

DIS1 Assignment

# Term Project

<http://www.flickr.com/photos/intvgene/370973576>

## Week 2–3: User observation, interview, and project definition refinement

**Recommended due:** Thu. 15.12.11**Estimated workload:** 25 hours/person

### Description

In this step you will go out to observe and interview potential users to obtain feedback for your new product. Depending on your project, doing an observation before any user interviews can help you flesh out your questions. (See assignment 2.)

### Interview

Find three people who you think would benefit from your product and interview them individually. Then go back and make the necessary design/feature changes to your product based on what you've learned from the interviews.

Some tips for preparing interview questions:

- There should be two people (from your group) attending the interview:
  - One person should conduct the interview (ask questions, respond to the person being interviewed)
  - The other person should take notes
- Don't ask leading questions such as, "Don't you think it would be cool to have an edible walkman?"
- Don't ask questions that reflect your own preconceptions: "I think an edible walkman would be cool, what about you?"
- Do ask questions about how the user goes about their usual task: "Where/when do you usually listen to music?"
- Do ask them to clarify their answer if you're unsure—don't make assumptions. ("What do you mean by...")
- Do get them to describe parts of their daily life that are relevant to your product, e.g., if they take their walkman with them while they jog every morning, ask them to describe their morning routine
- Do try to understand their motivation for using a product, e.g., "Why do you use a walkman and not a portable CD player?"

During the interview session:

- Spend the first 5 minutes introducing yourselves and tell them a bit about what you are doing. At this stage, do not mention your product idea, just the problem you are trying to solve (e.g., "tourist guide").
- Spend the next 10-15 minutes asking them about their daily life as it relates to your task.

- Try to get as much information out of your user as you can – ask “why”, “how come”; ask for examples.
- Listen for stories, narrative explanations – you can usually get a lot of information out of those.
- Spend the last 10-15 minutes introducing your product idea.
  - Walk through your storyboards with your user to get a feel of whether or not your scenario is realistic.
  - If you want to talk about specific features of your product, do it here. Keep in mind, however, that users are usually not very good at knowing what they want.
- Be flexible—use your interview protocol as a guide, but feel free to deviate from it.
- Don't feel you have to fill the thirty minutes; however, it's better to schedule more time than be rushed.
- Optional: Take an audio recorder with you so that you can go back to your interview later.

### Task

Preparing for the interviews:

- Create personas and storyboards to be used as interview material. (See assignment 2)
- Find three people who are willing to spend approximately thirty minutes (each) with you. These people should match your intended target audience, so do not ask only your colleagues!
- Prepare an *interview protocol*—notes and questions that you can refer to during the interview; try to keep the questions general and not too focussed on specific features of your product

After the interview, analyze the result and refine your personas, storyboards, and summarize principles that will guide your design.

You should start sketching your design during these weeks.

### Deliverables

Based on your notes, add a new section to your wiki with the results of your interviews. You should include, at minimum, the following:

- **Personas and storyboards:** You should have the set you used in the interview and the refined set of these on your wiki.
- **Interview protocols:** You do not need to write it out in any more detail than what you used in your interviews.
- **User information:** A few brief notes describing the interviewees. Keep in mind that your wiki is publicly accessible, so don't put any information that would intrude on your users' privacy (e.g., it is ok to change their names or include just their first name).

- **Summary of interview findings:** We are not interested in a detailed transcript, emphasize what you found to be the most important and/or surprising things.
- **Guiding design principles:** Make adjustments to your project definition to reflect what you have learned from your interviews. In addition, based on the results of your interviews, come up with one to three design principles that will guide your product. A design principle is a short statement that characterizes your product; for example, a design principle for a walkman could be: “Walkman will be robust in such a way that people can take it with them while jogging.” Any future design changes you propose can then be judged against these design principles to ensure they are appropriate for the user base that you have selected. Justify your design principles with specific points from your summary of interview findings.

As usual, try to keep the text as clear and concise as possible. Except personas and storyboards, it should not be more than the equivalent of 2-3 pages of text. Include simple diagrams if appropriate.

## Week 4: Paper prototypes and early evaluation with users

**Recommended due:** Thu. 22.12.11

**Estimated workload:** 10 hours/person

### Description

In this step, you will create a paper prototype of your application using paper, cardboard, and Post-It notes. Post-It notes are an excellent prototyping tool because they are easily swapped out and their position is easily rearranged to experiment with screen layout or to “react” to user input. Remember, rough prototyping allows you to receive rough feedback from users that is most useful early in the prototyping process when there is still time to react.

Some prototyping guidelines:

- If you are prototyping a standard desktop application, put individual components on the Post-It notes and use them as building blocks to create your screen image (much like GUI widgets can be used to build an application). By using Post-Its, you can easily rearrange the layout of components on your screen with minimal effort and redrawing.
- If you are prototyping an application for a mobile device, the Post-It note may provide a good approximation for the screen size of your device. Use cardboard to build a physical prototype and use Post-It notes as the display of your device. Smaller Post-Its (yes, they come in multiple sizes) can be used to experiment with physical button layout.

