A PROJECT GUIDE TO UX DESIGN

FOR USER EXPERIENCE DESIGNERS IN THE FIELD OR IN THE MAKING

THIRD EDITION

RUSS UNGER AND CAROLYN CHANDLER

New Riders

VOICES THAT MATTER™

5. Discovery (stakeholder research, systems research, initial hypothesis creation) & Kickoffs [This content is currently in development.]

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A Project Guide to UX: For User Experience Designers in the Field or in the Making

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Contents

Table of Contents

Usability Testing

15. Development & Beyond

1. The Tao of UXD [This content is currently in development.]

This content is currently in development.

2. The Project Ecosystem [This content is currently in development.]

This content is currently in development.

3. DesignOps, ResearchOps, ContentOps & Other -Ops [This content is currently in development.]

This content is currently in development.

4. Project Objectives and Approach [This content is currently in development.]

This content is currently in development.

6. Workshops & Collaboration Activities [This content is currently in development.]

This content is currently in development.

7. User Research

Get to Know the Guests You're Inviting to the Party

There are many user research methods that can be used at different stages of your project, either to better understand your users or to test out their behavior on versions of a product. This chapter will focus on some of the methods that are most commonly used for planning or discovery in the beginning stages of a project.

These methods will help you define the user groups that should be of highest priority during the project, put their needs and frustrations in context, and assess the performance of the current product (if one exists) using best practices in the field of user experience design.

Carolyn Chandler

Basic Steps of User Research

While user research may seem a daunting task, you can divide the process into six basic steps:

1. **Define your primary user groups.** Create a framework that describes the main types of users you're designing for so you can focus your efforts in planning your research and recruiting users.
2. **Plan your research.** Work with your team and stakeholders to set clear research goals and objectives, then choose one or more methods that will help you meet them.
3. **Conduct the research.** Follow the method of your choice. Later in this chapter, we'll cover some of the most common methods and provide tips on how to go about them.

4. **Form and share your findings.** Once you have data, you need to look for trends, bring forward the most important findings, and socialize the results with your team and stakeholders.
5. **Validate your user group definitions.** Using what you learned from the research, you can solidify your user groups model and extend it into personas and profiles (discussed in Chapter 8) or maps (discussed in Chapter 9).
6. **Generate user-focused product ideas.** These are a collection of statements, or stories, about the needs that a product should address. After creating these, you can then review them along with stakeholder and system requirements (discussed in Chapter 5) and form them into potential features or functions (discussed in Chapter 10).

This chapter will cover the first four steps of the process, starting with the definition of your user groups.

A Note on ResearchOps

For the purposes of this chapter and Chapter 14, we're assuming you don't have a ResearchOps group at your company. If you do have one, you should absolutely partner with them right from the start. They might be able to help you refine your user groups, gather important analytics, gain access to participants and tools, run studies, and share findings in a way that allows these to be referred to consistently across the company. Review other ways to work with Ops teams in Chapter 3.

Define Your User Groups

If you don't already have a definition of your expected user groups at the start of your project, planning for user research can feel like a chicken-or-egg dilemma. Which comes first? How do you make sure you're talking to the right people if you don't yet know who those people need to be?

One way to get started is to create a *provisional model* of the people you'll be designing for. This is a description of what you assume are your primary user

groups. It's not yet validated by research, but it can help you focus your research efforts for the roles, demographics, or other variables that may have an impact on how users will experience your product. User group models can be high level, such as a list defining each of your target user groups, or detailed and visual, such as a persona or journey map (covered in the following chapters).

A high-level list for a company's primary.com site might include the following user groups: potential customers, current customers, partners, and job seekers. You might then segment a user group, like current customers, further into a model that helps you understand important differences you might find within that user group.

Your provisional models are based on the collective knowledge of business stakeholders and project team members regarding the types of users who might interact with the product. Those definitions can be built by collecting some of the goals and attributes that different user groups may have. Here are the basic steps for defining your user groups:

1. Create a list of attributes that will help you define the different users of your site (the next section will cover some of the most common).
2. Discuss and expand on those attributes with people at your company who have contact with relevant types of users (for example, customers).
3. Prioritize the attributes that seem to have the largest impact on why and how a potential user would use your product.
4. Segment the user groups that you will focus on in research and design.

The next sections take a closer look at some brainstorming techniques to help you collect these attributes and at how to prioritize and model them (create representations of the various user types that will help you focus your research efforts).

Create a List of Attributes

A good start for your attribute list is to gather and absorb any research or other documentation the organization has that could provide direction with regard to users. Here are some potential sources:

- Documents that represent strategic considerations, such as company goals, competitive information, marketing strategies, and business plans

- Data-based segmentations of current customers and other demographic data gathered by the marketing department or through product analytics
- Previously conducted user research (see Table 7.1 later in this chapter for some examples)
- Surveys, such as user satisfaction surveys and feedback forms
- Customer service reports covering frequently occurring issues

Identify people within the organization who have the information above, as well as some insight into current or prospective users. If you think the initial user definition may need to hold you through a good portion of the design process (for example, if you have only this one to work with until you conduct usability testing, after some design has been done), include more participants and ensure you have a cross section of perspectives.

Some possible participants include marketing staff who are responsible for brand representation, segmentation, and campaigns; sales staff; product managers; customer service or support representatives; and trainers.

It's also good to include project team leadership and other business stakeholders in this exercise.

Ask the group to think of the different types of potential users they tend to interact with. Then ask them to list some of the common attributes they've encountered. Here are some examples of what could vary:

- **Primary user goals,** as they relate to the subject matter of your site. Why are users coming to it and what are they trying to accomplish? For example, purchasing an item, trading a stock, or getting a specific question answered are common goals.
- **Roles** can be defined in many ways, but one way is to tie roles to the user's primary goal: job seeker, support seeker, potential client, and so on. Once you have more user information, roles can be subdivided by different needs or styles; for example, on an e-commerce site shoppers could include bargain-hunters and connoisseurs.
- **Demographics,** including age, family (single, married, children), and income level. Some demographics, like location, might be available from customer data gathered through purchases or visits to the company's primary website.

- **Experience,** including level of education or level of familiarity with the subject matter, and experience with relevant technologies (often referred to as *technical savvy*). If the product you're working on already exists, you may also have relevant data about frequency of product usage (one-off, occasional, frequent).

- **Work attributes,** including the size of the company users work for, their department, type of job (entry level, freelancer, middle management, executive), and tenure. Consider variations you might see related to the company culture, such as remote or in-person work expectations (introduced in Chapter 2).

Once you have a list of some of the attributes that come up most often when stakeholders are describing potential users, you can start to prioritize them by their level of importance and then use that hierarchy to begin defining and modeling user groups.

Prioritize and Define

Which of the attributes listed above do you think have the greatest influence on how and why different user groups might use the site? Focus on the ones that you think will have the greatest impact on a user's goals or behavior. Prioritize those attributes, and remember the objectives you created in Chapter 4—they will help drive your choices as well.

An example best illustrates how to prioritize attributes. Say you're working with a company that provides tools for online trading of stocks, options, and futures. This particular company has determined that part of its strategy will be to engage *nonprofessionals* who are trading stocks on their own online, and to encourage them to try trading new types of products, such as options. The company plans to create online trading tools that provide hands-on learning in a safe environment.

In discussing attributes with business stakeholders, you may find that the following ones seem to have the biggest impact on how individuals might use these tools:

- **Current frequency of trading:** specifically, frequency of direct online trading (once a quarter, once a day, several times a day). Those who just dabble in trading (say, once a month) may not be serious about trying something new, while those who are already trading full time may not find

much value in tools targeted to less experienced traders. But those who are active part-time traders could have a strong interest in the company's tools.

- **Number of product types traded:** just stocks or stocks, options, and futures. Those who are already trading all types of products may already have a preference for their own tools, but those who trade only one type may be ready to branch out to others.
- **Level of subject-matter expertise** (for example, familiarity with trading terms). This will help determine how much help they'll need along the way, with tutorials and glossaries.
- **Level of technical savvy** (for example, familiarity with the use of digital tools for personal banking or accounting). This will influence how much reassurance they'll need about information privacy and how advanced or simple the online interface needs to be.

Prioritize these attributes based on the user types you'll be targeting for research and what you want to learn. If where traders live doesn't seem to have a real impact on how or why they trade, the Region attribute can drop off the list as a consideration for research participants. On the other hand, if the importance of a particular attribute sparks a lot of discussion, it may be a good subject for a survey question or interview question (we discuss surveys later in this chapter).

Comparing two or more attributes can help you prioritize as well. For example, if you make a 2x2 chart using two attributes for online traders, you can start to see how groups fall within some of the ranges. A chart like this is an example of a *user segmentation*. **Figure 7.1** is an example of a rough user segmentation you could make using the two attributes of Frequency of Direct Trading and Number of Product Types Traded; it also shows the resulting user groups that might form out of the discussion.

Figure 7.1 A chart of two attributes, representing a rough user segmentation. Creating this segmentation collaboratively can facilitate discussion about potential differences in user motivations and experience.

This segmentation provides a high-level model you can use to discuss different user types. It's not meant to be the final model you would use when designing, and it doesn't label user groups exclusively (a user could be a long-term investor in stocks and also be actively exploring other possibilities in options or futures). But it does begin to express your understanding of different user groups and why they may be motivated to use your site.

This discussion concerning important attributes also helps you discover which ones you'll want to focus on when recruiting users for research. If you determine that Frequency of Trading is important, and that the priority will be to engage those who currently have a medium level of frequency, you'll want to define what *medium frequency* means (one to three times a week, for example) and recruit your research participants accordingly.

Can You Design from Provisional User Models Alone?

There's debate within the user experience field about creating user models before research is conducted. Doing so can color your thinking before you have real user data, and your project team or project sponsor may see the model as a replacement for user research. Using an unvalidated model does introduce more risk that your assumptions will be incorrect. In projects

where you'll have no contact with users at all, however, a well-thought-out model (verified with sources outside the project team, such as a customer service group or training group) is typically better than having no model at all to use during design. Be clear with your team that provisional models are based on assumptions and that the models should be refined with research.

Plan Your Research

Now that you have a broad understanding of the variety of user groups you'll need to consider, it's time to focus on what you want to learn through research.

This is an essential step! The last thing you want to do is spend time, money, and the patience of your team during the research process only to learn that people were on very different pages about what they expected to be able to do with the results.

First, work with your team to align on the overarching goal that the research should be focused on. In our example of a project for nonprofessional stock traders, the goal may be "understand the likelihood that nonprofessional stock traders would learn how to trade options." This is a good goal for the Discovery stages of a project.

From that goal, you can define one or more research objectives. In Chapter 5, we talked about defining project objectives that are easy to understand, distinct, and measurable. The same principle applies here. But how do you get there?

Surfing: Goals and Objectives and Hypotheses, Oh My!

There are several kinds of focusing statements that you might form as you're planning your research: goals, objectives, and hypotheses. Despite their conceptual differences, these terms are often used interchangeably, which can cause some confusion on the team.

One way to think about this is:

A **goal** is the *purpose for the research*. It's the state or level of understanding that you're trying to ultimately reach, or it's the higher-level question you're trying to answer. You may reach your goal with one research method, or you may need to use several methods, iteratively, before you feel like you've reached it.

An **objective** is *something specific, distinct, and measurable that you want to accomplish*, where the team believes that fulfilling it will take everyone closer to the goal. A goal is likely to have multiple objectives. In the case of research, you may need to conduct multiple studies (each with its own objective) in pursuit of the same goal.

A **hypothesis** is *an idea you want to validate or invalidate*. It could be an idea about why something might be happening, like "customers are abandoning their cart here because the shipping price is too high." Or it could be a proposal for a change and the expected outcome, like "If we remove the address validation step, we expect the percentage of completed purchases to increase." Your research can then explore whether that hypothesis is true or false.

The company GitLab Inc offers a handbook with robust information about their UX practices, including a great article called "Defining Goals, Objectives, and Hypotheses." You can find the example-filled article at about.gitlab.com/handbook/product/ux/ux-research/defining-goals-objectives-and-hypotheses.

One approach that can help you get started toward forming objectives and choosing research methods is to list the questions that are sparked by your goal. Ask your team members to share theirs as well. For our example, suggestions might be:

- How do nonprofessionals learn how to trade stock in the first place?
- What digital products do they use (especially those related to trading)? Do they use a computer, a mobile device, or some combo to research and trade?
- When do they tend to trade stock (time of day, on weekends, at certain times of the month or year, and so on)?
- What kind of research do they do on a stock before they purchase?

- What are their impressions of trading options? Are they worried that trading options would be too risky?
- How many nonprofessional stock traders also trade options, currently?

You could look at these questions and form objectives like:

- Understand the common trading tools and habits of nonprofessional stock traders.
- Uncover the obstacles that may stop a stock trader from learning how to trade options.
- Determine the percentage of nonprofessional stock traders who have also traded options.

The first two objectives here may point you to a *qualitative* research method such as field studies or interviews, while the third may point you to a *quantitative* method like a survey.

Let’s dive into the difference!

Qualitative Research vs. Quantitative Research

Research approaches are often described as being either quantitative or qualitative. *Quantitative* research is focused on numerical data and is meant to provide *high-confidence, repeatable results* among your target user groups. It relies on your inclusion of a set of users from among that group (called the *sample size*) that is large enough so that findings from it can be used to make inferences about the way the user group as a whole will respond, within a certain range of error.

Surveys are an example of a method of information-gathering that can be expanded to a larger audience, resulting in quantitative data—if you ask the right questions, that is. Product analytics are another quantitative method based on the tracking of user behavior, which can help you find potential areas of concern (for example, if you’re seeing a high number of users abandon your product mid-task).

Qualitative research, on the other hand, is not as focused on repeatability, but rather focuses on gaining *context* and *insight* regarding user behavior. Successful qualitative research comes from asking good questions, being open to

unexpected answers, and finding trends— while avoiding cognitive bias as much as possible.

Snorkeling: How Bias Creeps In

A *cognitive bias* is a psychological tendency we all have as humans. Biases can color your thinking in multiple ways when you're planning, conducting, and synthesizing findings over the course of your research, and they can lead you to come to incorrect conclusions. Here are some common types of cognitive bias to watch out for:

- **Confirmation bias,** where you focus on findings that confirm what you expected or wanted to find, and discount information that challenges your beliefs.
- **Primacy effect,** where the first few things you hear (or the first participants you talk to) get remembered more easily and weighted more highly than what you hear later. The flip side of this is *recency effect*, where the last few things you hear have more weight.
- **Social desirability bias,** where you tend to represent yourself and your behavior in a way that makes you look good to those with whom you're speaking, even if what you're saying is untrue. As a researcher you'll need to watch out for this bias among your participants, who might misrepresent their behaviors if the true answers are considered socially undesirable (something dentists and doctors are well aware of).

The Decision Lab has a comprehensive list of of cognitive biases to watch out for (either yours or those of your participants), and it makes for fascinating reading about what complex beings we all are! You can find the full list at thedecisionlab.com/biases-index.

For a shorter list more geared to user research, with tips on how to avoid each type of bias, read Sundar Subramanian's article "10 Cognitive Biases to Avoid in User Research (and How to Avoid Them)" at uxdesign.cc/10-cognitive-biases-to-avoid-in-user-research-and-how-to-avoid-them-993aa397c8c6.

It’s very powerful to combine qualitative and quantitative methods, because they complement each other. Product analytics may tell you *what* is happening—for example, people are dropping off before checking out with their cart—but this could be because of a usability issue, the price, or some other reason entirely. You can discover *why* something is happening by getting context through qualitative means like an interview or usability test.

On the flip side, a qualitative study might uncover preferences that seem important (like participants saying a page scrolls too much during a particular step in an important flow), but if quantitative data shows that the step in question has little to no drop-off, it might not be a high priority to change that step.

