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Erika Hall

JUST ENOUGH RESEARCH

FOREWORD BY Jeffrey Zeldman

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FOREWORD

IN THE DIGITAL AGE, creating meaningful design requires us to understand people who are different, anticipate what they will want to do, and provide them with the tools they need, exactly when they need them. But how can we do that? We are not saints, gods, or clairvoyants. We can only understand others through research, and that is the subject of this shiny little book.

How is this book different from others? In a perfect world, research budgets are sufficient, ample research time is provided in advance of project definition, and accuracy is assured through shared models and processes. In that perfect world, clients value research. They reward designers who ask difficult questions, and prioritize user needs over marketing directives, internal politics, or personal peccadillos.

But that's not the world we work in. In our world, budgets are constrained, schedules are absurd, there is little internal agreement about what constitutes worthwhile research, and "I don't like yellow" is considered feedback. Or we may work for an organization that claims to want information about the customer, but actually prizes computer algorithms above human insight.

Fortunately, Erika Hall works in *our* world, and has devised a plan for us.

For research to help us, we need methods that deliver real benefits, fast. Armed with *Just Enough Research*, you'll be able to quickly ascertain key facts and gather important insights, enabling you to design the right experience for the real, living people who actually use your website. Just as importantly, you'll be able to head off or win the internal debates that so often send promising projects plummeting to perdition. Best of all, this book will help you convert antagonists into true collaborative partners. Your team will never be the same again. It will be better.

But don't take my word for it. Do your own research—starting at Chapter 1.

—Jeffrey Zeldman

1 ENOUGH IS ENOUGH

THROUGHOUT 2001, the internet buzzed with rumors of “Ginger” or simply “*it*,” the revolutionary future of personal transportation. *It* would change everything. Jeff Bezos was into *it*. Bono was into *it*. Tens of millions of dollars in venture investment had been poured into *it*.

Finally, in December of that year, *it* arrived—and the Segway debuted with a counterrevolutionary thud.

These days, Segways seldom appear outside of warehouse corridors except as a novelty, miracles of engineering conveying awkward gaggles of tourists as they hum serenely by. It’s as though the finest minds of the late 20th century envisioned a brave new world ushered in by amphibious duck tour.

Transportation is a complicated system with very strong conventions. The more industrialized the society, the more people traveling faster, the stronger the conventions. Otherwise, more collisions and chaos. There are currently four fundamental personal ground transportation options: walking (or wheelchair), bicycle, motorbike, and automobile.

There are two basic paths: the sidewalk and the street. Pedestrians and individuals in wheelchairs get to use the sidewalk. Vehicles, including bicycles, go in the street. A transportation journey has a beginning and an end. If you travel by personal vehicle, you have to store your vehicle at each end, either inside or outside. Bikes go on racks outside or wherever they fit inside. Cars and motorbikes go into authorized zones on the street, parking lots, or garages. Reliable transportation is essential to daily life, as a flat tire will quickly confirm.

No matter what our personal transportation preferences, we all share the rules and conventions of our locales, and most people share very common needs. People need to get to school or work on time. They need to carry groceries or children. They need to travel through sunshine and rain.

This established system is used with relatively small regional variations by billions of people around the world. But the Segway didn't fit. It was slower than a car and at least ten times the price of a decent commuter bicycle. Even those who could afford it weren't sure what to do with it. You couldn't take the kids to school on it. You couldn't commute twenty miles on it. You couldn't pack the family into it or make out in its backseat.

Critics jumped on the dorky aspect and the high price, but those weren't the dooming factors. Early adopters often put up with cost and ridicule for innovations that meet real needs. But no one needs a Segway.

What does the failure of the Segway have to teach design research? That where humans are concerned, context is everything.

ENOUGH!

"A little learning is a dangerous thing."

—ALEXANDER POPE

You like a little danger, don't you?

To design, to code, to write is to embrace danger, to plunge ahead into the unknown, making new things out of constantly changing materials, exposing yourself to criticism and failure every single day. It's like being a sand painter in a windstorm,

except Buddhist monks probably don't have to figure out how to fit IAB ad units into their mandalas.

You work one pixel or line or phrase at a time, and every strategy shift or miscalculation leads to rewriting and reworking and revising. Yet you're shadowed by the idea that the best designers and developers and writers are self-motivated, self-inspiring, hermetically sealed units of mastery. The myth of the creative genius makes it very difficult to say "I don't know."

You may be on a team that sees enthusiasm as a substitute for knowledge, high-fiving your way along a primrose path of untested assumptions. (Some people call that religion.) Or maybe you are driven before the whip, no time to stop or even breathe. You might not be going the right way, but who cares because you need to get there fast. Or you might be in an organization where everything is done in response to marketing, sales, and the competition. Every day there's a new trend or buzzword to pay attention to.

In these settings, research can be a very scary word. It sounds like money you don't have and time you can't spare, like some egghead is gathering wool in a lab or library when you could be moving forward and building something. Scariest of all, it means admitting you don't have all the answers. You may have a vague idea that research is a good thing, but the benefits are fuzzy while the costs are all too clear.

This book is for you.

Research is a tool—a periscope offering you a better view of your surroundings. It can be very powerful if applied thoughtfully. Rather than piling on the costs, research can save you and the rest of your team a ton of time and effort.

You can use the techniques and methods I'll describe to:

- Determine whether you're solving the right problem.
- Figure out who in an organization is likely to tank your project.
- Discover your best competitive advantages.
- Learn how to convince your customers to care about the same things you do.
- Identify small changes with a huge potential influence.
- See where your own blind spots and biases are preventing you from doing your best work.

By the end of the book, you will possess just enough knowledge to be very dangerous indeed. Because once you start getting answers, you'll keep asking more questions. And that skeptical mind-set is more valuable than any specific methodology.

RISK AND INNOVATION

A couple of years ago, one of the world's largest insurance companies hired my company, Mule Design, to identify new product and service opportunities enabled by emerging personal technologies. This is fun stuff. Thinky. Lots of meaty problems to solve with our minds. We said, "Great, can we talk to some of your salespeople and agents to better understand how you operate and serve customers now?"

They said, "No."

The reason? "We don't want the way we do things now to inhibit your creativity. We want blue-sky thinking!"

Now, I like to think that we have a clever group of people. We stay on top of technological advances. We have good imaginations and read comic books and speculative fiction. We have well-considered opinions about monorails, vat-grown meats, and how to defend a space station from a zombie attack. (Lure zombies into the air lock with vat-grown meat while escaping on a monorail.)

None of this tells us where the insurance business might be in ten years. And while we enjoy speculating about the future, we felt irresponsible taking our client's money for guessing.

We ended up doing a lot of secondary research to learn their business, but reading reports and articles is more work and less fun than talking to live humans and hearing about their specific situations. And we didn't get any information about our client's business, which means that while our work was solid, it could have been better.

Businesses and designers are keen on innovation, as well they should be. But the better you know the current state of things and why they're like that, the better you will be positioned to innovate.

WHAT RESEARCH IS

Research is simply systematic inquiry. You want to know more about a particular topic, so you go through a process to increase your knowledge. The type of process depends on who you are and what you need to know.

A lot of *personal research* these days begins with a Google query (“Who is Mihaly Csikszentmihalyi?”) and ends on a Wikipedia page. (“Oh, so *that’s* how you pronounce it.”) Finding information is relatively easy. The knowledge already exists. You just have to find a trustworthy source for it. Assessing credibility is the hard part. (“Are all polar bears really left-handed?”)

Pure research is carried out to create new human knowledge, whether to uncover new facts or fundamental principles. The researcher or investigator wants to advance a particular field, such as neuroscience, by answering a particular question, such as “Why do humans sleep?” Pure research is based on observation or experimentation. The results are published in peer-reviewed journals. This is *science*. Rigorous standards and methodologies exist to preserve objectivity and ensure the credibility of conclusions. (Things get squishy when corporations fund ostensibly pure research, as they frequently do.)

Applied research borrows ideas and techniques from pure research to serve a specific real-world goal, such as creating a supersoldier or improving the quality of hospital care or finding new ways to market pork-flavored soda. While ethics are just as important, methods can be more relaxed. Maybe this means changing up the questions you ask partway through a study, or making the most of an imperfect sample group because you’re tight on time. The research is successful to the extent that it contributes to the stated goal. As with pure research, sometimes you accidentally discover something valuable you weren’t even looking for, and that’s a fantastic bonus.

And then there is design research.

Design research is a broad term with a long history. In the 1960s, design research referred to the study of design itself, its purpose and processes. This is still how the term is used in academia today. There are various institutes of design research

around the world, mostly involved in large existential or small theoretical questions couched in highly specialized academic language. If you're interested in transformative concepts of spatial intelligence or the poetics of the sustainable kitchen, this field is for you.

However, when practicing industrial or interactive designers refer to design research, they typically mean research that is integral to the design work itself—inquiries that are part of designing, not *about* design. This research focuses largely on understanding the people for whom we're designing, often referred to by the dehumanizing but instrumental term *end users*. Research is a core part of user-centered design.

Jane Fulton Suri, creative director at the renowned international design consultancy IDEO, offers this elegantly phrased statement of purpose in her 2008 article “Informing Our Intuition: Design Research for Radical Innovation” (<http://bkaprt.com/jer/1/>):

Design research both inspires imagination and informs intuition through a variety of methods with related intents: to expose patterns underlying the rich reality of people's behaviors and experiences, to explore reactions to probes and prototypes, and to shed light on the unknown through iterative hypothesis and experiment.

For a design to be successful, it must serve the needs and desires of actual humans. Strangely, simply being human is insufficient for understanding most of our fellows. That's why Suri's description could apply equally to the research extraterrestrials conduct on unsuspecting abductees (including their reactions to probes!). Design research requires us to approach familiar people and things as though they are unknown to us to see them clearly. We need to peel away our assumptions like a gray alien shedding its encounter suit.

Imagine you're working with a well-established science and technology museum. Let's call it the Fantastic Science Center. And this museum just received a grant for the vague purpose of improving its use of the web, which could mean anything from

designing a new brochure website to creating interactive science education activities for remote students to developing mobile apps that complement the physical exhibits for visitors with smartphones. How do you prioritize alternatives and ensure the project succeeds? Throughout this book we'll look at ways you can employ research techniques to ensure the museum (or any organization) makes the best use of your time and its resources.

Asking your own questions and knowing how to find the answers is a critical part of being a designer. If you rely on other people to set the agenda for inquiry, you might end up caught between fuzzy focus groups and an algorithm that scientifically chooses a drop shadow from among forty-one shades of blue. Discovering how and why people behave as they do and what opportunities that presents for your business or organization will open the way to more innovative and appropriate design solutions than asking how they feel or merely tweaking your current design based on analytics.

You will find that when you ask the hard questions, your job gets much easier. You will have stronger arguments, clarity of purpose, and the freedom to innovate that only comes with truly knowing your constraints.

WHAT RESEARCH IS NOT

Research is not asking people what they like

As you start interviewing people involved in business and design decisions, you might hear them refer to what they do or don't like. "Like" is not a part of the critical thinker's vocabulary. On some level, we all want the things we do to be liked (particularly on Facebook), so it's easy to treat likability as a leading success indicator. But the concept of "liking" is as subjective as it is empty. It is a superficial and self-reported mental state unmoored from any particular behavior. This means you can't get any useful insights from any given individual reporting that they like or hate a particular thing. I like horses, but I'm not going to buy any online.

Quash all liking, and hating too. Plenty of people habitually engage in activities they claim to hate.

Research is not a political tool

Don't let your methods be guided by a desire to appear smart or conform to anyone else's picture of research. Some clients will argue for doing interviews in a usability lab even when it isn't appropriate, just because it feels research-y. You'll need to explain to them why interviews with method and purpose are more valuable than having a social conversation with a random person—and why it really doesn't matter where you do them, as long as they're done right.

In the best case, you can use the real-world facts and insights you gather to bring an external perspective to internal debates and power struggles that threaten your ability to get good work done. At the very least, it's up to everyone participating in the research to hold the line and not let interpersonal dynamics influence your findings. Watch out for those who would use information gathering for political purposes or as a popularity contest.

Applied research is not science

In addition to executives who prefer the authoritative appearance of experimentation, you may run into sample-size queens who dispute the validity or utility of applied qualitative research. These people are often pollsters and marketers who run a lot of surveys. Avoid arguments about statistical significance; you will not win. Instead, keep the focus on gathering useful insights.

WHY THIS BOOK

There are dozens of books about applied qualitative research and related techniques out there. The good ones are many hundreds of pages long. Most were written by professional researchers for professional researchers. Very thorough individuals, professional researchers. Most of them are quite charming at parties.

You, however, are not a professional researcher, which means you need a book written for you—a book that covers a lot of useful ground in few words and makes some of the basic concepts and techniques more accessible. That's this book.

People who make design decisions at any level benefit from asking more and better questions. Many of them also need a little guidance on what to do with the answers. Within are ideas and techniques for you to use in making your projects and design solutions better and more successful. It is a sampler rather than a survey, and a biased sampler in that I have included only the topics and approaches I personally have found most useful in my design career. Most of these are what we do at Mule in the beginning of a client project.

It is also a pointed book, and that point will help you cut through the laziness, arrogance, and politics that prevent more research.

Research is just another name for critical thinking. With a little encouragement, everyone on your team can open their minds and embrace it. And together, we can fix it so no one contemplating a web project ever mentions focus groups again.

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THE BASICS

RESEARCH is a discipline with many applications. This chapter introduces the core practices and fundamental ideas and techniques you will use repeatedly in many situations. We'll cover who should do research, different types of research and when to use them, and roles within each set of research activities. To help counter any skepticism about the business value of research, we'll also review some common objections and how to overcome them.

WHO SHOULD DO RESEARCH? EVERYONE!

Ideally, everyone who is on the design team should also participate in the research.

If you are a sole practitioner, well, that's easy. You will have excellent direct experience and can tailor the process and documentation to suit your needs. (Just be particularly mindful of your personal biases.) If you work with other people, involve

them from the start. Presenting them with the world's most stunning report will give them a terrific reference document, but it's far less likely to inspire them to approach their work differently. (Do you disagree? Perhaps you are an economist.)

When you find yourself making a case for a skeuomorphic, bronze astrolabe interface based on the research you've all done together, you'll be able to spend less time explaining the rationale and more time focused on the merit of the conclusion. "As you saw in the interviews, we found that our target group of amateur astronomers exclusively uses nineteenth-century equipment for stargazing...."

People who have a hand in collecting the insights will look for opportunities to apply them. Being the smart person is more fun than obeying the smart person, which is how the researcher/designer dynamic can feel if designers are merely the recipients of the analysis.

At my first design agency job, the research director was a charming PhD anthropologist with a penchant for vivid, striped shirts. Despite being fresh out of academia, he was much more of a scout troop leader than a fusty professor. Interviews and usability tests were scavenger hunts and mysteries with real-world implications. Unlike heinous, contrived team-building activities—rope courses and trust falls—doing research together actually did make our team more collaborative. We were learning interesting, valuable new things, and everyone had something different to contribute. The content strategist would notice the vocabulary real people used and the developer had good questions about personal technology habits. The visual designer was just really into motorcycles, and that helped sometimes too.

Someone needs to be the research lead—the person who keeps everyone on track and on protocol and takes ultimate responsibility for the quality of the work. If you take this on it might mean that you're the primary researcher, gathering the data for others to help you analyze, or you could have more of an ensemble approach. The most important thing is that everyone involved knows the purpose or goal of the research, their role, and the process.

Find your purpose

One of our maxims at Mule is that every design project ultimately amounts to a series of decisions. What are the most important features? What is the best navigation scheme? How big should the logo be?

For any given project, we include only the research activities that support the specific decisions we anticipate. If the client has only identified an audience and wants to explore ways to better serve them (“What can we offer of value to high school science teachers?”), our research will be more open-ended than if the design problem is already well defined (“How can we get high school science teachers to download and use our lesson plans?”).

This has been playing out on the fields of “mobile first.” Many organizations are seeing a significant increase in their mobile traffic. They know they have to do something different for users on mobile devices, but aren’t quite sure what. So, they’re looking for ideas, or should be. It’s too soon to jump to fine-tuning solutions. For example, should the Fantastic Science Center, our fictional museum client, rewrite all of the exhibit descriptions for a mobile audience, or build a native event reservation app, or encourage school group students to post exhibit photos to Facebook from their phones? Organizational research will tell you which interactions benefit the museum most, while user research will indicate which are most plausible and the circumstances under which they will take place. Maybe you will discover that school district policy prohibits students from using their phones on field trips, but parents are likely to take photos of family visits to share with their Facebook friends. In that case, parents are the ones to target with a social media marketing campaign.

There are many, many ways of classifying research, depending on who is doing the classification. Researchers are always thinking up more classifications. Academic classifications may be interesting in the abstract, but we care about utility, what helps get the job done. Research is a set of tools. We want to make sure we can find the right one fast, but we aren’t too concerned with the philosophy of how the toolbox is organized.

To choose the best research tool for your project, you'll need to know what decisions are in play (the purpose) and what you're asking about (the topic). Then you can find the best ways to gather background information, determine the project's goals and requirements, understand the project's current context, and evaluate potential solutions.

Generative or exploratory research: "What's up with...?"

This is the research you do before you even know what you're doing. It leads to ideas and helps define the problem. Don't think of this as just the earliest research. Even if you're working on an existing product or service, you might be looking for ideas for additional features or other enhancements, or new products you could bring to an audience you're already serving.

Generative research can include interviews, field observation, and reviewing existing literature—plus feeling fancy about saying "generative research."

Maybe the museum is trying to decide how to allocate that grant money and has discovered that a lot of parents who recently had their first child are coming to the website and you want to figure out what else you can offer them. Your question might be, "What's up with new parents anyway?" Your goal would be to see the new parent experience from their eyes, to understand what they do and what they need. Your generative research activities might include interviewing new parents on the phone, following new parents around on a typical day, or looking at the questions new parents ask on social websites.

Once you've gathered information, the next step is to comb through it and determine the most commonly voiced unmet needs. This sort of research and analysis helps point out useful problems to solve. Your thinking might lead to a hypothesis, such as "Local parents of young children would value an app that offers ideas for science events and activities based on their child's developmental milestones." Then you can do further (descriptive) research on how parents recognize and commemorate those milestones.

Descriptive and explanatory: “What and how?”

Descriptive research involves observing and describing the characteristics of what you’re studying. This is what you do when you already have a design problem and you need to do your homework to fully understand the context to ensure that you design for the audience instead of yourself. While the activities can be very similar to generative research, descriptive research differs in the high-level question you’re asking. You’ve moved past “What is a good problem to solve?” to “What is the best way to solve the problem I’ve identified?”

At Mule, we’ve done a lot of design work for eye health organizations. Despite the fact that several of us have really terrible vision (and very stylish glasses), none of us had any expertise beyond whether the chart looks sharper through lens number one or lens number two. The Glaucoma Research Foundation offered a clear design problem to solve: how to create useful, accurate educational materials for people who had been newly diagnosed with an eye disease. So, a round of descriptive research was in order.

To inform our design recommendations, we interviewed ophthalmologists and patients, and reviewed a large quantity of frankly horrifying literature. (Please, have your eyes examined regularly.) By understanding both the doctor and patient priorities and experiences, we were able to create online resources full of clear information that passed clinical muster and didn’t provoke anxiety.

For the Fantastic Science Center, descriptive research comes into play once we’ve identified a design problem, such as providing an online robotics course for students around the world. Maybe this supports the organizational goal to create a global robot army. It would be important to understand how online learning would best fit into the lives of the target students. For example, do they have their own equipment or do they share? How do target users find out about new online activities? How do the needs of students who only have mobile devices compare to those who have access to a laptop or desktop? Which activities are they already engaged in that might compete with or complement such a course?

Evaluative research: “Are we getting close?”

Once you have a very clear idea of the problem you’re trying to solve, you can begin to define potential solutions. And once you have ideas for potential solutions, you can test them to make sure they work and meet the requirements you’ve identified. This is research you can, and should, do in an ongoing and iterative way as you move through design and development. The most common type of evaluative research is usability testing, but any time you put a proposed design solution in front of your client, you really are doing some evaluative research.

Causal research: “Why is this happening?”

Once you have implemented the solutions you proposed, and have a website or application up and running out in the world, you might start noticing that people are using it in a certain way, possibly a way that isn’t exactly what you’d hoped. Or perhaps, something really terrific is happening and you want to replicate the success in other parts of your operation. For example, you’ve noticed that ever since the Fantastic Science Center redesign launched, tickets for the Friday evening science-loving singles event are selling better, but ticket sales have completely dropped off for the Sunday afternoon film program. You need to do some causal research.

Establishing a cause-and-effect relationship can be tricky. Causal research often includes looking at analytics and conducting multivariate testing (see Chapter 9). This means reviewing your site traffic to see how visitors are entering and moving around the site and what words they might be searching for, as well as trying design and language variations to see which ones are more effective. Causal research might show that your film program traffic all came from one referring website that no longer links to you. Or, you might have to expand beyond looking at site performance to see what else is going on. Maybe a competing organization started an event with a very similar name and confused your target audience.

As long as you're clear about your questions and your expectations, don't fret too much about the classification of the research you want to undertake. Remain open to learning at every stage of the process. And share this love of learning with your team. Your research will benefit from a collaborative approach that includes assigning specific responsibilities to different people.

Roles

Research roles represent clusters of tasks, not individual people. Often one person will take multiple roles on a study, or a single role can be shared.

Author

The author plans and writes the study. This includes the problem statement and questions, and the interview guide or test script.

Interviewer/Moderator

The interviewer is the person who interacts directly with the test participants.

Coordinator/Scheduler

The coordinator plans how time will be used during the study and schedules sessions, including arranging times with the participants.

