3

Introduction to User Research

USER RESEARCH CAN HELP you acquire a deep understanding of your users' needs and how these needs are being met. With this research foundation, you can make informed design decisions throughout the product development process. Moreover, research can reveal opportunities for new apps and inspire innovative solutions that improve upon existing apps.

This chapter will review a variety of user research methods such as shadowing, field interviews, and diary studies and will suggest ways to tailor these methods for your app. After reading this chapter, you should be able to develop and execute a user research plan for your own app. Chapter 4, "Analyzing User Research," will subsequently explain how to interpret user research findings and incorporate them into your app designs.

Common User Research Questions

As you start planning your user research, you may have questions concerning the benefits and costs. Answers to these questions and others are included in this section.

WHAT WILL I LEARN?

The outcome of user research will depend on a number of factors, such as the methods used, the domain explored, and your research goals. Common themes uncovered through early-stage user research include user needs, context of use, perceptions, pain points, language, and norms.

User Needs

At the most basic level, user research will help you understand your users' needs. Questions you may be able to explore include how they do things today, what's important to them, and what needs have not been met. Having this knowledge will help you make both high-level (e.g., overall app concept) and low-level (e.g., screen layout) design decisions.

Context of Use

User research will help you understand the *where*, *why*, and *when* surrounding app usage, such as the environment, time of day, constraints, people involved, motivations, and types of interruptions. For example, **FIGURES 3.1–3.2** are from a shadowing session with an art consultant. If a client wants a photo of an art piece or the price converted to another currency, the consultant can slide her iPhone out of her pocket and take care of it on the spot. Rushing off to get her digital SLR camera or calculator would disrupt the sale. Knowing this type of contextual information may help you make design decisions for your own app and may reveal opportunities for innovation.

Perceptions

User research can surface perception-related issues that may prevent users from adopting or using your app. For example, research may indicate that users perceive mobile banking as insecure. As a result, you may want to develop an overall education strategy as part of the app's marketing plan to put users at ease, or emphasize security measures more prominently in your design.

Pain Points

User research often uncovers pain points in the participants' current workflow. Pain points may cause users to completely abandon an app or prompt them to

create work-arounds. For example, the art consultant in FIGURE 3.1 often edits photos before sending them to clients. She tried a few iPhone editing apps, but the features were not comprehensive. One of the apps focused on cropping, another on effects, and so on. As a result, she now downloads photos to her laptop and works on them in Photoshop or iPhoto when she needs to make edits. Insights such as these can present opportunities to improve usability and innovate.

FIGURE 3.1 How an art consultant uses her iPhone to capture images of artwork

FIGURE 3.2 How an art consultant uses her iPhone to convert art prices into foreign currencies

Language and Nomenclature

Learning the language and nomenclature used within a particular domain may influence your app design. For example, if you were designing an app for looking up baseball scores, it would be important to know that scores are tracked according to runs, not points. In contrast, using the term *points* would be appropriate for tracking football or basketball scores. As your design progresses, insights such as these may also impact the tone and voice within your app's user interface.

Norms

Understanding the norms (typical social behaviors) within a user group or domain can also be valuable. User research can reveal which norms to incorporate and what practices to avoid when designing an app. As with language, this knowledge is especially useful for specialized domains. Norms to consider exploring may pertain to workflow, privacy, and more.

For example, a few years ago I worked on a project for one of San Francisco's charter schools. The norms were very different from those of the regular public

schools. Students wore uniforms, had longer school days (plus Saturdays and summers), and were thinking about college as early as the fifth grade. If I were to go back and design an app for this school, it would be important to take these norms into account.

HOW IS UP-FRONT USER RESEARCH DIFFERENT FROM USABILITY RESEARCH?

Up-front user research typically informs the product requirements as well as the design. In contrast, usability research generally occurs *after* the product requirements have been defined and an initial design has been established (see Chapter 8, "Usability-Testing App Concepts").

Another way to make this distinction is that up-front research helps answer the question "What should we design?" whereas usability research later asks, "Did we design it right?" and "What do we need to change?"

HOW MUCH IS THIS GOING TO COST ME?

Many companies are reluctant to assign resources when up-front research is recommended. They worry that the research will take several months and cost thousands of dollars. If you outsource a worldwide study with dozens of participants, it's true; your study can cost tens of thousands of dollars. However, small-scale studies may be completed within a two-week time frame and can produce rich insights. If the interviews and analysis are done by your internal team, the only extra costs are travel time and participant payments (approximately $100 per participant for 1.5 hours, but it depends on the participants' skill set and the interview duration). Even travel costs can be eliminated if videoconferencing is a viable alternative.

Two weeks may seem like a long time when a project is starting out, but changing the design after development will almost always take longer and cost more money. If you discover significant design problems after launch, you may need to rewrite large portions of your application. Moreover, you have one chance to make a first impression. A few bad reviews out of the gate can cripple future sales of your app, particularly when there are other apps out there to choose from. In addition, up-front user research explores users' behaviors and motivations, which change slowly; thus, research can be a valuable long-term reference.

TWO WEEKS IS STILL TOO LONG; WHAT ARE MY ALTERNATIVES?

As discussed at various points throughout this chapter, there are ways to simplify user research if you're constrained by time and resources. For example, to

shorten the recruiting time, you can search for participants through your friends and family network. Instead of eight participants, you could limit the study to four participants. Including more participants and recruiting outside your network would be better, but some research is better than no research at all. Finally, you don't have to use complicated video-recording setups; notes and photos are sufficient.

Shadowing and User Interviews

This section introduces shadowing as well as alternative types of user interviews. The approach you choose will depend on the type of app, your research goals, and your budget (time and money).

