Assignment 2: Individual Design Exercise
Due 2/25/13 at 11:59 PM

"How many designers does it take to replace a light bulb?"
Designer: "Does it have to be a light bulb?"

Brief
Think about some of the designs that you consider to be great innovations. Quite likely, they came about because a design team was able to see a new problem or opportunity, or reframe things in a new way. As the light bulb joke illustrates, an important strategy of successful designers is to reframe things so that… we can see things in a new light. This first exercise is intended to work your perception and reframing "muscles". How creative can you be? (Later exercises will work different "muscles.") For this individual project…

Your mission is to redesign the experience of Princeton waiting time.

Most classes at Princeton start 10 minutes after the previous one ended. Some people need the extra time to get across campus; others do not and end up waiting. Some people socialize. Others do work. What can we do with those 10 minutes that is more productive, more interesting, more relaxing or more entertaining? Maybe it's a mini game show with questions about last lecture using the class projector, or an online poll about campus issues. Maybe this is a time to check in with your friends about dinner plans? Or maybe people could really use an app that reminds them when they need to leave the dining hall to make it to class by 1:30pm…

How can user interfaces—mobile, Web, desktop, or other—help you accomplish those goals? No matter what you come up with, it should be something that improves the experience of the 10 minutes in between classes, before lecture starts.

Assignment

Work individually for all parts of this assignment, except optionally part 3.

1. Watch this inspirational video. The IDEO team is amazing at the design process, and they have a great time doing it: http://vimeo.com/16456835

2. Observing people helps designers learn more about their needs, goals, desires, abilities, values, and situation. Observe at least 3 other people (students, teaching assistants, professors) waiting before class—don't just extrapolate from your own perspective. (You may choose to use the contextual interview technique described in class.) Use insights from your observation as background material. One essential part of a designer's role is to frame the problem. There are many different perspectives you might take to change an existing situation for the better with your design. Use the observation material to inform *for whom* you

will design (the teacher? the early student? the perpetually late student?) and *how* you will improve their lives.

3. Then **brainstorm** ideas for how you would redesign the Princeton waiting experience. Before you start, take a look at IDEO's brainstorming guidelines at

http://www.openideo.com/fieldnotes/openideo-team-notes/seven-tips-on-better-brainstorming

Go for volume when you brainstorm; you should come up with at least a dozen different ideas. Ask a couple of people (from COS 436, or your friends) to get together and brainstorm with you, as you will find that it's easier to find inspiration when you work together. (For the brainstorm only, you may collaborate with others).

4. Individually, **select your 2 favorite ideas** and give a 1-sentence explanation for each of why you chose that idea.

5. Take your selected ideas and **rapidly prototype** them: Draw out your ideas with markers on paper. No computers. If it's screen-based, use 3 x 5 index cards and a sharpie. Anything that won't fit is too detailed. Go for very, very simple. Use any props you think will effectively convey the look and feel of the user experience, but remember to keep it simple. Take pictures that document the prototype (e.g., photos of the screens you drew).

6. Now you are ready for **feedback**: find some users to try your prototype. Choose <u>one</u> of your prototypes. Go to the place you intend your design to be used. Find 3 people who will use your prototype as if it were a real application. (Explain that you'd like their help, and that it'll take 5-10 minutes of their time.) Given that your prototype is made of pulp, markers, and imagination, you'll have to simulate what would happen by changing index cards. Do not tell the user what to do. Prototypes are a probe, a way to get feedback and learn how to improve your design. Success is not blithely saying "people really liked it" but rather "I learned all of these cool things that will make the design better". Iterative design is about "failing" early and often, in order to rapidly arrive at a great design. Take notes and pictures of what users do and say. Pay attention to when people get confused or if they offer feedback on what they liked or didn't like.

7. Use your notes to help you reflect on the feedback you received. Distill a list of major **insights** that could inform a future revision.

How and what to submit
Create a new blog entry at https://blogs.princeton.edu/humancomputerinterface/. To ensure your post can be easily found and graded, please choose the appropriate category (i.e., "Assignment2") from the right-hand menu when you create your post. Place the following information in your blog post, in order and clearly delineated by section headings:

1. A description of how you conducted your observation (who, where, when). Notes and insights from observations / contextual interviews.
2. Full list of ideas you brainstormed. Express your ideas as "headlines," explaining the main concept in less than one line. For this brainstorm, you can work with as many people as you want (inside or outside the class). So their contribution is

acknowledged, list their names. You have to complete the remaining steps individually.
3. One sentence each explaining why you chose the two ideas you did for prototyping.
4. Photos & descriptions of your prototypes
5. Photos & descriptions and detailed notes from user testing
6. List of insights from testing