When there are a lot of unknowns on a project, as in the Discovery phase of a new offering, it’s good to consider using multiple methods of research in order to ensure that you’re creating a strong foundation for your product decisions. If you have an existing offering, you’ll have the benefit of getting some quantitative support out of the gate through product analytics. So let’s talk more about them!

Product Analytics

If you have an existing product with an active user base, reviewing relevant product analytics is a good step to take during the research planning phase. The larger your user base, the more in depth you can typically go with the kinds of questions you can explore.

In Chapter 4 we covered some of the user-related metrics that are often involved in the forming of project objectives, like activation and retention. You may also have the ability to finely tune your quantitative insights by tracking specific events—user interactions with your product.

Some events are tracked automatically by platforms you may be using already. For example, for a website, Google Analytics will already track the bounce rate for a page, which is the rate at which users leave a page without taking an action. Other tools, like HotJar, can visually track user interactions via a heat map that indicates the areas of interaction on a page.

You may also have additional data on events that have been defined by your team and have been tracked over time.

Event Tracking and Funnels

Events are user interactions that are being tracked in your product, like "selecting an article from search results" or "liking a comment." Data on these events can be tracked when there are hooks built into the product's code.

Planning Ahead for Analytics

Adding hooks for event tracking should be part of your team's development process whenever a new feature is released; doing this is called *instrumentation*.

When you're approaching the end of your Design phase and have new flows or features at the ready for the Development team, consider what related events you might want to track. Share them with your team so they can plan to include the right hooks for future needs. It's better to include them as early as possible, even if you're not sure yet how you'll use them, because it takes time for the data to be gathered to a level that it provides insight about usage.

If you're performing research for a project in the Discovery phase, you'll be dependent on the key events currently in place. You may also have information about *funnels*, which are a way to track user drop-off at different points of a multi-step process (**Figure 7.2**).

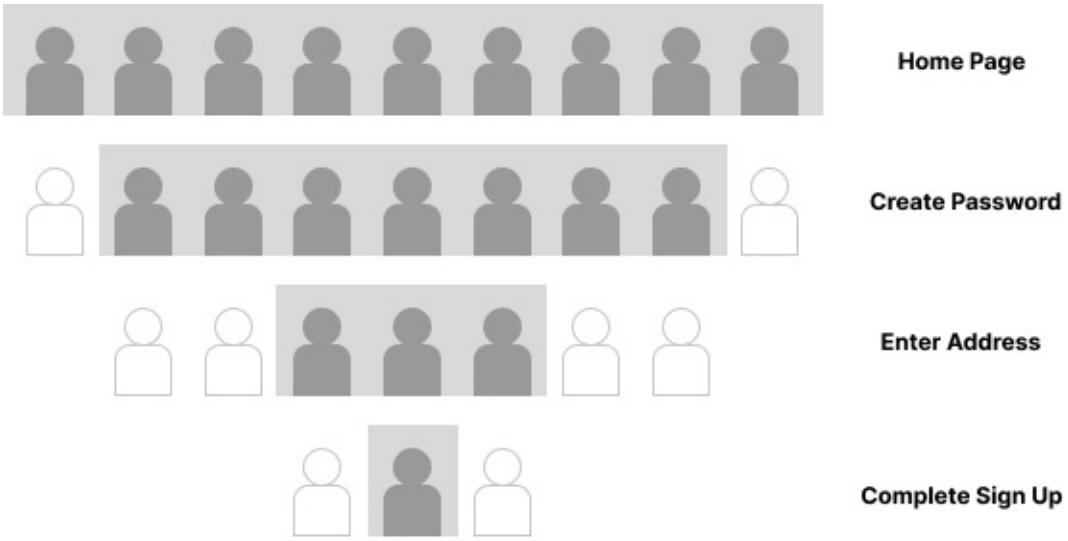

Figure 7.2 A funnel is the tracking of a sequence of steps that users take

to complete a particular workflow. There are usually drop-offs at each step, which is what forms the funnel shape. Look for unusually high drop-off points (here, seen in the Enter Address step) to find areas that could benefit from user research or recommended design changes.

Getting the right analytics for your research may involve a few different roles within your company, depending on its size and structure (which we touched on in Chapter 2). For example, you might need to involve a product manager, data analyst, or developer.

Once you know who to go to, send them a list of questions that you're hoping to find answers to via analytics. They should be able to tell you which of them can be answered.

For example, if you're looking to improve the search feature in your product you might ask:

- Which search filters get used the most often?
- How frequently do users use the Advanced search?
- How often does a visitor select one of their results after searching? Does this number vary between those using the basic search versus the Advanced search?

There may be multiple ways to answer a particular question, so it's okay if there's a little bit of back and forth here. For example, if you're refining the second question above, you might ask:

- Of all visitors who performed a search in the past 30 days, how many opened the Advanced search at some point (whether or not they used it)?
- Of all visitors who performed a search in the past seven days, how many actually used the Advanced search?

You may need to try getting the answers during different time periods, and look at both numbers and percentages to figure out which gives you the answer you're looking for. This may also mean that you'll be looking into what a user does in a single session of interacting with your product. What constitutes a session could vary based on your product and the insight you're trying to gain; often a session is considered back-to-back interactions from the same user until there has been 30 minutes of inactivity, after which another interaction is

considered a new session.

Once you have a picture of some of the behavior of your users via analytics, you'll have some idea of what questions you might be able to address with other research.

Choose Your Research Method(s)

It's time to plan the next step: your recommendations for the amount and type of user research activities to conduct during the project.

If you don't have product analytics to start with, fear not! There are many other methods of user research that can uncover valuable insights to help you build a foundation of understanding (**Figure 7.3**). Let's look at a high-level view of some of the most common across different teams and product types.

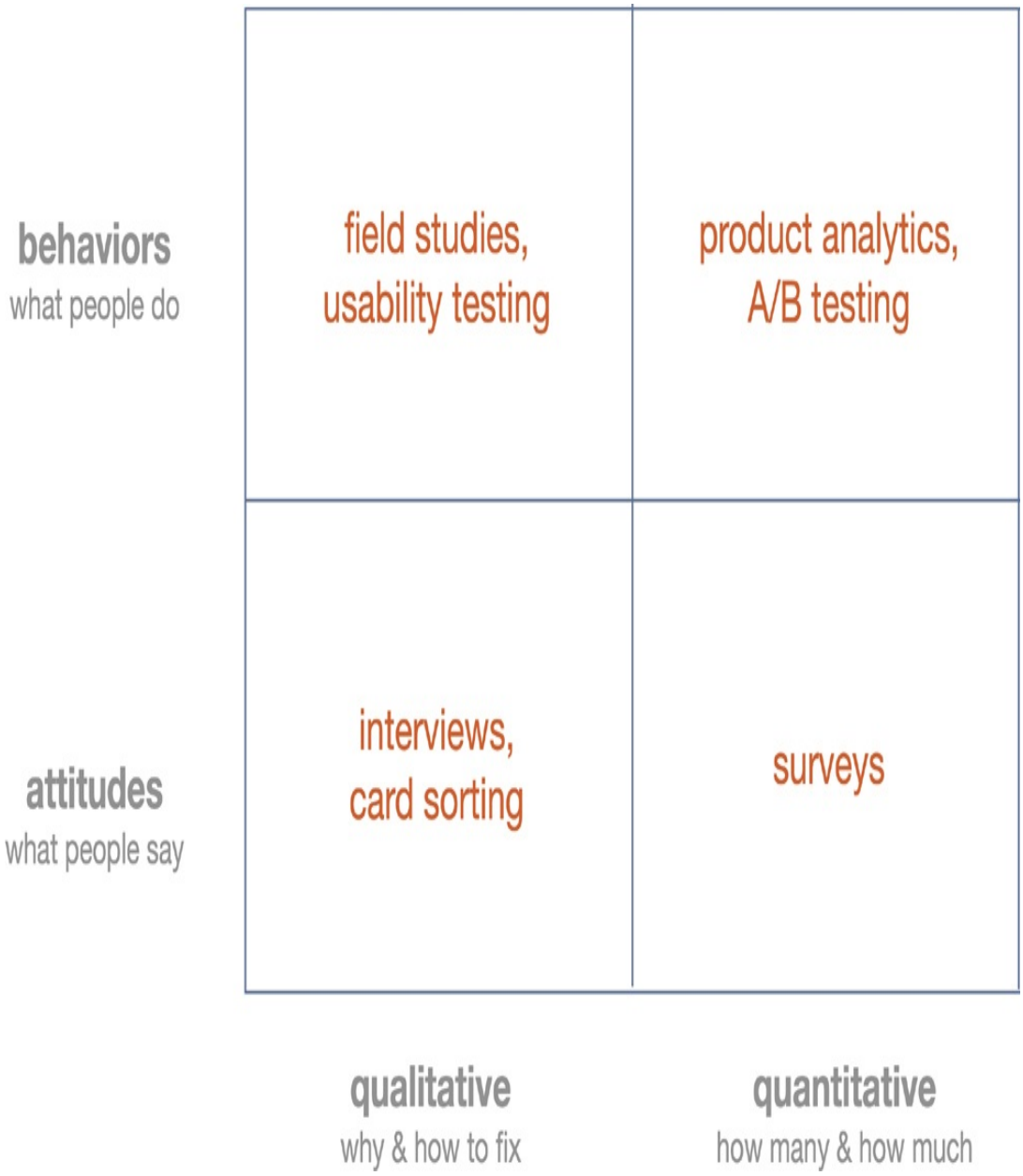

Figure 7.3 Christian Rohrer created this helpful 2x2 of common techniques and the kinds of insights you'll gain from them. We'll cover the methods shown here in this chapter and in Chapter 14.

Snorkeling: Which Methods Should I Use?

This chapter covers some of the most common methods of user research, but there are many others. For example, eyetracking studies use a device to measure precisely where participants are looking as they're performing

tasks, and diary studies involve asking participants to record their experiences and environments over longer periods of time.

Christian Rohrer has an excellent overview of a large variety of methods, including maps of where they tend to fall along the range of qualitative to quantitative approaches.

For more on that and other helpful guides, check out “When to Use Which User-Experience Research Methods,” by Christian Rohrer (www.nngroup.com/articles/which-ux-research-methods).

Table 7.1 presents some information on the most commonly used research techniques and when they are often most useful. Use this table as a reference to help you choose which ones best apply to your project. The next section describes each method in more detail.

TABLE 7.1 Common User-Research Methods

Activity	What It Is	When It's Useful	Challenges	Typical Time Frame *
User Interviews	One-on-one conversations with participants who belong to one of the site's primary user groups.	There is access to users, but type of access (in person, remote, etc.) varies. You want to gain context but can't go to the user.	Getting straightforward opinions. It can be hard to gather information about attitudes and context, especially if interviews are conducted remotely.	2–4 weeks for 12 interviews: Up to a week to plan, 1–2 weeks to interview, and up to a week to compile results.
Field Studies	On-site visits to places with potential users to observe and learn about how they behave in their normal, everyday environment. Contextual inquiry is a common method that blends interviews and field work.	The project team has little information on target users. Users work in a unique environment (e.g., a hospital) or have complex tasks or workflows.	Gaining access to the right places. Going to users' environment may raise concerns about security, intellectual property, and intrusiveness.	3–4 weeks for 12 inquiries: 1 week to plan, 1–2 weeks to observe, 1 week to analyze and report results.
Focus Groups	A group discussion where a moderator leads participants through questions meant to uncover their feelings, attitudes, and ideas about a specific topic.	The team believes that users' attitudes will strongly influence their use of the product (e.g., if there have been problems with it historically).	Structuring your questions in a way that brings the right information out. Minimizing social desirability bias.	3–4 weeks: 1 week to plan and write questions, 1–2 weeks to conduct focus groups, 1–2 weeks to analyze and report results.
Card Sorting	Participants are given items (such as topics) on cards and are asked to sort them into groups that are meaningful to them.	You are working on a content source with many items and want an effective structure for your user groups.	Determining which topics would be best to include.	3–4 weeks: 1 week to plan and prepare, 1 week to conduct research, 1–2 weeks to analyze and report results.
Surveys	Gathering data by using a series of questions consisting of mainly closed-end answers (multiple choice). Used to identify patterns among a larger number of people.	You want to state results in more quantitative terms (e.g., "80% of the target user group said they've never traded options").	Getting an appropriate sample of respondents. Writing questions that result in accurate answers without leading respondents to a particular answer.	3–4 weeks for a short-run survey: 1 week to plan and write the survey, 1–2 weeks to run the survey, 1 week to analyze and report results.
Product Analytics	The analysis of data tracked by a product's usage over time. This may include common web metrics like bounce rates, or information about the frequency of key user interactions chosen by the product team.	An existing product is being improved, and has an active user base large enough for findings to be clear. Some analytics tools allow you to insert questions into your product for in-context user ratings and feedback on specific features.	Having the tools, access, and expertise needed to pull useful data and make the right conclusions from it. Regularly setting up the right events to track.	Timing depends on the question you're trying to answer. If you are already tracking relevant metrics, the answer might be found in minutes. If not, you may need months to see a pattern.
Usability Testing	Users try to perform typical tasks on a site or application while a facilitator observes and, in some cases, asks questions to understand users' behavior.	An existing product is being improved. You have a prototype that lets users complete (or simulate) tasks.	Choosing the appropriate tasks to focus on. Determining how formal to make the test.	3–4 weeks for 10 users and medium formality: 1 week to plan and write the tasks, 1 week to run the tests, 1–2 weeks to analyze and report results.
A/B Testing (Live Site)**	Diverting some users to one design (A) and others to a second design (B) to see which group "converts" better, meaning more of them complete a specific action like making a purchase.	An existing product is being improved, where the action you're testing happens frequently enough to give you a clear winner.	Having access to a tool that has this capability and a way to view results. Determining how many responses are needed before you have a clear answer.	These should run for a minimum of 1–2 weeks. It may take longer before you'll know the result, depending on how many of the relevant actions occur.

* Typical Time Frame represents the time often needed from the point users are scheduled. Two groups of six to eight users are assumed (except for surveys, where the number of users should be larger). This does not include time for recruiting, which can take one or two weeks after creation of the screening questionnaire—or just a few minutes, if you have access to a large user base and a recruiting service like usertesting.com or UserZoom.

** Comparing two different design concepts in research activities can also be referred to as A/B testing, which is why we say A/B testing (live site) when talking about quantitative methods that involve diverting traffic in an existing product. We'll cover more on comparing design concepts in Chapter 14.

How Many Research Activities Can I Include?

Before you choose among the methods, ask yourself how much money and time the team can dedicate to user research. Consider the following situations to understand how much appetite your company has for user research.

If project leadership and the project sponsors are comfortable with user research and are interested in using it for known goals, such as ensuring the site meets specific project objectives, then you're likely to have more leeway in planning for two or more activities, or for one activity that you conduct multiple times (for example, testing a design, changing it based on your results, and retesting the new design).

Considerations When Planning Research

When planning for any research techniques, consider the following:

- ☐ Budget and timeline
- ☐ Where your highest areas of risk are, if you were to act without user insights
- ☐ Why you're conducting the research: what you want to learn from it (your goals and objectives)
- ☐ Who you're including: the primary user groups you outlined above
- ☐ How you'll get participants: recruiting people to participate and screening them (that is, asking questions to make sure they fall into the user groups you're targeting)
- ☐ How you'll compensate participants
- ☐ What space, equipment, and software you'll need, based on whether you'll be in person or you will conduct research remotely (see Chapter 14 for more on remote research)
- ☐ What you're covering: the primary topics
- ☐ How you're capturing information: the number of people involved and the tools they're using

Chapter 14 will cover each of these considerations as part of a detailed look at one of the most common techniques used by UX designers: usability testing.