SHADOWING

Shadowing involves the researcher following participants over a certain period of time and recording observations. In contrast to the other methods described in this chapter, the data may be more reliable since observations are captured in situ (in context). This is often referred to as a "sit back" technique, where the researcher may probe with some questions but it's generally undirected. The researcher simply follows participants as they go about their activities.

Context and Duration

Shadowing sessions can take one hour or up to a full day. The context and duration will vary depending on the complexity of the app and your research goals. Imagine that you want to develop an app that enables parents to easily record and share their newborn's special moments. Given that the app may be used in a variety of contexts throughout the day, a full day of observations may be required to get an adequate understanding of the parents' needs. The researcher may start at home, then accompany the parents as they run errands and take the newborn to activities. In contrast, the scope would be much narrower if you were developing an app for museum visitors to learn about museum artwork. Participants could be shadowed in the museum for the duration of their visit.

Privacy

Shadowing for long periods of time can raise some privacy issues for the person being shadowed. It's important for you to establish a rapport with participants before shadowing them. A simple phone call or an informal visit can make a huge difference in making participants comfortable and open during the shadowing.

In addition, participants may need time to attend to their personal affairs in private, or they may request that certain situations not be recorded. Providing participants with shadowing "time-outs" can help alleviate these issues.[1] Researchers may want to informally meet with participants ahead of time to review a privacy policy and address any concerns. Getting permission to publish findings and photos should also be handled in advance of the study. Here is an example of such a permission form, which may also be used for the other interview types in this section:

Permission to Use Comments and Photographs

Subject: [*Brief study description goes here.*]

I grant to [*your company name*] the right to use my comments and take photographs of me and my property in connection with the above-identified subject. I authorize [*your company name*], its assigns, and transferees to copyright, use, and publish the same in print and/or electronically.

I agree that [*your company name*] may use these comments and photographs without my name and for any lawful purpose, including, for example, such purposes as publication/book content, publicity, illustration, advertising, and web content.

I understand I will be paid [*payment amount*] in return for my participation in the above-identified subject.

I have read and understand the above:

Signature: _____

Printed name: _____ Date: _____

Address: _____

_____

1. Jan Blom, Jan Chipchase, and Jaakko Lehikoinen, "Contextual and Cultural Challenges for User Mobility Research," *Communications of the ACM* 48, no. 7 (2004).

FIELD INTERVIEWS

Field interviews, derived from anthropological research techniques, involve one-on-one sessions with participants in their natural environments. Interviews are semi-structured, meaning the researcher prepares questions in advance but adjusts the script based on a participant's responses.

In contrast to shadowing, which may involve traveling with participants over the course of an entire day, field interviews typically occur in one place for about one to two hours, excluding travel. Given the limited context and time frame of field interviews, researchers may choose to supplement them with a diary study. Diary studies, discussed later in this chapter, can provide more insight into the participant's context over a much longer period of time.

Context

Choosing one place for a mobile-oriented interview can be a challenge. Ideally, the interview should occur where the app will be used most often, providing researchers with a better understanding of the context of use. For example, with the museum visitor app, holding interviews at the museum would enable participants to easily refer to exhibit information and explain what works or doesn't work well for them. If the interviews were held at an off-site location, it would be harder to reference such information and understand the museum context. Additionally, it would require the users to recall behaviors or memories about the app, which can be less reliable than studying their app usage in context.

Apps that don't have a clear location associated with them may benefit from a diary study combined with a field interview. For example, the diary for new parents may indicate that they spend most of their time at home, at a friend's house, or at the playground. The interview could be held at their home, but the researcher can probe into their activities at the other locations.

INTERVIEWS WITH SUBJECT MATTER EXPERTS

Subject matter interviews typically imply that the participant is the "master" and the researcher the "apprentice." For example, let's say you want to design an app to help users pair a wine with their dinner. Interviewing sommeliers and wine shop owners, as well as some local chefs, would help you understand how experts recommend wine to a customer. These insights can then be used to generate alternative design ideas for your app.

PHONE INTERVIEWS

There is nothing like meeting face-to-face with your experts, but it may not always be possible because of financial or time constraints. Phone interviews are a viable alternative, as are videoconferencing services such as iChat, Skype (www.skype.com), or Cisco's WebEx (www.webex.com). These alternatives are particularly cost-effective for researchers who want to interview participants in dispersed geographical locations. As with many of the methods previously described, phone interviews may not adequately capture context and behaviors over longer stretches of time, so you may consider pairing phone interviews with a diary study.

STREET INTERVIEWS

In some cases, app creators may find that formal interviewing and recruiting methods are not appropriate for their app. Imagine that you want to create a fashion app that shows what people in your city are wearing and where those items can be purchased. With street interviews, the researcher could stop locals (as shown in FIGURE 3.3, an interview conducted in Tokyo) and ask about their approach to fashion, where they shop, and how they put their outfits together. Keep in mind that this method is not suitable for most apps, and people on the street may not respond well to a stranger with a video camera. Having a business card, dressing appropriately, and offering modest incentives (such as a coupon code for your app) can help garner trust and interest.

FIGURE 3.3 Street interview in Tokyo, Japan *(Courtesy of Brandon Reierson Photography)*

FOCUS GROUPS

Focus groups typically involve six to ten participants who are asked to share their thoughts about a particular idea or product. The sessions are moderated by a leader who introduces the topic and encourages conversation around specific themes (hence the term *focus*).

Participant feedback may be used to shape product direction, develop a marketing plan, or create advertising campaigns. Focus groups have their merits, but they are not frequently used in the user-centered design process. One of the main criticisms is that participants are heavily influenced by the other members in the group. In addition, in contrast to observational methods, focus groups rely on what people *say* they do, not what they *actually* do in a given situation. However, focus group conversations can be helpful in a generative way, in that the creative brainstorming among well-selected participants can open your eyes to new possibilities.