Notetaker/Recorder

The notetaker is responsible for capturing the data during a test session. It is best that the interviewer and notetaker be two separate people so that the interviewer can devote full attention

to the participant. If this is impossible, the interviewer can arrange to record the session as unobtrusively as possible. Having both written notes and a recording makes data analysis easier.

Recruiter

The recruiter screens potential participants and identifies the respondents who would be good subjects. The recruiter and scheduler can easily be the same person.

Analyst

The analyst reviews the gathered data to look for patterns and insights. More than one person should have this role.

Documenter

The documenter reports the findings once the research study is complete.

Observer

Often it's useful for clients or other available team members to watch the research in progress. This is appropriate as long as the presence of the observers will not influence the research itself. As a substitute, you can make raw recordings available.

You can change roles with each set of activities if that works best, or develop a routine that allows you to focus on the information gathering. Just as with design and coding, every time you complete some research, you'll have ideas for how to do it better next time and you'll have found new ways to incorporate learning into your work.

Listen. Be interested. Ask questions. Write clearly. And practice. Whatever your day job is, adding research skills will make you better at it.

The research process

We'll cover ways to organize research activities in extensive detail in Chapter 3. For the purposes of this section, what matters is that everyone working together has a shared understanding of how the work will proceed. This can be as simple as a checklist.

In addition to organizing the efforts of your immediate team, you might need to get approval to do research at all, either from the client or from decision-makers in your organization. Handle this as early as possible so you can focus on the work rather than defending it.

OVERCOMING OBJECTIONS

Sometimes the people you're working with or for will consider research somewhere between a threat and a nuisance.

You might have to get a certain amount of what they call organizational buy-in to proceed. This could start with agreement from your immediate team, but the whole point of doing research is to have a stronger basis for decision-making, so if another level of decision-making, such as executive fiat, trumps the research, you will have wasted your time. Get ready to advocate for your research project—before you start it.

The objections you will hear

Here is a handy list of objections and responses.

We don't have time

You don't have time to be wrong about your assumptions. What are your key assumptions? What if they're all wrong? How much work would you have to redo? How long would that take?

We don't have the expertise, or the budget

You have what it takes, thanks to this book! Even with little or no budget, you can usually locate some related research online, wrangle representative users to interview, and do a

little usability testing. Applying some critical thinking to your assumptions costs nothing, but a change in your habits can offer tremendous returns.

The CEO is going to dictate what we do anyway

You're going to fight to change that dictatorial culture. Reasonably accurate and well-documented research has been known to sway even the most magnificent and well-fed egos. And if the leadership really does have a "damn the facts, full speed ahead" attitude, get a different job.

One research methodology is superior (qualitative vs. quantitative)

What you need to find out determines the type of research you need to conduct. It's that simple.

You need to be a scientist

This isn't pure science we're talking about here. This is applied research. You just need to have (or develop) a few qualities in common with a good scientist:

- Your desire to find out needs to be stronger than your desire to predict. Otherwise you'll be a mess of confirmation bias, looking for answers that confirm what you already assume.
- You need to be able to depersonalize the work. There are no hurt feelings or bruised toes in research, only findings.
- You need to be a good communicator and a good analytical thinker. Otherwise questions and reports get muddy, and results will be worse. This is just a set of skills that most people can develop if they have the right attitude.

You need infrastructure

I suspect you own or can borrow a laptop and have access to the internet. That is all you need.

It will take too long

Upfront research can provide a basis for decision-making that makes the rest of the work go much faster. Nothing slows down design and development projects as much as arguing over personal opinions or wasting effort solving the wrong problem. And you can start small. A couple of weeks can mean very little to your overall schedule while adding significantly to your potential for success.

You can find out everything you need in beta

There are a lot of things you can find out in beta: what functionality is working, whether users have a hard time finding core features. But there are also a lot of things that are very helpful to know before you start designing or coding at all, and you can find those out pretty fast: what your target audience is doing right now to solve the problems your product or service purports to solve, whether people want this product at all, and what your organization has to do to support it.

Again, it's a matter of where you want to invest and what you have to lose. Don't waste anyone's time or effort on untested assumptions if you don't have to.

We know the issue/users/app/problem inside and out already

Unless this knowledge comes from recent inquiry specific to your current goals, a fresh look will be helpful. Familiarity breeds assumptions and blind spots. Plus, if you are very familiar with your users it will be very easy for you to find some to talk to.

And who is the “we” in this case? In the absence of a mind meld, the client's experience with the users or the business problem doesn't transfer to the designer. Shared understanding is key.

Research will change the scope of the project

It's better to adjust the scope intentionally at the start than be surprised when new information pops up down the road to amend your plans. Research is an excellent prophylactic against unexpected complexity.

Research will get in the way of innovation

Relevance to the real world is what separates innovation from invention. Understanding why and how people do what they do today is essential to making new concepts fit into their lives tomorrow.

Actual reasons behind the objections

At the root of most of these objections is a special goo made up of laziness and fear.

I don't want to be bothered

Unless you are naturally curious about people, research can seem like annoying homework at first, but once you get into it, you'll find it totally fun and useful. A little knowledge opens up a whole world of new problems to solve and new ways to solve the problems at hand. That makes your work more rewarding. If research is one more thing tossed on your already overfull plate, then someone needs to ask the "Who should be doing this?" question again—but the problem is you being too busy, not research being unimportant. Research needs to be integrated into process and workflow or it will get shoved in a corner. If your project has a project manager, talk with them about finding ways to make it work.

I am afraid of being wrong

The cult of the individual genius designer/developer/entrepreneur is strong. In certain "rockstar knows best" cultures,

wanting to do research can come across as a sign of weakness or lack of confidence. Fight this.

Information and iteration are the keys to a successful design. Research is just one set of inputs.

I am very uncomfortable talking to people

You are creating a system or a service actual people are going to have to use. This system will be talking to people on your behalf, so it's only fair that you talk to people on its behalf. That said, some people on your team will have more comfort and skills when it comes to interacting with your research subjects, so consider that when you're deciding who does what.

Having to respond to challenges and objections before you can get to work might feel like a waste of time, but it can be very useful in its own right. Describing the goals and potential of your research to people who aren't sold on the value will actually help you focus and better articulate what you hope to uncover.

These discussions will give you a better understanding of the environment you're working in. Research is all about context.

RESEARCH IN ANY SITUATION

"Poor user experiences inevitably come from poorly informed design teams."

—JARED M. SPOOL, founder of User Interface Engineering

Design happens in context. And research is simply understanding that context.

Research happens in a context as well. Your professional environment should inform the research activities you choose and how you go about them.

The following contexts and situations aren't mutually exclusive. You might be in some that overlap. Just remember that no matter what situation you're in, you can do or participate in some useful research.

Freelance

On the one hand, as a freelancer, you can do whatever the hell you want as part of your design and development process as long as you deliver what the client expects when the client needs it. On the other hand, if someone is hiring you as a solo web designer, they may balk at paying for something that falls outside of their concept of that gig.

If you are doing work, you need to get paid for it. “Just tossing in the research” is a terrible mistake designers who want to do good work make all the time. Instead, you have to commit to research personally as part of how you work, make your case for it, and be sure to include it in your fee. Research will make your design stronger and enhance your ability to defend your decisions to the client.

If you’re being brought in as a contractor to work as part of an internal team, make sure you have access to all of the information and insight required to do your job. Contractors run the risk of being pigeonholed. You’re the designer, why do you need to bother with research? When information is distributed on a “need-to-know” basis, you’re the best judge of what you need to know to get the job done.

At a client services agency

If you are at an agency, you have the opportunity to improve your process with each new project. A certain amount of research is built in simply because you have to scope the work to bid on the job and understand the client’s needs (or do an awesome job of faking it) to land the gig. The better you do these things, the better time you’ll have doing the work.

At Mule, and at many other agencies, the first phase of work on any new project is an intensive period including all the research that’s useful and practical. We talk to stakeholders, interview users, review competitors, and sometimes conduct a round of benchmark usability testing. Sometimes we do this in a matter of a few weeks. We need to get up to speed quickly, so working collaboratively is essential.

As with freelancing, coming in from the outside puts us at a definite advantage because we are external to existing processes and political considerations. Some clients bring us in to ask the questions they know need to be asked, but are not in a position to ask themselves.

Falling back on ignorance can be a position of strength. Asking naive questions can cut right to the heart of assumptions and open people up to thinking about problems in a new way. “How does that benefit the business?” and “Why do you do it that way?” are a couple of terrific questions that can be very tricky for someone on the inside to get away with.

In-house at an established company

In an established organization of any size, politics are a huge consideration. Challenging the assumptions of those in power can be incredibly threatening to those people. It can also be the best thing you can do to ensure that your work succeeds—if you don’t get fired. (See Chapter 4 for more on introducing even the most stubborn organization to the joys of research.)

If you’re at an organization that genuinely embraces critical thinking and clear communication in the design process, that’s terrific. I hope you’re also taking very good care of your unicorn desk mate. Otherwise, proceed with open eyes and discretion.

An existing product means that a glorious data trove exists: customer service! Customer service is where actual, individual human needs and expectations crash headfirst into reality. If you have ready access to the customer service representatives, talk to them. You will make friends. Customer service staff have so much expertise and often get very little respect within an organization. And they have to communicate with unhappy people all day, every day. A conversation with someone who respects and values their contribution is likely to be a good time for all.

In addition to, or instead of, direct access to the customer service people, get hold of the inbound support requests. This will be a fantastic source of insights into the ways different types of customers think about their needs and the language they use to describe them. You can also practice seeing through what people say they want to what they actually need. Steve in Louisville

may be asking for a more informative error message, but what he really wants is to be able to reorder his usual pizza and salad with a different credit card and no error message.

You don't just want insights; you also want a way to put those insights back into the product.

It's very helpful to have a clear idea of how product and marketing decisions are made in your company. Do you have a truly customer-centered culture? When leaders talk about research, are they talking about market research, or do they have a more holistic view? Is there a market research group? Is design or user experience research already part of your process?

In-house at a startup

When you have a small startup team, you don't have to worry too much about understanding your own organization beyond knowing what you have to do to keep the lights on. In the early stages it should be easy to share information with the team, as long as you aren't growing so fast that people and perspectives start getting left out.

You do need to have some clarity around your audience and the business context you're operating in. You're trying to introduce something new into the world. Who needs it and what is important to those people? When you're discussing the initial design and development of your product, discuss the role of research with the team. Document and review assumptions to identify the areas in which doing some research might be the most beneficial. Get some early agreement on how research will be involved, keep track of your assumptions, and adopt a skeptical point of view.

The approach and biases of the founder and the investors might dominate, so if you aren't one of those, you will have to be very clear about the value of research to your endeavor and savvy about how to make your case.

Working with an agile development team

Agile is a popular software development philosophy with the goal of building better software faster in a productive, collaborative

working environment. Many short iterations of two or three weeks replace the traditional approach of multi-month or multi-year projects broken into distinct phases.

On the surface, agile seems antithetical to design. The agile manifesto explicitly values “responding to change over following a plan.” Design is planning. However, any work with complex ideas and dependencies requires holding some ideas outside the development process. You can’t cave in completely to the seductive solipsism that agile offers, or you’ll be tunneling efficiently and collaboratively toward the center of the earth. While flexibility and responsiveness are certainly virtues that many project teams could use more of, let’s not discount the importance of having some sort of plan.

From a user experience perspective, the primary problem with Agile is that it’s focused on the process, not the outcomes. It doesn’t offer guidance on *what* to build, only *how*. Perhaps your team is more efficient and happier making a lot of stuff together, but how do you know that stuff is the best it could be, meeting real user needs and fit to compete in the marketplace?

If you’re always reacting without a framework, you need some guiding mandates. Which customers do you listen to and why? Which user stories do you prioritize? What are you ultimately building toward?

Research is not antithetical to moving fast and shipping constantly. You’ll need to do some upfront work for background and strategy and the overall framework. Then, as the work progresses, do continual research.

It might sound counterintuitive, but the most effective approach may be to decouple the research planning from the development process—that is, don’t wait to start coding until you’ve answered all your research questions. Once you have some basic tools and processes in place, such as observation guides, interview guides, recording equipment, and questions for analysis, you can take a Mad Libs approach and fill in your actual questions and prototypes on the fly.

Jeff Patton describes this continuous user research process in his article “Twelve Emerging Best Practices for Adding UX Work to Agile Development” (<http://bkaprt.com/jer/2/>). He offers a tidy three-point summary:

- *Aggressively prioritize the highest-value users.*
- *Analyze and model data quickly and collaboratively.*
- *Defer less urgent research and complete it while the software is being constructed.*

In other words, focus only on the essential user types, deal with your data as soon as you get it, involve your team in the analysis, and do the less important stuff later.

This of course opens up the questions of who are the highest-value users and what are the more or less urgent research activities. Prioritize those user types whose acceptance of the product is critical to success and those who least resemble the software developers on your team. Go learn about them.

Recruiting and scheduling participants is the most difficult part, so always be recruiting. Set up windows of time with different participants every three weeks. When you have them, you can either conduct an ethnographic interview (see Chapter 5) to understand their behavior before the next round of development or do some usability testing on the current state of the application.

Use what you learn from the initial user research and analysis to create personas that inform high-level sketches and user stories. Then, when the team is working on a feature that has a lot more engineering complexity than interaction design complexity, you can fit in additional evaluative research.

Throughout the development cycle, the designers can use research to function as a periscope, keeping an eye out for new insights about users and competitive opportunities while doing usability testing on whatever is ready.

JUST ENOUGH RIGOR

Professional researchers are not unlike journalists. While many people have sufficient skills to observe, analyze, and write, it's allegiance to a set of standards that sets the pros apart. In addition to being professional and respectful in your work, there are just a few responsibilities to keep in mind.

Cover your bias

Wherever there is research there is bias. Your perspective is colored by your habits, beliefs, and attitudes. Any study you design, run, or analyze will have at least a little bit of bias. Your group of participants will be imperfectly representative. Your data gathering will be skewed. Your analysis will be colored by selective interpretation.

Don't give up!

You can't eliminate it completely—but the simple act of noting potential or obvious bias in your research process or results will allow you to weigh the results more appropriately. In lieu of a trained eye, use the following bias checklist, or make your own. Grade hard.

Design bias

Design in this case refers to the design of the studies themselves, how they are structured and conducted. This is the bias that creeps into studies when you don't acknowledge bias, or if you include or leave out information based on personal goals or preferences.

Sampling bias

Since we're talking about quick and dirty qualitative research, sampling bias is almost unavoidable. Counter it by being mindful in the general conclusions you draw.

If your app for science-minded new parents is intended to serve men and women in equal numbers but all your subjects are women, that's a biased sample.

Interviewer bias

Conducting unbiased interviews is difficult. Inserting one's opinions is easy. Make sure that interviewers remain as neutral as possible.

This is something to watch out for particularly at the beginning of interviews when you are trying to establish rapport. Maybe the interviewer is super enthusiastic about one aspect of the museum. Practice interviews and critiques with an internal team are the best way to develop a neutral interviewing style.

Sponsor bias

This is one of the biggest issues with onsite lab usability tests, because going onsite feels special and can be exciting or even daunting to a participant. If the Fantastic Science Center is inviting you in to their facility, offering you snacks, and writing you a check, it is very possible you will be gentler in your evaluations. To decrease sponsor bias without being deceptive, use a general description of the organization and goals of the study without naming the specific company until and unless it appears in materials you are evaluating. (Once you get to the point of showing a website design featuring the Fantastic Science Center logo, the secret will be out.)

For example, begin a phone interview with “We’re interested in how you select and plan activities for your family,” rather than “We want you to tell us what would entice you to visit the Fantastic Science Center.”

Social desirability bias

Everyone wants to look their best. People want to be liked. It can be hard to admit to an interviewer that you don’t floss or pay off your credit card bill every month, so participants will sometimes give the answers that put them in the best light. Emphasize the need for honesty and promise confidentiality.

The Hawthorne effect

The behavior of the people you are studying might change just because you are there. Staff who typically goof around and chat during the day might clam up and shuffle files if you’re hanging

about to observe their workflow. Do your best to blend into the background and encourage research participants to go about their normal day.

The ethics of user research

What harm can come of asking people how they decide what to have for dinner or how they use their phones to find directions? We aren't talking about clinical trials of dangerous, new cancer drugs, but all research that includes people and their personal information should be conducted ethically and conscientiously. It's our responsibility as professionals to proceed without deceiving or injuring any of the participants.

Below is a starter set of ethical concerns you should keep in mind whenever you are doing research. (For more thorough guidelines, take a look at the ICC/ESOMAR Code on Market and Social Research, which is available in fifteen languages: <http://bkaprt.com/jer/3/>.)

The project as a whole

Maybe this goes without saying, but it is worth saying nevertheless. Is your overall goal, the project that the research supports, ethical? Will your success lead to harm for others? If it will, don't participate in it. Designers have a role to play as gatekeepers. You should be intentional about your position. Conducting a completely above-the-board study on women to induce them to buy a diet aid with dangerous side effects doesn't make it right.

The goals or methods of the research

A certain amount of user research and usability requires keeping certain facts from the participants. Usually this is benign, such as hiding the name and description of the product you're designing, but sometimes it's a problem. Will concealing these facts lead those users to participate in anything they might not otherwise agree to? Are you tricking them or setting some unrealistic expectation about the real world? Are you presenting false information as true?

Consent and transparency

Informed consent is the rule. This means that participants must understand and agree in advance to the overall goals of any study and how their information will be recorded, used, or shared. Let them know if they are being watched by unseen observers. Make sure that research participants are of sound mind and able to give consent to participate. This means that working with underage research participants is very tricky, and requires the parents' consent.

Safety and privacy

Ensure that participants know what is required of them in advance and will be comfortable and not fatigued. Verify that your presence in a home or workplace will not lead to any risks or danger. For example, if you're observing someone taking care of small children, make sure that your actions don't distract in any way that would interfere with proper care.

And for the love of all humanity, never, ever agree to do telephone interviews when anyone involved is driving. Not participants, not interviewers, not passive observers. No one. As soon as you learn that someone is on the phone while driving, end the call, and follow up by email or another means to reschedule if necessary.

Be a skeptic

Get in the habit of asking a lot of questions. Question all your assumptions and determine whether you need to check your facts. If you're constantly on the lookout for threats and potential points of failure, you and your products will be stronger. This is a type of critical thinking that will serve you well at all times. You need to be aware of how much you don't know and what that means.

Awareness of your own limits will allow you to be as effective as possible within them.

BEST PRACTICES

There are many good reasons why people get master's degrees and PhDs and become professional analysts and researchers, and there are plenty of reasons why companies benefit from hiring those people. Specialized, educated, and trained researchers cultivate a deep curiosity, have a broad base of relevant knowledge, and gain academic and professional experience conducting ethical and methodical studies. As a designer or developer, you might have good reasons to avoid DIY and hire a trained professional.

These include:

- A large, complex project.
- A large, complex organization.
- Complex or sensitive subject matter.
- A very specialized or challenging user base, such as children or neurosurgeons.
- Heinous organizational politics.
- Lack of team members with the time or inclination to acquire additional skills and duties.

Skilled, trained professional researchers have rigor. They can apply precise critical thinking in the face of common distractions and pressures, such as the enthusiasm of their team or their manager's personal preferences. The best researchers are like Mr. Spock, with just enough humor and humanity to temper their logical thought processes and allow them to roll with imperfect circumstances. You want rigorous, not rigid.

In the absence of a trained professional, how do you ensure you are being sufficiently rigorous? You're an amateur attempting these stunts on the open road instead of a closed course; how do you make sure you and your work don't go up in flames?

You borrow the methods of America's greatest amateur, Benjamin Franklin: discipline and checklists.

Discipline requires you to be ever-watchful for bad habits, shoddy thinking, and other human frailties that will undermine your efforts. Checklists substitute the experience of others for

your own. Discipline also requires that you don't deviate from the checklists until you have sufficient experience yourself.

Here is the first checklist, that of best practices. Go over these again and again until you know them by heart, and then post them visibly so you never have to rely on memory.

1. Phrase questions clearly

This refers not to the questions you're asking, but the big question you're trying to answer. Unless you know and can clearly state what you're trying to find out and why, applied research is a pointless exercise.

2. Set realistic expectations

A successful study is preceded by expectation-setting for everyone involved, including the questions to be answered, the methods to be used, and the decisions to be informed by the findings. This is particularly important if you need to request time or budget especially for the work. If your research work doesn't meet the expectations of the stakeholders, they will treat you like you've wasted time and money. Ask team members and managers what they hope for. Tell them what to expect.

3. Be prepared

Research is like kitchen work: the better you prep, the faster and cleaner the work goes. If you don't prepare, you end up with a huge mess and a kitchen on fire. Get your process and materials in order before you start. Set these up so they're easy to reuse as needed.

4. Allow sufficient time for analysis

You need a little time for things to click into place. After doing the research, it's tempting to just forge ahead to solutions without giving yourself enough time to digest. Again, a bit more time here can save lots later on.

5. Take dictation

Notes or it didn't happen. Effective research requires effective reporting, and sharing your results and recommendations with others. A good report doesn't have to be arduous to compile or read. It needs to be sufficiently informative and very clear to anyone who needs to make decisions based on the research.

You may be doing your own research to save time and money, but be honest with yourself and your team about your capacity for maintaining this level of rigor. Otherwise you risk wasting both time and money, as well as spreading misinformation and decreasing the overall reputation of research as a necessary input into the work.

Can you commit?

Good. Then onward.

HOW MUCH RESEARCH IS ENOUGH?

"There are things we know that we know. There are known unknowns—that is to say, there are things that we now know we don't know. But there are also unknown unknowns—there are things we do not know we don't know."