If no one at the organization is familiar with user research and there's some resistance to it altogether, you may be better off proposing one round of research and picking the technique that you think will bring the most value to you, the project team, and the business stakeholders. Once you have the results of the research, the project team will have a better idea of what's involved and how the project can benefit. You'll then have a strong case for including more research later, if needed.

If you have room for at least two rounds of research, a good approach is to include one round during the Discovery or Define phase, or early in the Design phase, to better understand the users. Then include one more round before development starts, to validate the design. For example, for a task-based application you might conduct user interviews before designing and then perform usability testing on a prototype later in the process. Or for a content source you might start with a card sorting exercise and run a usability test focused on your content categorization later.

Note

See Chapter 2 for more on task-based applications and content sources.

Conduct the Research

Let's take a closer look at each of the research methods from Table 7.1, as well as the ways they're commonly used.

User Interviews

User interviews are structured conversations with current or potential users of your site. These can be conducted via video conferencing tools, in person in a

neutral location (such as a conference room), or, ideally, in the environment in which the user is likely to use the site. (This last situation is also great for conducting a contextual inquiry, which we'll cover next.)

Interviews help you understand participant preferences and attitudes, but they should not be used to make formal statements about actual performance. If you're looking for specific information on how people interact with a site, it's better to observe them using it (for example, in a contextual inquiry) or ask them to perform tasks on the site during usability testing. Product analytics can also give you insight into performance information that can be particularly strong when paired with interviews or inquiries that provide context for the data.

The Basic Process

For user interviews, the UX designer creates a list of questions aimed at eliciting information such as the following:

- Relevant experience with the product or with the subject matter.
- The company's brand, as experienced by the participant.
- Attitudes toward, for example, the categories covered (for a content source), the process being designed (for a task-based application).
- Common goals or needs that drive users to your product or that of a competitor.
- Pain points in overall process or context your project is focused on.
- Other people who are involved in the experience. For example, does a user tend to collaborate with someone else as part of the larger goal they're trying to achieve? Are they likely to share information or ask opinions of others along the way?
- Any other information that will help you validate the assumptions you've made about user groups up to this point—for example, whether the variables you discussed when creating a provisional user model really seem to influence the way users are experiencing your product.

If more than one person is conducting interviews, have a set list of questions and a scripted introduction that can be used to maintain consistency across interviews.

You should also create a centralized method for entering results across participants. This will benefit you later when you're looking to organize your results. You can use a spreadsheet tool with cells ready to go by question and participant if you need to be scrappy. If you have access to more robust research platforms, like Dovetail or dscout, familiarize yourself with the tools there for tracking and searching through results.

Choose ahead of time how structured you want the interviews to be. If you're going for a formal presentation of findings, you'll probably want a high degree of structure, where question order doesn't vary much and every question is asked where possible. If richness of data is more important than consistency, you may decide to opt for semistructured interviews, where you start with a list of questions but allow the conversation to follow a natural path, with the interviewer asking questions to further explore interesting comments (called *probing*).

The length of your interview can vary; 45 to 60 minutes is often the best range to shoot for. It gives you enough time to build a rapport and cover a wide range of questions without fatiguing your participant.

User interviews provide a rich set of data that you can use to write personas or profiles, which are covered in Chapter 8.

Interviewing Tips

The quality of the information you get out of an interview has a lot to do with the quality of the questions you ask.

Focus on participants' personal experiences. Don't ask them to speculate on what they may do in the future or on what others may do. This kind of information rarely predicts what they actually will do.

Don't ask *leading questions*—questions that imply a specific answer is the correct response or that influence participants to answer in a certain way. Ideally, questions are simple, neutral, and open ended. Some examples of leading questions are:

- What do you like about Pseudo.com?

  This assumes the participant likes using the site. Be sure to add *if anything* to the question so the participant doesn't feel encouraged to make up an answer, and use this question only if you also ask what they dislike about

it.

- Does Pseudo.com meet your expectations?

  This can be answered with a simple yes or no, which doesn't give you much detail to help with your design efforts.

- Would you rather use Pseudo.com or CompetitorVille.com, and, if the latter, why do you think they are better than Pseudo?

  This has a couple of problems: It's asking two questions in one statement, and it forces an implied opinion on the participant.

Better questions to ask are these:

- Tell me about your last visit to Pseudo.com. Why did you go there?
- What do you remember about your visit?

If you're doing a large-scale, more formal set of interviews, you may want to include some multiple-choice questions. For the most part, though, these don't give you very rich information. They can be hard for participants to follow when asked verbally, and they don't allow users to elaborate. In general, save that type of question for screeners or for surveys.

Perform a test run with someone, perhaps someone within the organization who isn't a member of the core team. This will help you discover questions that may not be clear and will also help you refine the timing and flow.

If it's possible, and the participant consents to it, record the interview so that others can benefit from hearing answers straight from the participant's mouth. We'll cover more about getting consent in Chapter 14.

Contextual Inquiry

Contextual inquiry combines field observation with interviewing techniques. The UX designer goes to participants, ideally to the environments in which they're likely to use the site. For example, for an office product, contextual inquiry would involve sitting near the participant's desk while they work.

This method gives you rich information about the context a participant works within, including these:

- The real-life problems users are facing.
- The kind of equipment they're working with.
- The space they're working within—in particular, the amount of space they have, how much (or little) privacy, how often they are interrupted, and how they use paper (pay special attention to printouts they've posted or notes they keep handy).
- Their preference in interacting by mouse, keyboard, or touch. This can greatly affect your design choices, especially if you're designing a tool that requires a lot of data entry.
- How they're working with others, in terms of both collaboration and sharing resources. If more than one person is using the same computer, for example, it will affect how you design login and security features.
- Other tools they're using, both online and off. How people use paper is especially interesting—for some tasks, it can be hard to design an online solution that competes with paper!

Inquiries combine observation time and interviewing time. They can last anywhere from a few hours to several days.

If participants can't dedicate at least two hours, you should consider just performing an interview. During an observation, it takes some time for the participant to adjust to your presence and act somewhat naturally, and this doesn't happen after just 15 minutes.

The Basic Process

Prepare a 10- to 15-minute introduction you can use with each participant. It should include the purpose of the inquiry, a high-level description of what you'll be doing together (the observation and interview), and how the information will be used. This is also a good time to get signatures on consent forms (which you'll need if you're recording the session) and to assure participants that what they share will be kept confidential.

Begin with some high-level questions about the participant's typical processes, especially ones that are relevant to your project objectives and the product design.

Let the participant know when you're ready to stop talking and start observing.

Observation can range from active to passive. With *active observation*, a common approach is to have the participant take the role of the expert while you take on the role of a trainee. The expert explains what they is doing as if teaching you their process. Active observing often gives you more background on the reasons for the participant's behavior, but it may affect how the participant works.

In *passive observation*, you encourage the participant to act as if you're not even there. Your goal is to observe behavior that is as natural as possible. For example, if a participant is talking to you, they may be less likely to take a call or go ask someone a question on a problem they're trying to solve, but if you're observing passively, you're more likely to see this happen. You can then follow up during the interview portion to ask about the reasons behind some of the behaviors you observed.

Either approach can work well. Generally, if you don't have a lot of time with participants (say, only two to four hours each) you may decide to use active observation to ensure you get the depth of information you need. If you have a full day or more, passive observation offers a good balance of natural behavior and discussion.

Focus Groups

Focus groups involve bringing together a variety of people within a target audience and facilitating a discussion with them. Common goals are to elicit opinions on topics relevant to the organization or its brand, such as past experiences, related needs, feelings, attitudes, and ideas for improvement.

A focus group is a good technique for several purposes:

- **Hearing a variety of user stories.** Open discussion is a great way to bring out the storyteller in all of us. When a focus group is going well, individuals build off each other's stories and ideas and remember situations they might not in a more structured one-on-one interview. The group format and energy can give people the time they need to recall these stories and share them.

- **Understanding relevant differences in experiences.** Most people are natural information sharers and want to compare favorite tools with others in their interest group. Often you can learn of competitive sites or services, or you'll hear tips for workarounds, resources, and support.

- **Generating ideas.** Although you don't want to make the group itself the designer, you often get some excellent ideas for new features or designs either directly from the group or from hearing about their work processes or frustrations. As with stakeholder ideas, be sure to trace these back to the core need (see Chapter 4) so you can be sure it's being addressed.
- **Understanding multiple points of a collaborative process.** If you're designing a process that involves multiple related roles and collaboration, groups can be a great way for you to fill in the gaps in your understanding of how people are interacting. For example, if you're working with a content source like an intranet, it can be helpful to gather a mix of those generating the content, editing the content, and consuming the content to identify the points where the process could be improved.

There's a lot of debate about the use of focus groups in UX research. It's not a good method for testing usability (since users most often work individually, rather than in groups), and sometimes the group setting can unduly influence participants' statements. If planned and facilitated well, however, focus groups can bring out many insights that will be valuable to you as you're designing. Chapter 14 discusses this further in the context of concept testing.

The Basic Process

When writing questions for focus groups, consider the same tips you would use for writing user interview questions (covered previously in this chapter).

Begin with some of the easier questions, such as "Tell me about your last visit to Pseudo.com. Why did you go there?" Save any questions focused on idea generation to the middle part of the group, when participants are feeling comfortable with you, each other, and the topic.

Assign time blocks to each topic and keep to them; it's easy for discussions to really get going and for time to slip by! If you're worried about time, put your most important questions in the middle of the topics list, after people have warmed to the activity but before any potential time crunch that could occur near the end.

Many of the logistics for focus groups will be the same as those for usability testing. (Chapter 14 offers suggestions on screening, recruiting, and scheduling.) With in-person focus groups, you'll need a room with a table allowing participants to interact with each other easily. Shoot for six to eight people per

one- to two-hour group session. Give each person a nametag or a place card at their seat so everyone can address each other by name.

Remote focus groups often benefit from a smaller number of participants (like four or five) to keep everyone engaged. The conversation flow tends to need more structure by the moderator, due to the lack of some of the body language cues which would otherwise help people understand who should speak next.

The format of the discussion itself should include an introduction that hits these key points:

- Your role as moderator and what you're expecting to get out of the discussion (for example, some of the points above).
- Why attendees were chosen to participate (for example, "You are all current users of the Pseudo.com, and we've brought you together to find out about your experiences").
- How this information will be used—both in the design and from the standpoint of confidentiality.
- That as the moderator, you're there to hear about their opinions and experiences. You want them to feel they can share honestly, so ask individuals to be straightforward but also respectful of others in the group.
- That there are many topics to cover, so at some point you will end a discussion on one topic to be sure you can cover all of them.

This can then go into a round of introductions for group members, often including some kind of icebreaker question.

Your goal is to get everyone to talk on the first question, even if they just tell a short story. You can either start with one person and work around the table or let people answer naturally and then call on the people who haven't answered yet by name. Often you'll end up going around the table for the first few questions and then, when you feel the group is ready, with body language or an explicit invitation, you can open up the questions to everyone.

Deep Diving: Body Language

An understanding of body language can be an amazing tool for any user

research conducted in person. It can help you realize that someone may feel frustrated, excited, bored, angry, or threatened. These are tells that help you determine whether you should try to make someone more comfortable or probe on a particular comment.

You can learn more about body language from a former FBI counterintelligence officer in *What Every BODY is Saying*, by Joe Navarro and Marvin Karlins (HarperCollins, 2008).

When you call on someone who hasn't answered yet, be sure to repeat the question in case they didn't understand it or weren't listening to the last few statements in the discussion. Also, avoid making a difference in opinion seem like a disagreement between two individuals.

Don't say, "June, we haven't heard from you yet. What do you think about what Chris just said?" but rather (looking at June), "How about you, June? What kinds of experiences have you had with Pseudo's customer service?"

As moderator, you control the flow of the discussion and you pass the virtual microphone around. You keep control using verbal cues and volume of speech, plus (if in person) eye contact, arm movements, and orientation of your body. Most people will be very aware of your body language, and these cues can be useful signals if someone is dominating the conversation. If an overly vocal participant doesn't get those hints, use a gentle but firm statement such as "Okay, great, I'd like to open that thought up to others. Has anyone else encountered some of the same issues that Theresa has?"

When moving on to a new larger topic, give verbal notice that the previous discussion has finished and that a new one is beginning so that people can clear their minds for the next topic or for wrapping up.

As with any other activity, be sure to thank the group for their time.

Sharing results with your team typically takes one of two forms: findings are either shared according to the main topics being covered or are grouped into relevant categories much as they are for contextual inquiry. Affinity diagramming can be another effective way to bring together various trends and attitudes for illustration to the project team. We'll cover that later in this chapter.

Card Sorting

In a *card sorting* activity, participants (working either individually or in small groups) are given items printed on cards and are asked to put them into groups that make sense to them. Either they group them into categories that are provided beforehand (called a *closed sort*) or they make their own groups and title each group themselves (called an *open sort*). At the end of the round of card sorting you should begin to see common patterns emerge in how people are sorting and labeling the items, as well as common areas of confusion or disagreement.

A common reason for doing this is to create a site map for a website or to create a hierarchy of content, categories, and subcategories containing items such as articles, documents, videos, or photos. This makes card sorting an excellent technique if you're working on a content source.

> ***Note***
>
> *See Chapter 2 for more on content sources.*

Say you're working on a common type of content source: the company intranet. Many intranets tend to categorize their information by the department that owns it, with navigation to human resources, operations, legal, marketing, and so on. For longtime employees this may not present an obvious problem, because they may have learned the lines of responsibility of each department and built an understanding of where to find information.

But for new employees, or for those who need information that they don't usually reference, it can be difficult to locate information that could fall within more than one department (or doesn't seem to fall into any). For example, where would you go to find a policy on signing of contracts with newly hired employees? It could fall under legal, or it could fall under human resources.

With card sorting, you can find common patterns in how potential users would categorize information, regardless of departmental lines.

The Basic Process

Collect the items you'd like to include in the card sort; 40 to 60 is usually a good range. You need enough to allow for a potentially large number of card groups to

be created, but not so many as to overwhelm the participants with options (or to overwhelm *you* when you need to analyze the results).

Choose items that you think will be easy to understand and free from unnecessary jargon. You can include some subject-matter terms that you believe your user groups are likely to know, but avoid including too many "insider" terms. If you include too many company-specific terms or acronyms (such as "the SUCCEED campaign" for growing sales), you'll be testing the effectiveness of the company's marketing and communications rather than building a common information hierarchy.

For the intranet example, you might include the vacation policy, 401(k) plan information, new-hire contract, vendor contract, nondisclosure agreement, new-employee orientation, health insurance information, and computer security policy.

This list represents a mix of clearly worded items that could be categorized in multiple ways. You could have one participant who groups new employee orientation and vacation policy together under human resources, and you could have another who groups new-employee orientation and new-hire contract together and names it "employee onboarding."

Once you have your list of items, put them onto cards that can be easily grouped and ungrouped. If you're running this in person, you can print labels and stick them onto index cards or print directly onto sheets of card stock that are perforated to separate into individual cards. Remote card sorts use digital versions of the cards that participants can drag and drop into clusters (**Figure 7.4**).