Since focus groups are based on self-reported data, they are better suited to marketing questions, such as how people would respond to a particular marketing message and why.

Documenting User Interviews

Shadowing and user interviews can be documented in a variety of ways. Some combination of notes, photos, and audio or video is most common.

NOTES

The format of your notes (handwritten or typed verbatim) is typically influenced by the study goals, note taker preference, and resources available. For example, when facilitating on my own, I tend to take typed verbatim notes. However, if a note taker is responsible for verbatim notes, I'll take handwritten notes. Afterward, I'll use the verbatim notes for user quotes and to make sure I didn't miss anything important. More information on these options is discussed next.

Handwritten Notes

Handwritten notes are a good option if verbatim user quotes are not required. They are also effective if a laptop or camera is too intrusive or difficult to use in the study context (e.g., on a commuter train). If you need word-for-word quotes but want something less intrusive, you could pair handwritten notes with an audio recording.

Verbatim Notes

Typed verbatim notes (also known as "approximate" transcripts) are a nice alternative since they contain valuable details and quotes without the extra noise included in an audio or video transcript. If you go with this approach, instruct the note taker to focus on the interview dialogue. The note taker should not be interpreting and adding commentary along the way—interpretation happens after the session.

STILL CAMERA

Researchers should always bring a still camera to user interviews. It is valuable for capturing the participant's computer setup and context of use. Also, I often take an informal participant portrait so I can associate a face with the findings. This photo can be added to the "participant profile," which will be discussed in the next chapter. A high-end camera is not necessary; an inexpensive point-and-shoot digital camera with ample storage should be fine.

AUDIO

As mentioned earlier, audio is an effective backup, especially if you have handwritten notes. You may also want to use audio to reinforce a particular finding or extract a user quote word for word. If you choose to capture audio, make sure your recorder has a good microphone and there's little background noise. For a recent iPhone study, I used a voice-recording app to document a user interview. Halfway through the session, a construction team started jackhammering the sidewalk, right next to the window. Parts of the session were audible, but I mostly had to rely on my notes.

VIDEO

Video is the most comprehensive method for capturing participant behaviors, but it can be impractical when your participant is on the go. For example:

- It's often difficult to get the right angle when traveling in cramped vehicles or other forms of transportation.
- Equipment can be purchased to make the process easier, but the time required to switch or adjust cameras may outweigh the benefits.
- Video recording in a public place may be restricted for security or privacy reasons.
- The amount of time required to analyze video (assume three hours of analysis for every hour of tape) may be too prohibitive.

Because of these limitations, you may decide that note taking and still photos are sufficient. Having said that, if the researcher wants to share findings with a larger team, video or audio can make the results appear more credible and tangible. Also, if you are working alone, having video can relieve you from detailed note taking and allow you to focus on the participant.

Regardless of the medium chosen, the researcher should ask for permission to record the session. Standard templates are available for these types of release forms from the Society for Technical Communication.[2]

Diary Studies

Diary studies shift the burden of data collection onto the participant. Instead of the researcher shadowing participants for an entire day, participants record their activities over the course of one or more days. Consider using a diary study under the following circumstances:

- Participants can easily capture the kind of data you are seeking.
- You need to collect data over a long period of time because the app may be used intermittently.
- You need a nonintrusive way to gather information.

Although this approach can lead to valuable insights, there are some limitations:

- First, participants may not record activities that seem trivial to them but might be of interest to researchers. For example, one participant was so used to downloading her photos to her computer for editing that she omitted this work-around from her diary. It was only when I interviewed her in person that I learned about this extra step.
- Second, since participants are mobile, stopping to document their activities could be disruptive or impractical, such as when they are driving or out to dinner.
- Third, diary studies are less effective at ascertaining the *how* and *why* behind behaviors.

Because of these limitations, researchers often combine diary studies with other methods such as field interviews.

2. Society for Technical Communication, "Usability Toolkit," www.stcsig.org/usability/resources/toolkit/toolkit.html.

Duration

Diary study participants may be asked to record their activities for anywhere from a few days up to a month, depending on the app and design goals. For example, if you're developing an app to help people who commute on public transportation, you might ask participants to record their activities for one work week and focus their entries on commuting hours. In contrast, an app for museum visitors may require an entry only for the day of their visit.

Documentation

Diary study participants should be provided with some form of structured input in order to generate the diary content. This "diary entry" form could be done on paper or in digital form and typically captures the specific research areas of interest. For example, the researcher probably doesn't need to know what the participant ate for dinner, but it would be interesting to know that the participant used his or her iPhone to find a takeout menu and call the restaurant.

Here are some sample diary entry questions:

- What was the activity?
- Why did you take this action?
- Where did the activity take place?
- How long did the activity take?
- Were you with anyone?

Mobile researchers have experimented with a variety of diary entry tools over the years, including voice mail, SMS (Short Message Service), photos,[3] and the classic pen and paper. Voice mail enables participants to easily record events while on the go, but they may feel awkward if they need to record an entry in a public place. In the absence of voice-to-text software (such as Dragon Dictation[4]), this approach also requires additional logging by the researcher. SMS alleviates any public awkwardness, but the brevity of the medium can lead to cryptic messages with unfamiliar shorthand notations and lost information. Creating a private Twitter account is another option worth pursuing.

In an effort to address these limitations, researchers at Stanford University experimented with a hybrid approach.[5] They found that diary participants provided

3. Rachel Hinman, Mirjana Spasojevic, and Pekko Isomursu, "They Call It 'Surfing' for a Reason: Identifying Mobile Internet Needs through PC Deprivation," *CHI* (2008).
4. Dragon Dictation for iPhone, http://itunes.apple.com/us/app/dragon-dictation/id341446764?mt=8.
5. Joel Brandt, Noah Weiss, and Scott R. Klemmer, "txt 4 l8r: Lowering the Burden for Diary Studies under Mobile Conditions," *CHI* (2007).

more frequent and descriptive diary entries when given the opportunity to enter a snippet in situ and then expand on it later that day using a web-based form.

