens are understandable

Final design rationale (5)

* Pros/cons lists for 2 selected realizations
* Final rationale is logical and clearly explained

Task flows (15)

* One each of simple, moderate, and complex
* Quality, low-fi task flows with necessary screens/details

*Low-fi prototype (20)*

* Complete and built USING low-fi techniques
* Clearly explains how the prototype was built and its features
* Reflects exploration of novel interface design

*Usability testing method (20)*

* At least 1 usability tests/team member were conducted
* Participants: demographics, recruitment, and compensation
* Testing environment and apparatus are appropriate, images included
* Testing procedure is clear and appropriate, images included as available
* Usability goals and key measurements are logical and thoughtful

*Results and discussion (****20****)*

* Relevant data, critical incidents, and images are included
* Reasonable UI changes are recommended based on testing results
* Discusses progress made towards usability goals
* Shortcomings of the usability test; what might it have failed to reveal?

**Presentation grade (100 pts)**

* Well-designed slides; visual aids are aesthetic and effective
* Covers required scope within 6 minutes (we focus on 4, 6, 7, 8 part of presentation guidelines)
* Engages with the audience and isn’t reading from a script
* Projects voice well and communicates clearly

## References

CS 147 Autumn 2023, Assignment 05, Instructor: James Landay, Stanford University.

1. Simple, moderate and complex in the user’s interaction view point. [↑](#footnote-ref-1)
2. Not recommande [↑](#footnote-ref-2)
3. With pictures/image, short capture video [↑](#footnote-ref-3)
4. You are required to do this to ensure professionalism. [↑](#footnote-ref-4)