To learn more about paper prototyping, we recommend the book *Paper Prototyping* by Carolyn Snyder.

### Task

Build prototypes of your graphical user interface using Post-It notes. Evaluate it without users. Then, refine the prototype, and let 2-3 potential users try them out. Ask the users to interact directly with the Post-It note interface and manually perform the screen transitions by replacing the post it notes in your prototype. You are essentially acting as a (slow) computer providing all the logic and reacting to user input through the paper interface.

Record the problems you and your users encounter with your prototype and outline the changes that you made in paper prototypes to improve the design.

You may create several iterations of paper prototypes. This will save efforts in the later iterations of your project.

### Deliverables

Based on your notes, add a new section to your webpage with a summary of the paper prototyping experience and subsequent changes to design. Photos would greatly enhance this section of your wiki.

Please bring your paper prototype to your coaching session once you have it. Prepare a short demonstration to show how a user interacts with your prototype and to discuss the important design changes you made after the prototype testing.

## Week 5–6: Software prototypes and evaluation

**Recommended due:** Thu. 19.01.12

**Estimated workload:** 30 hours/person

### Description

In this step, you will create your software prototype based on your paper prototype. This prototype will be used to test with users.

Remember that you are still at the early prototyping stage. Don't be afraid to toss out your idea or parts of your idea for better ideas before you begin your software prototype. That is what the early prototyping stages are for. Remember to do the early prototypes for any new ideas that emerges at any stage of your project.

### Task

#### *Software prototypes*

Your task is to build a functional prototype using Flash, HTML 5, or Quartz Composer. You can also use another prototyping tool if you like. However, your prototype must work in Mac OS X 10.7 or Chrome without the installation of additional plugins or extensions—you will receive a zero on this part of the project if the prototype does not run on a clean Mac OS X 10.7 or Chrome installation.

We expect a level of interactivity in your prototype that would allow you to demonstrate to us what kind of interactions your system supports. At a minimum, we expect you to be able to show us how your system operates in the context of the storyboard scenarios (or modified scenarios) from your earlier step. You are not expected to implement a fully functional program.

Focus on how a user would interact with your system at a high level. Do not waste too much time writing code for parsing user input and performing error checking. For example: if your program prompts the user for their name, it is acceptable to discard the actual user input and use a pre-determined value in the rest of your program. This prototype should be horizontal in that the screens are laid out but most features are not functional and vertical in that one of the task-centered interactions can be finished to completion in later testing (i.e., you will give the tester a scenario and a task and they will use your prototype's simulated interactions to finish the task to completion).

Try to apply what you have learned to date in this class. You may want to go back and review Norman's Principles, the Gestalt Laws, and the Golden Rules for interface design before starting. Also, be sure to go over the last few lectures on prototyping. You should be prepared to explain how you have applied some of these principles in your design.

#### *Evaluation*

**Without users:** Each member of your group should perform a heuristic evaluation of your first software design. Heuristics are general guidelines that every aspect of your design should follow. Your list of heuristics should start with the 9 Golden Rules presented in class. However, you should have gained insights from your interviews that would allow you to add at least 3 more heuristics (that means something like "Rules 9 to 12", that apply to your specific project). After each member of the group has done the heuristic evaluation separately, compare your results and make changes to your design that you feel are appropriate. You can find more information on heuristic evaluation at <http://www.useit.com/papers/heuristic/>.

**With users:** You have some experience observing users and identifying design flaws from a previous step. In this step, you will test your design on at least 2 users using the *Think*

*Aloud* method. In the Think Aloud approach, you will ask the user to say aloud as she is using your application:

- What she thinks is happening (state)
- What she is trying to achieve (goals)
- Why she is doing something specific (actions)

Before you start the session, devise a set of tasks for the user to complete using your application. These tasks should be given to the user in typed form. At the beginning of the session, quickly interview the user to develop a user profile that should be combined with your results. It is recommended that you take a picture to demonstrate your testing setup. If no picture can be taken, you should describe the testing setup in detail. During your session, resist the temptation to talk to or guide the user. Take notes and observe what types of errors the user is making. Report or hypothesize on what the cause of these errors might have been. Are they errors in the user's mental model, or are they flaws in your design? Use the result of these sessions to make modifications to your design.

### **Deliverables**

You should bring your prototype to coaching sessions to obtain feedback from the assistants and other students. Also, upload your prototype to your project wiki.

Update your wiki to include your heuristics and the design changes based on the heuristic evaluation. You should also update the wiki to reflect the results of the Think Aloud sessions and corresponding design changes. Upload your new prototype to your project wiki (but leave the older prototype(s) as well).