Ginsburg Design, in collaboration with Reamy Research and Design, took a similar approach for a study exploring overall iPhone usage. Participants used the iPhone's built-in Notepad instead of SMS, and details on the snippets were elicited in person the day after the entries were submitted. This approach enabled the researcher to probe deeper into the entries but required more one-on-one time with participants. TABLE 3.1 includes the entries from one participant.

TABLE 3.1 Diary Study Entries and Field Interview Clarifications

Activity Recorded in Notepad	Field Interview Clarification	Implications
7am checked weather n emls	Sarah checks her email and weather while getting her kids ready in the morning. She wishes that the weather app let her enter her zip code since San Francisco has microclimates. She tried AccuWeather, but it was too difficult so she deleted it.	Setup should be easy or else user may abandon app.
740 fb and calendar realck	"fb" is Facebook. She likes to check Facebook during her downtime. She loves the app but gets frustrated since many of the web features don't work on the phone.	Users may expect apps to have most features found in their web counterparts; features should be prioritized accordingly.
835 ck time driving		
919 Katy call gym	Sarah's friend Katy called while she was at the gym.	
Txt Katy	She prefers to text while working out since it's less disruptive at the gym.	It would be helpful if users could easily share their communication preference based on their context.
Txt diana working out 1030		
Txt valerie working out		
Chk vmail 1045		
Call valerie 1050		
Calc $ for sitter 110	She uses the built-in calculator to figure out what to pay the babysitter.	Preset calculations could help someone like Sarah.
Chk eml and fb 145		
Pic of the yard 200 sunny		
245 chk eml, added contact, fb break	She wishes it were easier to organize contacts on her phone.	Users may expect apps to behave similarly to their desktop counterparts.

continues

TABLE 3.1 Diary Study Entries and Field Interview Clarifications *(continued)*

Activity Recorded in Notepad	Field Interview Clarification	Implications
300 txt Nic		
Weather 400 going to pickup max		
Got gas car wash eml ck kporg 5 pm	"kporg" is Kaiser Permanente. She uses their web site often but finds it difficult to navigate on her phone. She said, "Zooming drives me crazy."	There is an opportunity for companies like Kaiser to create iPhone apps; it's important to promote the app when users visit the web site via Safari.
Call for annivsitter 5		
Weather on way to dinner 615		
900 txt Nic for SFO arrival		
1015 eml chk weather for nxt day		

SURVEYS

All of the methods previously discussed are based on small sample sizes, which are perfectly adequate for yielding many types of insights about what to build and why. In some cases, however, you may have questions that could benefit from a large number of respondents. Surveys are the most widely used and effective way to reach a large audience and elicit their preferences. Common high-level goals addressed in user surveys include these:

- Assess interest in proposed app features (e.g., Does the user need a camera or location-based services?).
- Assess preference for an overall app direction (e.g., Does the app suit the users' needs?).
- Gather demographic and technographic[6] information.
- Quantify qualitative research findings (useful if you are making critical decisions based on qualitative data and would like to understand the pervasiveness of the findings).

Survey Tools

With the proliferation of low-cost web-based services, such as SurveyMonkey (www.surveymonkey.com), Zoomerang (www.zoomerang.com), and Google Docs (http://docs.google.com), researchers have easy access to a wide range of

6. Information on consumer ownership, use, and attitudes toward technology. The concept and technique were first introduced in 1985 by Dr. Edward Forrest in a study of VCR users and later elaborated upon in the article "Segmenting VCR Owners," published in the *Journal of Advertising Research* 28, no.2 (April/May 1988), 38.

survey creation and analysis tools. Although it may seem trivial to put up a survey, formulating an effective survey with appropriate questions and logic takes time. Moreover, analyzing the data can be even more time-consuming, depending on your research goals. App creators who need more sophisticated analyses may want to work with someone who is well versed in advanced statistics and software, such as SPSS (www.spss.com/statistics).

Caveats

One of the downsides of surveys is that the data is attitudinal and may not accurately predict user behaviors. For example, survey participants may express interest in a particular feature, but there is no guarantee that they will actually use that feature in your app. Because of these limitations, surveys should complement other qualitative user research methods (e.g., field interviews) that can capture user motivations and behaviors.

In addition, surveys do not allow researchers to measure or understand issues that respondents are not really aware of or cannot recognize in their own experience. Many usability problems fall into this category, as do user needs that people have but do not realize. This means that surveys provide a useful piece of the puzzle but not a complete picture.

Choosing a Research Method

Most iPhone apps will benefit from a combination of user research methods; the optimal mix depends greatly on the app, your research goals, and the design phase. As we'll discuss, apps in the very early stages typically focus on observational methods, whereas later-stage apps may include observational methods as well as prototypes.

NO CLEAR APP CONCEPT

Developers without a clear concept may conduct user research to help uncover app opportunities. Even though the company has not formulated an app concept, there should be a well-defined audience or problem space. For example, young children often use their parents' iPhones for taking photos and playing games. Shadowing these parents is one way a researcher could uncover other app opportunities for this demographic. Similarly, a developer may be interested in offering an iPhone solution for small-business owners. To help build that app, the developer should interview a group of small-business owners to better understand their needs.