—DONALD RUMSFELD, former US secretary of defense

Avoiding unnecessary research

In addition to offering the clarity and confidence necessary to design, research is essential to reducing your risk—the risk you incur by relying on assumptions that turn out to be wrong or by failing to focus on what's most important to your business and your users. However, some assumptions are higher-risk than others.

To make the best use of your time and truly do just enough research, try to identify your highest-priority questions—your assumptions that carry the biggest risk.

Ask this question: given our stated business goals, what potential costs do we incur—what bad thing will happen—if, six months from now, we realize:

- We are solving the wrong problem.
- We were wrong about how much organizational support we have for this project.
- We don't have a particular competitive advantage we thought we had, or we didn't see a particular competitive advantage before our competitor copied us.
- We were working on features that excited us but don't actually matter that much to our most important customers.
- We failed to reflect what is actually most important to our users.
- Our users don't really understand the labels we're using.
- We missed a key aspect of our users' environments.
- We were wrong about our prospective users' habits and preferences.

If there is no risk associated with an assumption—for example, if you are working on a technical proof of concept that really, truly doesn't have to satisfy any real-world users—then you don't need to spend time investigating that assumption.

On the other hand, maybe the success of the new design for the Fantastic Science Center's online store depends on the assumption that many people who shop online value the ability to publicly share their transactions. You could conduct research to understand the social sharing practices and motivations of people who shop online before diving into design and development. Or you could go ahead and design based on an optimistic assumption, then see what happens. At risk are the time and money to design and build the functionality, as well as the organization's reputation. ("They just told everyone on the internet about the robot I bought my kid for her birthday. Not cool!")

Better understanding of online shoppers mitigates the risk by validating the assumption and informing your design with real user priorities. In addition, you might uncover opportunities to provide something of even greater value to that same audience.

All it takes to turn potential hindsight into happy foresight is keeping your eyes open and asking the right questions. Failing isn't the only way to learn.

That satisfying click

No matter how much research you do, there will still be things you wish you'd known, and there are some things you can only learn once your design is out there in the world. Design is an iterative process. Questions will continue to crop up. Some of them you can answer with research and some you can only answer with design. Even with research, you'll need to create a few iterations of the wrong thing to get to the right thing. There is no answer to the question of enough, other than the point at which you feel sufficiently informed and inspired. The topics in this book can only offer a starter kit of known unknowns.

That said, one way to know you've done enough research is to listen for the satisfying click. That's the sound of the pieces falling into place when you have a clear idea of the problem you need to solve and enough information to start working on the solution. The click will sound at different times depending on the problem at hand and the people working on it.

Patterns will begin to emerge from the data. Those patterns will become the answers you need to move forward. This will be very satisfying on a neurochemical level, especially when you start out with a lot of uncertainty. Since human brains are pattern recognition machines, you might start seeing the patterns you want to see that aren't actually there. Collaborating with a team to interpret the data will reduce the risk of overly optimistic interpretation.

If you don't have enough information, or what you're finding doesn't quite hold together, the pieces will rattle around in your head. Ask a few more questions or talk to a few more people. Talk through the results. The pieces will fall into place.

Learn to listen for that click.

3

THE PROCESS

THIS IS THE “systematic” in the systematic inquiry. Whether the research requires a month or a single morning, being just a bit methodical will be the “extra” step that saves your precious time and brain. Whatever type of research you’re doing, and wherever it falls in your schedule, follow these six steps:

1. Define the problem.
2. Select the approach.
3. Plan and prepare for the research.
4. Collect the data.
5. Analyze the data.
6. Report the results.

With practice, the first three steps will become muscle memory and you can focus on collecting, analyzing, and sharing the data.

1. DEFINE THE PROBLEM

Just as you need a clearly articulated problem to create a solid design solution, a useful research study depends on a clear problem statement. In design, you're solving for user needs and business goals. In research, you're solving for a lack of information. A research problem statement describes your topic and your goal.

You want to know when you're finished, right? So base your statement on a verb that indicates an outcome, such as "describe," "evaluate," or "identify." Avoid using open-ended words like "understand" or "explore." You'll know when you have described something. Exploration is potentially infinite.

For example, if your topic is working parents of school-aged children and your question is, "How do they select and plan weekend activities?" then your problem statement could be, "We will describe how parents of school-age children select and plan weekend activities." Or, if your topic is your competitors and your question is, "What are their competitive advantages and disadvantages relative to our service?" the corresponding problem statement might be, "We will analyze the relative advantages and disadvantages of a set of identified competitors."

You might have a single question, a question with several sub-questions, or a group of related questions you want to answer at the same time. Just make sure that your problem statements are clear.

Now that you've identified *what* you want to find out, you can move on to *how*.

2. SELECT THE APPROACH

Your problem statement will point you toward a general type of research. The amount of resources at your disposal (time, money, people) will indicate an approach. There are a lot of ways to answer a given question, and they all have tradeoffs.

If your question is about users themselves, you'll be doing user research, or ethnography (see Chapter 5). If you want to assess an existing or potential design solution, you'll be doing some sort of evaluative research (see Chapter 7). As a single

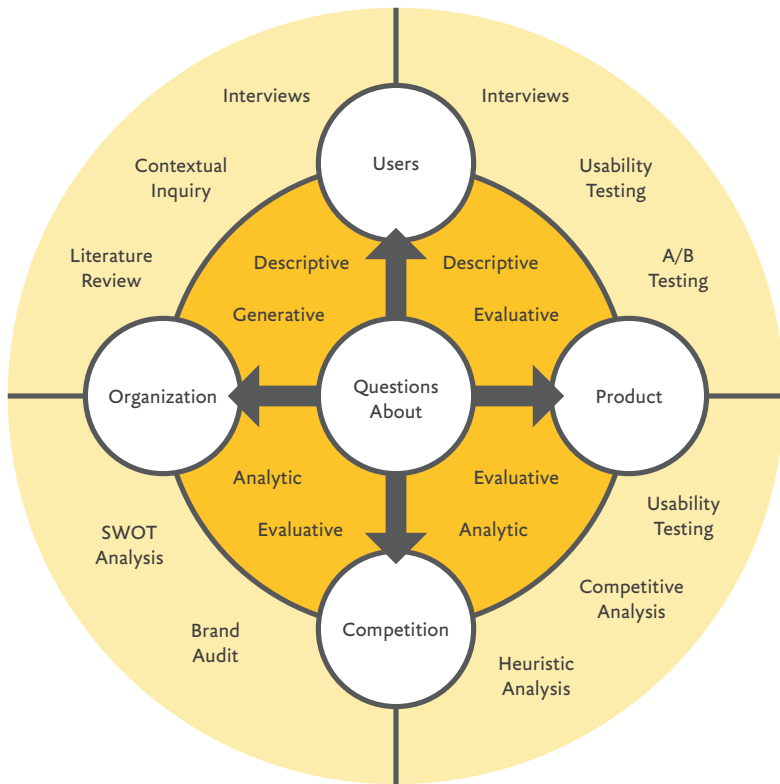


FIG 3.1: The topic and nature of your questions will guide your choice of research activities.

question comes into focus you might conduct multiple studies or take one of several potential approaches (**FIG 3.1**).

Will you be conducting an expert review of existing science museum websites, ringing up friends and family to ask about their excursion-planning habits, or flying to a distant country to follow science teachers around?

These are just a few examples of how these considerations might play out.

Once you've selected the approach, write a quick description of the study by incorporating the question. For example: "We

will describe how parents of school-age children select and plan weekend activities by conducting telephone interviews and compiling the results.”

3. PLAN AND PREPARE FOR THE RESEARCH

First of all, identify the point person—the person responsible for the plan, the keeper of the checklist. This can be anyone on the team, whether or not they’re participating in the research; it just has to be one person. This will help keep things from falling through the cracks.

Sketching out an initial plan can be very quick if you’re working by yourself or with a small group. Decide how much time and money you will be devoting to research, and who will be involved in which roles. Identify subjects and, if necessary, decide how you’re going to recruit them. Include a list of materials.

In the beginning, don’t worry about getting everything right. If you don’t know, go with your best guess. Since research is about seeking out new information, you’re going to encounter new situations and unpredictable circumstances. Make friends with the unexpected. And prepare to change the plan you’ve made to adapt once you have facts.

You might plan for sixty-minute sessions but find that you’re getting all the information you need in half an hour. Or you might find that the name of a particular competitor keeps coming up during an interview, so you decide to add fifteen minutes of competitive usability testing to the interview so that you can observe your target customers using their service.

Just be very clear about the points at which changes to your research plans might affect your larger project. It’s easy to be optimistic, but it’s more helpful to think about trade-offs and fallback plans in a cool moment before you get started. What will you do if recruiting and scheduling participants looks like it’s going to take longer than you’ve planned? You can push out the dates, relax your criteria for participants, or talk to fewer people now and try for more later. There’s no one right answer—only the best way to meet your overall project goals at the time.

In addition to answering your research questions, you'll continue to learn more about research itself. Each activity will make you smarter and more efficient. So much win.

Your research plan should include your problem statement, the duration of the study, who will be performing which roles, how you will target and recruit your subjects, plus any incentives or necessary tools and materials.

This is just the start. You can always add more details as they're helpful to you or your team.

Recruiting

Recruiting is simply locating, attracting, screening, and acquiring research participants. There's no draft, so you have to recruit.

Good recruiting puts the quality in your qualitative research. Since you'll probably be working with a small sample size, you need the individual participants to be as good as they can be. Participants are good to the extent they represent your target. If participants don't match your target, your study will be useless. You can learn valuable things by asking the right people the wrong questions. If you're talking to the wrong people, it doesn't matter what you ask. Bad participants can undermine everything you're trying to do.

A good research participant:

- Shares the concerns and goals of your target users.
- Embodies key characteristics of your target users, such as age or role.
- Can articulate their thoughts clearly.
- Is as familiar with the relevant technology as your target users.

In theory, recruiting is just fishing. Decide what kind of fish you want. Make a net. Go to where the fish are. Drop some bait in the water. Collect the ones you want. It isn't actually that mysterious, and once you get the hang of it, you'll develop good instincts.

In practice, recruiting is a time-consuming pain in the ass. Embrace it. Get good at it and all of your research will be faster and easier, plus this part of the process will get progressively less unpleasant.

When designing web applications or websites, the web is a terrific place to find potential test participants. If you happen to have a high-traffic website you can put a link on, that's the easiest way to draw people in (unless you need to recruit people who have never been to that site). Otherwise you can email a link to a screener—a survey that helps you identify potential participants that match your criteria—or post the screener where it will be visible.

Go anywhere you're allowed to post a message that might be seen by your target users or their forward-happy friends and family. Twitter. Craigslist. Facebook. LinkedIn.

If you need people in a certain geographic area, see whether there are local community sites or blogs that would announce it as a service. Referring to it as “design research” rather than “marketing research” goes a long way in the goodwill department.

There are such things as professional recruiters, but you probably have every advantage they describe.

The net is your screener. The bait is the incentive.

A screener is simply a survey with questions to identify good participants and filter out anyone who would just waste your time. This is incredibly important. You can tell a good recruit immediately when you test. Good test participants care. When presented with a task, they get right into the scenario. You could offer a greasy piece of paper with a couple of rectangles scrawled on it and say “How would you use this interface to buy tickets to a special exhibit?” and if you're talking to someone who buys tickets, by God they will *try*.

Mismatched participants are just as obvious as any other sort of bad blind date. Their attention will drift. They will go off on irrelevant tangents about themselves. (“I shoplift for fun.”) You could show them a fully functional, whiz-bang prototype and be met with stares and unhelpful critiques. (“Do all the links have to be blue? I find that really dull.”) And you will find a way to politely shake their hand and send them packing as soon as

possible. (*With* the incentive promised, by the way. It's not their fault they didn't get properly screened.)

The most efficient method of screening is an online survey. (See the Resources section for suggested tools for creating surveys and recruiting participants.) To write the screener, you and your team will need to answer the following questions, adapted from an article by Christine Perfetti (<http://bkaprt.com/jer/4/>):

What are all of the specific behaviors you're looking for?

Behaviors are the most important thing to screen for. Even if you're designing something you believe to be totally novel, current behaviors determine whether your design has a chance of being relevant and intelligible to the participants.

If you're designing an app for cyclists, you need to test the app with people who ride bikes, not people who love bikes and wish they had time to ride.

What level of tool knowledge and access do participants need?

Be realistic about the amount of skill and comfort you're targeting. And if you need them to have certain equipment or access to participate, make sure to mention that. Back in the old days we had to screen out a lot of people who couldn't talk on the phone and use the internet at the same time because they used the same line for both.

To usability-test a mobile app, you need people who are sufficiently familiar with their device to focus on the app's usability. Otherwise, you might end up testing the phone and get nothing useful.

What level of knowledge about the topic (domain knowledge) do they need?

If you're truly designing something for very general audiences in a familiar domain—say, reading the news—you should verify that they actually do the activities you're asking about, but you don't have to screen for knowledge about the subject matter. On

the other hand, if you're making an iPad app that helps mechanics work on cars, don't test with brain surgeons.

Writing a screener is a good test of your empathy with your target users. To have reliable results, you need to screen in the right potential participants, screen out the bad matches, and prevent professional research participants from trying to read your mind to get the study incentive. Even a \$25 Amazon gift certificate will attract wily dissemblers. Be vague about the contents of the actual test. If you recruit people from the site you are testing, then just refer to "an interview about this website."

Asking age, gender, and location allows you to avoid certain biases, but you also need to get at differences in behavior patterns that may have implications for your design.

For example, when recruiting for a usability study for the science and technology museum, you might ask the following question: how frequently do you engage in the following activities? (Answers could be: never or rarely; at least once a year; a few times per year; at least once a month; at least once a week.)

- Go to the movies.
- Go hiking.
- Go to an amusement park.
- Try a new restaurant.
- Visit a museum.
- See live music or go to a club.
- See other local sights.
- Go out of town for the weekend.

This question serves two purposes: it gauges museum-visiting frequency without giving away the topic of the study, and it offers a way to assess general habits around getting out of the house.

At the same time, you should make the screener as short as possible to make it less likely potential participants will bail before they get to the end.

For in-person testing, it's best to follow up by phone with everyone who made the first cut. Asking a couple of quick questions will weed out axe murderers and the fatally inarticulate and may save you from a very awkward encounter. For example, "I just want to ask a couple more questions to see whether you're a good match for our study. Could you tell me how you typically decide what to do on your days off?"

If the answer is a terse "I don't," or a verbose description of cat-hoarding and revenge fantasies, just reply that you'll be in touch and follow up with an email thanking them for their interest.

Just like formulating queries in Google, writing screeners and reviewing the results you get makes you better and more accurate at screening. And even if it takes a little time to get it right, all the available online tools sure beat standing on the corner with a clipboard like market researchers still sometimes do.

4. COLLECT THE DATA

It's go time—the research part of the research. Find your research subjects. Conduct your interviews. Do your field observation. Run your usability tests. (We'll get into the particulars of each activity further on.)

Research makes data. You might have photos, videos, screen captures, audio recordings, and even handwritten notes (the power goes out, but the interview goes on). These files will originate from an individual. Get them onto a shared drive as quickly as physics allows. Every researcher has at least once experienced the tragic loss of good data.

Imagine you've captured a fantastic video of a parent interacting with three separate applications to plan and purchase tickets for a family trip in a way that has significant implications for the interface you're designing. Then you had to go to the restroom and, plonk, your iPhone goes into the toilet, the video is gone forever, and you're stuck making notes from memory.

If you are in the field and away from internet access, have a small backup drive with you. Redundancy worked for the space program and a little bit certainly helps here.

The more organized you are in gathering and storing your data, the more effective and pleasant the analysis will be. Any system you're already using should work as long as it can accommodate files of the size you're anticipating.

Use a consistent naming convention, such as "Study-Subject Name-Year-Month-Day." This is another one of those things that seems obvious, but is really easy to forget when you're in the throes of discovery.

Take a few moments between sessions to check the files and make sure they're named correctly and saved in the right place, and note your initial impressions while you're at it. A few quick thoughts while you're fresh will give you a great place to get the analysis started.

Materials and tools

Design researchers used to have to walk up hills both ways in the snow and rig up a forensics lab to do a half-decent study. No more! It's so easy now. It's likely the essentials are scattered around your office, or already inside your messenger bag. (Of course, you can always use research as an excuse to go shopping at Spyville.com.)

Use what you already have first, and go for familiar tools. The trickiest parts of research often arise from technical difficulties and equipment learning curves. (The saddest research moment is accidentally erasing a session recording.) We are increasingly living in a cloud-based world, but a lot of research tools are platform-specific, most likely because of the audio and video features required. The most important consideration is that you select the tools and documentation that work for your team.

If you want to make things really easy on yourself, set up a research kit that's ready to go at a moment's notice, like a country doctor's medical bag. You can also just have a checklist of things to grab.

Applications and devices are popping up and disappearing every day, so it's difficult to create a definitive list of what you need, but our favorite (currently available) research tools are listed in the Resources section in the back of the book.

Interviewing

A simple interview remains the most effective way to get inside another person's head and see the world as they do. It is a core research technique with many applications. Once you are comfortable conducting research interviews, you can apply this skill to any situation in which you need to extract information from another person.

Being a good interviewer requires basic social skills, some practice, and a modicum of self-awareness. Introverts might want to start out as observers and notetakers, while extroverts may need to practice shutting up to let the other person talk.

In the research lingo, the type of interview covered in this book is a semi-structured interview, meaning that you will have prepared questions and topics, but not a strict script of questions to ask each participant in the same order and manner. This allows more flexibility to respond to the individual perspective and topics that come up. You might find out some very useful things you would have never thought to ask.

A successful interview is a comfortable interaction for everyone involved that yields the information you were looking for. The keys to success are preparation, structure, and conduct. (For more on interviewing, see Chapter 5.)

Usability testing

Usability testing is simply the process of conducting a directed interview with a representative user while they use a prototype or actual product to attempt certain tasks. The goal is to determine to what extent the product or service as designed is usable—whether it allows users to perform the given tasks to a predetermined standard—and hopefully to uncover any serious, resolvable issues along the way.

The sooner and more often you start doing it, and the more people on your team are familiar with the process, the more useful it is. You shouldn't even think of it as a separate activity, just another type of review to ensure you're meeting that set of needs. Business review. Design review. Technical review. Usability review.

What usability testing does

If you have a thing, or even a rough facsimile of a thing, you can test it. If your competitor has a thing, you can test that to figure out what you need to do to create a more usable alternative. If you're about to start redesigning something, usability-testing the current version can provide some input into what works and what doesn't work about the current version. The test will tell you whether people understand the product or service and can use it without difficulty. This is really important, but not the whole story where a product is concerned. As philosophers would say, usability is necessary, but not sufficient.

Usability testing *can*:

- Uncover significant problems with labeling, structure, mental model, and flow, which will prevent your product from succeeding no matter how well it functions.
- Let you know whether the interface language works for your audience.
- Reveal how users think about the problems you purport to solve with your design.
- Demonstrate to stakeholders whether the approved approach is likely to meet stated goals.

What usability testing doesn't do

Some people criticize usability testing because aiming for a usable product is tantamount to aiming for mediocrity. But remember, usability is absolutely necessary, even though it is in no way sufficient. If your product isn't usable then it will fail. However, usability testing won't absolve you of your responsibilities as a designer or developer of excellent products and services.

Usability testing absolutely *cannot*:

- Provide you with a story, a vision, or a breakthrough design.
- Tell you whether your product will be successful in the marketplace.

- Tell you which user tasks are more important than others.
- Substitute for QA-testing the final product.

If you approach usability testing with the right expectations and conduct it early and often, you will be more likely to launch a successful product, and your team will have fun testing along the way. A habit of usability goes hand-in-hand with a habit of creating high-quality products that people like.

No labs, no masters

We live in the future. There is no reason to test in anything called a “usability lab,” unless there’s a danger your experiment will escape and start wreaking havoc. A usability lab gives you the illusion of control when what you are trying to find out is how well your ideas work in the wild. You want unpredictability. You want screaming children in the background, you want glare and interruptions and distractions. We all have to deal with these things when we’re trying to check our balances, book travel, buy shoes, and decide where to go for dinner—that is, when we use products and services like the one you’re testing.

Go to where the people are. If you can travel and do this in person, great. If you can do this remotely, also good. If you’re testing mobile devices, ironically, you will need to do more testing in person.

Just like the corporate VP who is always tweaking the clip art in his presentation slides rather than developing his storytelling skills, it’s easy for researchers (especially us introverted nerds) to obsess about the perfect testing and recording setup rather than the script and facilitation. Good participants, good facilitation, and good analysis make a good usability test. You can have a very primitive setup and still get a good result, identifying as many usability issues as possible. Usability issues aren’t preferences and opinions, but issues that make a given design difficult and unpleasant to use. You are making the best use of your time if you are identifying the most significant issues in the least amount of time so that you can go back to the drawing board. (For more on usability testing, see Chapter 7.)

Literature review

Recruiting and observing or interviewing people one at a time is incredibly valuable. It can also be time-consuming. If it's just not possible to talk to representative users directly, or if you're looking for additional background information, you can turn to documented studies by other researchers. Both qualitative studies and surveys can increase your knowledge of the needs and behaviors you should consider.

Sources include pre-existing research done by your own company or your client, published by a research consultant or by a research organization. Often organizations that serve specific populations, such as journalists or senior citizens, sponsor research and make it publicly available.

The Pew Research Center's Internet & American Life Project is a free and reputable source of data (<http://bkaprt.com/jer/5/>). As the name implies, the work focuses on Americans, but it's a terrific place to start. Their work is typically survey-based, and good for thinking about trends. (Also, their reports are a good model for communicating clearly about research.)