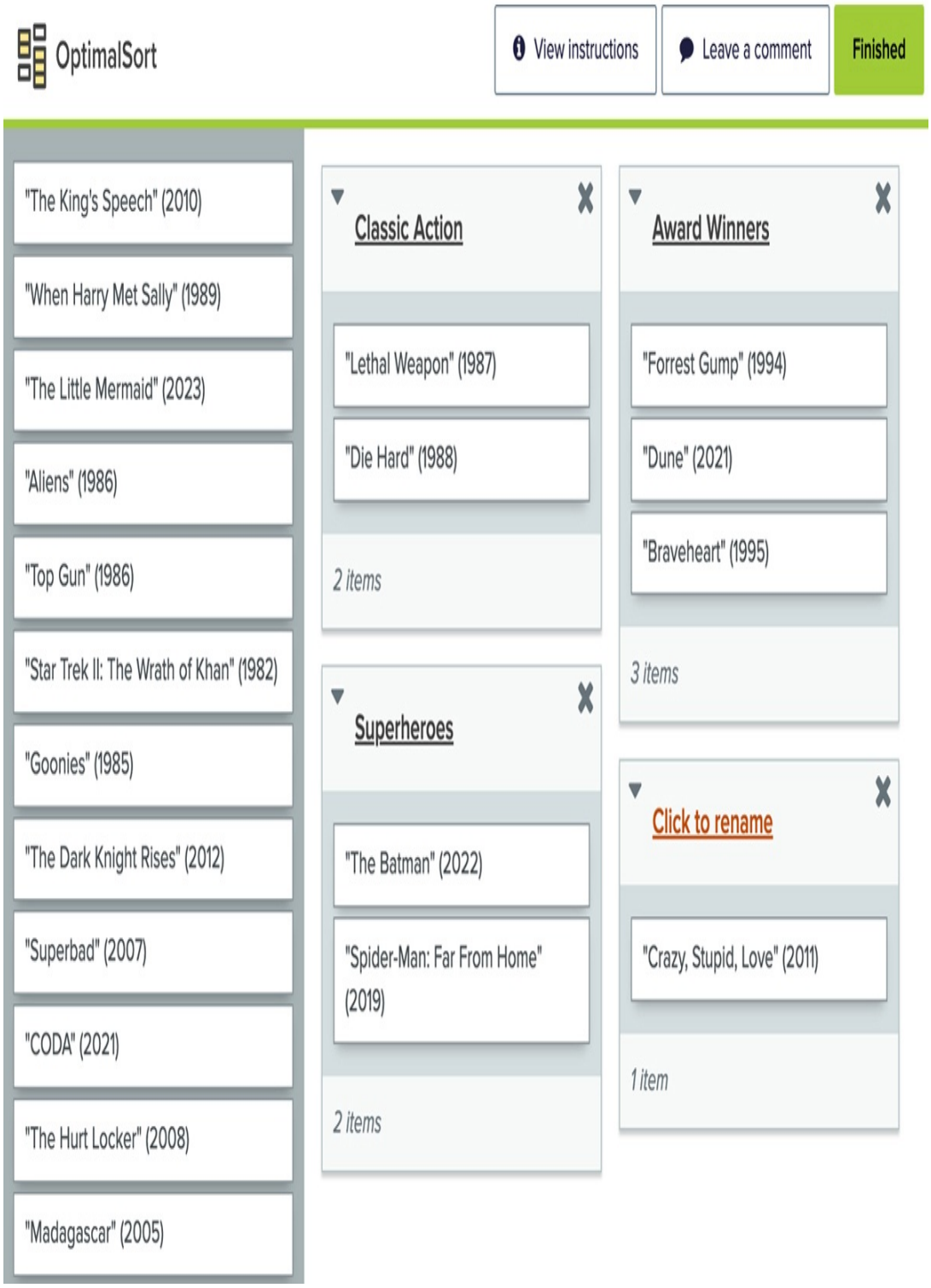

Figure 7.4 This example of an open card sort in OptimalSort shows that a participant could sort movies in multiple ways, such as by genre or accolades.

Perform a test run by asking someone to sort the cards into groups and give the groups names. Ideally, your test participant is someone unfamiliar with the items and the activity. This will help you get a rough idea of how long the activity might take. If the test run takes over an hour, you may need to cut out some cards!

Once you have a finalized deck, you can bring in a real participant and give these basic instructions:

1. Arrange these cards in whatever groups make sense to you
2. Try to have at least two cards in a group. If a card seems to belong to no group, you can place it to the side
3. At any time as you're sorting, you can name a group. By the end of the activity, please name as many groups as you can.

Some trends will become obvious simply by observing the sessions. Others may take a little more analysis to bring out. There are several tools for entering and analyzing the results of card sorts; many of them come with tools that allow you to run card sorts remotely. In particular, OptimalSort (www.optimalworkshop.com/optimalsort) and UXtweak (www.uxtweak.com/card-sort-tool) provide both remote sorting capabilities and helpful analysis tools.

Variations on the Card Sort

The discussion so far has focused on a card sort carried out with an individual, where the participant is asked to name the categories they created. This is an open sort, meaning that the main categories have not been given to the participant—instead they are *open* to being named. This is a good approach when you're determining a new navigational structure or making significant changes to an existing one. For other situations, you might consider these common card sorting variations:

- **Closed sorts.** In a closed sort, you provide the high-level categories and participants add to them. The results are relatively easy to analyze, because you have a small set of possible categories and can focus on understanding which items fell most often into which categories. If you're adding large amounts of content to an existing information architecture or you're validating an existing site map, a closed sort can provide quick and

actionable information to help with your categorization decisions.

- **Group sorts.** Rather than having an individual sort items into groups, you can have card sorting be a part of a focus group activity, where participants work together to sort items. Although the results don't necessarily reflect how any one individual would group the items, you can get a lot of insight into how people think about the items and their organization by hearing them work through the activity together, debating the rationale for each placement.

Surveys

Surveys involve a set collection of well-defined questions distributed to a large audience. They most often consist of closed-ended questions (such as multiple-choice questions) that can be easily collected with a tool that can display patterns among responses.

Surveys are good tools when you want to be able to state results in more quantitative ways (for example, "Of those surveyed, 22 percent of those who work from home state they have access to a secondary workspace") than you would get with the kinds of open-ended questions that are used in interviews. However, you can gather qualitative information from them as well, about user perceptions and attitudes.

Deep Diving: Surveys That Work

There are a lot of bad surveys out there, and they can be bad for a lot of different reasons. If the questions are worded poorly they frustrate respondents or have misleading results. If they don't target your user group effectively, you might not get a clear answer.

Survey design itself is a great area to do a deep dive, because it's one of the methods you can (and should) always have in your toolbelt. Take that dive with *Surveys That Work: A Practical Guide for Designing and Running Better Surveys*, by Caroline Jarrett (Rosenfeld Media, 2021).

In the user experience field, surveys are often used to measure customer

satisfaction (with existing products) or to build or validate user models like segmentations or personas.

The Basic Process

As with user interviews, you don’t want to ask questions that require users to speculate. Don’t ask “If you had Feature X, would you use it?”

Multiple-choice, yes/no, and true/false questions are best and easiest to analyze afterward. They’re also quicker for participants to answer.

Use surveys when you have questions that are factual requests for demographic data, such as:

> Of the devices listed below, which do you personally own? Choose all that apply.
>
> 
>
> Laptop computer
>
> 
>
> Desktop computer
>
> 
>
> Smart phone
>
> 
>
> Video game console

Or use surveys when you need to ask questions that are attitudinal with a set range of distinct choices. For example:

Read the following statements and select the degree to which you agree or disagree with each of them.

The Customer Service at Pseudo is responsive to my needs.

○ Strongly Agree

○ Agree

○ Neither Agree nor Disagree

○ Disagree

○ Strongly Disagree

In particular, preference questions like the example shown may be used to supplement usability testing tasks. You can use this type of question as a follow-up to find out if participants were frustrated when completing a task. Participants don't always like to state a negative opinion out loud, but they are often willing to express one when faced with a ranking system.

This brings out another point: Surveys are an excellent supplement to other forms of research you may be doing. For example, you can gain quantitative data from surveys to supplement qualitative data gained from user interviews or contextual inquiry (see Chapter 14 for more on quantitative and qualitative data). Combining two research methods provides a richer picture of the user than one method can provide on its own.

Survey Tips

When planning a survey, consider the following:

- **Who are you targeting?** Use your provisional model to determine this. It'll make a difference in how you answer the rest of the questions here.
- **What method for distributing the survey will give you the best results?** Online surveys are typically the easiest to gather and analyze. But if your primary user groups tend to congregate in a particular location, you may get more results with an *intercept survey*, where you go onsite and actively recruit people to fill it out (be aware that you may end up with a heavier representation from people who are comfortable talking to strangers). Or you may decide your user group will be best found with phone surveys using a list of current customers. If you have an exisiting product and want to learn about a particular feature, you can build a very short survey (one or two questions) into your product so that a question is asked right after a

user has performed a relevant step.

- **How much time will participants be willing to spend filling out the survey?** If you're providing some kind of compensation or users get some other benefit from filling it out, you can usually create a longer questionnaire—one that takes maybe half an hour to complete. If not, you'll need to keep it short to help ensure people complete it—think three to five minutes. Either way, make sure participants are given an estimate of how long it will take and update them on their progress as they go through it (use page numbers like "2 of 4," for example, or show the percentage completed).
- **How will you know when to start analyzing the data?** You may choose to run the survey until you reach a certain number of participants or until you hit a certain deadline, whichever takes priority. Be sure to include the overall number of people contacted and number of respondents in your results; this will affect the degree of confidence the team should place in the results.
- **What tool will you use to collect and analyze the data?** If you're running the survey online, the tool you use to collect the data may have options for viewing and analyzing the results. If not, you'll need a method to enter the data into your tool of choice. For paper-based surveys this means a lot of data entry, so be sure you're planning for that time.

Survey Tools

If you need to include survey questions as part of your research, one of the following tools will help:

- **Google Docs** (docs.google.com). This free option allows you to create a simple web form off the online spreadsheet.
- **SurveyMonkey** (www.surveymonkey.com). One of the leaders, with powerful analysis tools.
- **Typeform** (www.typeform.com). This tool provides templates focused on helping you create simple and engaging surveys.
- **Jotform** (www.jotform.com) Focused on ease of use and lower cost.

- **Apptentive** (www.apptentive.com) and similar tools allow you to integrate customer feedback and rating requests into products like mobile apps.

Usability Testing

Usability testing involves asking participants to perform specific tests on a site or application (or a prototype of it) to uncover potential usability issues and gather ideas to address them.

You can perform usability testing during the Define phase if you want to gather information on how the current site can be improved.

Usability testing is also often conducted as part of the Design phase, ideally in iterative rounds (where a design is created, tested, refined, and tested again). We'll discuss usability testing again in more detail in Chapter 14.

A/B Testing

A/B testing is a method of comparing two designs to see which performs better against a particular measure. Most frequently this refers to a controlled experiment run with a live site, where some users are sent to design A and other users are sent to design B. If one design performs better, the team has a good idea of which changes to consider. When run on a live site with a large number of users, this can be a quantitative method of research. Typically, the number of variables being tested are kept to a small number (say, the location and color of the Checkout button) so the team has a clearer picture as to why one design performed better. If many different variables are part of the experiment, this is called *multivariate testing*.

A/B testing is also used in research to compare two concepts or prototypes against each other. This reflects a qualitative method that can be similar to usability testing (if your focus is on performance) or a prompt for an interview or focus group, if you're looking into user attitudes or preference. We'll touch on this more in Chapter 14.

Longitudinal Studies

Ideally you aren't "one and done" when it comes to research. Your product is always evolving, and life is always changing for your current and future users. You'll need to keep asking questions in order to stay in tune to their needs. You can do this by building research into your regular cadence, or you can intentionally run longitudinal studies, which run over an extended period of time and has regular touchpoints with users in order to track changes in perception or needs.

One common longitudinal study for products that are B2C (business to consumer) is the regular running of a short survey meant to track such metrics as customer satisfaction (CSAT). These may ask the customer "How satisfied were you with Pseudo?" with a ranking of 1 to 5, from Very Dissatisfied to Very Satisfied. The first few times you run these you set a benchmark that you can then track over time by comparing results from different days, weeks, or months. A big drop in a customer satisfaction metric can raise a flag—are there issues with the most recent release of the product you're working on? Or is something else affecting customer satisfaction, like a new pricing model or a damaging post on social media?

Longitudinal studies can also be qualitative, as with a diary study. This might involve asking a certain group of users to capture information about their day-to-day or week-to-week activities regarding a certain activity or experience. For example, let's say you work at a health insurance company and your team wants to understand an insured person's experience through a variety of moments, like signing up for insurance, going to regular checkups, and needing to understand what's covered when an emergency occurs. Having a method for participants to share their experiences in an ongoing way can give you valuable contextual information about how to better design for a variety of situations.

For more on diary studies, dscout (one of the platforms used for these kinds of studies) provides a guide to running them (dscout.com/people-nerds/diary-study-guide).

So! We've covered some of the most common quantitative and qualitative methods used by UX teams. Once you've used one or more of these methods to gather data on your users, the next stage begins: bringing out the actionable insights.

Form and Share Findings

Once you have findings from your research, you'll have a lot of information to sort through! Take a moment to revisit the goals and objectives you set at the start; they'll help you while you prioritize your efforts, structure your findings, and present them in a way that is clear and actionable for your team and stakeholders.

Most quantitative tools, like those for surveys and analytics, have their own methods for the visualization of data, which can save you a lot of time. But your qualitative methods will have a variety of rich information, like quotes and observations. You'll need to identify patterns or trends in your results through a process called *synthesis*. One common synthesis technique is *affinity diagramming*.

A Quick Guide to Affinity Diagramming

Affinity diagramming is the technique of taking a number of distinct and separate items (like statements made by users or observations made by a researcher) and clustering them to find patterns and trends. You and your team can do this together using sticky notes on walls, or remotely using a brainstorming tool like FigJam, Miro, or Mural.

If you're working remotely, a simple affinity diagramming session would go something like this:

1. Code your participants with a number (like P01, P02, and so on) and color, giving each a unique sticky note color.
2. Break out the research notes for each participant onto separate stickies using their colors. Timesaving tip: If you took your notes in a spreadsheet or similar tool, many brainstorming tools will generate different cells into stickies for you through an Import function.
3. Do a round of cleanup to make sure you have one data point per sticky note (a data point could be a single idea, quote, or observation). If there are notes that you are sure are irrelevant to your research goals and may waste the team's time, drop them, but err on the side of inclusion.
4. Gather the team! This is best as a collaborative exercise, especially if multiple people were part of the research.

5. Ask people to start clustering similar statements next to each other. You don’t need to be specific about how; you want team members to make associations and then verbalize those associations (this is similar to the approach we covered when discussing card sorting). If people disagree about where something belongs, the conversation itself is useful for understanding differences in the findings and themes.
6. Once clusters start to form, the team should start labeling the clusters to provide further structure. If some sticky notes belong to more than one group, you can write duplicates and place them in each appropriate group.

Note

This method works well for contextual inquiry but can be applied to many other situations. For example, it’s a great way to collaboratively create categories for unsorted topics, so it can help you move card-sorting results into additional levels of structure.

Patterns can emerge in many ways, so it’s best to let them form on their own. However, here are examples of higher-level categories that you might see, including the kind of statement you’d find in them:

- **Goals:** “I try to clear off all the open items here before I leave for the day.”
- **Mental models** (includes statements that demonstrate how users are mapping external experiences to internal thinking): “I use this online tool as my briefcase, for things I reference a lot but don’t want to carry around with me.”
- **Ideas and feature requests:** “I wish this would allow me to undo. I keep moving the whole folder accidentally and it takes me forever to cancel out of it.”
- **Frustrations:** “I’d ask the help desk about this, but half the time they don’t know what the problem is either.”
- **Workarounds:** “This takes so long to do here that I just end up printing out the list and working with it throughout the day. Then at the end of the day I enter in the results.”

- **Value statements:** “This tool here saves me a lot of time, so if you’re making changes don’t take it away!”

Within these higher-level categories, you’ll often find clusters that relate to specific steps in the flow or to different types of features and how they’re used.

Figure 7.5 shows an example of a cluster from research that found several participants relied on reminders and push notifications to stay on top of their work.

Reminders are important (including push notifications)

Likes push notfications as long as they have enough info for him to determine whether it's worthiwhile to open the app.