ROUGH APP CONCEPT

Developers with a rough app concept can use a variety of user research methods. In addition to shadowing and field studies, they may find it beneficial to introduce early app sketches to prospective users. These sketches can be presented in a demo format, where the researcher walks through the sketches and gathers feedback on the ideas. If the concept is not fleshed out at the user interface level, another option is to create a concept video that gives prospective users a feel for the idea. Concept videos are discussed in more detail in Chapter 7, "Prototyping App Concepts." You can see an example of one for a caregiver app online.[7]

EXISTING APP

If you already have an app in the App Store, you should consider doing some additional research before designing a significant new feature or embarking on a redesign. Regardless of the project scope, the research typically incorporates the existing app. For example, it would be valuable to shadow existing customers as they use your iPhone app, or to have them keep a log of their app usage over a specified period of time. The duration will depend on the type of app; for example, a commuter app may require a week of entries, whereas a museum app may need only an afternoon of entries.

Alternatively, you may consider running a benchmark usability study for your app. In such a study you would provide users with a predefined set of tasks and measure their performance. The results of the study may help identify which areas of your app could be improved in a subsequent redesign. More information on usability studies is provided in Chapter 8, "Usability-Testing App Concepts." Another option is to benchmark your app against one of your competitors' apps as discussed in Chapter 5, "Evaluating the Competition."

As part of your benchmark usability study, you should consider giving the participants a survey to assess their interest in prospective app features. The information you gather at this stage can be beneficial for getting a broad reading on prospective features, which you may then want to examine more closely with qualitative research.

Planning Your Research

Regardless of which method (or *methods*) you choose, it's important to create a research plan. Planning may seem like a formality, especially when you have a small team, but researchers need to keep track of many details as they prepare for

7. Eldia concept video, www.vimeo.com/2420799.

a study. The plan will help manage all of these details and ensure that your team members are on the same page with regard to the goals and approach. The information for your plan can be gathered at a research kickoff meeting with stakeholders (set aside approximately 1 to 1.5 hours, depending on the study scope). Common elements of a user research plan include

- Purpose and objective
- Study dates
- User profiles
- Methods
- Questions for research
- Roles
- Equipment
- Report contents

Let's take a look at each of these elements.

PURPOSE AND OBJECTIVE

The most important thing you should do as part of your research plan is to write down the purpose of your research along with your objectives. Having the objective in written form and checking your list of questions against it will help keep your study focused and streamlined.

Here are some examples based on the product stages discussed in the previous section:

Example 1: Up-front research

Purpose: Learn how parents currently capture their newborn's special moments.

Objective: Identify how the iPhone can make their approach easier and more enjoyable.

Example 2: During design and development

Purpose: Learn how parents currently capture their newborn's special moments, and get feedback on early iPhone app concepts.

Objective: Uncover additional iPhone opportunities and improve upon early concept sketches.

Example 3: After design and development

Purpose: Learn how parents capture their newborn's special moments with [*your app name*].

Objective: Uncover additional iPhone opportunities and improve upon the existing app.

Having a well-crafted purpose and objective will make it easier to complete the rest of your study planning. In particular, the user profile, method, and questions for research will be largely influenced by the study purpose and objective.

STUDY DATES

Communicating the study dates is important for a variety reasons:

- Setting the dates forces you to start recruiting participants for the study.
- It enables your team members to block out time in their schedules so they can participate.
- If you're considering including a working version of your app, you'll want the designers and developers to plan accordingly (e.g., the timing of the study may allow you to include a new idea they are working on).

As you figure out the study dates, be realistic with regard to the number of user interviews you can complete in one day. You may be traveling to unfamiliar places, interviews can run over because of events beyond your control, and you may find it valuable to debrief with your team between sessions as well as at the end of the day. Plus you'll need to eat at some point.

USER PROFILES

Having well-defined user profiles is perhaps the most important aspect of user research. Consider the profile of an app for parents with newborn children. While this is a good starting point, we can further clarify the profile:

- Can single parents participate?
- What if both parents are back at work; should the nanny or other caregiver participate?
- What if the newborn has siblings; is it important to understand how parents capture their special moments as well?

As you can see, even seemingly straightforward profiles can raise questions that should be addressed in advance. While each study will have a unique user profile

(and potentially more than one profile), some user aspects you may want to consider are demographics, background, and technology experience.

Demographics

- **Age.** Are you focusing on specific age groups or are you seeking a mix?
- **Gender.** Is a 50/50 target mix appropriate or another ratio? For example, for the study with newborn parents you may want an equal proportion of the parents and the children to be male and female.
- **Location.** Where should they be located? Only in the United States? Certain states or provinces? City versus suburbs versus rural?

Background

- **Profession.** Are you seeking certain professions (e.g., doctors, lawyers, skilled trades)? Are there professions you want to avoid (e.g., individuals with too much technical or industry expertise)?
- **Education.** Do you want to include a mix of education levels (e.g., high school, college, master's, PhDs)?

Technology Experience

- **The iPhone.** Are new iPhone owners acceptable? How many apps must they have downloaded to their iPhone?
- **Your app.** If you have an app in the App Store, what kind of experience should participants have, or not have, with it? Is it okay if they've used a competitor's app?
- **In general.** Do you want novice users? Sophisticated users? A mix?

NOTE

In some cases it may be appropriate to include one or two "edge case" users who may inspire or push the design direction. For example, this might be effective if you were trying to change how a particular problem is addressed today.

METHODS

Your research plan should specify what methods you will use in your study: shadowing, field interviews, diaries, surveys, and so on. If your team does not have an understanding of these methods, take time to explain them *before* the user research.

You may want to consider having a training session for colleagues who may attend the user research and directly interact with participants. Having a colleague question your approach during a session will make your team look unprofessional; having a colleague question your approach after a session could compromise your hard work. If your team doesn't support your research, it's less likely that the findings will make their way into the actual product.