## Week 7: Finalize & project presentation

**Due:** Aachen: 01.02.12, Bonn: 31.01.02

**Estimated workload:** 10 hours/person

### Description

Congratulations! You have reached the final stage of your project – take a moment to give yourselves a pat on the back for sticking with us this far. This week you will complete the finishing touches to your software prototype and prepare your final presentation and wiki.

### Task

Based on the results of the heuristic evaluation and the feedback that you obtained from your users, complete this last iteration of the DIA cycle by making the necessary changes to your software prototype. Remember to document your changes! We will need to see them if you wish to get credit for all the hard work you have accomplished.

As a minimum you should have the following information on your wiki:

- Name of your project.
- Names of group members.
- Brainstorming summary and original project idea.
- Your target user group (explained by descriptions or personas)
- A log detailing your design changes (features that were added/removed, workflow changes) at the following milestones:
  1. After week 3: observation and interview
  2. After week 4: paper prototype testing with users.
  3. After week 5: heuristic evaluation
  4. After week 6: software prototype testing with users.
- Your design changes should be justified by feedback from users or results from your heuristic evaluation.
- A few short paragraphs describing how you applied at least some of the design principles you have learned (Norman's principles, Gestalt Laws, Golden Rules) in your interface.
- One or two short paragraphs discussing the biggest challenges you faced when developing your interface and how you resolved them.
- Your software prototype(s). Ensure that they do not contain any platform-specific code. If in doubt, we recommend that you try running your prototypes on multiple platforms; we will be grading them on Macintosh machines.

Feel free to provide any supporting documentation and user interview results that you deem necessary (e.g., photographs of testing sessions, scans or photographs of your storyboards and paper prototypes). Keep in mind, however, that you will be graded on quality more than quantity. Ideally, we will want to see that you have started with a rough idea and refined it through a series of DIA cycles guided by the project steps.

Take the time now to go through your wiki and clean it up as necessary. The wiki should be logically organized, but don't spend too much time on fancy graphics and other eye candy. A large proportion of your project grade will be based on what we can see about your design process from your wiki.

In order to help your project in the presentation, create a one- or two-page executive summary of your project. The executive summary should provide the following information.

- **Problem statement:** A short statement of what problem that motivates you to develop the system. You may show related illustrations and photos in this page.
- **Design process:** Sample images from your storyboards and prototypes that show how the design evolves over time.
- **Form and function highlights:** Statements, illustrations, and photos showing the points that make your design different from existing systems. You should use photos and screenshots that highlight the related aspects of the relevant part in your design.

This should fit on no more than two A4 pages. It will be printed two-sided in color. You can find an example of an executive summary at: <http://www.industrialdesignserved.com/gallery/Senior-Capstone-Headphones/601782>

### Deliverables

- Upload your new prototype to your project wiki (but leave the older prototype(s) as well).
- Prepare and upload your executive summary before the presentation day.
- Prepare and deliver your presentation as described in the following section.
- Prepare to deliver your idea log on 07.02.12 (There will be a separate assignment sheet with more detail about your idea log.)

### *Presentation*

Imagine now that you have some time scheduled with Steve Jobs, CEO of Apple Computer. He is interested in creating an Advanced Technology Group at Apple, whose flagship project will include an interface for supporting handcraft. Your job is to persuade him to buy your startup company (making you millionaires in the process). Prepare a 7-10 minute presentation (and any supporting material) featuring your prototype. Here is a rough guideline for your presentation:

1. Introduce your team and your product (1 min).
2. Talk about your target user base, what your product can do for them, and why they should use it (1 min).
3. Go over the important features at a high level (2 min).
4. Perform a short "role-play" of your favorite usage scenario from the user's point of view. In the role-play, you should demonstrate how your product is used in context; it is also a chance for you to show off any cool interaction techniques that you may have developed (4 min).

5. Talk a bit about your design process; for example, how you used some of the design principles we learned in class, any challenges you encountered and how you resolved them (1 min).

For your role-play, we recommend you have one group member controlling your application projected on the big screen while your other group members act out the scenario. Use your imagination, have fun, and relax.

For further information about how to give a good presentation, have a look at: [http://hci.rwth-aachen.de/presentation\\_guidelines](http://hci.rwth-aachen.de/presentation_guidelines)

Be prepared to answer a few questions at the end of your presentation. You will be graded on clarity, so try to be clear and succinct. Time limits for the presentation will be strictly enforced. Make sure you rehearse prior to the actual presentation, as we will start throwing unpleasant objects at you after 11 minutes ;-).

#### *Presentation schedule*

The individual groups will be announced by email before the lecture. We have a tight schedule: please use the presentation time of your preceding group to set up your own prototype.

You may use our computers to assist in your presentation, but you must notify us at least 24 hours before the class starts. It is your job to ensure that we have all of your presentation materials (e.g., email it to us or bring it on a CD / USB stick) and hardware you may need (e.g., sound). Alternatively, you may use your own computer, but we will not be responsible for any hardware issues that you may have that would prevent you from giving your presentation. Also make sure that your prototype works with the resolution of the projector (1024x768 or 800x600).