Push Notifications are very important.

Reminders mentioned as important for planning

He sets reminders out about 2 days ahead of time

They like that notifications remind them to go and and review new content. It helps them build good habits.

She likes notifications at the beginning of the week (Sundays or Monday mornings)

She puts reminders in multiple places (digital and physical)

He's frustrated that reminders don't show up consistently

If I miss a reminder, I'm pretty likely to drop the ball. I just have too many things going on.

Figure 7.5 A cluster is starting to form and has been labeled by the team. The different sticky note colors show that a broad cross-section of participants actively use and care about these features.

In the cluster in **Figure 7.6**, you can see by the variation in shade that several participants spoke about the importance of reminders. Looks for clusters that contain a variety of ideas across different participants or participant types; these are key themes to circle and to highlight when you share your findings. You'll find out how areas of your product are being used—and gain ideas of how to improve or build upon them.


Personal Montivation/Success
Reminders are important
(including push notifications)
Other Apps They Use
Interpreting Purpose of the App
Photo Taking Behavior
Screenshots using phone

Figure 7.6 Clusters that involve many data points, and involve a wide representation of research participants, form themes that you'll want to highlight in your findings.

Deep Diving

The quintessential resource on contextual inquiry is *Contextual Design*, by Hugh Beyer and Karen Holtzblatt (Morgan Kaufmann, 2016). The book also includes detailed information on interpreting results through techniques such as affinity diagramming.

Hopefully you have some clear themes, and interesting data in hand now—and can focus on how to best parse it and present it to your team and stakeholders. But how do you share it in a way that makes it likely to make a difference?

Sharing Your Findings

Reports can be multipage affairs with long passages of text—which runs the risk of having few people read them all the way through. The executive summary at the beginning can begin holding the weight of the thousands of dollars typically spent on the research effort.

As you can imagine, having your beautiful insights locked in a document that people aren't reading is not a great experience for you or your team. Long hours of research and synthesis can get little payoff if the answers to the questions require too much work to discover. So the sharing of your findings should follow good principles in experience design, just as your product should!

For those unlikely to dive into your details, focus on making your most important findings concise, digestible, and shareable. For your team and stakeholders, this might be a presentation slide deck with visual representations of key findings, with user quotes that highlight the point you're trying to communicate, as seen in **Figure 7.7**.

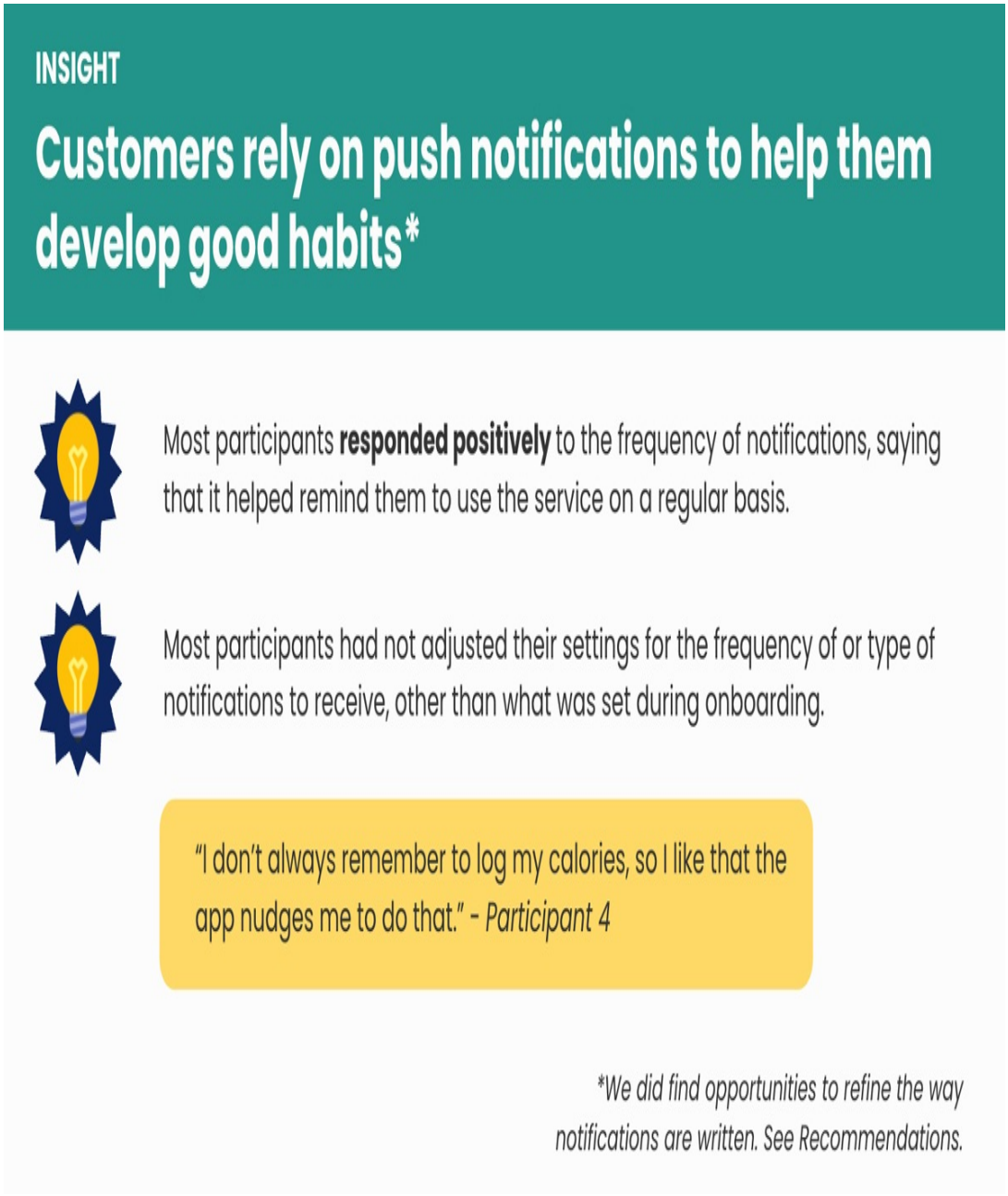

Figure 7.7 This slide from a findings presentation shows an insight gained through the research, the themes that led to that insight, a participant quote that illustrates a related scenario, and reference to a recommendation to improve the product.

Video or audio snippets can also have a high impact, and some research tools make gathering these relatively easy.

If you were able to pair quantitative "what" findings with your qualitative "why" findings, this is where that comes together to present a full picture.

Ask the Experts: Katie Swindler

Katie Swindler is a Design Strategist at Allstate Insurance and author of the book Life & Death Design: What Life-Saving Technology Can Teach Everyday UX Designers *(Rosenfeld Media, 2022; lifeanddeathdesign.com). We asked her which research methods she tends to use, and why.*

When researching UX, I often find I get the richest and most useful insights when I use a qualitative method in conjunction with a quantitative method. Qualitative methods, such as user interviews, focus groups, and contextual inquiries, are great for uncovering the wide variety of opinions, needs, and motivations that users may have related to your product, but they won't tell you what percentage of your target market those attitudes apply to. For example, just because six out of the six people you interviewed prefer to set their bills up on autopay doesn't mean that 100 percent of all users will want to use autopay. Six people is not a statistically significant group of people to make those types of extrapolations. On the flip side, quantitative methods such as surveys can give you accurate data and stats about your users, but they don't allow you to ask follow-up questions or discover and dig deeper on unexpected insights. But these shortcomings can be eliminated when you take a combination approach. For instance, I recently did a round of user interviews to create a comprehensive list of all the different reasons people didn't buy one of our products, then I did a follow-up survey to understand which of those reasons was holding back the largest percentage of potential users, and the team tackled that issue first.

Additionally, I've found having both qualitative and quantitative research on hand allows you to address the concerns of the widest number of internal stakeholders. Quantitative results almost always carry more weight when presenting to executive, marketing, CX, and business stakeholders. Those roles are often filled by data-driven decision makers who want cold, hard facts to inform the work. Whereas the qualitative insights drawn from speaking with and observing real users are often most helpful to the design and product development teams. These creative professionals need to understand the "why" behind the users' attitudes and needs in order to solve complex problems in innovative ways. Whenever time and budget

allow, I always recommend doing both qual and quant research for best overall outcomes.

Overall, don't make your audience do too much of the work. You're there to help bring out the core message in a way that's relevant and impactful. Circle back to your original research goals, objectives, and questions to tie it all together in an actionable way. A good structure for this is to reiterate:

- What you set out to learn (your goals and objectives)
- What you did learn (the facts from your research)
- The key insights (your interpretations of the facts, within the context of what your team is trying to achieve)
- Your recommendation (what can be done to improve the product or to learn more about the problem)

After the Research

Once you've completed one or more of these user research activities, it's time to revisit your assumptions and any provisional model you originally made about your user groups. Put those assumptions away for a moment, and ask yourself what user groups you would create now that you have more information. If some of your earlier assumptions weren't valid, consider any gaps you may have in your user research because a key group wasn't included. If this gap is identified early enough in your research activity, you may have time to adjust and add another set of participants to research in progress, to ensure you're getting a full picture.

With your new knowledge, you can revise your user model to more accurately reflect the groups that should be the focus. This will help you create more detailed tools, like personas (discussed in Chapter 8), and will help you generate new ideas to explore.

Previously, we discussed the process of taking statements from business stakeholders and refining them into requirements. You'll follow a similar process with users—your work doesn't stop when you capture the idea or request. Dig down to the roots of needs and goals to make sure you understand them. This

will ultimately help you design a solution that best meets those needs for all relevant user groups.

In the next chapter, you'll learn how to use the insight you gain in conducting user research to create tools that can bring focus to your user groups throughout design and development: personas.

8. Personas & Profiles [This content is currently in development.]

This content is currently in development.

9. Mapping Methods [This content is currently in development.]

This content is currently in development.

10. Product Definition [This content is currently in development.]

This content is currently in development.

11. "Design Foundations [This content is currently in development.]

This content is currently in development.

12. Content Strategy & Structures [This content is currently in development.]

This content is currently in development.

13. Wireframes & Prototypes [This content is currently in development.]

This content is currently in development.

14. Design Testing

Let People Take Your Design for a Spin

In Chapter 7 we covered several UX design methods that can help you understand your user groups—their needs, attitudes, behaviors, and preferences as they relate to the overall experience of using your product.

We've also covered the way projects can use defined experiments that test a hypothesis. These experiments often involve particular designs or elements of designs, at different levels of fidelity. In this chapter, we'll focus on methods used to test different design directions at many points in your project. First, let's talk about exploring early concepts with your users.

Carolyn Chandler

Concept is generally the word used to describe an abstract idea, such as happiness, collaboration, or efficiency. In the field of UX design, *concept* is also used to refer to design elements that are meant to represent one or more abstract ideas to the product team or a potential user. In this sense of the word, a conceptual design element can be visual (for example, a photo of a machine to represent the concept of efficiency) or it can be text-based (for example, a short collection of sentences written to express a company's focus on efficiency, using words such as *timely* and *responsive*). *Concepts* can also mean wireframes, visual design mock-ups, or rough prototypes that are meant to propose elements of a future experience within the product.

Concept exploration typically happens early in the design process, after you've defined your user groups but before you've gotten into the detailed design of each page or screen. The research can provide inspiration for designers and reduce some of the risk of bringing a new product to market, because you'll be able to hear (and then plan for) the kinds of reactions you may get from potential users. This is particularly powerful experience for your project team and

stakeholders as well, so invite them to participate in the research if you can.

The primary purpose of concept exploration is to understand the kinds of responses and ideas that are elicited from your user groups thinking about a potential scenario or a solution to a need.

Concept exploration may consist of one-on-one discussions, or it may be set up as a group activity with a portion of the time dedicated to concept exploration activities and group discussions.

The attitudes and interests that surface can help the team decide on a direction for flow and the importance of different features.

Potential Pitfalls of Concept Exploration

There's an oft-shared quote in the UX field, typically attributed to Henry Ford: "If I had asked my customers what they wanted, they would have said faster horses." Although you may get some great ideas out of exploring concepts with potential users, you don't want to rely on them to stand in for designers. After all, the most memorable designs are often very different from what has gone before, and research participants may not be comfortable with a large degree of change.

Participant responses will be rooted in their current understanding. What you're collecting are reactions, not predictions of what they will or will not want in the future. Also keep in mind that many other factors outside of the design itself will influence future behavior (such as positive word of mouth).

Avoid asking participants to make direct choices (like "Which concept is better, A or B?"); instead, listen to how they use their own words to describe the concepts presented. The results should be thought of as input into the design process, not a mandate to designers.

Let's look at an example of concept exploration for a fictional product meant to help two or more people manage a shared to-do list. We'll call it KnockOut.

After doing a user segmentation and Discovery research, the KnockOut team has determined that they want to focus on friends and family who might use

KnockOut for events like birthday parties or for family chores.

Rather than jumping straight to wireframes, prototypes, or design mockups, the team could decide to test out the concept of collaborative to-do management by getting potential users together to talk about how they manage to-dos together now. Conversation could be started using visual prompts like photos representing activities people tend to divide-and-conquer to complete: grocery shopping, food preparation, cleaning and such (**Figure 14.1**). Stickies could be used by participants to represent their to-dos, how they split them up, and how they communicate with others when they've knocked a to-do off the list.

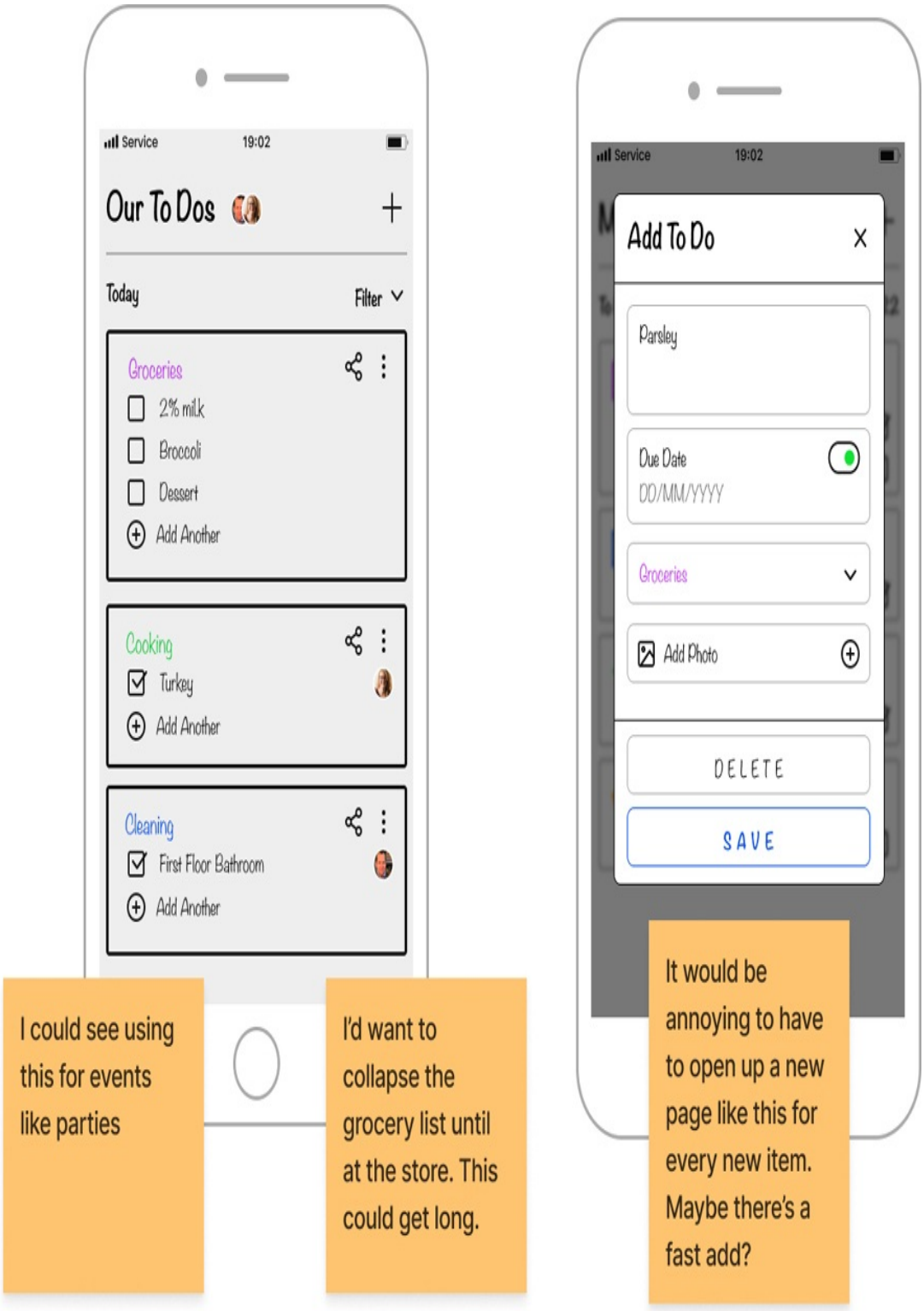

Figure 14.1 Wireframes can be used to test out initial ideas quickly and iteratively. Here, the images have been shown to a participant using a collaborative whiteboarding tool that allows them to attach stickies to

designs.