QUESTIONS FOR RESEARCH

In addition to stating the high-level purpose and objective of the study, it's helpful to list the questions you want to explore when you meet with participants. These questions will help formulate and guide your discussion during the user interviews. Early-stage user research questions typically focus on user needs, but the questions can also be specific to your iPhone app. Consider the purpose and objectives for an iPhone app for parents who want to capture their newborn's special moments. Some questions you might want to ask for such an app could include these:

NOTE

There are often ten or more high-level questions; the previous questions are only an example.

- What types of events do parents typically want to capture?
- What kind of technology do they use?
- What challenges do they face?

ROLES

If you plan to share responsibilities with your colleagues, spend some time clarifying the roles of each researcher. In the case of field interviews, there are generally no more than four people involved: the participant, the interviewer, the note taker, and the observer/videographer. If you have more than three team members, their presence could overwhelm the participant and you might not get the results you're looking for.

TIP

Companies with larger teams may consider taking turns in the observer or videographer role.

If your team has a dedicated researcher, that person will typically lead the user interviews. Alternatively, you should assign the task of interviewing to the team member with the best interviewing and communication skills. Here are some characteristics of skilled user interviewers:

- **Patience.** Participants may take some time to describe a situation, so you need someone who can sit there and patiently wait while people tell their stories.
- **Assertiveness.** Participants may go off on tangents and need to be led back to the topic. If the person strays from answering the question, the interviewer needs the ability to assess the situation and get the participant back on track.
- **Empathy.** Participants may be sharing personal situations; researchers should be empathetic. For example, if a woman starts talking about how her first child was in a neonatal intensive care unit for a few weeks and how she wishes she'd had an app to document that experience, you need to let her talk, and as she does, her emotions related to that experience will certainly come to the surface.

- **Flexibility.** Participants may take the researcher down new and fascinating paths. While this might require more time, you could hit a watershed moment for your app that helps set it apart from everything else in the App Store.

If none of your team members have these skills, you should hire a trained user researcher to conduct the interviews.

Shadowing studies are generally more complicated when it comes to team roles. As mentioned earlier in the chapter, you may be following individuals around for a full day, traveling with them to work, joining them on public transportation, and so on. Instead of three team members, you should have no more than two team members—the interviewer and the note taker—shadow a person throughout the day. In some cases you'll find that one person can effectively get the job done, and it's always best to ask the person being followed what's more comfortable.

EQUIPMENT

Your user research plan should describe what type of equipment and/or software is needed for the study. Christian Rohrer, Director of User Experience at Move Inc., includes the following checklist in his field study course:

- A schedule of the sessions
- Mobile phone numbers for participants and observers
- Participants' addresses (ideally already added to your iPhone's Address Book or in-car GPS)
- Timekeeping device (your iPhone should be sufficient)
- Forms (consent, confidentiality/NDA)
- Discussion guide (enough copies for observers)
- Data collection sheets and session debrief template
- Recording media (paper, pens, cameras, audio/video recorders, tripod)
- Power (batteries, extension cords, power strips, chargers)
- Bags and folders (to carry documents and artifacts)
- Incentives and gifts
- Business card, photo ID, company badge (if applicable)
- Allergy medicine (in case participant has pets and you're allergic)
- Water and snacks

In addition to creating the equipment checklist for your project, you may want to divvy up the responsibilities between you and your teammates. For example, if

you're video recording user sessions, you may want to make one person responsible for bringing *all* of the video equipment (camera, batteries, tripod, etc.) and another responsible for everything else (video equipment alone is a big job). It can be challenging to manage everything on your own, so don't be shy about asking for help.

REPORT CONTENTS

Clearly stating how research findings will be distilled and shared is a must. Some teams may be satisfied with an informal debriefing, whereas others may require a formal presentation along with video clips. If key stakeholders or executives can't attend the research sessions, video clips can support your insights and make them more convincing. Setting report expectations ahead of time may prevent problems from arising after the study.

Recruiting

The user profile outlined in your research plan will help you determine *whom* you want to recruit for the study. Next, you'll need to decide *where* you plan to find these participants. There are several avenues you can pursue, but the most common ones include recruiting agencies, Craigslist, links on the company web site, or friends and family.

- **Recruiting specialist or agency**

  If you have the budget to hire a user research recruiter or recruiting agency, it's often worth the investment. Recruiting can take a long time (surveys, emails, calls), and chances are your team members have many other tasks on their plates. The cost for finding each participant will vary based on the agency, the participant requirements, and your geographical location, but it can typically range between $100 and $250 per participant for qualitative studies (not including the participant compensation). As mentioned earlier, compensation to participants will vary depending on their expertise and the interview duration.

- **Craigslist (or similar service)**

  Craigslist will be cheaper than an agency. Rates vary by city (e.g., in San Francisco it's $75 for an ad; in Chicago it's $25), so check your local site for rates. One of the potential downsides of using Craigslist is that some respondents may be too tech-savvy, and you may get hundreds of replies within a few hours. Screener questions (discussed in the next section) can help filter out advanced users as well as serial usability study participants.

- **Link on the company site**

  If you're planning to include your current app in the study, you may want to consider recruiting through your company web site. Large tech companies with a user focus often create participant databases to make it easier to conduct impromptu user research. One downside is that visitors tend to like the service, which may skew your data toward the positive/easy to use. Unfortunately, it can be hard to find real users for products with small audiences. If you choose this route, be sure to include some folks from alternative recruiting avenues (i.e., Craigslist or friends and family) in your sample.

- **Friends and family**

  In an ideal world, your research participants *should not* be friends and family since they are less likely to be honest about your app (assuming you are showing prototypes), and they tend to lack the diversity of your target audience. However, recruiting friends and family can reduce costs and is typically much faster than the methods described earlier.

  Also, to be clear, you still need to screen friends and family to some degree, whether it's by age, experience, or interest in your type of app. For example, if you're creating an app for mountain biking and you are the only one in your extended family who cycles, you might be able to recruit riders at your local bike shop. You might also consider joining a riding club so you can recruit cyclists to be part of the study.