You can use these studies in a few ways:

- To inform your own general understanding of your target users and help you formulate better questions.
- To validate general assumptions.
- To complement your work.

When working with third-party literature, take these grains of salt:

- Note the questions they were asking and determine to what extent they align with your own.
- Check the sample and note the extent to which it maps to your target user base.
- Check the person or organization conducting and underwriting the study, so that you can note their biases.
- Check the date to note whether anything significant has changed since the research was done, such as a new product launch or shift in the economy.

5. ANALYZE THE DATA

What does it all mean? Once you have collected the data, gather it all together and look for meaningful patterns. Turn the patterns into observations, and from those, recommendations will emerge.

Refer to your initial problem statement and ask how the patterns answer the questions you originally posed. You can use the same qualitative data in different ways and for different purposes. For example, stakeholder interviews might yield business requirements for a redesign and a description of the current editorial workflow that you can use as inputs to the content strategy. Usability testing might indicate issues that need to be fixed, as well as data about current customers that you can use to develop personas.

Returning to data from previous studies can yield new insights as long as the conditions under which they were conducted remain relevant and new questions arise.

Get everyone involved

If you are working with a design team, get as many members as possible involved in the analysis. A group can generate more insights faster, and those insights will be shared and internalized far more effectively than if you simply circulated a report.

Rule of thumb: include people who are able to contribute to a productive session and will benefit from participating. Exclude people who will be a distraction, or who will benefit more from reviewing the results of the analysis.

At a minimum, include everyone who participated directly in the interview process. In the best-case scenario, involve the entire core project team—anyone who will be designing or coding. Working together to examine specific behaviors and concerns will help your team be more informed, invested, and empathetic with users from the start. At the end of the session, you can decide which outcomes from the analysis would be most useful to share up and across.

Structuring an analysis session

Analysis is a fun group activity. You get into a room with your team, review all the notes together, make observations, and turn those into actionable insights. Expect this to take anywhere from half a day to a few days, depending on the number and extent of the interviews. It will save time if you give all the participants advance access to the notes or recordings so they can come prepared.

Even if the session includes only one interviewer and one notetaker, it's useful to follow an explicit structure to make sure that you cover everything and work productively. Here's a good baseline structure. Feel free to modify it to suit your project's needs:

1. Summarize the goals and process of the research. (What did you want to find out? Who from your side participated and in which roles?)
2. Describe who you spoke with and under which circumstances (number of people, on the phone or in person, etc.).
3. Describe how you gathered the data.
4. Describe the types of analysis you will be doing.
5. Pull out quotes and observations.
6. Group quotes and observations that typify a repeated pattern or idea into themes; for example “participants rely on pen and paper to aid memory,” or “the opinions of other parents are trusted.”
7. Summarize findings, including the patterns you noticed, the insights you gleaned from these patterns, and their implications for the design.
8. Document the analysis in a shareable format.

This work can get a little intense. To proceed smoothly and stay focused, require everyone who participates to agree to the following ground rules. (Feel free to add house rules of your own.)

- Acknowledge that the goal of this exercise is to better understand the context and needs of the user. Focus solely on that goal.

- Respect the structure of the session. Refrain from identifying larger patterns before you've gone through the data.
- Clearly differentiate observations from interpretations (what happened versus what it means).
- No solutions. It will be very tempting to propose solutions. Stick to insights and principles. Solutions come next.

What you'll need

Sufficient time and willing colleagues are the most essential assets for solid analysis. If you have those, just gather a few more additional office supplies:

- A big room with a lot of whiteboard wall space.
- Sticky notes (in different colors if you want to get fancy).
- Pens.
- A camera so you can take pictures of the whiteboard, walls of notes, etc., rather than copy everything down. (Also, photos of the session are fun for project retrospectives and company stock photography. "Look, think collaborative work!")

Feel free to group your observations in a number of different ways until your team reaches agreement on the best groupings. By user type, by task type, by importance for product success are just a few potential groups. The most useful groupings are based on patterns that emerge, rather than those imposed or defined at the start before beginning analysis. If necessary, assign a time limit and take a vote when time is up.

What is the data?

You are looking for quotes and observations that indicate:

- Goals (what the participant wants to accomplish that your product or service is intended to help them with or otherwise relates to).
- Priorities (what is most important to the participant).
- Tasks (actions the participant takes to meet their goal).

- Motivators (the situation or event that starts the participant down the task path).
- Barriers (the person, situation, or thing that prevents the participant from doing the task or accomplishing the goal).
- Habits (things the participant does on a regular basis).
- Relationships (the people the participant interacts with when doing the tasks).
- Tools (the objects the participant interacts with while fulfilling the goals).
- Environment (what else is present or going on that affects the participant's desire or ability to do the tasks that help them meet their goals).

Outliers

No matter how rigorous your screening, some outliers may have gotten through. You will know that a participant was an outlier if their behaviors and attributes would rule them out as a target user. If you have interviewed people who don't match your design target, note this fact and the circumstances for future recruiting and set the data aside.

For example, imagine that as a part of our museum project, we interviewed "Dan," a sixty-five-year-old man, who demonstrated no interest in science or technology and who isn't a museum goer. He uses the computer his son set up for him to read the news and sports from the town he grew up in across the country, and he spent most of the interview arguing against the political views of the entrepreneur who funded the museum.

Given that our target users are school-age children and their parents, science teachers, single young adults in the local area, and retired technology enthusiasts, Dan doesn't fit any of these. Nor does he indicate a previously unknown potential user type we should address. There is no reason to accommodate any of Dan's stated needs or priorities in our design because there is no overlap between his needs and the museum's goals. So, his data falls outside the patterns we're looking for.

There will be some people who would never realistically use your product. Don't try to accommodate them in your model just because you talked to them.

6. REPORT THE RESULTS

The output of the analysis session is generally a summary report and one or more models. (See Chapter 8 for more detail on these various models.) The type of reporting you need to do depends on how decisions will be made based on the results. Within a small, closely knit team you can document more informally than if you need results to influence executive decision-making at a larger organization.

Given good data, a quick sketch of a persona or a photo of findings documented in sticky notes on a whiteboard in a visible location is far superior to a lengthy written report that goes ignored. Always write up a brief, well-organized summary that includes goals, methods, insights, and recommendations. When you're moving fast, it can be tempting to talk through your observations and move straight to designing, but think of your future self. You'll be happy you took the trouble when you want to refer to the results.

AND REPEAT

The only way to design systems that succeed for imperfect humans in the messy real world is to get out and talk to people in the messy real world. Once you start researching, you won't feel right designing without it.

4 ORGANIZATIONAL RESEARCH

“Hell hath no fury like a bureaucrat scorned.”

—MILTON FRIEDMAN

You’re an individual with a goal. If you’re a designer, you probably want to create something new that delights other individuals and becomes personally important to them. Designs that change the world do so because millions of individuals adopt them.

Design doesn’t happen in the deep, cold vacuum of space. Design happens in the warm, sweaty proximity of people with a lot on their minds. People create and join organizations to accomplish greater things more efficiently. As an organization grows, it becomes more complex. The oral culture of how to get things done begins to outstrip the documentation. Various internal groups might develop different perspectives on high-level goals, or even different goals entirely. Essential relationships develop that don’t map to any org chart.

A design project is a series of decisions, and making sure the right decisions get made can seem tricky in a complex organization. Take heart. You have more influence than you might

think, as long as you take the opportunity to understand the inner workings.

It's inescapable that the nature of an organization matters to the design process. Budgets, approvals, timing, and resource availability can all depend on successfully negotiating an organization. The ultimate success of a product or service depends on how well it fits into everything else the organization is doing and how well the organization can and will support it.

The habits of organizations and the people within them can be powerful. You'll be working directly with other individuals, but how you work with them will be more or less successful depending on your understanding of the organization.

Think of an organization as physical terrain. A small start-up is like an island. It might spring up out of nowhere and sink down under the waves just as quickly, but for the duration of its existence, you can get a clear view of the landscape pretty quickly. A large corporation is more like Australia: it's impossible to see the whole landscape at once and there are so many things capable of maiming or killing you.

Fortunately, at any size, an organization is just a set of individuals and a set of rules, explicit and implicit. Once you understand that environment, you'll be able to navigate it and create the best possible product.

PUT AN MBA OUT OF WORK

Organizational research—determining what drives a business, how all the pieces work together, and the extent of its capacity for change—is traditionally the purview of business analysts. However, researching an organization is very similar to traditional user research and can be incredibly helpful to interactive design and development projects.

Most user-centered design studios interview client stakeholders—people whose jobs or roles will be directly affected by the outcome of the project—as a part of the standard requirements-gathering process. Doing this is essential when you're coming in cold to work with an unfamiliar organization.

Internal teams may have to do a bit of role-playing to gather the same information: “Talk to me about how you interact with other members of the marketing team as though I don’t work here and we’re speaking for the first time.”

(Throughout the research process you may be in the position to offer fictional or counterfactual scenarios to participants, asking them, for example, to imagine they want to renew their membership in the Fantastic Amateur Genetic Engineering Club. You will find that people are frequently quite suggestible. When you run into participants who resist going along, that is often an indicator of some deeper issue worth probing, obliquely and tactfully, of course. The question to answer is why that individual resists your potential scenario. Maybe some potential museum visitors are skeptical about the very idea of amateur genetic engineering.)

In organizational research, the observer effect can actually be a force for positive change. Asking hard questions of people throughout an organization will force those people to come up with answers, leading to at least a modicum of reflection. Asking the same question of different people will reveal crucial differences in motivation and understanding. And listening to people who might not feel heard is a fantastic source of goodwill. Asking a lot of questions can also make you sound quite smart.

If you are at a smaller, more nimble organization, such as a very early-stage or rapidly growing startup, the enemies aren’t complexity and stasis. Rather, you may have to contend with the desire to maintain momentum and “fail fast.”

Alternatively, to support “not failing at all, if we can avoid it,” identify the assumptions that pose the greatest risk and suggest activities to address those assumptions. Design Staff (<http://bkaprt.com/jer/6/>) is your ally. This excellent product design and research blog is written by the Google Ventures Design Studio team specifically for startups.

As for how to go about organizational research, it’s pretty straightforward and covers the same principles discussed in the previous chapter. The major difference is that you’re talking to current stakeholders instead of potential customers.

WHO ARE STAKEHOLDERS?

The stakeholder concept emerged in a 1963 internal memorandum at the Stanford Research Institute (<http://bkaprt.com/jer/7/>). It defined stakeholders as “those groups without whose support the organization would cease to exist.” Your research should include anyone without whose support your project will fail. This might include executives, managers, subject matter experts, as well as staff in various roles. Be generous in your selection. A few additional hours in conversation will help ensure you’re both well informed and protected from an overlooked stakeholder popping up too late.

Executives

The leaders will help you understand the overall company mission and vision and how your project fits into it.

Managers

Managers will frequently be concerned with resource allocation and how your project affects their incentives, monetary or otherwise, and their ability to do the work.

Subject matter experts

These are people who have specialized knowledge about the industry or business. You can find them by identifying those design-critical areas where you have the least background knowledge and by asking for introductions. They’ll provide you with essential background information.

Staff in various roles

Overlap with the subject matter experts. You will need to balance out the executives with people who do the day-to-day work. In particular, find anyone who has knowledge of the end users. Customer service people and salespeople are as valuable as they are overlooked.

Investors and board members

In some organizations the board members are either influential or highly knowledgeable. In others, they are more removed and of less utility. Inquire about level of interest or concern with the project before arranging a conversation.

INTERVIEWING STAKEHOLDERS

“Interviews with project stakeholders offer a rich source of insights into the collective mind of an organization. They can help you uncover areas of misalignment between a company’s documented strategy and the attitudes and day-to-day decision-making of stakeholders. They can also highlight issues that deserve special consideration due to their strategic importance to a business.”

—STEVE BATY, “Conducting Successful Interviews with Project Stakeholders”
(<http://bkaprt.com/jer/8/>)

The term stakeholder is a bad bit of jargon, but there really isn’t a better alternative. Think of them as people who could potentially put a sharp stick in your back unless you get them on your side. But don’t fear them! Stakeholder interviews—sitting down individually with people who will be directly affected by the project—have many benefits.

What stakeholder interviews are for

Hearing the same issues considered by people in different roles relative to your work will give you a much more complete perspective and great insights. Some individual interviews are valuable on their own, and some higher-level insights are only possible in the aggregate.

For example, the Fantastic Science Center’s marketing director might actually know a lot about visitor behavior, or know where the organization has been making a lot of assumptions. Or you might find out from customer service that potential museum visitors have been expressing a set of needs that the marketing department doesn’t know about at all. This means

you have one great insight about potential visitor needs, and another one about an organizational disconnect.

Stakeholder interviews will help you understand the essential structure of the organization, how your work fits into the organization as a whole, and the approval process for various aspects of your project. They'll also provide you with some less obvious opportunities to influence your project's chances of success.

Neutralizing politics

Organizational politics are a depressing reality in most companies. If you pretend they don't exist, you're in for a world of pain. A significant benefit of organizational research is political. You don't want your hard work to get trampled in a turf war you didn't know existed.

You may find that someone in the organization is deeply opposed to your work. If you know why, you may be able to get them on your side. Talking with stakeholders is an excellent opportunity to sell people on the value of your work in terms that matter to them.

Better requirements gathering

Business requirements are frequently defined as though the project were taking place in a frictionless ideal state, but the application you're developing doesn't exist in a vacuum. You have your own reasons for wanting to build or design it in a certain way. Similarly, you need to understand how your work might solve or create problems throughout the organization, and how the organization will prioritize those problems and solutions.

It's shocking how many projects get underway lacking clear, or even *any*, business requirements. How do you know whether your work has succeeded? If it's fully functional? If the users are happy? If your work doesn't support the business, you have failed, no matter how good the design.

Don't forget to inquire into technical requirements and take the time to locate anyone who might have particular knowledge about them.

Understanding organizational priorities

How important is the work to the organization, really? The answer might be surprising. It makes a big difference whether the project at hand is genuinely valued by the organization. At Mule, we have a maxim based on repeated observation: the more important a project is to an organization, the more successful it will be. There might be a higher stress level among people working on an absolutely critical, number one priority project, but you can be more sure that the people working on it will be giving it their full attention.

Tailoring the design process

Maybe you're going to be using the same process you always use. There is some efficiency in doing that. Someone will say, "Let's not reinvent the wheel." But you should make sure that you're using the right tires for the terrain ahead. During interviews, make sure to ask about the typical workday as well as how decisions are made within the team and the organization. This is especially critical if the project at hand brings together cross-functional teams, or teams who have never worked together before, or an internal team and one or more outside vendors.

You might find that one group is highly collaborative or consensus driven in their decision-making and another has an autocratic leader. Since the design team might be in a place to define the decision-making structure that everyone has to follow, your life will be a lot easier if you adapt your process to existing work styles rather than try to change ingrained habits. Your project manager will thank you.

Getting buy-in from stakeholders

For the definitive word on making influential people feel heard, I encourage you to read Paul Ford's excellent essay "The Web Is a Customer Service Medium" (<http://bkaprt.com/jer/9/>). Here is the heart of it:

"Why wasn't I consulted," which I abbreviate as WWIC, is the fundamental question of the web. It is the rule from which other rules are derived. Humans have a fundamental need to be consulted, engaged, to exercise their knowledge (and thus power).

Asking someone for input before you get started is a peerless prophylactic against that person rearing up late in the game with insurmountable objections. Inquiry is flattery. Inviting people to participate empowers them.

Take it from the stalkers and internet trolls. Never underestimate the ability of a single individual—no matter how seemingly unimportant or obscure—to really fuck things up for you once they set their mind to it.

What are your assumptions about how the organization functions, about how different disciplines interact, about what the workflow is and how well it's working, about how much people know or need to know about what you're doing? Now think of the worst-case scenario if you're wrong. What happens if marketing doesn't understand how your work supports the brand, if the salespeople can't see the benefits, if the production team has no incentive to give you any of their time? This is your opportunity to educate as well as listen, and to get everyone on board.

Understanding how your work affects the organization

Your work will affect everyone in an organization, even those who don't directly use the product, service, or system you're designing on its behalf. Executives will have to defend it as a part of the overall strategy. Customer service will have to support it. Salespeople will have to sell it. Production staff will have to maintain it.

The purported customers or audience members are not the only users of the product you're building. Founders may be using it as proof of concept to raise more capital from investors. Salespeople may rely on prospects interacting with it before they can close the deal. Company representatives might expect to be asked questions about it when they're out at conferences.

You'll benefit from gaining their perspectives and knowing their priorities in that regard.

Don't wait for people inside the organization to come to you, and don't rely on a higher-up to tell you who to talk to. Based on the goals of this project, it's up to you to determine whose input you need.

If you are creating something new, the very existence of the new system will require everyone in the organization to change.

Similarly, those people will affect what you're creating. Even if you're the sole author of an application, you require the participation of others for it to succeed.

You can identify which people or departments will have to put in the time, effort, money, and other resources to cope with the changes. You can learn whether the resources will be available or whether the organization will need to buy more servers or hire more writers.

Understanding how what you're proposing to build relates to the organization responsible for it means that you can anticipate changes to workflow and minimize them where possible, or prepare people for changes when they're necessary.

Once you inform the organization how much work it will take to accommodate your project, you'll find out whether you in truth lack the organizational support you need and thought you had. Then you can make decisions based on that knowledge, rather than have good work wither on the vine, neglected.

Understanding workflow

Workflow is the set of processes through which complex work gets done. Unless you're the sole developer of this application, your work doesn't happen in an organizational vacuum. It has to fit into the work that everyone else is doing. You need to take into account the ways that design and development decisions will affect operations, and make very intentional decisions and recommendations based on that. You'll also need to identify whether similar, complementary, or competing work is going on within the organization.

Sharpen your tact

Build a wide list of people to interview: founders, executives, managers, technical staff, customer service, etc. Then prioritize it. In addition to people who are directly valuable to the project, you will likely have to speak with some for purely political reasons. This is also an opportunity for learning.

The maximum number of interviewees is the number you actually have time to talk to. In some large organizations where the project touches on many types of expertise, you might find yourself talking to dozens on an exciting voyage of discovery. Have a firm idea of how much time you have and stick with it.

Once you have your list of people, find out as much about them as possible, just as you would in preparing for a job interview. Use the information you find to inform your line of discussion, but avoid leading with any tidbit your subject would not expect and welcome to be common knowledge. “So, you transferred to this department because you were passed over for a promotion...” will not make you any friends.

Individual interviews

As a rule, and as time permits, it’s best to interview stakeholders individually. The more political an organization, the more important private conversations are to get an accurate picture of the organization. You may have to fight a manager who “just wants to sit in.” This sentiment indicates some combination of fear and curiosity—fear that you’ll be gossiping behind that person’s back, and curiosity about what will be said. Explain the observer effect—that person’s presence is likely to change the responses—and hold your ground. You’ll need to assure the interviewee that their answers will not be directly attributed and assure the interested parties that they will get all the information they need in an aggregated report.

Group interviews

If there’s a group of people of roughly equal influence who work together closely and share the benefits and risk of the project at

hand, you may save time by talking to them together. During the discussion, take care to note whether anyone seems particularly reticent. Follow up with that person with a quick note to give them an additional opportunity to give you information.

Email interviews

In a pinch, for a stakeholder who is remote or impossible to get time with, it's better to send a few key questions via email than not get any information from them at all.

Interview structure

Each interview should be thirty minutes to an hour long. Make sure to talk in a private place.

The interviewer should be a calm and confident person, preferably someone who is genuinely very interested in what these people have to say. The conversation should flow naturally. If you don't quite understand something, ask for clarification, or ask the subject to repeat what they said.

Have someone else taking notes so that the interviewer can focus on the conversation. You can record the conversation, but this may make the interview subject more nervous about speaking freely. The most important thing is for them to feel comfortable talking honestly and openly.

Put the participant at ease and demonstrate respect for their time. Send an agenda and the key questions ahead—not all the questions, but the ones the participant will benefit from knowing in advance. More complex topics might require some forethought. It's best to avoid making people feel ambushed or unprepared.

The basic flow of a stakeholder interview is as follows:

- Introduce yourself and restate the purpose of the meeting. It should be something like: "We're starting to work on a complete redesign of the Fantastic Science Center website and we want to get your input. We'll use your input to make sure that the design meets your needs as well as those of the visitors."

- Explain to what extent the information will be shared, by role or business function. “Please feel free to be totally frank. Honest answers are essential to this process. We’re talking to people throughout the organization, and will group answers together rather than focusing on what one person said. If we use a direct quote, we will not attribute it to you personally.”
- Like a good journalist, don’t narc on your sources. Get something in writing from the person directing or approving this research, stating that people can speak freely without fear of reprisal.

Ask questions and let the conversation follow its natural course. It’s very important to keep the interview feeling informal. It’s not an interrogation.

At the end of the interview restate how you’ll use the information and verify the level of the participant’s participation throughout the project. You definitely want to make sure that your expectations match. Make sure that it’s OK to follow up if you need more information or clarification.

In addition to name and title, these are the basic questions you’ll want to ask:

- How long have you been in this role?
- What are your essential duties and responsibilities?
- What does a typical day look like?
- Who are the people and teams you work most closely with? How well is that relationship working?
- Regarding the project we’re working on, how would you define success? From your perspective, what will have changed for the better once it’s complete?
- Do you have any concerns about this project?
- What do you think the greatest challenges to success are? Internal and external?
- How do you expect your interactions with other people inside or outside this organization will change based on the outcome of this project?

Then, there are the more specific questions that depend on the project. Stakeholders may themselves be users, often of back-end systems or administrative functions:

- What are your most common tasks with the system?
- What problems have you noticed?
- What kinds of work-arounds do you use?
- Have you any concerns about this project?
- Is there anyone else I should talk to?