The team could then use that information to take the concept to the next step, like sketches or wireframes that can be shared with potential users for feedback or general usability testing.

Surfing: Concept Testing

For an excellent overview of variations of concept testing and recommendations on how to use the technique well, read “The Value of Concept Testing as Part of Product Design,” by Victor Yocco (www.smashingmagazine.com/2021/11/concept-testing-part-of-product-design).

Choosing a Design Testing Approach

Once you’ve moved beyond the conceptual exploration and you have a proposed direction, it’s time to consider testing your design decisions with users.

The testing approach you take will affect the kinds of skills you need, the type of access to users that is necessary, and the space and software required to conduct your research. Include more than one approach if you have the time and budget—each will have its own strengths and weaknesses, and combining two approaches helps you create a full picture. Here are some of the decisions you’ll need to make in order to finish with the right kind of data for the problems you’re trying to solve.

In-Person Research vs. Remote Research

The qualitative research methods covered in this book can all be conducted in person, but can also be conducted successfully from the comfort of your own home or office. Remote research has become increasingly effective with the availability of new tools, equipment, and techniques.

Here are some of the factors to weigh when deciding whether to perform research in person or whether to perform it remotely.

- **Context of environment**. By conducting research remotely—rather than going to the user's location—you will lose some of the overall context of their environment. You can make up for this in some extent by asking them to set up cameras or take photos to show their space, or by doing some sketching of it on paper or digitally (see **Figure 14.2** for an example).

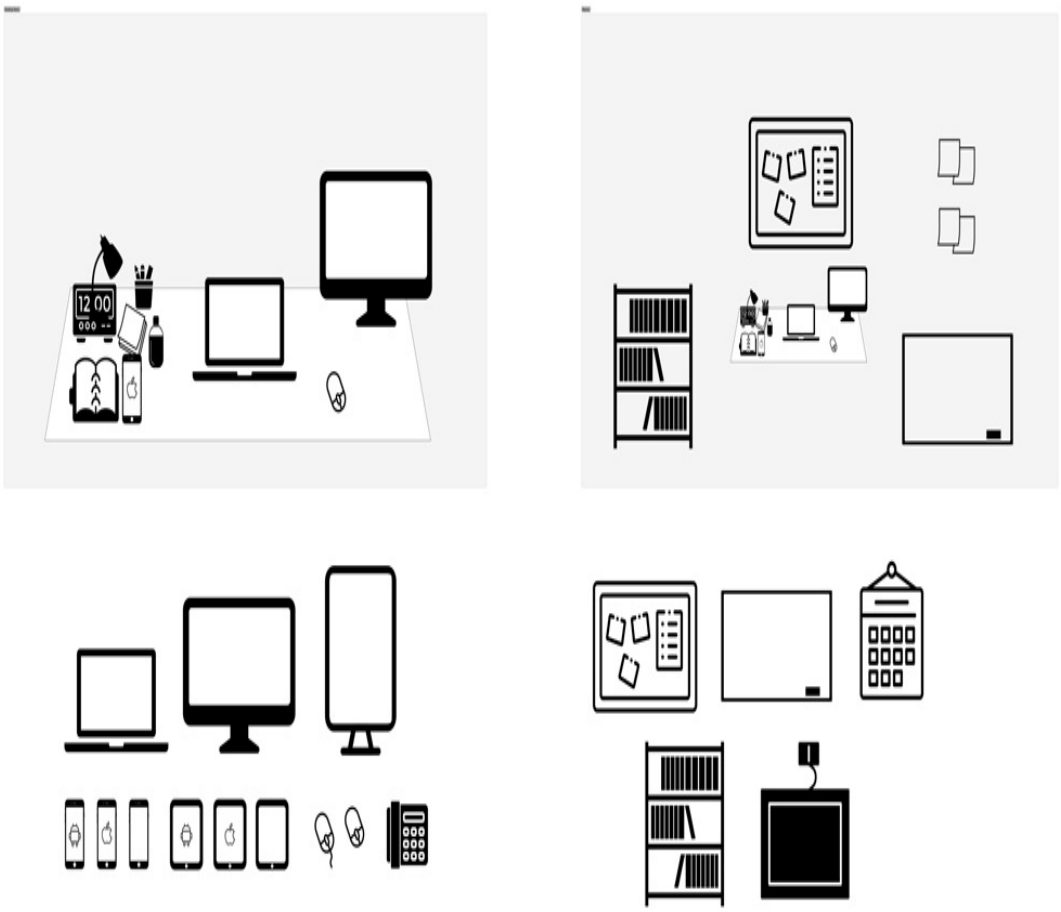

Figure 14.2 This activity was set up in FigJam for a remote study. Participants were asked to sketch out their desktop (in the first panel) and important resources around it (in the second panel). Images were provided that the facilitator and participant could drag and drop quickly. Images here were sourced from the Noun Project (thenounproject.com).

- **Context of need.** There's a benefit to using remote research regarding context here. If you're testing a product that's already available and in use, you can gain important contextual information by immediately recruiting

users who have come to the site for their own natural reasons. Tools like Ethnio intercept users who have come to your site and ask if they're interested in participating in research. Those who qualify (based on any screening process that might be in effect) are then directed to a facilitator who asks them to participate in an interview or usability test. This is called *time-aware research* and has the great benefit of including actual users who are performing a natural task, which provides highly valuable information on the context of their need. In-person research often doesn't have this useful "just-in-time" element (although contextual inquiry can provide this—see Chapter 7 for more on that method).

- **Access.** Here's an area where remote research often proves the best approach. Scheduling in-person research requires more time and logistics management, both for the facilitator and for the participant. Because remote research leaves out travel time, scheduling snafus, travel restrictions, and other issues that could cause a missed appointment, it's a lower-commitment way to reach a large number of participants. Remote research can give you better access and encourage a higher participation rate.

- **Cost.** Remote research is often thought of as being less expensive than in-person research. This isn't always the case, as remote research tools cost money, and you still need to plan for the cost of research planning, test design, recruiting, compensation, and analysis (covered later in this chapter). However, remote research does cut out travel costs and time wasted when schedules combust.

Remote Research Considerations

If you do decide to conduct your research remotely, here are some considerations to include in your planning.

- **Choose your tools carefully.** The tool you pick should clearly help you achieve your overall research objectives. See **Table 14.1** for the kinds of tools that will help you as you're testing your designs and design concepts. Whichever tool or platform you consider, be sure to run through a test scenario with it before committing.

- **Consider what hardware and software your users are likely to have.** If you want to watch users complete a task remotely, you need to make sure

they have dedicated access to a computer, a quiet space, and the ability and permission to share their screen (security and privacy concerns can affect this). If screen sharing is going to be an obstacle for your user groups, you may need to use an in-person approach instead.

- **Test your setup before sessions begin.** There can be a lot of moving parts with remote tools, especially if you're trying to screen users with one tool and conduct the research with others, while planning for others on your team to observe. Add in recording needs, and it can be easy to have missing parts, disrupting your research.
- **Have IT troubleshooting expertise at the ready if possible.** Even the best-laid plans can go awry, and if you're conducting moderated testing, you may find yourself tap-dancing with an amusing story while online with a participant. It's helpful to have someone there to lend a hand.

Moderated Techniques vs. Unmoderated Techniques

Many of the methods covered at this point have been *moderated*, in which a facilitator (also called a *moderator*) talks directly to users and guides them through the research. For qualitative approaches in general, this gives the facilitator the chance to assess the attitudes and emotional responses of participants, varying their questions in order to dig into areas of interest. Moderated approaches can be time-consuming and limited in scope, however, because the number of sessions is limited to the hours available from the facilitator.

The number of effective *unmoderated* possibilities for gathering research has exploded, providing a way for participants to complete research tasks online and have their responses and behaviors captured by the tool for later analysis.

Snorkeling: A Landscape of UX Tools

The UX field benefits from the enormous number of tools available for gaining user insights—not only because of the tools themselves, but also because the companies behind them are constantly generating helpful guidance (as long as you keep an eye out for bias they may introduce regarding their own offerings).

> One company that has done the field a great service is User Interviews. They've catalogued and visualized over 230 tools in a clever map, called "The 2022 UX Research Tools Map" (www.userinterviews.com/ux-research-tools-map-2022).

Unmoderated tests are set up by the researcher beforehand, and results are analyzed after a set period of time (or after a target number of users have responded). Generally these techniques lead to a larger sample of data showing user success rates and behavior for specific questions and tasks. Chapter 7 introduced some unmoderated tools, such as those used in card sorting or for conducting surveys, and there are many more now available for other uses. To figure out which one is right for you, ask these basic questions and evaluate tools based on your answers:

- **What objective are you trying to achieve?** If you're trying to fine-tune an existing flow on a live product and you have a clear user action you're trying to effect, an A/B testing tool is a good option. If you have changes to your information architecture and want to test out the clarity of the new categories, you can set up an unmoderated tree test with a tool like Treejack. If you want to simulate an online task to test for usability, a platform like UserTesting.com can help. See Table 14.1 for more tools and how they can fit within your research toolset.

TABLE 14.1 Tools & Platforms Helpful for Design Testing

Type of Tool	What It Is	Examples	Considerations
Recruiting & Panel Management	A variety of tools that help you quickly access and/or schedule participants. Most automate logistics like scheduling and communication.	User Interviews Ethnio HubSpot	These typically work best if you're looking for a consumer-based audience. A specific screener for a niche audience may take longer or have fewer responses, although some tools allow you to provide your own participant lists to pull from, which can be helpful for B2B products.
Scheduling	Calendar tools that allow participants to see and sign up for available times for research.	Calendly YouCanBookMe Doodle	Plan the scenarios you'll run into when choosing a tool. Some may be better for groups scheduling together or for multiple researchers, while others may be more geared toward one-on-one scheduling.
Incentive Distribution	Tools that make it easier for you to compensate people for their time, through offerings like virtual gift cards.	GiftBit Tango Card Tremendous	Most of these services will have a wide variety of vendors where a participant can spend their incentive, but make sure your likely participants aren't limited (for example, international participants may not have the same options).
Brainstorming & Collaboration	Virtual whiteboards and sticky note walls, for remote collaborative design exercises and affinity diagramming. They also provide templates for different kinds of brainstorming activities.	Miro Mural FigJam	Make sure there is an easy way to invite participants without requiring them to subscribe to the service. Plan some time to get participants warmed up on the controls, as they may vary for participants (for example, macOS vs. Windows, or mouse vs. trackpad).
Usability Testing (Moderated)	Tools that can be used for interviews, enabling participants to share their screens as they perform tasks. Some are good options if you need to be scrappy in your research due to limited budget, or no access to some of the more full-fledged tools.	Zoom Google Meet Skype	Test out your screensharing ahead of time if you can, especially if you're trying to test mobile app designs, which can be trickier for participants to share.
A/B Testing (Live Site)	If you have a live product with a large enough active user base, you can use these tools to pit different designs against each other and see how they perform against a chosen goal for user interactions.	AB Tasty Adobe Target Crazy Egg Apptimize	Tests like this are typically easier to run on a website. If you have a mobile app you're trying to do this with, check that you have a tool that can handle it (such as Apptimize).
Insight Management	A wide variety of tools can help you capture and analyze the data you're gathering during your research. Transcription tools like Otter can help you convert audio to text.	Otter (transcription) AirTable Dovetail	The size and structure of your research and design teams will likely drive how formal a toolset you need to manage insights across multiple studies.
End-to-End Platforms	Tools that provide many of the capabilities above within one platform. Tools listed here provide for both moderated and unmoderated sessions and some have their own methods for allowing participant screensharing.	UserTesting Maze UserZoom Lookback	The comprehensive nature means many of your needs may work well together. The cost of these may be prohibitive for smaller companies or those performing less regular research.

- **What forms of data do you want to capture?** Some tools capture cursor movements or show heat maps around frequently clicked elements of the page. Some include recordings of user feedback or relevant moments over a longer period of time. Determine what is essential and use that information to choose the best tool for you. When in doubt, consider what will get you the best answers to your burning questions and consider what type of data will be most effective with the team members and executive sponsors who will view the results.
- **How would you like to recruit users?** Some tools provide the ability to intercept users, while others include a pool or panel of potential users as part of the cost of using the tool.
- **How will participants get to your test?** If you're trying to automate screening of your participants and you have multiple versions of the test, you may need to set up your own online screeners to direct participants appropriately. Some tools help you screen users and direct them to the test as part of their platform.
- **Who's doing the analysis?** Most unmoderated tools provide helpful analytics, but make sure you know if your chosen tool mainly provides raw data, leaving the heavy lifting of analysis to your team. Either way, you'll need someone to verify that the results are aligned with the questions you were trying to get answered.

Setting up unmoderated research can take more effort than moderated research in the planning stages, because you have to be even more careful about how you structure tasks and ask questions—especially if you're focused on quantitative data and you want to be able to compare a large sample size of people who answered exactly the same questions (see Chapter 7 for more on avoiding leading questions). You'll also want to set up a sample test when evaluating tools, to ensure you can really ask your target questions in the right way within the chosen tool.

Once the information starts coming in, it's generally easy to see patterns in the numbers using unmoderated approaches; also, adding additional participants has much less overhead than moderated approaches do.

Unmoderated tests generally work best for simple, linear tasks where you can ask specific questions and easily understand whether a user has succeeded or failed at a task (or in the case of analytics-based tools, where you can see signs

of issues such as drop-offs). These tests work best in conjunction with other approaches, like interviews, that provide more information on motivations.

Exploring Visual Design Mock-Ups

At some point in the project, you may have mock-ups that represent the potential design of pages of the site. If you decide to explore designs with participants, it's best to have two or more variations available for them to compare and contrast. With just one, you're more likely to get the "nice" response: People don't want to sound overly critical of the mock-up because they don't want to hurt the designer's feelings, or they may not feel qualified to comment on a design. However, with two or more mock-ups, they will generally feel more comfortable being critical because they're more focused on comparing designs than directly critiquing them. You can give the participants each design separately (either digitally or on paper) and ask a set of questions. For example, you might ask participants to look at each design for a minute and then choose at least three words from a list that best describe the design. They could circle their choices on a sheet with 20 words, such as *boring*, *trendy*, *conservative*, *loud*, *safe*, and so on in random order (be sure you have positive and negative words represented). The words can then be loaded into a word cloud generator like Word Art (wordart.com), which highlights the most frequently chosen words for a particular design. **Figure 14.3** shows an example of the results from an activity comparing two designs for the same home page.