Choosing a recruiting approach will depend on your goals, user profile, and budget. If possible, try to go outside your personal network; otherwise, recruiting through friends and family can be a viable option.

SCREENER

Regardless of which recruiting channel you choose, you will need to develop a participant screener. The screener is a document that contains questions to help you determine whether a prospective participant meets the criteria outlined in your user profile.

Screener questions can be posed over the telephone, included in a Craigslist post, or presented in an online survey, such as SurveyMonkey (www.surveymonkey.com), Wufoo (www.wufoo.com), or even using Forms in Google Docs (http://docs.google.com). For example, for a high-level iPhone study, my colleague Michelle Reamy and I wanted to recruit parents with young kids, college students, and small businesses. We posted a link to a screener survey on Craigslist, then

followed up by phone with the people who responded. Some of the online screener survey questions are shown here (notes in *italics* explain the rationale behind the question):

- How long have you owned an iPhone? Which iPhone model do you have?

  (We didn't want completely new users. They are often in the "honeymoon stage.")
- Tell us what applications you've downloaded to your iPhone.

  (Up to ten were allowed in the form; we wanted users who had downloaded and used at least a few apps.)
- What is your gender?

  (We wanted a 50/50 target mix of men and women.)
- Do you have children living at home?

  (Helped identify parents; we clarified this over the phone.)
- How old are you?

  (Enabled us to exclude minors and find a range of ages.)
- What is your job title/profession?

  (Helped identify college students and small businesses.)
- If you are selected to participate in this study, are you willing to sign an agreement stating that you'll keep all information regarding the study confidential?

  (If respondents declined, they were not invited to participate.)
- Please enter your phone number. We may have follow-up questions related to this survey.

  (This was used for the follow-up phone interview.)

After you draft your screener questions, you may want to have a pilot (test run) with one or two prospective participants. The pilot may reveal that additional questions or clarification is needed for the screening process.

NUMBER OF PARTICIPANTS

The number of participants in your study greatly depends on your research goals, the user profiles, and your budget. Traditional qualitative user research literature typically recommends ten participants for each profile,[8] although newer texts suggest you'll get diminishing returns after three to five participants.

8. Hugh Beyer and Karen Holtzblatt, *Contextual Design: Defining Customer-Centered Systems* (Morgan Kaufmann, 1997).

If the types of findings you are interested in are unlikely to be easily discovered, you should lean toward having a higher number of participants. However, if you're creating an iPhone app with several different target users (e.g., a photo app for bloggers, travelers, and parents), the number of participants can quickly add up. While this approach can certainly yield rich findings, it's often impractical given budget and schedule constraints. If the choice is between no research or research with fewer participants, I recommend the latter strategy.

COMPENSATION

The compensation for user research depends on a variety of factors, such as the duration of the study, the level of intrusiveness (are you in people's homes or offices?), and the participant's expertise. If you work with a recruiting agency, they can usually provide a good sense of market rates. Alternatively, you can search the [ETC] section of Craigslist and see what other researchers are offering study participants. Keep in mind that qualitative, up-front research usually provides more compensation than standard usability studies.

Facilitating Interviews

If you plan to conduct field interviews, you should create a discussion guide in advance of the session. As mentioned in the section "Questions for Research," the high-level questions in your research plan can help formulate specific interview questions.

The discussion guide's contents will vary with your study goals. For example, in some cases you may plan to interview the participant and get feedback on a paper prototype of your app. In other cases you may want to forgo a prototype and simply interview the participant. Either way, the document is simply a "guide" since the facilitator may need to change direction if something relevant comes up that was not initially outlined. That said, be sure to do a test run a few days before the study so you have enough time to make any changes needed.

Shadowing, on the other hand, does not require a discussion guide since the participants will be carrying on with their regular activities with limited interruptions. Although the sessions will be unstructured, the researcher should have a checklist for what he or she wants to closely observe and document as well as potential follow-up questions.

Regardless of the method you choose, the next sections describe some things to keep in mind while interviewing or shadowing.

ASK OPEN-ENDED QUESTIONS

Asking open-ended questions instead of yes/no questions will enable your participants to tell their stories. In most instances the journey leads to more insights than the ultimate answer. For example, if you want to get a sense of how children are using their parents' iPhones, an open-ended question can lead to a rich discussion, as shown here:

> **Question: Can you tell me about your son's first experience with the iPhone?**
>
> **Answer:** I took a picture of him and showed it to him. He loves the portability of it; looks like a camera, something you can carry around. Sometimes he'll use it when sitting on my lap at the computer. We've also used it to watch YouTube while waiting at the airport. He knows the pictures, though he doesn't know how to read yet, and the sounds. He loves looking at the weather, turning the pages. We have every city for every relative. When we drive to San Diego to see my parents, he can see the blue icon and asks, "Why isn't it going fast enough?"

Note the specificity of the question. If the question were too broad ("What does your son do with the iPhone?"), it may have been difficult for the mother to come up with an example.

LOOK FOR CONCRETE EXAMPLES

You should look for concrete examples when participants discuss their experiences in general terms. Concrete examples will clarify the situation and may lead to valuable insights. For example, a participant told me that he uses Google Maps "all the time." When asked to describe a specific situation, he replied as follows:

> **Question: Can you describe a specific situation when Google Maps was helpful?**
>
> **Answer:** My mother-in-law collapsed in Chinatown. She was able to call us, but we couldn't find her. I told her to look up and she gave me a partial name of an alley. I went to Google Maps, found the alley, and then sent the information to a 911 operator. They blocked off the whole block to get her. Now I say to my wife, "My iPhone saved your mom." She doesn't have an issue when I want to upgrade my phone. We can joke about it now.