Dealing with a hostile witness

It's in the name. Stakeholders have a personal stake in the process or outcome of the project. They might be in competition for resources, or they might have a larger or smaller workload if the project is successful.

Stakeholder interviews tend to be interesting when they go well. People enjoy being consulted and treated as experts. However, sometimes stakeholder interviews take a turn for the ugly. This can be very unpleasant, particularly when you're interviewing in person. The participant you're interviewing will turn the tables and start attacking the process, or you personally. They may start questioning the value of what you're doing or even say they don't understand the questions you're asking. If this happens, remain calm, take a deep breath, and attempt to get the interview back on track. Restate your goal, ask if that is clear, and then try asking a very general open-ended question about what the participant thinks is most important for you to know in the service of this goal. Depending on the reason for the hostility, you may just want to cut the interview short.

Common reasons for stakeholder resistance or hostility:

- The stakeholder wasn't sufficiently informed or prepared for the process and is suspicious of the motives, or just confused about why they were asked to participate.
- It's a power move. This individual wants to establish dominance over you or, by extension, over the person who authorized the interview or the project as a whole.

- The stakeholder is under pressure to perform in some other area and doesn't see a benefit from participating. This is common when interviewing salespeople who are wasting precious time when they could be selling and earning commissions. You have taken them "off the floor."

Try to determine in advance whether any of the stakeholders you plan to interview are at risk for a hostile reaction. Make sure that they know why you're asking them to participate, how they need to prepare, how long it will take, and the reasons why their participation is essential to the process. Flattery usually goes a long way.

Remaining calm and confident is essential. Never let anyone bully you when you're gathering information that's essential to your work. Make sure that you're prepared to clearly describe the process and justify its value.

Do not let them take control of the interview from you. While listening to someone go on a rant about what isn't working can be interesting and useful, it's up to you to guide the conversation.

Practice, practice, practice. If you're new to doing these sorts of interviews, practice with members of your team before doing it for real. Have them throw in some challenging or unproductive responses:

- "Why are you asking me this?"
- "I don't understand that question. It doesn't make any sense."
- "I don't feel comfortable talking to you about that."
- "No one pays attention to anything I have to say, so I don't know why I should bother talking to you."
- "How much more time is this going to take?"

Documenting interviews

For each stakeholder, note the following:

- What's their general attitude toward this project?
- What's the goal as they describe it?

- To what extent are this person's incentives aligned with the project's success?
- How much and what type of influence do they have?
- Who else do they communicate with on a regular basis?
- To what extent does this stakeholder need to participate throughout the project, and in which role?
- Is what you heard in harmony or in conflict with what you've heard from others throughout the organization?

Just enough

You've interviewed enough people when you feel confident that you know:

- Who all the stakeholders are.
- Their roles, attitudes, and perspectives.
- Their levels of influence, interest, and availability over the course of the project.
- How they stand to benefit or suffer with the success or failure of your work.
- The likelihood that any of them have the power or potential to prevent project success.
- All the ways that the workflow will have to change to make your project a success.
- The resources you have available for your project process.
- The resources required to support your project once it's complete.
- All the business requirements and constraints.
- Whether your team and core stakeholders agree on the goals and definition of success.
- Whether the stated goals are the real shared goals, or whether anyone has a hidden agenda.
- How people outside the project team view this project.

WHAT TO DO WITH STAKEHOLDER ANALYSIS

Stakeholder analysis can be pretty straightforward. If you're interviewing members of the organization as users of the system, refer to the ethnographic methods in Chapter 5.

Create a clear statement of what you need to accomplish for the project to be considered a success by the organization. These are the business requirements. Design and development are how you satisfy the business requirements. It's best if everyone who cares about the project agrees.

The goal of gathering and documenting business requirements is to ensure that all the stakeholders agree on the purpose and limitations of what you're doing. You want to increase your chance of success, connect what you're doing to the goals of the business, increase collaboration, and save costs, particularly those associated with changes. Note that business strategy must remain constant for the duration of a project.

Requirements must be:

- **Cohesive.** The requirements all refer to the same thing.
- **Complete.** No missing information. No secret requirements that didn't make it onto the list.
- **Consistent.** The requirements don't contradict each other.
- **Current.** Nothing obsolete.
- **Unambiguous.** No jargon. No acronyms. No opinions.
- **Feasible.** Within the realm of possibility on this project.
- **Concise.** Keeping them short and clear will increase the chances that they are read, understood, remembered, and used. Aim for no more than two to three pages.

The document should not contain specific solutions or design requirements. The type of organization determines the level of detail required in the business requirements documentation. Depending on the political situation at the company for whom you're conducting the research, you may have one version for the core team and a more summarized (or polite) report for broader distribution.

What to include in your documentation

Problem statement and assumptions

What needs to be solved or improved from a business perspective?

Goals

Every project begins with a rough set of goals, or concepts of success. Every individual in an organization sees them a little bit differently. Gathering these and reconciling them is essential to a functioning project.

Success metrics

What are the qualitative and quantitative measurements that tell you whether the project is hitting the mark? These should support the goals.

Metrics can include things like “boosts reputation of Fantastic Science Center among peers,” or “increases online sales in the store thirty percent by the six-month point.”

Completion criteria

How will you know you’re done? It may seem obvious, but it’s always good to validate. Otherwise, the project will never be finished!

Scope

Scope refers to the amount of work included in any project. “Scope creep” is what happens when more work just keeps getting tacked on and the scope grows uncontrollably. The best way to avoid scope creep is to document what is included in as much detail as possible and in language everyone understands. (Historically, designers and engineers have sparred mightily over the definition of a “template.”) And note who is responsible for what. Scope is a boundary, so it’s also very useful to note that which any of the stakeholders might assume to be included but

is out of scope. Not touching the logo this time around? Note that! Not changing the registration process? Write it down. Detailed scope documentation makes for happy teams and functional projects.

Risks, concerns, and contingency plans

Want to increase your chances of project success? Then acknowledge anything you've uncovered that might lead to failure or unmet expectations.

A designer conducting research might pick up on a lot of information that matters to the project process as well as to the design approach. Some organizations are more functional and well resourced than others. Every organization has its challenges. If the team understands and acknowledges these, they will be able to work around them more effectively. Maybe key decision-makers will have limited availability. Or perhaps two departments who need to collaborate very closely have historically had a poor working relationship.

All of this information gathering will allow you to anticipate potential problems before they arise. This is an area in which the practitioners (designers, writers, developers, etc.) and project managers should collaborate very closely. If these challenges are not openly acknowledged, which is sometimes the case, be very sensitive in how you talk about them. For your work to succeed, you have to address them.

For example, you might find that the Fantastic Science Center media relations department is unavailable through the end of the year because of a big event, but you're required to get approval from the head of media relations on several aspects of the design. This is a terrific thing to know about in advance so you can plan around it.

Getting everything done on a tight schedule is often a major shared concern. A clear, simple—and, most importantly—publicly documented process for gathering feedback and making decisions helps everyone stay on track. And, if you have heard different concerns from different groups, it's best to address that head-on. The need to keep the total project cost down might be what you heard from operations, while the product team

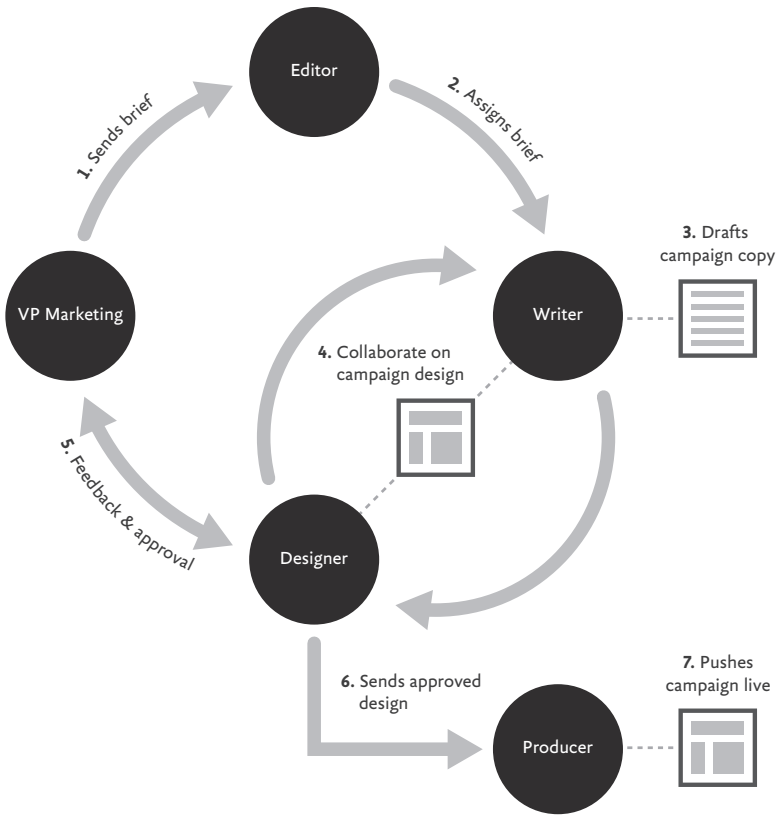


FIG 4.1: A workflow diagram can describe the current situation or illustrate your recommendation based on what you’ve learned about the organization.

mentioned the need to have a user experience that compares favorably to a major competitor. The most appropriate solution will address both. Maybe it requires focusing on the highest-priority features to be identified through user research.

Verbatim quotes

The specific words used are highly valuable in revealing an individual's personal perspective and attitudes. If possible, share these without attaching identifying information.

Workflow diagrams

Who will need to be told about how things have changed and in what format? A workflow diagram is a good companion to this document (**FIG 4.1**).

If you're working on an internal project or a new customer-facing product that's likely to change internal workflow, diagram the current and proposed workflows. Throughout the project, you can use these diagrams to track any workflow ramifications and make sure that the organization is changing sufficiently to accommodate the new design.

Unpack the baggage

A solid understanding and honest assessment of an organization and its business is necessary for the success of any significant design project. Organizational habits and capabilities are just as relevant as target user behaviors and needs, although they're less frequently included as fundamental topics of design research. And the true nature of workflow and interpersonal relationships is just as ripe for ethnographic exploration.

Even just the process of conducting research can be beneficial if only because it provides the motivation to open atrophied or nonexistent communication channels. Performed with tact and rigor, organizational research can neutralize politics, clarify requirements, and improve the odds that changes will be fully understood and take hold.

5 USER RESEARCH

“Doctor: ‘What are you doing here, honey? You’re not even old enough to know how bad life gets.’ Cecilia: ‘Obviously, Doctor, you’ve never been a thirteen-year-old girl.’”

—THE VIRGIN SUICIDES

As a designer, you have an enormous, exciting responsibility. You define the human world, one object or system at a time. Every delightful and every frustrating artifact that exists, exists because of a series of design decisions.

Design as a job is similarly delightful and frustrating. Whatever you create has to work for a diverse array of people who may not be anything like you. Your work must be sufficiently novel to attract attention while fitting into each user’s existing world of objects and situations over which you have no control. How do you create one design that solves a problem for an endless combination of people and environments?

You do user research to identify patterns and develop empathy. From a designer’s perspective, empathy is the most useful

communicable condition: you get it from interacting with the people you're designing for.

When we talk about *user research* as distinguished from *usability testing*, we're talking about ethnography, the study of humans in their culture. We want to learn about our target users as people existing in a cultural context. We want to understand how they behave and why. This is very different from gathering opinions. It isn't just surveying or polling. And it's definitely not focus groups.

Ethnographic design research allows design teams to:

- Understand the true needs and priorities of your customers/readers/target audience/end users.
- Understand the context in which your users will interact with what you're designing.
- Replace assumptions about what people need and why with actual insight.
- Create a mental model of how the users see the world.
- Create design targets (personas) to represent the needs of the user in all decision-making.
- Hear how real people use language to develop the voice of the site/application.

EVERYTHING IN CONTEXT

For you to design and develop something that appeals to real people and reflects their priorities, you'll need to talk with or observe representative users directly in their context—their regular environment. This reduces your risk of making bad assumptions based on your own experiences, hopes, or subjective preferences. That context includes the physical environment, mental model, habits, and relationships.

Physical environment

This is the physical context in which someone will use your product or service. This could be at their office at a desk, at home on the sofa, at home at a kitchen table, or outside in an

unfamiliar city. Is your target user likely to be alone, or surrounded by others, subject to interruptions? Needs can change vastly with setting.

Mental model

A mental model is an individual's pre-existing internal concept of and associations with any given institution, system, or situation. Every one of us has an imperfect, idiosyncratic map of reality in our head. Without it, we would be utterly lost. With it, we rely on assumptions based on previous experiences we consider analogous. The better the analogy, the more useful the map. This is why interfaces that strive for novelty are often unusable. With no hooks into an existing mental model, we have to figure things out from scratch.

In the course of designing a new website for the Fantastic Science Center, it would be helpful to understand our target audience's mental model of such institutions. What do they expect, and how do those expectations make it more or less likely that they would interact with the website in the ways we want them to?

Habits

This includes habits of body and mind. How does the user already solve the problem you are trying to solve for them, if indeed they do? We frequently hear from entrepreneurs that are trying to create a habit around a new product. Habits are hard to change, as anyone trying to kick one will attest, but inserting a new hook into an existing habit is much easier.

For a science museum website, relevant habits might include their current weekend activities, or the sources of information they rely on for entertainment, education, events, or keeping up to date on technology changes. Social and collaborative decision-making would be another interesting area for exploration. The concepts and associations that form the user's mental model of weekend activities, that web of familiar meanings, could potentially provide the bridge to creating new habits around this particular institution.

Relationships

Social networks are merely the most obvious intersection of human relationships and digital products. People are social animals and every interactive system has an interpersonal component. Your product or service will exist within a web of human relationships.

For example, in a two-parent household, who finds and shares ideas for activities and how are decisions made about planning the weekend? Is one parent more motivated to plan activities than another? How do other parents who are friends figure in? Do groups of families plan outings together?

ASSUMPTIONS ARE INSULTS

There are about seven billion people on the planet. As of this writing, about two-thirds of them have no internet access. Wrap your head around that. That's over four billion people who have never even received the \$500 chocolate chip cookie recipe. You probably start getting itchy two minutes after your iPhone dies at TED and you can't text your husband anymore.

Did you see what I did there? I just made some assumptions about you. If they were correct, maybe you nodded slightly and moved on without noticing. However, if you don't have an iPhone or don't go to TED or don't have a husband with whom you're constantly exchanging messages, or if you have no idea what the \$500 cookie recipe is, you probably got a little annoyed.

When you make assumptions about your users, you run the risk of being wrong. When you embed wrong assumptions in the design of your product or service, you alienate people—possibly before they even have a chance to hear what you have to offer. The more obvious that wrong guess is, the more annoying it is.

“Annoying” might be a generous description. By designing for yourself or your team, you are potentially building discrimination right into your product. Your assumptions about the age, gender, ethnicity, sexuality, and physical or cognitive abilities of your users might lead to barriers you don't actually intend—barriers that don't serve your business goals or ethics.

Every product doesn't need to be all things to all people. However, every design decision should be a well-informed, intentional one that welcomes your intended users rather than pushing them away or making them feel bad. That's why identifying and understanding your target audience or user base—to the point of true empathy—is the most important and useful design research you will do.

As the original motivational speaker, Dale Carnegie used to say, while getting rich saying it:

You can close more business in two months by becoming interested in other people than you can in two years by trying to get people interested in you.

GETTING GOOD DATA FROM IMPERFECT SOURCES

It seems like a simple formula:

1. If your goal is to make things people buy and use, you should design what people want.
2. To do that, you need to know what people want.
3. So just find some people and ask them what they want.
4. Then go off and make what they tell you.

No. This does not work. The first rule of user research: never ask anyone what they want.

You know what people want? People want to be liked. (If Facebook gets one thing right, this is it.) When you ask someone directly what they want, it is very possible the answer you receive will be what they think you want to hear, or the answer that reflects how they like to think of themselves. And because it's impossible to want what you can't imagine, you risk the scope of your ideas being limited by the imaginations of others.

The television show *House M.D.* actually made a terrific case for ethnographic research, as long as you ignore certain ethical and medical realities. In each episode, Dr. Gregory House and his diagnostic team tackle a mysterious, challenging life-or-death case. Examining and directly questioning the patient leads only to one false diagnosis and subsequent dramatic defibrillation

after another, until finally a couple of comely physicians resort to breaking into the patient's home and snooping around to discover evidence of undisclosed habits and behaviors. They return with artifacts. House has an epiphany. Patient lives! Awkward conversation with loved ones about habitual talcum powder huffing or previous traveling circus career ensues.

"Everybody lies" was the perennial theme and occasional tagline of the show. Not only are most people straight-up craven dissemblers, but even those who we would call perfectly honest lack sufficient self-knowledge to give a true account.

It may seem a harsh maxim for the designer who genuinely wants to empathize with users, but it is far more succinct and memorable than "most people are poor reporters or predictors of their own preferences and behavior when presented with speculative or counterfactual scenarios in the company of others."

Your challenge as a researcher is to figure out how to get the information you need by asking the right questions and observing the right details.

You won't be breaking into anyone's house. You need to figure out how to break into their brain. If you go in through the front door, asking direct questions, you'll run into defenses and come up with pat, and potentially useless, answers.

The questions you ask directly and the questions you want answered are two different sets of questions. During a job interview at some point in your life, you may have been asked the question "What's your greatest weakness?" This is definitively the worst interview question hiring ever devised. Everyone interviewing for a job thinks up an answer in advance. No one likes it. No one actually gets anything out of it. From the candidate's perspective, this question indicates the interviewer doesn't care enough to think of meaningful questions and relies too heavily on *Job Interviews for Dummies*. From the interviewer's perspective, the most you'll get is a creative twist on "I work too hard because I care too much about my work." Waste of time.

Even if a prospective employee did try to address the question honestly, the answer would likely function as a blunt disqualification ("I'm terrible at managing my time." "I sometimes

give knee-jerk answers before thinking the issue through.”) or wouldn’t tell you much about suitability for the job.

The real question behind the question is, “Do you have any habits or behaviors that would interfere with your ability to perform this specific job?”—a question that would be even weirder to ask the candidate directly. To get the answer, the interviewer needs to get the candidate to tell stories about relevant situations without indicating that there’s a right or wrong answer. Here are some much better interview questions:

- Walk me through a typical day in your current job.
- Tell me about a misunderstanding you had with a coworker.
- Tell me about a situation at work where you had to deal with something unexpected.

Similarly, to create a good fit between what you’re designing and what your target users need, you have to know about the aspects of their habits, behaviors, and environment that are relevant to your work, and then turn that knowledge into insights you can act on. These insights will allow you to design with more confidence and less guesswork.

WHAT IS ETHNOGRAPHY?

Ethnography is a set of qualitative (descriptive rather than measurable) methods to understand and document the activities and mind-sets of a particular cultural group who are observed going about their ordinary activities in their habitual environment.

Radically simplified, the fundamental question of ethnography is, “What do people do and why do they do it?” In the case of user research, we tack on the rider “...and what are the implications for the success of what I am designing?”

We are already observing people regularly, if only to determine how we should interact with them ourselves. (“Is that guy on the bus crazy or talking on a headset?”) And many of us are quite experienced at reporting interesting behaviors. (“You should have seen this guy on the bus...”) To do user research, you’ll need to make a slight mental shift to “how should what I’m designing interact with this person” and then do your best to

be totally nonjudgmental. That's all it takes to stoke the human data-gathering machine.

THE FOUR DS OF DESIGN ETHNOGRAPHY

Humans and their habits and material culture are endlessly complex. Ethnography is an equally deep and nuanced field. The practices outlined in this chapter are merely a pragmatic simplification of a few core ideas intended to help you apply useful insights about people to your product design.

It's easy to get caught up in the specific techniques and terminology, so try to keep the following key points in mind for more successful user research.

Deep dive

You want to get to know a small but sufficient number of representative users very well. We're typically talking a Vulcan mind meld with a handful of individuals, not a ten-question survey of a thousand families. Walk in their shoes, live in their skins, see through their eyes...choose the creepy spiritual possession metaphor that works for you.

Daily life

Fight the urge for control and get into the field where things are messy and unpredictable. (The field is wherever your target users generally are, anywhere from a cube farm to the London Tube.) As you're probably well aware from how your day is going so far, life for everyone is messy and unpredictable in ways both good and bad. It's very easy to think up ideal scenarios in which everything is smooth and simple. These are as useful to your work as a game of SimCity is to allocating actual resources in New York City.

Participant observation, whether done in person or remotely, is the name of the game. Everyone's behavior changes with the context and the circumstances. Soak in your subject's actual environment. It's of limited utility to learn how people behave in your conference room. No one is going to act naturally in

there. Even calling them in their own home or office is better. The most interesting insights will come when you keep your eyes open and go off script.

Data analysis

Gathering a lot of specific observations in the field is just the first part. Once you have all of this data you need to do a thorough job of sifting through it to figure out what it means. Systematic analysis is the difference between actual ethnography and just meeting interesting new people at a networking event. You can use a light touch and a casual approach, but take enough time to gain some real understanding, and get your team involved in creating useful models.

Drama!

Lively narratives help everyone on your team rally around and act on the same understanding of user behavior. From the mundane realities of real people, personas emerge—fictional protagonists with important goals—along with scenarios, the stories of how they use the product you’re designing to meet those goals. Personas will keep you honest. You design for them, not for you or for your boss.

INTERVIEWING HUMANS

The goal of interviewing users is to learn about everything that might influence how the users might use what you’re creating. Good interviewing is a skill you develop with practice. The great myth is that you need to be a good talker. Conducting a good interview is actually about shutting up. This can be very hard, especially when you’re enthusiastic about the topic.