Figure 14.3 In this activity, participants were shown two designs and asked to choose the words that they felt best described each. The results can then be compared to the team's intent and any brand guidelines that may exist.

Responses to open-ended questions can also be gathered. For example, you could give participants five blank lines to write down their general impressions on the design.

Some of the information you might gather includes:

- **Common brand associations made by your participants:** "KnockOut is the Rolls-Royce of to-do lists. It looks great but you probably can't afford it."

- **Design and lifestyle fit:** “I don’t think I’d let my son use this. He’s only 8, and these images look too adultish for him.”
- **Effectiveness of a particular mock-up in explaining a new concept:** ”Oh, I get it—this site is like a wedding registry, but you’re knocking to-dos off the list rather than buying an item.”
- **Ways that participants define some of the key terms you’re using:** “When I see the word *solution* on this site, it makes me think I’m going to find all the products and the services I need to plan events.”
- **Participant concerns:** This includes questions or concerns about how a particular set of tools would be used or the impact of introducing them.

Designers can use these responses to judge if the reactions they are getting are along the lines of what they intended or if they may need to try a different design direction.

Keep in mind that participants (and project stakeholders, for that matter) often cherry-pick different elements from different designs: “I like this part of concept A, and I like this part of concept B.” This is a natural reaction, but it shouldn’t be taken too literally. You don’t want an unnatural melding of two different design directions. If the elements blend well together, then go for it. But don’t be afraid to admit when combining elements will be less “chocolate and peanut butter” and more “chocolate and pickle.”

Overall, there are no hard-and-fast rules for the activities included in concept tests or the types of elements you can test. Rather, the key is to make sure that you set the right expectations with the project team about the kind of information that will be coming out of the tests and how that information will be used to inform design decisions—without stifling creativity.

Usability Testing

As mentioned in the previous section, there are many elements of your design you can test with users. However, if your goal is to understand and improve on a user’s ability to successfully complete key actions in your product—like, say, adding a product to a shopping cart and then checking out—you’ll want to consider usability testing.

Usability testing is one of the most frequently used UX design testing methods.

It’s also the best-known among those who aren’t UX designers themselves, so your business stakeholders and project team may already be familiar with it. The concept itself is elegantly simple: create a prioritized set of tasks for your site, ask some users to perform them, and note where they have issues and successes.

Usability Testing vs. User Acceptance Testing

Some people in your organization may have the misconception that usability testing only happens near the end of development or beginning of deployment, when there’s a functioning version of the site or application—perhaps something in beta mode. This impression may also be related to the common practice of conducting user acceptance testing (UAT) at this later point. The similarity of the names can cause the two to be confused.

For applications that go through a formal QA process, UAT is one of the later stages of testing and is rarely conducted on actual users. The main purpose of UAT is often to serve as a final check on whether the application has met the functional requirements set out by stakeholders; it can also catch any errors or bugs that participants report.

Although UAT can bring out usability issues, it should not be relied on as the only method for catching them on a project. Because it occurs so late in the process, changes based on feedback from UAT are much more costly. It’s far better to catch major issues earlier in the process, before much time is spent in development. Usability testing is designed to provide more true-to-life performance information earlier in the process.

The following sections discuss these common steps involved in usability testing:

1. Planning the research
2. Recruiting and logistics
3. Writing discussion guides
4. Facilitating
5. Analyzing and presenting results
6. Creating recommendations

Before you get started, consider your project objectives. They will help you maintain focus throughout but will be especially helpful in the early stages as you choose an approach and plan the test. They'll also help you choose either a qualitative or quantitative approach (which we covered in Chapter 7).

Either approach is possible and each can produce useful results. Proponents of a more quantitative approach say:

- Quantitative research allows for setting of measurable benchmarks that can be tested against in later iterations, showing progress toward a goal (for example, reducing the time it takes to check out by 20 percent or catching 80 percent of the usability issues in a site). This also makes it a good approach when you want to perform a formal comparison of two sites or evaluate a particular site.
- It provides results that can be validated statistically, which can be important when recommendations need to be defended to stakeholders who trust data-driven decisions.
- It provides a higher degree of confidence that the results are reflective of the entire user base.
- It offers a clear, numerical method of validating a finding (for example, how many users encountered the same issue).

Proponents of qualitative usability testing say:

- Qualitative research builds experience and empathy in the designer, promoting creative solutions focused on the user.
- It relies heavily on the UX designer's intuition to make reasonable recommendations, which is a large part of why they're on the team.
- For usability testing in particular, a qualitative approach is often less costly than a quantitative one, because fewer users are required and because qualitative research does not require a knowledge of formal scientific design and analysis (such as statistics).
- Although findings are not validated as strongly in a numerical sense, there can be clear trends that can be validated by a designer or researcher, who will make the call about the issue's likely impact using informed rationale.

Qualitative usability testing is the more accessible approach for those who

haven’t had training in formal scientific methods, and it provides a rich source of data for informing design. For these reasons, we’ll be focusing on the design of qualitative testing for the rest of this chapter.

How Many Users Is “Enough”?

Asking “How many users is enough?” in a group of UX designers is like bringing up religion at a political rally—a hot debate is likely to ensue.

It’s also a question that can’t be avoided, because you’ll need a framework to start from in order to plan your research. It’s tied to the approach you use: quantitative or qualitative.

To give the short answer, here are the guidelines that seem to have gotten consensus in the UX field:

For a quantitative usability test, plan for a higher number of participants: 40 participants per round of research (see www.nngroup.com/articles/summary-quant-sample-sizes).

For a qualitative usability test, five to eight users per group for each round of research is usually sufficient. Ideally, more than one round of research is conducted to uncover issues that may have been “hiding” under other issues or unintentionally introduced in the new design (see www.nngroup.com/articles/why-you-only-need-to-test-with-5-users).

Planning the Research

When designing a usability test, there are a few questions you should answer early on to provide focus and scope. This could be provided as a document written for and discussed with the project team and key stakeholders, often called a *user research plan.* The plan should outline your approach as chosen above.

Why Are You Testing?

Write a clear statement outlining the objectives of the test, based on one or more of the goals of the overall project. See Chapter 7 for more on setting research

goals and objectives.

Who Are You Testing?

Once you've created your user model (see Chapters 7 and 8) you can use it as the basis for your decisions on which users to test. If you haven't already, meet with the project team and relevant stakeholders to prioritize the user groups. This information will feed into your screener (discussed later in the "Recruiting and Logistics" section).

This point is also where you should choose the user groups to be represented and the number of users to include in each group.

What Are You Testing?

The question of what you are testing includes two interrelated questions: What method will you use to represent the product, and what tasks do you plan to include?

If you have an existing product for redesign, you may choose to first run the whole test on the current version to find major usability issues to address.

If you're working with a new design, you can use sketches or paper prototypes (for example, a packet of printed wireframes) to represent new interface elements like pages. These low-fidelity representations of the UI allow you to quickly generate and discuss ideas among the project team, and iterate on them quickly with participants.

When you're working with a new design that includes highly interactive elements, it may be better to create a prototype that simulates the navigation flow of the design realistically but can still be created quickly, before full-scale development begins.

The flows and views you include will be closely tied to the tasks that you pick. If you plan on using prototypes to test with users, you'll need to plan for the main pages of the task as well as intermediate pages and alternate paths. You may not need to detail each one, but you'll need to plan for a response if a user goes in that direction. Sometimes this can be as simple as a page that states a certain path is not available and requests the user to return to the previous page to try again.

The specifics of your tasks will go into the discussion guide (more on this

below), but because the scope can vary greatly depending on the type of tasks you include, it's helpful to have the list outlined during planning.

If the list is too long and you're not sure how to prioritize, here are some possible priorities to consider:

- **Areas where the design breaks some established conventions.** Are you calling it a "goody bag" instead of a "shopping cart"? It's probably a good idea to see if that's clear to your users.
- **Areas where team members disagree about how to solve an important design problem.** You may have a strong feeling that a particular design direction is the right one, but you know there are a lot of disagreements among stakeholders or other members of the project team. Seeing is believing.
- **Areas where usability issues can have critical consequences.** These may be lost sales or, in the worst case, lost lives (healthcare applications involving medication dosage are a good example of this).

Next, you'll determine the information you want to gather while a user is trying to perform each task.

What Information Are You Gathering?

We're focusing on qualitative usability tests, which tend to have a smaller set of measurements. For the most part you want to understand the issues users may encounter, the different levels of frustration they may experience, and the severity of a particular problem. For example, maybe participants are asked to fill out a long form and then submit it, but some encounter an interaction issue that wipes out all of the information they entered without saving it. That should definitely be a high-concern problem in your report!

To get some perspective across the users you are testing, or across rounds of testing, there are some measurements to consider gathering as part of your test. Again, if you're conducting a qualitative test with a smaller number of users, don't take these numbers too far (calculating an average number doesn't make a lot of sense if you're testing only five users), but the following measures can help you understand the severity of some of the issues users are encountering.

Observed success: The degree to which a user was able to complete a task. If you're looking across users, you could also refer to "success rate"—the number

of users who are able to complete the task successfully. It sounds simple, but this means you need to define the meaning of *success*!

For less formal tests you may say a task is successful if the user achieves the end state (for example, an editor successfully approves a story).

You can track success more formally by noting the different levels of intervention needed by the facilitator:

- **Level 1 prompt:** The test facilitator responds to a participant's question but doesn't provide any additional detail. For example, a participant asks, "I think it would be this button, should I click it?" and the facilitator responds, "Go ahead and try it." A Level 1 prompt alone doesn't mean a failed task, but it is good to note because the participant is probably experiencing some uncertainty at that point. (Although if this is the first task, it could also just be that the participant is unfamiliar with usability tests.)

  If a user needs no prompting to complete the task, or needs only one or two Level 1 prompts, you may consider that step a success—unless you feel the amount of time it took the user was well beyond the level of patience likely for your users.

- **Level 2 prompt:** The test facilitator sees a participant is struggling and gives a hint in response to a question. This level doesn't include giving the answer directly, but the response may affect the user's approach. For example, the facilitator might say, "Is there anything else on this page that you think may relate to this task?" Here you could set a limit on how many level 2 prompts may be given before the task is marked as failed (for example, at the second prompt) or as "succeeded with difficulty."

- **Level 3 prompt:** The participant has given up in frustration or has struggled to the point where he would likely have given up if faced with the task in real life. In this case, the facilitator gives a direct answer to part of the task—for example, saying, "To approve this story, you would click the Submit button." If a participant requires a level 3 prompt, the task is typically marked as failed.

Participant perceptions: Sure, the participant completed the task successfully, but how did they feel about it? It can be helpful to include a few follow-up questions after each task (with the timer off) so you can understand how happy or frustrated your users are afterward. If you get someone who doesn't like to

talk, this may be the main window you'll have into their soul.

Table 14.2 shows examples of some of the post-task questions you could include.

TABLE 14.2 Participant Perception Questions

Question	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The task took longer to finish than I expected	1	2	3	4	5
The task was easy to complete	1	2	3	4	5
I felt frustrated when trying to complete this task	1	2	3	4	5

Quotes: This isn't a metric, but what users volunteer is a key set of details to collect. Adding their quotes to a report is a powerful way to bring the human element to the results so that stakeholders aren't just interpreting data but are understanding perceptions that lead to insights. During the test you may just mark statements as either questions or comments; we'll be splitting those out in the report (see the later section "Generating Insights").

Recruiting and Logistics

Now that you have the outline of the research and you know how many participants you need from each group, it's time to get some tests scheduled! If you don't have access to a tool or platform that helps with recruiting, you'll need to do the legwork yourself.

Generating a List

When you created your research plan, you outlined the types of users you were looking to include. You'll need to find a way to broadcast to people who may opt in to research, which may include:

- Registered users of the product or a related offering (for example, via an email newsletter they opted into).
- Sites or groups relevant to your topic of research, such as discussion groups centered on your product's focus.
- Messages to acquaintances with a connection to the subject of the test. You want to ask them to forward the invitation to others who may be interested, since using subjects whom you know personally could bias the results. This kind of word of mouth is a great way to find pockets of potential participants, but keep in mind that these candidates still need to be screened. (If you or others on the team know people well, it can be tempting to let them slip through.)
- Requests in the form of short surveys that prequalify participants, either in ad space on relevant sites or on the company site.
- Postings or prequalification questionnaires in public places where potential participants may be found. For sites with a strong association to a physical place, you could do the majority of your screening and scheduling on site as well.
- Third-party recruiting firms, who may also run your screener for you and help with scheduling. This can be an expensive option, but if you're looking for a specific participant type that's hard to recruit or you need to recruit a lot of people, you can save a lot of time by outsourcing this part of the process. Some firms specialize in certain fields as well (such as medical) and can give you pointers on how to encourage a high participation rate.

Note

Be aware of any policies your company may need to follow with regard to personal information; opting in to research in some countries, for example, has an expiration date, after which the contact data needs to be deleted.

Be prepared to get creative here. Use your empathetic skills to think like your target users: Where can you find them, and what may motivate them to join?

This last question leads us to the next topic.

Choosing the Compensation

What will motivate members of your user group to participate in the research? It may or may not be money, but participants want something of value for their time.

If you're working on a site for internal company users, you'll need to demonstrate that value to the managers who need to approve the use of company time for participation in research. In this case, you might focus on how a better system directly relates to benefits for that group.

If you're working with potential external users, here are some variables to keep in mind when determining how you'll compensate:

How general or specific is the audience? For a widely used e-commerce site your audience is likely to be general and you can often offer a lower rate of compensation (see Table 14.1 for tools that can assist with incentives). For a product used by executives with very little spare time, on the other hand, your compensation will need to be high value, and it is often better to use something other than money as compensation, such as access to a premium service. In those cases a check may actually seem like an insult—someone who bills $250 an hour isn't likely to participate for $20. If you're working with customers of big-ticket items, treat them as a specific audience and compensate them well.

How much interest is the topic likely to generate? Some participants will join because they want to see what's coming in the area you're testing. If it's a high-interest area, you may not need to provide much extra compensation at all—the reward is having access to something no one else can see yet. But be realistic here: *You* may be that enthusiastic about the topic, but will your users be?

Will people participate mainly because they want to contribute something to the cause? Some groups will be motivated by altruistic purposes, and may be turned off by the offer of money to participate. If you're testing something that betters the community (online or off) you may get more participation—and happier participants—if the experience is about coming together rather than getting paid. In this case you can show your appreciation with public acknowledgment and by letting them know, once the site is complete, the contribution they were able to make by participating.

How inconvenient will participation be? If participants need to travel to your

site, be prepared to provide greater compensation. If they're participating in remote testing from the comfort of their own home or office, less is required. Time also comes into this equation, of course, and people will expect to be compensated more highly for 2 hours than for 30 minutes.

Possible Forms of Compensation

Your situation will vary based on type of user, but here are some things you could offer:

- $30 for a half-hour remote test with a general user group
- $80–$120 for an hour-long, in-person test with a general user group
- $180–$250 for an hour-long test with a specific user group that you determine will respond well to monetary compensation
- Free service for three months, free food at the session, free products made by the company (ideally ones that are not yet available to everyone), membership to an exclusive group for six months, and the like, for a specific user group that is unlikely to be impressed with cash

Here again is where it helps to be creative and to focus on your personas. What will motivate your user group?

