

# Cultural Probes

The goal of this assignment is to practice the use of cultural probes to understand user needs, problems, frustrations, breakdowns, and workarounds in the context in which these events happen. As we learned in class, cultural probes allow us to capture data on people's day-to-day experiences as they take place in their natural contexts. This method will be particularly useful in understanding users' experiences around mobile computing as other methods such as contextual inquiry is not feasible due to the temporal and spatial spontaneity of these experiences—as the name suggests, users are “mobile” when they use mobile interfaces and we simply can't follow them around.

By now, the project teams are formed and you have chosen a problem context for which you will design a new mobile interface. In this assignment, you will complete the first step of the process of designing this interface—gaining a better understanding of people's experiences with using mobile interfaces. To achieve this, you will design and build a cultural probe, ask a group of mobile interface users to provide you with data using these probes, and analyze the data you collected into conceptual models of user experiences. You will decide on what kind of cultural probe you would like to create and use. Try to be innovative in creating your probe and determine your data collection method based on what you think will get you the most interesting and valuable data on people's use of mobile interfaces.

You have two weeks to complete this assignment. However, you will see that this is just enough time to complete the assignment. Expect to spend 2–3 days to design and create your probe, 5–7 days for your participants to collect data, and 2–3 days to analyze your data and report your findings.

Assignment deliverables include the following:

- A four-page report of your process,
- A copy or a picture/diagram of your cultural probe(s),
- An excel sheet of the data you gathered,
- Copies of affinity diagrams, conceptual models, design ideas that emerge from your analysis.

## Step 1. Identify users

Your first step in this assignment will be identifying a target group of users to probe. If your problem domain is mobile finance, identify people whom you think would be potential users of a mobile finance system. For instance, if you are interesting in how one can transfer money to a friend over a mobile phone, you might want to hire people with shared costs such as roommates.

When you use an exploratory data collection methods, the principle of representation is more important than generalizability. In science, we try to test our theories with a small group of people and make the assumption that our findings will generalize to the larger population. In exploratory work, such as a user study you conduct to better understand user needs, generalizability will not be your goal. Instead, you will try to understand the different experiences that different people might be having and represent these different experiences in your participant population and in your data. Therefore, choose your participants from people whom you think could provide you with different experiences.

For your study, your goal should be recruiting a minimum of 3 people. Because finding participants might take some time, start this process early. Don't leave it to after you prepare your probes. Because the timeframe of the assignment is not very long, try to find participants that you have physical access to (there will not be enough time to send and receive probes by mail).

**Action items** — Determine who your potential users are (e.g., college students). Recruit 3 representative participants.

## Step 2. Prepare the probe

Preparing your probe is the most important step of your assignment. While you have absolute freedom in deciding on the design of your probe, your main consideration should be creating a probe that will target what you are interested in understanding and get you the data that you are looking for in the best way. Because your participants will have to enter data into the probe repeatedly, it should not require extensive effort to collect. On the other hand, you need rich information to get a better idea of their experiences. Therefore, it is very important that the probes are designed to target what you are interested in understanding. For instance, if you are interested in understanding the contexts in which a mobile finance application might be useful, you might want to probe your participants to report the contexts in which they need to check, manage, share their financial information. Similarly, if you are interested in understanding how locations-based services can be used to help shopping, you might want to probe users to report, every time they are at a store, the kind of information that could help them with their shopping. You can also probe your participants' imagination (as you saw in the video during lecture) by providing them a "magic" technology and asking them to find uses for them. However, be careful with this method as it encourages people to find uses that might not necessarily be their core needs.

The design of your probe should match the context in which you are interested in collecting data. For instance, it would not be appropriate to ask people to enter data on letter-sized pages while they are mobile – a voice recorder might be a better probe to collect data in mobile settings. Redundancy is a good thing in cultural probes. You might want to create multiple versions of the same probe in different forms (e.g., a diary, a small question card with a voice recorder, etc.).

Make sure to include clear instructions of the task along with your probe. One common form of providing instructions is filling in the first page of a diary to give your users an idea of what is expected of them by a clear illustration. Similarly, if you are giving them a deck of cards, you could fill the first card.

**Action items** — Determine (1) what you are trying to understand given your problem setting and (2) the kind of data you want to collect. Design a probe that you think will provide you with these. Prepare your cultural probe. Aim for capturing at least 10-15 instances of the data you will be collecting from each participant (e.g., 10-15 times someone needs information at a store).

### Step 3. Present, probe, collect

An important aspect of a cultural probe study is that you will not be doing the data collection — your participants will. Therefore, it is very important that you do sufficient quality control before, during, and after the data collection. Start your probing by presenting the probe to the participant, describing exactly what you are expecting them to do, and giving them a good idea of the study timeframe. Be as accurate and descriptive as possible about what they should be doing. For instance, if you are asking them to answer questions on a card (e.g., a deck of cards with a card for each event/experience/day), show them how they should be answering these questions by acting it out.

Quality control during data collection is particularly important, as participants often get tired or bored of using probes (because it is a repetitive activity with no immediate gain to or effect on the participant). Before the data collection, communicate to them that you will check how things are going and whether they have any questions for you halfway through the study. At that point, do check how they are doing and ask them whether they have any questions for you. Communicate to them one more time when you expect them to return the diary.