Remember, the people you’re interviewing want to be liked. They want to demonstrate their smarts. When you’re interviewing someone you know nothing. You’re learning a completely new and fascinating subject: that person.

Preparation

Once you have established who you want to talk to and what you want to find out, create your interview guide. This is a document you should have with you while you're interviewing to ensure that you stay on topic and get all of the information you need.

The interview guide should contain:

1. The brief description and goal of the study. This is for you to share with the participant and use to remind yourself to stay close to the topic.
2. The basic factual or demographic questions for putting the participant's answers in context. These will vary depending on the purpose of the interview, but often include name, gender, age, location, and job title or role.
3. A couple of icebreaker or warm-up questions to get the participant talking. Most people know this as "small talk." Feel free to improvise these based on the demographic information.
4. The questions or topics that are the primary focus of the interview.

You should also gather a bit of background information on the topic and people you'll be discussing, particularly if the domain is unfamiliar to you. Talking to homeowners about how they selected their mortgage brokers? Read up on mortgages. Sitting down with the head of customer service? Review the support forums or frequently asked questions.

Interview structure: three boxes, loosely joined

An interview has three acts, like a play or a spin class: the introduction and warm-up, the body of the interview, and the conclusion.

Introduction

Introduce yourself with a smile, expressing genuine gratitude that the person you are interviewing has taken the time to talk

(even if they're getting a large incentive and especially if it's a busy staff member who has taken time out of their workday).

Describe the purpose of the conversation and the topic without going into so much detail that you influence the answer. Explain how the information will be used and shared. Obtain their explicit permission to record the conversation.

Ask whether they have any questions about the process.

Move on to the demographic information or facts you need to verify. Use the collection of this information as the basis for the warm-up questions.

"Oh, you live in San Diego. What do you like to do for fun there?"

Body

Once you've covered the formalities and pleasantries, it's time to dig into the interview meat. With a sufficiently talkative subject, you might get all of the answers you wanted and more without asking more than the initial question directly.

Ask open-ended questions that encourage the subject to talk, not closed questions that can be answered with "yes" or "no." (Closed question: "Do you communicate with the marketing department often?" Open question: "Tell me about the internal groups you communicate with as part of your job.")

If the subject doesn't offer enough information on a topic, ask a follow-up or probing question, such as "Tell me more about that."

Allow pauses to let the story through. Silence is uncomfortable. Get used to it and don't rush to fill gaps in the flow of conversation. You want your subject to do that.

Use your list of questions more as a checklist than as a script. If you read the questions verbatim, you'll sound like a robocall survey.

Conclusion

Once you have the information you were looking for, and hopefully even more, make a gentle transition to the wrap-up. Say something like "That's it for my questions. Is there anything else you'd like to tell me about what we discussed?"

Thank them for their time and cover any administrative topics such as incentives or next steps on the project.

Don't be afraid to shut it down early if you find yourself in an unproductive interview situation. Sometimes an interview subject goes taciturn or hostile. It happens and the best thing you can do is move on to the next one. There is no rule that says you need to hang in until you've attempted to have every single one of your questions answered.

Just do your part to remain friendly and respectful to the end.

Conducting the interview

You, the interviewer, play the dual role of host and student. Begin by putting the participant at ease with your demeanor. The more comfortable a participant feels, the more and better information you will get. A relaxed participant will open up and be more honest, less likely to worry about putting on a good impression.

Once you've done your part to get the subject talking, get out of the way. You should strive to be a nearly invisible, neutral presence soaking up everything the other person has to say. Think of them as the world's foremost expert on themselves, which is the all-absorbing matter at hand. Insert yourself only when necessary to redirect back on topic or get clarification. You will know when your interview is going particularly well because you won't be able to get a word in, but you will be getting answers to all your questions.

Breathe

It's easy to feel like you're on stage and tense up without realizing it. Your own tension can be contagious, so remind yourself to breathe and remain relaxed and observant.

Practice active listening

As long as you're breathing, make interested mm-hmm sounds. If you're interviewing in person, make sure to look at the speaker

directly and nod. Unrelated thoughts might start to pop up, especially if an answer goes on at length. Stay alert and focused on the other person.

Keep an ear out for vague answers

You want details and specifics. Always be ready to bust out a probing question such as “Why is that?” or “Tell me more about that.”

Avoid talking about yourself

Sometimes, what starts as active listening turns into “Let me tell you about a similar experience I had....” The interview isn’t about you or your opinions. This can be very hard to remember and takes practice to avoid. So, if you find that you’ve inserted yourself into their narrative, just stay relaxed and steer the conversation back on track.

Handy checklist

This checklist for effective user research was adapted from the *Ethnography Field Guide* produced by the Helsinki Design Lab, powered by Sitra, the Finnish Innovation Fund (<http://bkaprt.com/jer/10/>):

- Create a welcoming atmosphere to make participants feel at ease.
- Always listen more than you speak.
- Take responsibility to accurately convey the thoughts and behaviors of the people you are studying.
- Conduct your research in the natural context of the topic you’re studying.
- Start each interview with a general description of the goal, but be careful of focusing responses too narrowly.
- Encourage participants to share their thoughts and go about their business.
- Avoid leading questions and closed yes/no questions. Ask follow-up questions.

- Prepare an outline of your interview questions in advance, but don't be afraid to stray from it.
- Whenever possible, snap photos of interesting things and behaviors.
- Also note the exact phrases and vocabulary that participants use.
- Pay attention after you stop recording. You might get a valuable revelation.

Try to be as conversational and natural as possible. If the user volunteers the information in the course of your conversation without you having to ask, that's terrific. Your questions are just prompts to help the participant tell you a story that reveals situations, attitudes, and behaviors you didn't even think to ask about. Offer enough information to set the scope for the conversation, but not so much that you influence the response.

Here is a sample set of questions, based on our museum website design example, for you to modify to meet your needs:

- Tell me about your job.
- Walk me through a typical week in your life.
- How often are you online?
- What computers or devices do you use?
- When do you use each of them?
- Do you share any of them?
- What do you typically do online?
- What do you typically do on your days off?
- How do you decide what to do?
- Tell me about how your children use the internet.
- How do you decide what to do on your days off with your kids?
- What are your particular non-work interests? What do you read online besides the news?
- How frequently do you visit museums in your town? Which ones?
- What prompts you to go?

What to do with the data you collect

The interview is the basic unit of ethnographic research. Once you've completed your interviews, analyze them all together to find themes, including user needs and priorities, behavior

patterns, and mental models. Note the specific language and terms you heard so you can better reflect the way users think and talk in the actual interface. If you are doing generative research, look to the needs and behaviors you discover to point out problems that need solving. Turn the clusters around user types into personas that you can use for the life of the product or service you're working on. (See Chapter 8 for detailed examples.)

CONTEXTUAL INQUIRY

Once you're comfortable doing ethnographic interviews, you can take your skills into the field. If you like watching reality shows, you will love contextual inquiry, also called site visits or consensual home invasion—except instead of *Project Runway*, you'll be enjoying Project Conference Call, Home Office Experience, or Saturday Morning Grocery Shopping. You enter the participant's actual environment and observe as they go about the specific activities you're interested in studying. By doing this you will be able to see actual behaviors in action and learn about all of the small things you might not hear about in an interview, such as a janky work-around so unconscious and habitual the individual has completely forgotten it.

Contextual inquiry is a deeper form of ethnographic interview and observation. It is particularly useful for developing accurate scenarios, the stories of how users might interact with potential features, as well as identifying aspects of the user's environment that will affect how someone might use a particular product.

Scott Cook, the founder of financial software giant Intuit, started the "Follow Me Home" practice very early in the company's history (<http://bkaprt.com/jer/11/>). He would quite literally hang out in Staples office supply stores waiting for someone to purchase Quicken, and then follow them home to observe them using the software. He learned where they had difficulty setting up the program, which allowed him to make improvements to the initial experience.

On behalf of a video game publisher, I've visited the homes of people who play video games to see how their gaming systems were configured. We saw patterns in how gamers purchased

and displayed games in their homes that we could reflect in the design of the website. Most importantly, we heard the language actual customers used when talking about the company brand and the gaming experience as a whole.

Things to keep in mind

- **Travel.** Allow plenty of time to get to the site and set up.
- **Get situated.** Find a comfortable spot that allows you to talk to the participant without interrupting their normal routine.
- **Interview.** Establish trust and learn about what you will be observing. Find out when it will be least disruptive to interrupt and ask questions.
- **Observe.** It's a show. You're watching. Note everything in as much detail as possible. The relevance will be apparent later. Pause to ask questions. Stay out of the way.
- **Summarize.** Conclude by summarizing what you learned and asking the participant to verify whether your observations were correct. Note: even if the participant disagrees with your assessment, you might still be correct, and the contradictory description is a very interesting data point.

Contextual inquiry can be very inspirational. You might observe problems and opportunities you had no idea existed and open the door to some innovative and interesting ideas. Be ready to learn that people don't need what you thought they need at all, but that they do need something totally different. Joyfully release all of your preconceived plans and notions.

FOCUS GROUPS: JUST SAY NO

A handful of “ordinary” people around a conference table engaged in a lively discussion about how various brands make them feel. A cheerful, yet authoritative moderator. Observers wielding clipboards behind a two-way mirror. Focus groups are synonymous with qualitative research in popular culture, and it isn't uncommon to hear all user research lumped as “focus groups.”

Unlike the interviews and contextual inquiry mentioned above, focus groups don't provide insight into behavior or the user's habitual context. But because they're so common, it's worth mentioning them.

Focus groups evolved from the "focused group interview" developed by American sociologist Robert K. Merton. (Fun fact: he also coined the terms "role model" and "self-fulfilling prophecy"; <http://bkaprt.com/jer/12/>). Merton himself deplored how focus groups came to be misused. As he said, "Even when the subjects are well selected, focus groups are supposed to be merely the source of ideas that need to be researched" (<http://bkaprt.com/jer/13/>).

Focus groups are the antithesis of ethnography. Unlike interviewing participants individually or observing people in their natural environment, the focus group creates an artificial environment that bears no resemblance to the context in which what you're designing would actually be used.

The conversation is a performance that invites social desirability bias and gets in the way of finding out what people need and how they behave outside of this peculiar group dynamic. Participants are more likely to proclaim or conceal behaviors for the benefit of those around them.

Recruiting and screening participants is the most time-consuming and least informative aspect of user research. If you are doing a focus group, one bad recruit in the group can tank the entire session. In one-on-one interviews, at least that recruit won't taint the pool.

There may be some group activities that might yield useful insights as part of the design process. However, focus groups are simply research theater. And your research time is too precious to squander on a sideshow.

THE TALKING (AND WATCHING) CURE

Accept no substitute for listening to and observing real people who need to do the things you're designing a thing to help people do. A few phone calls could change everything about how you approach your work. Or, maybe you'll find out your

instincts were right all along. In any case, the information you gather will continue to pay dividends as you continue to gather and examine it, grounding your design decisions in real human needs and behaviors.

And as you develop the skill of stepping out of yourself to become an effective design ethnographer you will develop powerful empathy that can inspire you to find creative, effective solutions.

6

COMPETITIVE RESEARCH

WHO IS the competition?

- a. “No one! No one is doing anything that even comes close to what we are doing!”
- b. “The top five companies by market share in our vertical.”
- c. “The first page of search results for ‘[relevant term]’ on Google. All of those guys.”

The correct answer is *b* plus *c* plus everything else anyone has considered or started using that solves the problem you want to solve or helps them avoid it. (If you aren’t working on something that solves a real problem or fills a real need, then your competition is *d*, “Anything else that anyone does with their time and money.”)

Your competition is Facebook, Apple, Twitter, the Haus of Gaga, Hulu, Wikipedia, a freaky Japanese YouTube channel, all of Google, everyone who ever had an idea for a startup, the nosey neighbor who offers unsolicited advice, the hot teaching assistant, all the people at the dog park, mom, dad, sloth, inertia,

insecurity, fear, corporate bureaucracy, sunk infrastructure costs, memory lapses, duct tape, bubble gum, ADD, marijuana (medical or otherwise), the sofa, some hacker in Serbia you've never heard of, what all the kids are doing these days, what mother never told you, some modern Chinese secrets...and more!

The hardest competitor to beat is the one your potential customers are using right now. If they have to stop using that one to start using yours, they may incur a switching cost. People are lazy, forgetful creatures of habit. Your target customers have to love you more than they hate change.

This chapter follows user research for a reason. You need to know not only who your competitors are from the perspective of the business (that's generally obvious) but who competes for attention in the minds of your target users. Attention is the rarest resource and the one you need to survive. Unless your goal is to sell one very expensive item to a small number of people, you need to convert attention into habit.

This is not the place for wishful thinking. It's a jungle out there, a hostile and constantly changing ecosystem, and you want the thing you're building to have the best chance to adapt and survive—like the creature from *Alien*, but with a more pleasant user interface. You need to know the landscape and the competition.

So now that we've cast the doors wide open, how do we narrow down the field?

By taking a hard look at the role you want to play in your target customer's life and the advantages and disadvantages that affect your ability to do so.

Competitive research begins with a broad perspective on the competition. You may be looking for things to steal, like approaches and customers. You need to see how other people are solving similar problems, and identify opportunities to offer something uniquely valuable. You need to do this frequently and quickly; get in the habit of constantly asking not only "What matters to our customers?" (the user question) but "How are we better at serving that need than any competitor?" (the product question) and "How can we show our target customers that our product is the superior choice?" (the marketing question).

	POSITIVE	NEGATIVE
INTERNAL	Strengths Reputation Excellent Staff	Weaknesses Internal design resources are more exhibit focused than online technology focused.
EXTERNAL	Opportunities Community desire for family-friendly weekend activities. More dads are in charge of Saturday activities.	Threats Competition for attention. Schools are cutting back on field trips.

FIG 6.1: A SWOT analysis organized in a simple grid can help you grasp your competitive position.

When you look at what your competitors are doing, you only see what is visible on the outside, unless you have a mole. That's what your users see as well, so user research won't help you here. It will take some deeper digging, critical thinking, and extrapolation to determine (or make a good guess at) why your competitor is doing things a certain way.

SWOT ANALYSIS

Albert S. Humphrey was a management consultant who devised something called SWOT analysis (<http://bkaprt.com/jer/14/>): strengths, weaknesses, opportunities, and threats. You arrange them in a handy 2 × 2 grid and use them to guide your strategy (FIG 6.1). Your work with your own organization (or the research

you've done into your client's organization) should have provided you with a good sense of your (or their) internal strengths and weaknesses.

Once you've enumerated these characteristics, you can identify the aspects of the user experience that serve to amplify strengths and exploit opportunities as well as those that mitigate weaknesses and counteract threats.

Your strengths and opportunities add up to your competitive advantage. Knowledge is a competitive advantage. If you do competitive research and your competitor doesn't, you have an advantage. Specifically, your research should focus on competitive opportunities and threats.

COMPETITIVE AUDIT

Once you have identified a set of competitors and a set of brand attributes, conduct an audit to see how you stack up. In addition to those organizations you think of as competitors, conduct a web search to see who else comes up. Add in any product or service that was mentioned repeatedly in user interviews and anyone you admire as a leader solving a similar type of problem. For example, in thinking about the Fantastic Science Center, you might also consider other public-facing science organizations or museums that do an excellent job of reaching or expanding their audience online.

Once you've compiled this list, identify which aspects of their work are most relevant and accessible. This might include marketing websites, mobile applications, information kiosks on site at the actual location, Facebook groups, third-party storefronts, etc.

For each competitor and each site, product, service, or touch-point, answer the following:

- How do they explicitly position themselves? What do they say they offer?
- Who do they appear to be targeting? How does this overlap or differ from your target audience or users?
- What are the key differentiators? The factors that make them uniquely valuable to their target market, if any?

- To what extent do they embody each of your positive/negative attributes?
- How do the user needs or wants they're serving overlap or differ from those that you're serving or desire to serve?
- What do you notice that they're doing particularly well or badly?
- Based on this assessment, where do you see emerging or established conventions in how they do things, opportunities to offer something clearly superior, or good practices you'll need to adopt or take into consideration to compete with them?

BRAND AUDIT

In addition to looking at how your competitors position and differentiate themselves, take a good, hard look at your own brand. Is it doing the work it needs to and setting the right expectations for the overall experience? Do you need to do some work on it?

Your brand is simply your reputation and those things that signify your identity and reputation to your current and potential customers. That reputation offers a promise of all the good things you do for your customers, most of which exist only in the customer's mind. The stronger the brand, the more awesome associations pop up in more people's minds. Coca-Cola is a phenomenal brand, producing positive emotional associations across the globe on a product that is fundamentally caffeinated sugar water. Tremendous continuous effort goes into brand marketing. You probably don't need that.

For many interactive products and services, there is no "brand" apart from the service itself. The brand experience is the user experience. The visual design of the interface is the brand identity. The brand personality is the voice of the interface language.

Here are the questions you need to ask about your brand:

1. **Attributes:** which characteristics do you want people inside and outside the company to associate with the brand or product, and which do you want to avoid?

2. **Value proposition:** what does your product or service offer that others do not and how does your brand communicate this?
3. **Customer perspective:** when you conduct ethnographic interviews with existing or potential customers, what associations do they have with your brand?

The importance of the different aspects of your brand will vary tremendously with your marketplace. If you're a local business providing an essential service with no competition—for example, the only dry cleaner in town—you just need a name so your potential customers know you exist. Given a wider audience, stronger competition, or a “premium” product or service (which just means it's less necessary to daily life), branding gets more important. This is why branding is incredibly important to Pepsi and Tiffany.

All of this is important to keep in mind as you do a competitive brand analysis. Make sure you're comparing apples to apples, not Starbright Cleaners to Apple.

Name

The name is the single most important aspect of a brand. What makes a good name varies from market to market like everything else, but at a minimum, it needs to be unique, unambiguous, and easy to spell and say. (A lot of web companies and products have terrible names because the top-level domain system is broken—but that's not an excuse!)

It's arguable that mint.com's name contributed to the success of the personal finance application. Not only is it short and memorable, but it was easy to build a whole brand and interface around, integrating the concept of freshness and the color green, like American money. The name itself wasn't unique online (there's a company called Mint Analytics), but it was unique in the competitive field. The name was a particularly smart choice in the realm of personal finance, where trust is at a premium. The accompanying cohort of personal finance startups included Geezeo, Buxfer, and Wesabe, which together sound like a group of playful macaques. They might be cute, but do you trust them with your money?

Logo

A few years ago, an internet mogul with a penchant for dramatic pronouncements swept into our office and declared, “The logo-mark is dead. The only thing that matters now is the URL. That’s how people find you.”

This is wrong, of course. But the right answer isn’t that a logo is incredibly important to every single internet-based business. The right answer is “It depends.” This is why a logo can cost between \$99 and \$5 million.

The logo is simply the illustrative manifestation of your brand, which can take several forms: wordmark, bug, app icon, favicon, etc. Which logo you choose and how much you spend on it depends on the contexts in which people are going to have to identify your stuff and distinguish it from your competitors.

Athletic apparel logos are incredibly important because they have to go out in the world on their own, differentiate otherwise similar sports shoes and shorts from each other, and remind people of the very expensive sponsorship of one famous athlete or another.

The logo of a relatively new web application is less important. Customers won’t typically need to use the logo standing by itself to distinguish one service from another. The name, URL, and keywords are much more important.

Native mobile apps represent a new level of challenge, since the logos are so constrained in size and dimension and do have to work very hard in that small uniform space to help a user distinguish one app from another. You don’t want to look at your phone’s desktop and get confused about which icon opens which program.

To conduct an effective logo assessment, list all of the contexts in which the target users are likely to encounter it, and review your competitors’ logos in the same contexts. Also note whether the logo will ever appear on its own or will always be connected to a larger brand or product experience. This will indicate the relative importance of the logo as an expression of your overall brand.

Putting it all together

Once you've identified the core attributes of your brand, both positive and negative, assess the product name and brand identity for how well they reflect and communicate that personality.

USABILITY-TESTING THE COMPETITION

Don't just test your own product—test the competitor's! You can use task-based usability testing (described in Chapter 7) to evaluate a competitor's website or application. This allows you to understand their strengths and weaknesses directly from the user's point of view, identify opportunities to develop your advantages, and gain insight into how target users conceptualize core tasks and key features.

A NICHE IN TIME

The competitive landscape and how what you're designing fits into it may be the fastest moving target of all research topics. New options are appearing and product categories are collapsing every day. Just taking a user-eye view at how your company, product, and message measure up will give you some competitive advantage. The accurate, user-centered perspective of your comparative strengths and weaknesses will help you focus your message and hone your image.

EVALUATIVE RESEARCH

“Within 30 minutes I realized, Oh my God, it’s broken. Holy shit, we totally fucked up.”

—BILL NGUYEN, founder of photo-sharing service Color
(<http://bkaprt.com/jer/15/>)

Your initial forays into clarifying requirements, understanding users, and checking out the competition helped you think up an appropriate design solution. Awesome! Now it’s a good idea to assess how well it works for the intended audience and its intended purpose before you stage a splashy public launch.

Evaluation is assessing the merit of your design. It’s the research you never stop doing. There are several ways to go about it, depending on where you are in the project.

In the early stages, evaluation takes the form of heuristic analysis and usability testing. You can test an existing site or application before redesigning. If you have access to a competitor’s service or product, you can test that. You can test even the very earliest sketches.

Once a site or application is live, even if it's in private alpha, you can start looking at quantitative data and use site analytics to see how people are actually interacting with the system and whether that meets your expectations.

The best way to assess a functional design is through a combination of quantitative and qualitative methods. The numbers will tell you what's going on, and the individual people will help you understand why it's happening.