Screening

A *screener* is a type of questionnaire you can use with potential participants before you schedule them. It ensures they fit within your definition of a representative user. Questions are meant to:

- Ensure the respondent is either a current user of the features you're testing or a likely future user
- Determine their fit into one or more of your user group(s)
- Help you get a good mix of participants within that user group
- Exclude particular respondents who may have experience that could skew your results

- Gather key details you need to know about before a participant arrives (optional)

If you're screening by phone, your screener should include an introductory script that your recruiter can read over the phone, along with directions on when to qualify the participant (if they fit) or terminate the call (if they don't).

Your screener should also weed out those who have knowledge that may affect your results. For example, a common question to ask is if the respondent works in the field of market research, because they are probably too familiar with research in general and as a result aren't as likely to give you genuine reactions. You may also want to screen out those who work for competitors if there are concerns about sharing design information.

Following are some examples of questions you might see on a screener for a company that sells eyeglasses online and has no in-store options. In this case, we're targeting a user group we already know would be comfortable purchasing something like this online. Note that some questions are meant to screen participants in or out, while others are more geared toward placing qualified participants into the correct user group.

1. What age range do you fall into? [mix of ages above 18]

Under 18 REJECT

18–24

25–34

35–44

45–54

55 or above

2. Have you ever ordered eyeglasses online without trying them on in a store first?

Yes

No REJECT

3. When was the last time you purchased eyeglasses online?

Within the past month CHECK for GROUP A

Within the past 2–6 months CHECK for GROUP A

Within the past 7–12 months CHECK for GROUP B

More than a year ago but within the past 2 years CHECK for GROUP B

Over 2 years ago REJECT

Handling Rejection

Reject is a harsh-sounding word. It means the screening should be ended because the respondent doesn't fit the test. You don't want the respondent to feel bad about this, but you also don't want to waste their time asking follow-up questions when you know the person isn't a fit. There are many ways to handle this if you're speaking directly to someone. One favorite is to simply say that the group they qualify for has already been filled, and ask if you can contact them in the future if there's another test they would be interested in.

Planning for Space and Equipment

By this point you know whether you're testing remotely or in person and the amount of time you need for each participant. Here are some of the other decisions you should finalize:

- **Where are you testing?** In a rented space with an observation room, in a conference room at the company site, or on location where potential users will be? Plan for a quiet place that can fit two or three people comfortably along with the computer setup you'll be testing on. If you're testing remotely, you'll still need a quiet, dedicated room with great audio and a reliable internet connection.
- **What staff will you need besides the facilitator?** You can save time and increase accuracy by having a note-taker log information during the test, for example. Other possibilities include a greeter for in-person research (to meet incoming participants, hand out questionnaires while people are waiting, and escort participants into and out of the test room) and someone to provide IT support should something come up during the test.

- **How will you be recording the test?** Remote testing tools have their own tools built in, so take them for a spin. If you're in person, you'll need to consider the use of additional cameras or audio recording options.

Writing Discussion Guides

Finally, you'll need to assemble the materials you need for the test itself. You have your general tasks listed in the research plan; now you need to finalize the actual text and instructions for the task.

Snorkeling: Templates for Testing

Steve Krug is the author of two of the most widely read and loved books in the UX field. He provides a great source of templates you can refer to for discussion guides, consent forms, and checklists at sensible.com/download-files.

His book on usability testing is a fun read with useful tips: *Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems* (New Riders, 2009).

And while you're at it, check out *Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability, 3rd Edition*, by Steve Krug (New Riders, 2013).

Your discussion guide should include all the specific information that the participant needs to successfully complete the task or tasks you're testing.

If your tasks require a lot of data entry and personalization, set up some information ahead of time and give your participants predetermined data to use. For example, if a login is involved, you will probably have all participants use the same set of login credentials. Make sure the instructions for the task include all of this information clearly so that it's easy to fill in.

Here's an example of how a task for a content editor becomes more specific in the discussion guide. The original task in the plan is

> "Find an article that's ready for editing."

In the discussion guide this becomes the following:

> **INTRODUCTION**
>
> Your manager has asked you to take on a new role: editing and approving articles posted by writers contributing to the company website. Once you approve an article it will be posted to the site in the News area.
>
> You and three other editors will be approving the items to make sure they fit with the company's message. You've been given the following login information for the editing tool:
>
> Username: **grobertson**
>
> Password: **test4me**
>
> Please read each task out loud, and then complete it using the editing tool.
>
> **Task 1**
>
> Log in to the tool and open an article that's ready for editing.

As you can see above, we've altered the plan's original task to end with a clear final state: an open article. This kind of tweaking will be common as you move to this level of detail and plan for measuring success. You can also follow each task with the perception questions discussed in the planning section. In general it's best to give each task its own page (or cover up future tasks if you're remote) so the user isn't tempted to look ahead.

In summary, your test materials should include the following:

- Consent form for recording, which you ideally run by your company's legal advisor. Steve Krug has one on the site highlighted in the sidebar "Snorkeling: Templates for Testing," and the Nielsen Norman Group has a formal example at www.nngroup.com/articles/informed-consent/#consent-form. Consent forms should inform participants how their data is stored, and for how long.
- Discussion guide for the facilitator, with introductory script.
- Discussion guide for the participant, with detailed tasks and perception questions.
- A format for note-taking. This can be a logging tool built into testing

software, a spreadsheet for typing in responses, or a printed template for checking off key information (such as types of prompts required). Spending a little extra time before the test in setting this up will ensure you get consistent results and save you a lot of time in reviewing recordings.

- Optionally, a questionnaire. Sometimes participants come early and have a little wait time, or they finish the tasks early. Both times are excellent opportunities to gather a little extra information. If you've designed a survey previously, why not reuse it here?

- The method of compensation, to be given to the participant (money in an envelope, a widely accepted gift card such as a Visa, or just-in-time forms of electronic payment like those listed in Table 14.1). If you've chosen compensation such as free services, where nothing is handed out after the test, reassure the participant that they'll be receiving follow-up no later than the next day.

If you're using paper prototyping, you'll also have those materials to work with. Make sure you have the sets prepared before your first test.

Facilitating

The job of the facilitator is to introduce the participant to the process, answer their initial questions, and then glean what insights you can while still trying to allow the participant to act as naturally as possible.

Be sure to ask users to think out loud during the test, as if they were talking to themselves (and gently remind them to do so if they start to work silently). The "think aloud" technique is the way you gain the most insight into users' behavior. You'll learn a lot about their problem solving and thought processes if you hear about them during the task itself, versus asking participants to re-create them later when their recollection may not be as accurate.

Also, be careful not to give the participant the "right" answer too quickly! One of the hardest parts of conducting a usability test is watching your carefully selected participant struggle mightily with a task and just letting them struggle.

After all, you're probably in this field because you're an empathetic individual. You want to help people. So it can feel a little sadistic to watch someone get increasingly frustrated, have them turn to you for help, and then respond, "What

would you do if you were trying this on your own?”

Whenever a participant asks you a question as they work, hold back a few beats before answering. Participants are most likely to ask questions right at the beginning of the test, especially if they feel awkward about working with you sitting next to them. Once they realize you’re there more for observation than for conversation, they’ll often start to focus on the task more than on your presence.

Here are some examples of participant questions and suggested responses:

Participant: “It looks like it may be this tab, should I go here?”

Facilitator: “What would you do if you were doing this on your own?”

—

Participant: “Am I supposed to go here?”

Facilitator: “Is that what you think you’d do at this point?”

—

Participant: “Is this the way to submit comments?”

Facilitator: Silence. Have a friendly and relaxed look on your face, then look at the participant’s screen expectantly.

So when do you intervene?

If the user has already given more effort than you think they realistically would when working on their own, and you feel you’ve learned why they ended up down the wrong path, it’s time to move on—especially if you have more tasks to get through and you don’t want them to carry their frustration through to the rest of the test.

In Chapter 7 we mentioned the importance of avoiding leading questions in user interviews. The same applies here as well. If you feel you’re too close to the design and that criticism might make you respond defensively, consider coaching someone else to facilitate while you take notes or observe.

Analyzing and Presenting Results

You’ve finished all the tests and you now have a mountain of data to wade through. But there are some key findings that you already think are relevant, and

your project team is dying to know how it went.

You may want to schedule a casual verbal overview of your top-of-mind takeaways for the team. It can help you verbalize some of the trends you noticed and help set the stage for your later report. Be sure to communicate that these are initial impressions and you'll need time to analyze your data in more detail. You don't necessarily want to jump into recommendations before you have a full picture of where any problems may lie.

Once you have time to sit down with the data, review it with a couple of things in mind:

The amount of time you have for analysis. It's easy to get lost in the details and try to include everything. As always, keep an eye on your test and objectives as you tease out the important findings. If you have 10 hours of test recording and five days to write the full report, you probably don't want to take the time to watch the video of every test. If you're tight on time, try to have someone join you as note-taker and go back to the videos mainly to make sure the key quotes you remember are recorded correctly.

How your results will be used. This is an important detail that can often be underestimated. You may create a beautiful 20-page report, but only one of those pages is likely to get a lot of mileage: the executive summary.

If your business stakeholders are going to want to see the details, the report itself can be the main way to communicate results. If you think you'll need two levels of detail—one for stakeholders and another for the project team—consider creating a presentation version of the report as well, which hits on key findings in a more visible, digestible, and prioritized way. Those who are interested in more detail can then refer to the full report.

Prioritizing Issues

At the end of the test you'll potentially have a long list of usability issues to understand and prioritize. Here are some characteristics that will help you determine how severe an error is:

- **Consequences.** The negative results of encountering the issue. For example, if a participant loses data because of a usability issue, that warrants a High rating. Let's say they spend 10 minutes filling out a complex form and accidentally choose a link taking them to another page. If they hit a browser's Back button, is their data gone?

- **Recoverability.** The degree to which the participant can recover after encountering the issue—for example, are they able to easily get back via an alternate path?
- **Frequency of occurrence.** Because you're not working with a large number of people, this doesn't stand alone as a mark of severity. But if five people make the same mistake and it leads them down a less optimal path, that's a good sign you should consider making it a higher priority.
- **Rational cause.** If the issue wasn't encountered frequently but it was made by someone who fit within your user group, they made it for a rational reason, and there was a clear cause for the error, that issue should be considered as you make your recommendations.

Generating Insights

Aside from the issues you've gathered, you'll have a wealth of statements made by users that can bring out valuable insights for the project team. As described in Chapter 7, an affinity diagramming exercise is an excellent way to gather these statements and collaboratively identify patterns.

Here are some of the ways you could categorize user statements:

- Goals
- Mental models
- Ideas and feature requests
- Frustrations and pain points
- Workarounds
- Value statements
- Delights (don't leave these out—you don't want to lose the good stuff!)
- Expectations (especially when they are missed)

Both in insights and in recommendations be sure to include the positive findings as well. Usability test reports are often seen as being too negative, mainly because the researcher prioritizes discussion of the things that need to be fixed over the things that are going well. Taking time to discuss the good things will make the overall report experience better for everyone. It also helps the design

team get engaged with the results—and excited to make the design even better.

Creating Recommendations

Your recommendations should call back to the objectives you set and any hypothesis you were looking to validate.

Daniel Pidcock provides a good structure for this recommending:

1. Experiments “We did this…”
2. Facts “…and we found out this…”
3. Insights “…which makes us think this…”
4. Recommendations “…so we’ll do that.”

He explains this further in his article “What is Atomic Research?” (blog.prototypr.io/what-is-atomic-research-e5d9fbc1285c), and diagrams it as you see in **Figure 14.4**. In a nutshell, atomic research is the practice of breaking UX knowledge down into smaller pieces (rather than one big report with a mix of different types of findings). It’s a good approach when, in particular, you have multiple project teams working on different parts of the same product. Breaking findings out in this way makes it possible to tag areas of the product so that all findings related to, say, search could be reviewed together even if different teams conducted the research.

The Atomic UX Research model

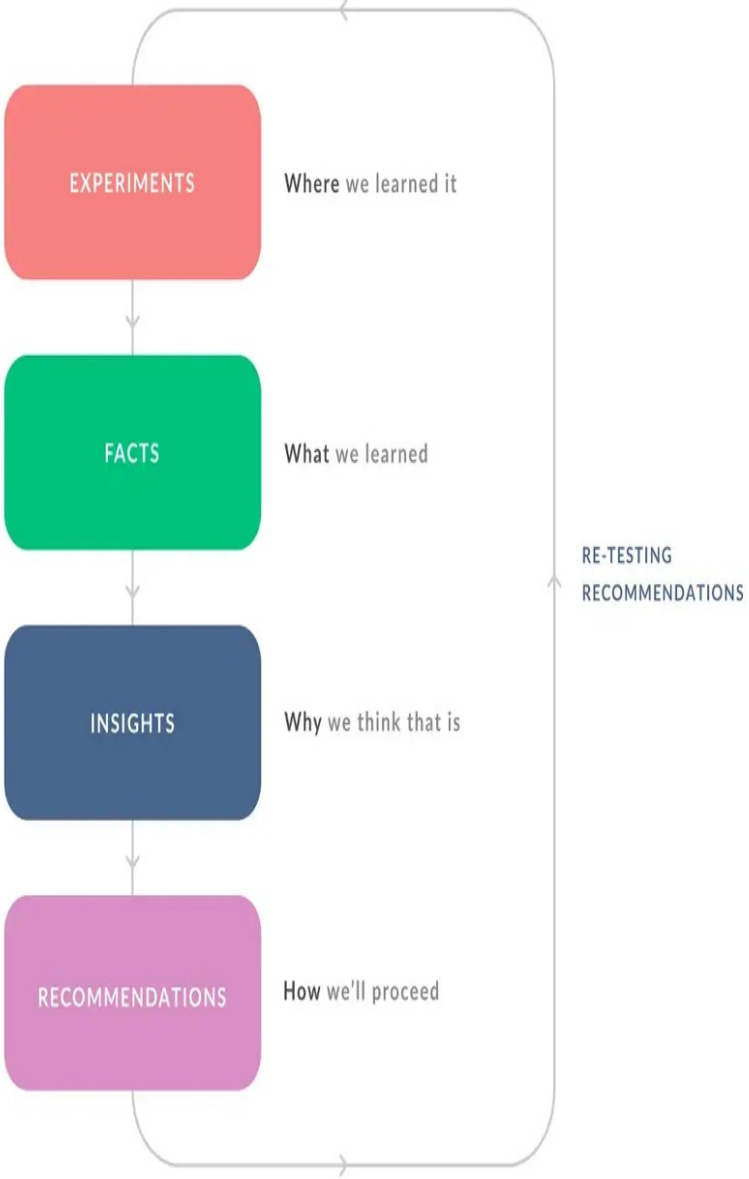

Figure 14.4 **Atomic research is the practice of breaking UX knowledge down into small individual pieces, which can then be tagged and shared to be searchable across different studies. Thinking through these relationships will help you communicate your findings and how you reached them, even if you do use one combined report.**

Even before you start analysis you probably already have some good ideas in your head for fixing the issues encountered in the test. Sketch them out along the way as you identify issues and insights so you don't lose them. Just be careful a single idea doesn't take over too early and sway your view of other potential approaches that may resolve more issues.

A good recommendation should:

- Resolve more than one issue, if possible. You may want to group issues together under one larger recommendation, depending on how detailed and specific you get with your issue descriptions.
- Be actionable and simple—avoiding prematurely detailed designs.
- Use verbiage that is straightforward but doesn't condescend. Receiving criticism is a difficult thing, especially for those who were directly involved in the design tested. Don't underplay issues, but keep in mind that your words need to come across as constructive and respectful.

Remember that recommendations need to be targeted to their end users just as much as the system does. As you finalize your report, circle back and ask yourself if the original objectives were met and how to best provide your results to the variety of people who will be using them: stakeholders, designers, and developers.

Speaking of developers, it's time to bring them to the forefront again. In the next chapter, we'll be covering the things to keep in mind as you transition from design into development, and beyond.

15. Development & Beyond [This content is currently in development.]

This content is currently in development.