A final interview with participants would ensure that participants complete data collection by that time, help you clarify any unclear entries, debrief your participants, and show your appreciation to your participants. You can look through the probe with the participants and ask them more about anything that seems unclear. Also, ask them whether they have any other input that the probe didn't allow them to express.

Don't forget to debrief your participants with an overview of your study, what you will be doing with their data, and what you hope to design based on what you find in the data. Because you are recruiting your friends as participants for this study, show your appreciation — buy them coffee, a chocolate bar, or a movie ticket.

**Action items** — Present your probe to your participants. Collect data for 5-7 days (or shorter if you can get 10-15 instances of the event/experience you are studying). Check with your participants halfway through the data collection. Conduct a final interview at the end of the data collection, collect the probe, debrief your participants, and thank them for their participation.

## Step 5. Analyze data

The first step after data collection is to collect all your data in one place. An Excel spreadsheet would be a good format to use. Your data analysis should resemble the analysis you used for the contextual inquiry assignment, particularly using methods such as affinity diagramming and modeling that we learned in Contextual Inquiry. I advise you review the readings and slides on CI and affinity diagramming before you start the analysis and make the most use of them. There are no requirements to create and submit *all* of the models we created in CI (e.g., flow, sequence, artifact models). Instead, you should choose models that best help your analysis. At this point, you should consider diagramming and modeling as tools in your UX toolbox that you will use for the rest of your career as an interface designer/developer. You should be able to choose and use the most appropriate method for a given data analysis/representation problem. Remember, part of your grade for this assignment will be based on the rigor and creativity of your data analysis.

The goal of your cultural probe is to uncover the needs that your users might have for different kinds of information, communication, enabling technologies, etc. in the context of mobile computing. However, your data will not directly give this to you. In order to construct them from your data, you will identify concepts (e.g., actions, events, breakdowns, etc.), categorize them, model these concepts and categories, and create short scenarios that highlight your findings and how new applications/designs could help people achieve their goals or resolve problems. You will learn more about scenarios in the upcoming class, but the basic idea is that you describe your findings in a story and illustrate how a new technology you will be designing will enhance, facilitate, and help with people's experiences in the story. For instance, you might find that some people feel awkward exchanging cash among friends. You might also find that services like PayPal are too formal and hard-to-set-up for your user group. You might want to write a story such as the following:

"Jamie and Ted<sup>1</sup> regularly eat, grab coffee, and do other social activities together. In most of these activities, they find themselves having to sort out finances as they can't always split the costs into half and pay separately. Finding the right amount of cash is not always easy. They also feel awkward having to exchange cash around. Since they are never around a computer, services such as PayPal also don't help them much either. An extremely simple money transfer system for small amounts that Jamie and Ted might have on their mobile devices might significantly improve their experience."

Remember, the majority of the content for this story comes from your data. What the story does is tying these findings together into a form that illustrates the need for a new design and roughly describes what that design might achieve.

**Action items** — Collect all your data into an Excel spreadsheet. Analyze your data using affinity and relationship diagrams. Create 3-5 stories that could lead to new designs. Represent them in narrative and diagrammatic forms. Provide examples from your data that support your stories.

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<sup>1</sup> Fake "persona" names — not your participants' real names.

## Final Step. Write-Up

Write a four-page report of your process. The report should describe the decisions you made at each step of this process, your findings, and your reflections on the process. In particular, make sure that the following items are covered in the report:

Describe your user population, why you chose this user population, how you chose your particular users, their profiles, goals, tasks, and general mobile interface use. Do not include your participants' real names, but provide a description of their occupation and high-level goals.

Describe the design of your cultural probe, why your design of the probe supports your goal of understanding users' needs in your problem domain and gathering data for this understanding, how you administered the study, and what steps you took to control quality.

Describe the methods you followed for your data analysis, particularly what you did to collect your data in one place, how you extracted concepts out of your data, how you categorized, how you modeled these concepts and categories, and how you generated your "stories."

Summarize your findings from your analysis and provide 3-5 one-paragraph "stories" that highlight and tie together the problem context, your findings, and opportunities for design.

Finally, reflect on the experience of conducting a cultural probe. What was easy? What was hard? Did your users provide you with the data you expected? What was surprising? Have you made any changes in your probe through your quality control? Any insights into how you could improve this process?

Attach to your report the following materials.

1. A copy or picture of your cultural probe,
2. A copy of your raw data; i.e., the excel sheet with the data from the probes (might link to images, example transcriptions from voice recordings, or snapshots from video recordings depending on the kind of probe you used),
3. Picture or copies of affinity or relationship diagrams, conceptual models, and design ideas that emerge from your analysis.

Create a ZIP archive following the naming convention below, including your report in PDF format and #s 2-4, compress this folder.

Archive: Assignment2-LastNamesStartingWithTeamLeader.zip

Files: Report-LastNamesStartingWithTeamLeader.pdf

Probe-LastNamesStartingWithTeamLeader.pdf/jpg

Data-LastNamesStartingWithTeamLeader.xls

Analysis-LastNamesStartingWithTeamLeader.pdf/jpg

## Assignment Grading

Identifying and describing your user population — 10%

The design of the cultural probe — 20%

Administering the probe, quality control, conducting and properly documenting follow-up interviews — 20%

Data formatting, analysis, identifying concepts, categories — 15%

Modeling findings, generating stories, Identifying design opportunities — 15%

Quality of the overall report — 20%