HEURISTIC ANALYSIS

Despite the fancy name (which is from the Greek *heuriskein*, to find out), heuristic analysis is the most casual method of evaluating usability. “Heuristic” in English simply means “based on experience”; a heuristic is a qualitative guideline, an accepted principle of usability. The more you know about using and designing interactive systems, the better you'll be at heuristic analysis.

Godfather of usability Jakob Nielsen and his colleague Rolf Molich came up with the idea for heuristic analysis way back in 1990 (<http://bkaprt.com/jer/16/>). The method is very simple: evaluators (at least two or three, ideally) individually go through a site or application with a checklist of principles in hand and score the site for each one.

Nielsen's ten heuristics (<http://bkaprt.com/jer/17/>) are:

- **System status visibility.** The system should provide appropriate feedback.
- **Match between system and real world.** Use language familiar to the user and follow conventions.
- **User control and freedom.** Provide emergency exits, undo, and redo.
- **Consistency and standards.** Things that appear the same should behave the same.
- **Error prevention.** Don't just let users escape from errors: help users avoid them.
- **Recognition rather than recall.** Options should be visible. Instructions should be easy to find. Don't make the user have to remember information.

- **Flexibility and efficiency of use.** Support shortcuts for expert users.
- **Aesthetic and minimalist design.** Avoid providing irrelevant information.
- **Help users recognize and recover from errors.** Error messages should be helpful.
- **Help and documentation.** Ideally, the system should be usable without documentation, but help should still be available and task oriented.

Several of these heuristics focus on error prevention and recovery, which remains the most neglected area of system design. Every time an application displays “Unknown Error” or an unhelpful error code number with no instruction, you know someone should have done a little heuristic evaluation.

The advantage of heuristic analysis is that it’s a quick and cheap way to identify potential issues. You don’t need to recruit users. You can just get two colleagues to sit down and do it in an hour. It’s a good way to deal with obvious issues in early prototypes before bringing in users.

The downside is that it’s very simplistic and might not catch all the issues that would come up in context. Less experienced evaluators may not see all the problems. Different evaluators will find different issues. Some expert evaluators may find issues that don’t present a problem to actual users. It focuses on the system itself rather than the relationship between the user and the system. The advantages were greater back in the day when fewer people were familiar with technology and recruiting people was much more difficult.

Heuristic inspection is not a substitute for usability testing, but it can be a good sanity check. The number of sites and applications that launch with major usability flaws is evidence of its continued usefulness.

Every internal design review is an opportunity for a mini heuristic evaluation. If you’re about to embark on a major redesign, it makes a tremendous amount of sense to identify key issues through usability testing.

USABILITY TESTING

Usability is the absolute minimum standard for anything designed to be used by humans. If a design thwarts the intended users who attempt the intended use, that design is a failure from the standpoint of user-centered design.

Despite the vast amount of knowledge we possess about usability, unusable objects are all around us: the completely unintelligible “universal” remote, the spiteful web form that discards every piece of entered data, the deceptive door that only appears to open outward until you walk into it. Each interaction brings a little more sadness into the world.

This amounts to basic manners. As a designer or a developer, you either care about usability, or you’re a jerk. And the easier it is for your customers to switch to an alternative, the more important usability is to the success of your product or service.

The more complex a system is to design and build, the more work is required to ensure that it’s usable—but that work is always worth doing. (This is also an argument for keeping feature sets simple.) If the desire to rush to market trumps usability, you might see your first mover advantage dissolve as soon as a competitor copies all your functionality and leapfrogs your ease of use. Barriers to usability are barriers to sales. On the other hand, a more usable product will get better word of mouth and lower support costs.

Don’t make me drink

Usability testing can save you from introducing unnecessary misery into the world—or having it associated with your brand.

According to Nielsen (<http://bkaprt.com/jer/18/>), usability is a quality attribute defined by five components:

- **Learnability:** how easy is it for users to accomplish basic tasks the first time they come across the design?
- **Efficiency:** once users have learned the design, how quickly can they perform tasks?
- **Memorability:** when users return to the design after a period of not using it, how easily can they reestablish proficiency?

- **Errors:** how many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **Satisfaction:** how pleasant is it to use the design?

Every aspect of a digital design that thwarts an intention it purported to fulfill might as well be a sharp ragged edge, a piece of broken glass, or a splinter. Would you offer a broken glass to a guest? All of your users are your guests. It is your job to make sure they don't cut themselves on the stuff you make.

Cheap tests first, expensive tests later

Usability testing can be more or less expensive. Don't use expensive testing—costly in money or time—to find out things you can find out with cheap tests. Find out everything you can with paper prototypes or quick sketches before you move to a prototype. Find out everything you can in the comfort of your own office before you move into the field. Test with a general audience before you test with specific audiences who take more time and effort to find.

In fact, start even earlier than that. Test a competitor's product before you even put pencil to paper. Then you should test some sketches. And then test at every stage as much as you can allow.

How often you test depends on how frequently significant design decisions are being made. You can test every two weeks in conjunction with development sprints, if that's how you roll. I'm not going to tell you when to do usability testing in your design and development cycle, but I will tell you when not to do it: right before you are about to launch. A good rule of thumb:

- The second most expensive kind of usability testing is the kind that you put off until very late in the process, when you risk finding out that there are huge usability problems that will be very difficult to fix.
- The most expensive of all is the kind your customers do for you after launch by way of customer service.

Try to avoid these situations.

Preparing for usability testing

The most difficult part of usability testing is determining how it fits into your process as a decision-making input. There is no one way, but there are a few essential principles:

- Build usability practices into your workflow from the start, the same way you account for internal reviews of work in progress.
- Create a testing process and checklist that includes all of the information and equipment you need.
- Always be recruiting. Maintain a database, even just a Google doc, of potential participants and their contact information.
- Decide who's in charge of this stuff. A point person makes everything operate more smoothly.

What you will need

- A plan.
- A prototype or sketch.
- Four to eight participants of each target user type based on personas (ideally) or marketing segments.
- A facilitator.
- An observer.
- One or more methods of documentation.
- A timer or watch.

Usability test plans

A usability test revolves around tasks. Ideally you have personas that you have been using throughout the design process and you can use them and their core tasks as a jumping off point for usability. The features you want to test should likewise have associated scenarios and tasks. For each feature, write a very brief story that offers background on how the user arrived there and what they are trying to accomplish.

For example, if you wanted to test the new ticket purchase process design, you might use the following scenario: a science-minded school friend is in town for the weekend and wants to

visit the Fantastic Science Center. You did a web search and landed on this page. What would you do to find and purchase tickets for the weekend your friend is visiting?

Not all tasks are created equal. When you go into a usability test, you should have a clear idea which failures are a bigger deal.

The ur-example of a deal-breaker task is using an online shopping cart. If a user can do anything at all on your site, they need to be able to successfully give you money. For websites with the goal of marketing a physical location, such as the Fantastic Science Center, finding the address and operating hours is generally the most essential task.

Once you have your tasks, make a checklist test plan that you use to run and document each round of testing. The test plan lays out what you're going to do, how you're going to conduct the test, which metrics you'll capture, the number of participants you're going to test, and which scenarios you'll use. Reducing the time you spend on planning will save your precious brain cells for analyzing and reacting to the results.

Helpfully, the US Department of Health and Human Services maintains usability.gov, which is a resource for making useful and usable websites. (Even you libertarians out there should appreciate this.) All the materials are in the public domain, so have at it, no matter where you are. This checklist can be used for both planning the test and writing your report. Modify it to fit your needs:

- Objectives.
- Subject of the test: what are you testing and what state is it in?
- Methodology.
- Participants and recruiting.
- Procedure.
- Tasks.
- Usability goals.
- Completion rate (the percentage of tasks the user was able to complete).
- Error-free rate (the percentage of tasks completed without errors or hiccups).

Recruiting

Participants are the fuel that makes usability tests go, and they are single use, so you need a good supply of them. You can bring people back to see if your improvements have really improved things for them, but they might be tainted—influenced by their previous experience with your design—and won't necessarily give you an accurate depiction of how someone is going to approach this system for the first time.

Recruiting for usability testing is substantively the same as for ethnographic interviews. It is essential that the people you select for the test share some key goals with your target users. Otherwise, they won't be able to immerse themselves sufficiently in the scenarios you give them.

Facilitating

Once you have your prototype, your plan, and your recruits, it's time to run the test. This is the fun part. As long as you have an open mind, nothing is more interesting and valuable than seeing your precious theories of how people will interact with a design crash against the rocky shoals of reality.

The first step is to choose a facilitator. Facilitating a usability test isn't hard, but it does take the right temperament. Since a usability test is a guided journey of the imagination (imagine you're using a fully realized application to do something personally meaningful), a bad facilitator will tank the whole test, no matter how on-target the participants are. It's up to the facilitator to present the scenarios and tasks that are being tested. Unclear tasks can't be tested. A good facilitator is personable and patient. A good facilitator can warm the participant up like Conan O'Brien and then dispassionately observe as the participant flails about with no idea what to do next, probably also just like Conan O'Brien.

This requires a balance of sociability and self-awareness. Making small talk is fine and helpful up front. Once the test starts, you'll need some self-control so you don't intervene. It's one of those things that gets easier with practice.

The greatest danger inherent in the actual designer or developer of the system facilitating the test is that they will not be able to sit idly by while their creation fails to perform or elicits derision from the participant. Small hints and leading questions will begin to creep into the program. Follow the general guidelines for user interviews in Chapter 3. In particular, avoid leading the user and helping them when they get lost. Embrace the uncomfortable silences.

Frequently, users who encounter a usability issue are quick to blame themselves rather than the system. This is how people have been conditioned by frequent exposure to less than usable products. If this happens, ask the participant to describe how they expected the system to work and why they had that expectation.

Be very honest with your team about who should be facilitating. If you don't have a good facilitator on your team, you can always contract with someone or try to get a volunteer from another department. And again, practice.

Observing and documenting

Even if you are set up to record, it's very important to have a second person observing the tests and taking notes. This allows the facilitator to be responsive and the observer to be as observant as possible, creating the smallest number of distractions.

Audio recording is fantastic. I think designers should be recording everything all the time, just like Richard Nixon (except with informed consent). People have crappy memories and even if you have a notetaker, it's useful to have a backup in case you missed anything. The files are easy to store and share. You can listen to them on the train home.

Video recording, on the contrary, can be less valuable. In my experience, the people who are keen on having as much video as possible have far less experience with video than the people who are a bit more cautious and wary about it. As any episode of *Cops* will show you, the value of video is frequently a matter of good editing, and good editing takes vast amounts of time. Video also takes vast amounts of storage space.

Make sure that if you promise anyone video, it's the right video at the right time. Screen capture with an audio track is very useful and relatively easy. If you add an additional camera on the participant's face and body, this can be helpful, but you have to ask yourself whether the additional information is worth the additional overhead. Consider having the notetaker snap a few photos; accurately time-stamped photos combined with audio recording might be sufficient to capture information like how the user was holding their phone when they were experiencing that difficulty.

If you are testing a tricky device, such as a smartphone or ereader, you might have to make a tricky little sled for it. A sled is simply a framework that holds the device you're testing along with necessary peripherals and cameras.

Usability testing applications on mobile devices is a free-for-all right now, so it's a terrific place for innovation. There is a great need for evaluating the usability of mobile interfaces, particularly in their context of use (walking around outside, rather than seated in your conference room), but there is no one clear, comfortable way to both observe the user over the shoulder and capture the activity on the user's screen.

MailChimp's solution to this conundrum, which they detail on their blog (<http://bkaprt.com/jer/19/>), is to have a user set up a video chat on a MacBook and then hug it from the back so the iSight camera catches video of their interaction on the phone and the audio through the microphone (**FIG 7.1**).

The observer will need to note the following:

- The participant's reaction to the task.
- How long it takes to complete the task.
- If the user failed to complete the task.
- Any terminology that presented a stumbling block.

The note-taker should work from a copy of the test script with space to insert annotations. The most important items to note are areas where the user exhibited nonverbal frustration, verbatim quotes, and any features that were particularly successful or unsuccessful. If the notetaker can manage an approximate time code, that will make analysis easy.



FIG 7.1: A little awkward, but effective—remote test mobile usability by having participants hold their devices in front of a laptop webcam.

Eye-tracking

Eye-tracking measures where someone is looking, how long, and in what direction. Observation and analytics can tell you where a user taps with a finger or hovers with a mouse, but where that user directs their gaze is a mystery only a non-trivial amount of cash can reveal. Whether paying top dollar for this data is worthwhile remains a deeper mystery still.

As the sci-fi future of controlling interfaces directly with our eyes encroaches, eye-tracking may become more commonplace. Right now, systems cost upward of \$5,000 and hiring a consultant with the necessary skills and equipment is likely to cost even more. The only case where this could be worthwhile would be testing with populations who have trouble articulating what is drawing their attention on the page.

Analyzing and presenting test data

The aim of usability testing is to identify specific significant problems in order to fix them. The outcome is essentially a ranked punch list with a rationale. Keep your source materials (e.g., session recordings or notes) organized so you can easily refer to them or provide more detail to anyone who is interested, or skeptical. Focus your written documentation on the issues, their severity, and recommended fixes.

How bad and how often?

Rate each problem users encountered during the test on each of the following two scales: severity and frequency. You must look at both to ensure you're prioritizing real obstacles, rather than chasing a fluke.

Severity:

- High: an issue that prevents the user from completing the task at all.
- Moderate: an issue that causes some difficulty, but the user can ultimately complete the task.
- Low: a minor problem that doesn't affect the user's ability to complete the task.

Frequency:

- High: 30% or more participants experience the problem.
- Moderate: 11-29% of participants experience the problem.
- Low: 10% or fewer of participants experience the problem.

It'll end in tiers

Once you've conducted the tests, and rated the issues, sort them into three tiers. Each represents the combination of severity and frequency. Also take into account how core the related task is to your application (for example, confusion over changing a profile picture may be less core than obstacles to entering payment information). Rename the tiers if it will be more fun for you.

- Tier 1: high-impact problems that often prevent a user from completing a task. If you don't resolve these you have a high risk to the success of your product.
- Tier 2: either moderate problems with low frequency or low problems with moderate frequency.
- Tier 3: low-impact problems that affect a small number of users. There is a low risk to not resolving these.

Now, get to work

As soon as you have usability test results, you can take action. Start with Tier 1 issues. Identify potential fixes with the lowest level of technical effort. Implement these fixes, then test again.

Need to convince someone before you can make any changes? Watching actual users struggle with the system is more convincing than reading a report, and offers all the agitation of a suspense film. (Why doesn't he see the button? It's right there!) So if you're starting to see frequent repeated usability issues, try to schedule sessions when it's convenient for important people to observe. Verbatim quotes and video clips of failure presented in conjunction with a report can also be effective. Just make sure to connect the tasks you tested and the problems you found to high-priority business goals.

Put the competition to the test

In addition to conducting usability testing on your own site or application, you can also conduct it on those of your competitors (presuming that you have access and that competitive evaluation isn't prohibited by the terms and conditions).

To conduct a benchmark usability study, identify a small common set of tasks to test across your website and those of your competitors. Use a common scoring system across all sites and tasks to identify which of the competitive group was most usable overall, and most usable per key task. Following a redesign, you can run the study again to verify improvement relative to competitors.

8 ANALYSIS AND MODELS

QUALITATIVE ANALYSIS can seem like a mysterious process. A group of people enters a conference room with interview notes and stickies and emerges with recommendations for creating or changing the functionality or interface of a system.

For us humans, this is actually the most natural thing possible. We're social creatures and pattern-recognition machines. Getting people together to analyze qualitative data is like throwing a party for our brains. Once you start, you'll get hooked.

And this is where design truly starts. You take all this messy data and begin to organize it, and group it, and label the groupings. Through conversation, clarity will start to emerge. Clarity in the data analysis will translate to clarity of concept, content relationships, navigation, and interactive behaviors. And best of all, if you work collaboratively that clarity and deep understanding will be shared.

Any models or maps you create will simply serve as documentation of what everyone already knows.

The process is actually pretty simple:

- Closely review the notes.
- Look for interesting behaviors, emotions, actions, and verbatim quotes.
- Write what you observed on a sticky note (coded to the source, the actual user, so you can trace it back).
- Group the notes on the whiteboard.
- Watch the patterns emerge.
- Rearrange the notes as you continue to assess the patterns.

You will end up with a visual representation of your research that you can apply toward your design work in a few different ways.

AFFINITY DIAGRAM

Your first pass—and if you don’t have a lot of time, your only pass—should be to extract general design mandates from your interviews. Then you can prioritize those mandates based on business goals. This also requires the least diagramming skill.

This graphic shows how an affinity diagram starts to take shape (**FIG 8.1**).

The participants in the analysis build clusters of related observations. Once a cluster starts to take shape, you can extract the insights and the overarching mandate or recommendation.

The act of creating an affinity diagram will allow you to distill the patterns and useful insights from the many individual quotes and data points you gather through interviews and observation. If you work collaboratively with your team on identifying and documenting these patterns, the value of that research will be multiplied rather than lost in translation.

The diagram itself can be a handy visual reference or a tool for communicating with a larger team about your research and the principles you’ve uncovered.

Write down observations

As you review the notes or recordings, write down anything interesting you observed on a sticky note. An observation is a direct quote or objective description of what the user did or said. Pull out all of the particularly interesting quotes. Flag those that

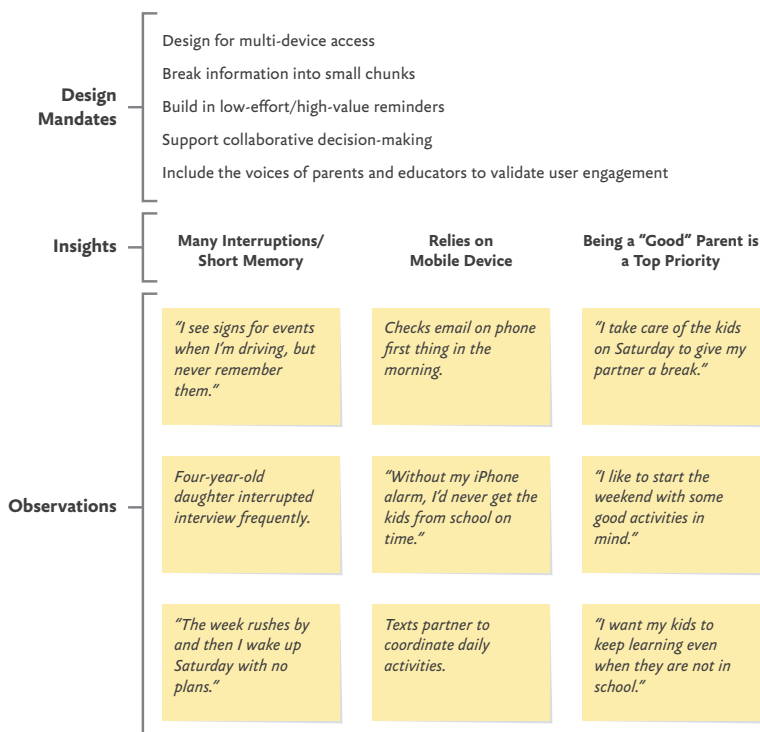


FIG 8.1: An affinity diagram helps turn research into evidence-based recommendations.

seem to represent the particular needs of each user type. These will be useful for your personas. Also note the vocabulary that participants used to describe their goals and the elements of the tasks or systems you are working with, particularly if they differ from those used in your organization.

Note all stated or implicit user goals. Implicit goals can be found in quotes or actions that indicate a particular desire. For example, starting the weekend with some good activities in mind. In particular, flag those you didn't anticipate, but that your product might readily meet.

Example observations:

- “I reset my password every time I visit the website because I never remember it.”
- Participant’s four-year-old daughter interrupted three times during the thirty-minute interview.
- “I take care of the kids for the whole day every Saturday to give my partner some alone time.”
- Participant reports checking email on her phone every morning before getting out of bed.

Example goals:

- “I like to start the weekend with some good activities in mind.”
- “I want my kids to keep learning even when they’re not in school.”

Create groups

Start grouping the notes on a whiteboard. You should start seeing patterns pretty quickly. Name the pattern and identify the user need that emerges from it, such as “Needs reminders for organized activities.”

- “I see signs around town for events that look interesting, but I never remember before it’s too late.”
- “The week rushes by and then I wake up on Saturday morning with no good ideas.”

Identify next steps

The final step of the analysis is to identify the actionable design mandate or principle.

- When announcing a new exhibit, offer the ability to sign up for a reminder.
- Allow members the option of digital access to all services (e.g., online member newsletter instead of print, email guest passes to their friends).

- Improve promotion of and navigation to activities and lesson plans.
- Create a stronger voice for the museum based on the quality of its scholarship and expert status (e.g., offer the museum perspective alongside the feed of technology news).

In addition to serving as a useful input to other tools, such as personas, and a nifty visual representation of your research and analysis, the affinity diagram helps you make decisions. You can decide which features and functionality to prioritize based on the patterns of needs you recognize. You can decide to do additional research based on the questions it raises. And it can serve as a common reference point for your team in discussing those decisions.

CREATING PERSONAS

A persona is a fictional user archetype—a composite model you create from the data you’ve gathered by talking to real people—that represents a group of needs and behaviors.

In the usual course of product development, every interest other than the user has a say: business leaders will provide business goals and requirements, marketers will speak to marketing targets, engineers will speak to the technical constraints and level of effort required to develop particular features. Personas allow designers to advocate for users’ needs.

Good personas might be the most useful and durable outcome of user research. Design, business strategy, marketing, and engineering can each benefit in their own way from a single set of personas. If you’re following an agile process, you can write your user stories based on a particular persona.