Evaluation Criteria and Grading Rubric

Part #	Unsatisfactory	Bare Minimum	Satisfactory effort & performance	Above & Beyond
Observations	0: No observations or completely irrelevant observations.	1: The student observed only one person and/or the student observed an activity unrelated to the assignment.	3: The student observed only two people and/or the student observed an activity that is not completely relevant to the task.	5: The student observed three people in an activity clearly related to the task.
Quality of observations	0: No observations or completely irrelevant observations.	1: The student's observations did not demonstrate a breakdown or a design opportunity that was relevant.	3: The student's observations somewhat demonstrated a breakdown or design opportunity, but they were only somewhat relevant, were communicated poorly, or left major questions unanswered.	5: The student's observations clearly demonstrated a breakdown or design opportunity. The descriptions were well written, informative, and comprehensive.
Brainstormed ideas	0: The student did not come up with ideas or gave an irrelevant answer.	1: The student came up with 1–7 ideas.	3: The student came up with 8–14 ideas. Or, student came up with more ideas but wrote about them in too much detail (each idea should take up less than one line), or did not describe them clearly enough to get the gist of each idea	5: The student came up with 15+ ideas. Each idea is described succinctly (less than one line) but clearly enough to understand what is meant.
Quality of brainstormed ideas	0: The student did not come up with ideas or gave irrelevant answers.	1: Most of the ideas the student came up with were irrelevant, repeated, or obvious (didn't require observation).	3: Most of the student's ideas were insightful; Only a few seemed irrelevant, repeated, or obvious.	5: All of the ideas were insightful. Each idea could become the basis for a design project.
One sentence explaining one of the choice of one idea for paper prototyping (x2)	0: The sentence is missing or irrelevant.	1: The sentence repeats the idea without sufficient explanation.	3. The sentence describes a motivation for the idea, but it is not entirely clear or compelling. Or, the motivation is presented clearly but more than one sentence is written.	5: The motivation for the choice of idea is communicated clearly and convincingly.
Photos and description of one paper	0: The photos and/or description are	1: Photos and description are present, but it is	3: The text and photos communicate the basic nature of the prototype,	5: The prototype is clearly documented and described. The

prototype (x2)	missing or irrelevant.	difficult to determine the nature of the prototype.	but leave some questions unanswered.	text and photos make it easy to understand what was created.
Quality of paper prototype (x2)	0: The photos and/or description are missing or irrelevant.	1: There is evidence that a prototype exists, but it is unclear that this prototype pertains to the task, or that it could be used to test an idea.	3. The prototype begins to convey the idea, but not clearly; and/or the prototype is too formal or detailed (e.g., a detailed computer mockup).	5: The prototype was made rapidly and conveys the essence of the idea. The prototype is not too formal or detail-oriented (e.g., no computer mockups!) The prototype can clearly be used to test the idea.
Photos and detailed descriptions from user testing of one prototype	0: Photos and/or description are missing or irrelevant.	1: There is at least one photo and some description text indicating that user testing was done, but they are insufficient detail or quality to determine what was observed.	3: The testing produced at least one useful photo, and the photos and text describe the testing procedure. However, some additional details are necessary to understand what was observed.	5: The testing produced at least 3 useful photos. The photos and descriptions are both clear, and they provide sufficient detail to understand what was observed.
Quality of user testing procedure	0: User testing was not completed, or testing procedure was not described.	1: User testing was conducted with only one user, or testing was not done with one prototype.	3: User testing was conducted with only two people, and/or the prototype was not used appropriately in testing.	5: Testing was done with at least 3 real users and employed the prototype appropriately.
Quality of insights from user testing	0: List of insights is missing or irrelevant.	1: List of insights is present, but not clearly related to observation, or not communicated in an understandable way.	3: The list of insights is relevant to the observations. Some of the insights are not useful in enabling revision, and/or some insights are be poorly explained or of questionable relevance to the observation.	5: The list of insights is comprehensive. The recorded insights can be reasonably drawn from the observation. The insights would enable revision of the prototype or idea. It is apparent that visual observation and feedback from users were helpful.

Peer and Self Grading Process
The assignment will be graded using peer grading. This is the procedure:
1. After the submission deadline, you will receive an email with the names of three students whose work you will grade. **DO NOT** reveal your identity to those students, nor share their names with anyone else in the class. We will not reveal your identity to the students you grade. You will also receive instructions with a URL for you to upload your grades.
2. For each student in your list, please complete the grading rubric (identical to the one above) using the Web form. You will also leave written comments to the student and the TAs explaining your evaluation and providing constructive feedback.

3. After submitting peer-grading forms for each student, complete the grading form for yourself. You will grade yourself on the same criteria. You will be able to leave comments for the TAs explaining your self-evaluation.
4. The peer and self-grading forms are due 3/4/13, 11:59 PM.

Once this process is completed, the TAs will review the grades given to you by yourself and your peers. In cases where the grade you've given yourself differs significantly from the average grade given by your peers (i.e., one letter grade or more), the TAs will apply extra scrutiny before assigning you an official grade.

The TAs will also examine the quality of your grading of others. If you do not complete the peer grading by the deadline, if your grading of your peers stands out as exceptionally unfair (either too generous or too harsh), or if your comments to your peers are inappropriate (missing, insensitive, egregiously inaccurate, etc.), we will reduce your assignment grade by up to 1 letter grade. If you provide exceptionally helpful comments to your peers, we reserve the right to grant you extra credit (though extra credit is never guaranteed!).

The TAs will send you your official grade along with the scores and comments from each of your peer grading reports. If you feel your official grade is unfair, **please post a private note** to Piazza explaining why you believe your grade is unfair, and we will give your grade a second look. Be aware, though, that we may adjust your grade either up or down!

If for any reason you wish to opt out of having your peers grade your work, please let us know. The TAs will grade your assignment themselves, and there will be no penalty to your grade. (It may take longer to grade your work, in that case.)

Acknowledgements
This assignment is adapted from the excellent courses below:

https://courseware.stanford.edu/pg/assignments/view/213029/assignment-1-introducing-a-humancentered-design-process

http://vis.berkeley.edu/courses/cs160-sp12/wiki/index.php/Individual_Design_Exercise