If your participant is struggling to provide concrete examples, try to provide prompts, for example, "When was the last time you used [*app name*]?" If the app has a Recents or other history section, those may also jog the participant's memory.

PROBE WHAT'S NOT THERE

What participants don't reveal can also provide valuable insights. For example, a participant gave me a tour of the apps on her iPhone and explained what worked well, what didn't work well, and so on. Over the course of our meeting, she also mentioned several apps that weren't on her phone. When I asked what happened, I learned that she had deleted them because of various user experience issues. Here is our exchange:

> **Question: Why did you delete the Wallet app?**
>
> **Answer:** I liked the idea but it was too difficult to get started. You put in your passwords; you would have all the information in one place. Apparently it's safe. Then if you lose your card, you can call Visa directly from the app. It's a way of storing all that information. My boyfriend told me about it.
>
> **Question: And the Wiki one?**
>
> **Answer:** I didn't trust the [third-party] app because the font didn't look like the Wikipedia font.
>
> **Question: Any others?**
>
> **Answer:** The first app I downloaded was a grocery store finder. It didn't show any grocery stores near me, but there's a Whole Foods right down the road.

Although some participants may provide openings to probe into, others may deliberately withhold user experience issues. Often it's because the participants think the problem is their fault, or they want to please the interviewer and hope positive comments will have that effect. If participants paint an unnaturally rosy picture of everything, try to uncover how things could be even better for them.

Also, look for places where what participants *say* doesn't match what they *do*. For example, when I interviewed an iPhone user, she spent the first 20 minutes or so talking in glowing terms about the iPhone and iPhone apps. At the same time, I noticed that she had five different camera apps with similar names. When I asked why she had all of those apps, I learned about the problems she encountered with each one. She didn't have five apps because they were great; she was still on a quest to find *one* that met her needs.

CAPTURE RELEVANT ARTIFACTS

As you interview participants, try to capture photos, app screens, and other relevant artifacts that support your observations. For example, for the camera app example in the previous section, it would be helpful to have a screen capture that shows all of the camera apps on the participant's iPhone. You may also want to photograph the participant using the apps so you have a visual record of their context of use.

As you gather artifacts, make sure your efforts do not disturb the flow of your conversation. Participants may lose focus or feel overly self-conscious if you or your team members are constantly snapping photos and interrupting to document an artifact. Artifacts that you may want to capture during the session include

- Photo of a participant using the iPhone
- Photos of the computing environment (e.g., laptop, desktop, printer)
- Photo of the syncing setup
- Screen capture of the participant's home screen
- Screen capture of any customization the participant has done to the iPhone (e.g., background or screen saver)
- Screen captures of the apps discussed
- Artifacts created by the apps, including Twitter posts and photos

In some cases you may want to ask a participant to bring an artifact to the interview. This can be helpful if it takes time to track down the artifact or bringing it requires some advance preparation. Using a travel app as an example, you may want participants to share travel photos or other memorabilia from a recent vacation. Be sure to get written permission to take photos, video, and so forth *before* starting the session.

WRAP-UP AND DEBRIEF

At the end of each research session, give the participants an opportunity to ask questions or share any remaining comments. Next, be sure to thank them for their time and input. I often say something like *"Thanks for your help today. Your feedback will help us build better products."*

Finally, provide the participants with their incentive gift and ask them to sign a document stating that they received the incentive. This will protect you in case a participant later claims that he or she never received payment. Also, you'll need this document if you want to declare participant compensation as an expense on your taxes.

If you're conducting user interviews with colleagues, consider holding team debrief sessions immediately afterward. The debrief involves the moderator and observers sharing their observations and sometimes developing one set of team notes. It's a great time to collaboratively analyze your observations since everything is fresh in your mind and the notes don't need to be rushed.

Related Research Activities

User research can provide valuable insights, but it's not the only way to understand your users. In addition to user research, be sure to consider some of the other activities outlined in TABLE 3.2. Competitive research will be discussed further in Chapter 5, "Evaluating the Competition."

TABLE 3.2 Activities That May Help Define Your App

Activity	Description	App Stage
User research	Develop an understanding of your users' needs and how they are currently being met on the iPhone and other relevant platforms.	New or existing
Competitive research	Evaluate what your competitors are doing on the iPhone, as well as on other relevant platforms (Mac OS X, Android, Windows OS, BlackBerry, etc.).	New or existing
Market research	Evaluate your app's potential for a specific market.	New or existing
Literature review	Read existing research related to the app: market research, academic research, white papers, industry news, etc.	New or existing
Analytics	Evaluate how users are currently using your app. Many tools such as Flurry (www.flurry.com) can be used to show how users navigate through your app and what features are used most/least frequently.	Existing
App Store reviews	Read your app's reviews in the App Store; look for trends within the comments.	Existing
Customer support	Analyze what users are saying in your customer support forums.	Existing
Online forums	Analyze what your users are saying in relevant online forums, such as Twitter, Get Satisfaction, or Facebook groups.	Existing

Summary

Up-front user research can benefit both new and existing apps, shedding light on prospective users' context of use, perceptions, pain points, language, and customs. Using this foundation, you can make informed decisions throughout the product development process. Moreover, research can reveal new app opportunities and inspire innovative solutions.

The user research strategy depends on the type of app and its stage in the development cycle. In most cases, apps in the very early stages will benefit from observational methods, whereas apps in later stages will benefit from observational methods combined with app prototypes. As you develop and execute your research plan, keep in mind the following:

- *Some* user research is better than *no* user research. If you're seriously strapped for time, keep the study small and recruit through friends and family.
- Don't skip the user research plan! Sorting these details out in advance will save time and aggravation.
- Be empathetic and respectful toward your participants. Your sessions will be richer and the benefits greater if there is mutual respect and understanding. ■