Personas exist to represent the user in user-centered design, because there is no generic user. They embody the behavior patterns and priorities of real people and act as a reference point for decision-making. A persona is a tool for maintaining an empathetic mind-set rather than designing something a certain way just because someone on the team likes it.

Design targets are *not* marketing targets. Stamp that on every persona document you create. Market segments do not



Diane McAvoy

Local parent

"I have so much going on between my job and taking care of the kid, I can't remember a damn thing without my iPhone."

Goals

Find a few places for reliable family outings that don't require a lot of planning.

Entertain her family members when they are out of town.

Keep learning throughout her life.

Stats

33 years old

Married with a 5-year-old child

Lives in Chicago, IL

Account manager for a large health care company

Behaviors and habits

Works from home two days a week.

Does most of her shopping online.

Weekend routine is one day for "fun" and one day for errands and chores.

Technology and skills

Diane is a multi-device user. Has a work-assigned Windows laptop that she carries between home and the office, as well as an older MacBook and an iPhone for personal use. The family shares an iPad 2. Because she is pressed for time, she has strong habits, no patience, and little motivation to explore.

Relationships

Lives with husband and son. Has large extended family. Sisters often visit and bring their children.

FIG 8.2: A persona document should feel like the profile of a real individual while capturing the characteristics and behaviors most relevant to your design decisions

translate into archetypes. And the user type with the highest value to your business may not be the one with the most value to the design process. Maybe existing Fantastic Science Center members with post-graduate science degrees generate the most revenue through gift shop sales and special event attendance, but they know too much. Their existing level of knowledge and

engagement is likely to be very high. Design for the users with less expertise and you can meet the needs of those with more.

How many personas do you need? As few as possible, while representing all relevant behavior patterns. You can often reduce the number by creating relationships among them and assigning multiple roles to one persona.

For the Fantastic Science Center website you might consider an out-of-town visitor, a local parent, a teacher, and a staff member. Could the out-of-town visitor also be a teacher? Try it.

All fictional user profiles are not created equal. A truly useful persona is the result of collaborative effort following firsthand user research. Otherwise you're just making up a character that might be as relevant to the design process as any given imaginary friend. If you have interviewed some real people and worked collaboratively with your team to identify some patterns, you should be able to create some useful personas.

This doesn't mean that the documentation needs to be lengthy or involved. You can create a vivid individual from a few key details (**FIG 8.2**). It's better for the team to keep a handful of attributes in mind than to have to refer to a lengthy CV with every design decision or switch in situations and scenarios throughout the product development process. Once you've created a set of personas, you can reuse them over time, even for different products.

Capturing the character

A persona description should have just enough detail to capture those aspects of a target user most useful and inspiring for the designers to keep in mind. You can start with the conventional "place mat" layout and go from there. Make a movie or a poster or an animated GIF, as long as the essential information about context of use and patterns of behavior are in a form you can integrate into your workspace and refer to repeatedly. Consider your personas as a set. You don't have to capture all concerns in a single one. And the personas can have relationships to each other, just like people do in real life.

Photo

Use a real photo of a real, relatable person, not a stock photo. Creative Commons-licensed photos from Flickr or other photo-sharing websites are very useful for this. Don't use a photo of anyone who is known to the design team, or that has any distracting elements.

Name

Give the persona a name that fits the demographic information and that everyone on the team can remember and pronounce. LinkedIn is a good source of inspiration for names. The *Game of Thrones* Name Generator is not.

Demographics

Select the set of demographics that fit the role and behavior pattern. Be realistic without stereotyping. The persona must be plausible and representative (no teenage marketing VPs who model and fight crime on the side). Ideally, the gender, age, ethnicity, education, job, marital status, and location are derived from actual users you've interviewed. However, recruiting can be unpredictable and the lack of a complete match needn't stop you from creating a suitable persona. Increase your knowledge by finding people whose online profiles match the criteria you do have. Need more information for the Fantastic Science Center's high school science teacher persona? Try searching for local news stories about teachers to get useful background details, quotes, and even pictures of actual classroom environments. Just remember to create a composite from multiple people and avoid the crime section.

Role

For the most accurate personas, select a role that closely matches that of one of the participants you interviewed and is also one of the identified target user types, such as the aforementioned teacher, parent, or tourist.

Quote

Use an actual quote from a user interview that embodies a core belief or attitude that is essential to keep in mind to meet their needs. The most useful quotes are those that could be answers to questions that reveal both behaviors and mind-set, such as “What’s most important to you when you’re making plans for the weekend?”

Goals

Goals and behavior patterns are the core of a persona. Identify three to four key goals for that persona based on what you heard in your user research. These will be the goals that the product or website will serve or relate to.

The local parent’s goals might include finding weekend activities, keeping kids learning when they aren’t in school, and keeping up to date with advances in science.

Behaviors and habits

Note the specific and habitual behaviors that constitute the pattern that defines the persona. Parenting. Teaching. Researching activities online. Switching among multiple devices. Making decisions with another person. Making plans at the last minute. Real life is imperfect and complicated. Capture this. Maybe you spoke with a dad who is torn between wanting to relax on the sofa and wanting to get out and find new things to do on Saturdays. Does he have a habit of checking Facebook over coffee to see what his friends are up to with their kids? This detail could open up a whole conversation about social media.

Skills

Skills include the level of technical expertise and experience this persona has. Be realistic about the level of skill you’re targeting with your design. How much experience do you expect them to have based on their profession and educational background? This is a crucial area not to make assumptions. One of your

target personas might be a very successful physician who's a relative technology novice because she is in surgery all day and gets very little time to learn expert features or acquaint herself with the latest applications. She could be a very good proxy for everyone who has a lower skill level, but absolutely doesn't want to be made to feel stupid.

Environment

Note all aspects of the environment that will affect this persona's interaction with the product. Include the relevant hardware, software, and internet access. Do they go online at work or home? Surrounded by people or in private? Is their time online continuous or does it happen in specific chunks? The teacher might have half an hour during the day using the classroom computer. The parent might have an office job with a browser window always open.

Relationships

Note any relationships this persona has that will affect their interaction with your product. Is there a partner who influences decisions? Will children or coworkers be present or otherwise influence the use of your design? Relationships should be based on real-world information, either from your study or demographic information available through surveys or other research. Information from the census or from the Pew Center's Internet & American Life Project is often useful in this regard. You can create some interesting multipurpose scenarios with personas that are related to each other.

Scenarios

If personas are your characters, scenarios are your plots. Each scenario is the story of how a persona interacts with your system to meet one (or more) of their goals. Running a persona through a scenario helps you think through your design from the user's point of view. You can use scenarios at several points in your process:

- To flesh out requirements.
- To explore potential solutions.
- To validate proposed solutions.
- As the basics for a usability test script.

As long as a scenario hews closely to actual data gathered in user research, you have a lot of flexibility in the actual format. You can start from a specific answer to an interview question, such as “I wake up at 8 a.m. on Saturday and read a local news website while the kids run around the house making noise.” While personas should remain reasonably constant in their characteristics and priorities, scenarios can evolve and deepen over time and change as your understanding of the system changes. Your personas are the Simpsons, your scenarios are the couch gag.

You can write a scenario as a short text narrative, a step-by-step flow, or even a set of comic panels—whatever is easy for your team to create and use to keep each persona represented in design and technology decision-making. If you find anyone on your team resenting the effort necessary to work with personas and scenarios, you’re doing it wrong. Simply drawing out scenarios on a whiteboard can work.

Scenarios are not themselves use cases or user stories, although they can influence each. A use case is a list of interactions between a system and a user, and is typically a way to capture functional requirements. Scenarios are from the perspective of the individual human user represented by the persona, not the perspective of the system or business process.

For example: Diane and her family just moved into the area. Her job as an account manager is very demanding during the week, but weekends are family time.

- Goal: she wants to find local activities that will be entertaining for her son and relaxing for her and her husband.
- Motivation: when she was driving home from the office on Friday evening, she saw banners for the Fantastic Science Center’s new exhibit on super storms. Sitting in her driveway, Diane Googles the science center on her iPhone.

- Task: she needs to determine whether visiting the Fantastic Science Center will meet her needs.

Stay on target

Developed with care, personas can be the most useful and lasting output of user research. They are the users in “user-centered” and an incredibly efficient and even fun distillation of your ethnographic work.

You will know your personas are working when they become the first people you want to see any new idea. Rather than asking “Does this work for me?” or “Does this make my boss happy?” you can ask “Does this address Dana’s concerns about privacy? Would Neven understand what to do? Would Anna find time for this in her busy schedule?”

MENTAL MODELS

All of us carry around a library of mental models in our heads. Without them, every new experience would be a complete surprise and we would have to painstakingly figure out each situation. Using a term from cognitive science, a mental model is an internal representation of something in the real world—the sum total of what a person believes about the situation or object at hand, how it functions, and how it’s organized. This representation is based on a combination of hearsay and accumulated experience. People have mental models of how stoves work, how dogs behave, and what happens at a rock show. (Band plays, band says “Thank you and goodnight,” band waits offstage while audience applauds, band returns to play popular favorites.)

Mental models can be real time-savers for deciding how to behave—to the extent they are accurate. Sometimes there’s no encore. Sometimes you get burned. The first time I rented a Prius, I spent ten minutes sitting in the parking lot because my mental model of “passenger car” didn’t include the hybrid’s innovative ignition system.

In design, “intuitive” is a synonym for “matches the user’s mental model.” The closer an interface fits that image, the easier it will be to learn, use, and navigate. This is a concept with a lot of practical value.

You can use data from user research to diagram the (composite) mental model of each particular user type, and use that diagram to guide the design. This is, strictly speaking, a mental model model. However, particularly following consultant and author Indi Young’s work in this area (*Mental Models: Aligning Design Strategy with Human Behavior*; <http://bkaprt.com/jer/20/>), people in the business tend to use the one term as a catchall. So there are two types of mental models: the type each of us holds in our head to help us deal with the world, and the type designers sketch out to better create that world. For maximum success, be aware of the former and get to work on the latter.

To design an application or a website, think about the mental models of the activities you want to support.

If you’re designing a mobile application to help commuters find the best way to get to work on public transit, it’s useful to look at the mental model of “getting to work.” If you’re re-designing buses, you’d want to look at the mental model of “bus.”

As a designer, you have your own mental model of what you’re designing, and you have a mental model of the users themselves, your set of assumptions about what they know and how they will interact with your design. It’s easy to overestimate how well your view matches their reality.

Documenting the user’s mental model allows you to not just get inside their head but get the inside of their head out of *your* head for everyone else to see. You can use a mental model diagram to collaborate with your team, prioritize features, better organize information, and identify areas where users have needs that aren’t being served.

A mental model diagram can help resolve issues that arise if different user types have widely divergent mental models, or if the actual design of the system is significantly different from the one that was originally proposed.



FIG 8.3: Mental model diagrams illustrate your users' thought processes in detail. This information helps you identify relevant and necessary content and functionality.

How to create a mental model

- Do user research.
- Make an affinity diagram (see **FIG 8.1**).
- Place affinity clusters in stacks representing the user's cognitive space to create the model. These groups will include actions, beliefs, and feelings.
- Group the stacks around the tasks or goals they relate to (**FIG 8.3**).

Building on the towers

Conceptual modeling/site mapping

For a new website or service design, you can translate the mental model to a conceptual map that relates content and functionality according to the target user's view (**FIG 8.4**). The model will

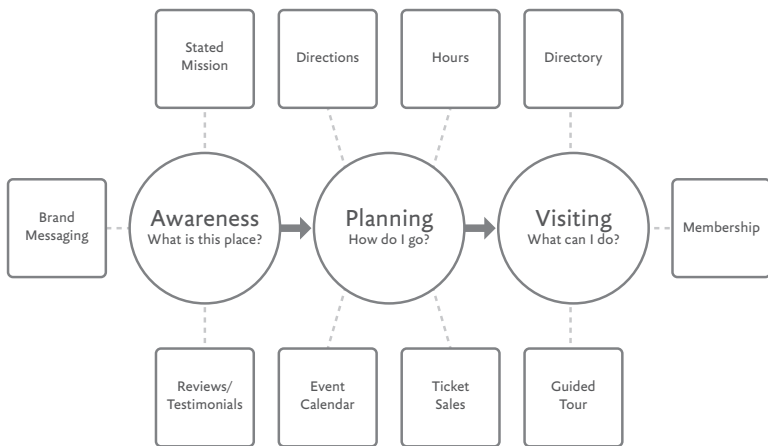


FIG 8.4: A conceptual model bridges the gap between mental model and system map.

form the application framework or the basis of the information architecture as you proceed into more detailed design.

Gap analysis

If you have an existing product or service, you can use a mental model to identify gaps, or mismatches between what you offer and what the user needs or expects. This will help you design features that fill those gaps.

For example, when designing the app for urban commuters, you might find that their mental model of getting to and from work includes changing plans suddenly based on contingencies like bad weather, local events, and transit system delays. If your application only offers route suggestions based on optimal rather than actual conditions, you may recommend a route that's influenced by rain or event traffic.

Reviewing the mental model suggests an opportunity to offer additional information and support that allows users to anticipate and evade problems, leading to a more successful commute.

On the other hand, you might find out that features you had considered offering don't fit in the users' mental model at all. Perhaps you were planning to display after-work entertainment suggestions along the route, but find that this is incompatible with the user's desire to quickly locate the most efficient route.

TASK ANALYSIS/WORKFLOW

Task analysis is simply breaking one particular task into the discrete steps required to accomplish it.

Contextual inquiry is the best prelude to task analysis, but you can also use data from user interviews as long as you've collected sufficient detailed information about how the participants work toward their goals step by step. Any given task has both cognitive and physical components that may be more or less important given the domain and the goal of the analysis. For example, making a complex purchase decision such as buying a new car typically has a series of cognitive activities surrounding identifying the need or desire for a car and conducting research online, as well as the physical component of actually going to the dealership and test-driving the car itself.

From simple to complex and back again

If you're designing a site or application that addresses one or many complex tasks in helping users meet their goals, you can use task analysis. This method can be particularly helpful to map what people do in the real world to functionality you can offer on a site or in an application.

For example, "purchasing tickets" sounds simple, but the online process is often a complex and stressful multistep flow with a lot of decision points.

Task analysis can be helpful when designing any system intended to replace a real-world task with an online interface or changing the nature of the physical interaction as with the shift to mobile devices from desktop-based applications.

Break it down

Using the information from user interviews or contextual inquiry, identify each step the participants reported or you observed them taking to complete a given task. Note the initial state, the event prompting the user to begin the task, the information or tools the user needs at each step, and any steps at which the task is likely to be interrupted or resumed. Put all of these steps back together as a workflow.

1. Receive postcard advertising fall event calendar.
2. Go to website.
3. Locate event information on homepage.
4. Click on link to see all available upcoming events.
5. Identify event.
6. Verify ticket availability and price.
7. Enter number of tickets desired.
8. Enter preferred delivery method.
9. Review information and total cost.
10. Select “Buy Now.”
11. Enter credit card information.
12. View confirmation page and instructions for receiving tickets.

Make it flow

In addition to informing the feature set and flow of an application, task analysis will help you identify where specific content might support a user along their task path. Users might take very different paths than you anticipated, or be influenced by particular factors in the environment that you’ll need to consider in your designs (**FIG 8.5**).

MODEL MANAGEMENT

This is just a sample of a few common ways to work with the research data and incorporate your findings into design decisions. A little exploration of the UX corners of the web will yield many more. Communicating the meaning and value of research is a

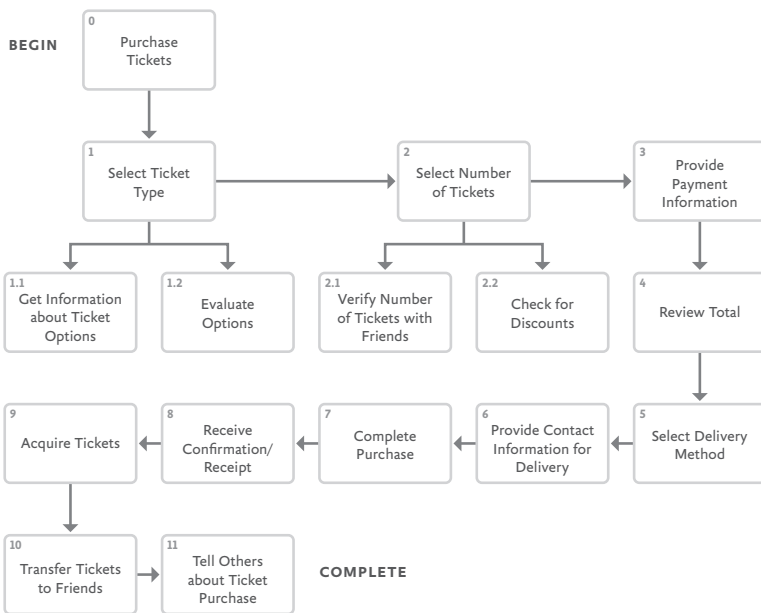


FIG 8.5: This task path for ticket purchase can help identify areas where the user needs specific content and functionality to meet her goal.

design activity itself. And the act of working together to synthesize individual observations will ensure that your team has a better shared understanding than a report could ever deliver.

You may also benefit from the fact that a clear, economical diagram is viscerally appealing. If you're promoting the value of research among skeptics in your organization, don't underestimate the accessibility and appeal of your analysis, visualized.

Q QUANTITATIVE RESEARCH

“If they will not understand that we are bringing them a mathematically infallible happiness, we shall be obliged to force them to be happy.”

—YEVGENY ZAMYATIN, *We*

Optimize.

That’s such a nice word. *Optimize*. Making something the very best it can be. Who doesn’t want to do that?

Now that you’ve done all of the hard work to design and develop your site, service, or application, you want to make sure that it’s the best. You want to *optimize* it. Optimizing a design is the chief aim of quantitative research and analysis. There are a lot of people out there who—in exchange for your money—very much want to help you do this. Google even offers a free tool called Optimizer (or they did—it’s called “Content Experiments” now).

When you set out to optimize, you will run up against one of the oldest and thorniest philosophical problems, that of the Good. What is good? How do you know it’s good? What does

it mean to be best? What are you optimizing for? How will you know when you have attained that optimal state and have reached the best of all possible worlds?

What if, in optimizing for one thing, you cause a lot of other bad things to happen?

Optimistic people talk as though there is some sort of obvious, objective standard, but once you start thinking about what is truly optimal, you will find that it's always subjective and you'll always have to make trade-offs. This is why designers will never be replaced by machines.

I was promised there would be no math

Qualitative research methods such as ethnography and usability testing can get you far. You'll begin to understand how people make decisions and may even get a peek at habits they might not fully admit to themselves. ("Huh, I guess TMZ *is* in my browser history a lot.") You can use these insights to design sensible, elegant systems primed for success.

And then you release your work into the world to see how right you were—and the fun begins. No matter how much research and smart design thinking you did up front, you won't get everything right out of the gate, and that's OK. Because here come the data...I mean, the visitors.

Once your website or application is live and users arrive in significant numbers, you'll start getting some quantitative data. (If no one shows up, please consult your marketing strategy.) Every interaction each of those individuals has with your website can be measured. All those people with the particular needs and quirks you lovingly studied fade away in the face of the faceless masses.

You were in the realm of informed assertions. Now you're in the big time. Actual data. You can see how well your design is performing out there in the world. How many people? How long do they stay? What do they see? Where do they exit? Do they return? How frequently? And do they click the button?

Once you can measure your success in numerical terms, you can start tweaking. The elements of your design become so

many knobs and levers you can manipulate to get to the level of success you'd envisioned, and beyond.

Preaching to the converted

The term for clicking the button—you know, *the* button—is conversion. A user is said to convert any time they take a measurable action you've defined as a goal of the site. For many websites there is an obvious primary *raison d'être*. On an application marketing website, conversion is clicking “sign up”; for e-commerce sites, “buy now”; on a hotel site, “make a reservation.” The success of the design can be measured by how many people click that button and do the thing that makes the money.

Some websites are completely optimized for simple conversion, and it's easy to tell. The design centers on one clear call to action, a vivid lozenge labeled with a verb. The usual picture is a little more complex, with several different types of conversion. Which converts do you want the most?

The Fantastic Science Center website might offer several potential actions with desirable outcomes: newsletter sign-up, advance ticket sales, shopping in an online store, becoming a member. Measuring the conversion rate for each of these will indicate the success of that particular path, but not how each type of conversion matters to the success of the organization itself. That is a business decision.

Ease into analytics

As soon as you have some data, you can start looking for trends and patterns. It might be a little overwhelming at first, but this sort of direct feedback gets addictive fast. Decision-makers love data, so being handy with the stats can be to your advantage in arguments. Sure, that involves math, but people who love math have built some tools to make it easy—and you're going to need to use them unless you're really keen on analyzing raw server logs yourself.

Analytics refers to the collection and analysis of data on the actual usage of a website or application to understand how people are using it. Based on data from analytics, you can identify areas

where your website is not as effective as you'd like it to be. For example, analytics could tell you that a thousand people visit the homepage every day, but only five people click on any other link on the page. Whether this is a problem depends on your goals for the site. You can make changes and then check these measurements, or metrics, again to see whether those changes have had an effect.

If you would like more people to sign up for the newsletter from the homepage, you could try making the link to the newsletter sign-up more visually prominent, then check the analytics again.

Over half of the world's websites have Google Analytics installed. It's an excellent place to start and will give you a variety of pleasing charts and graphs. After you sign up, you or a friendly developer will need to insert a snippet of JavaScript into the source code of the site you want to measure.

Some of the basic stats to look at include:

- Total number of visits.
- Total number of pageviews.
- Average number of pages per visit.
- Bounce rate (the percentage of people who leave after viewing one page).
- Average time on site.
- Percentage of new visitors.

In general, you want to see the total number of visits and unique users go up over time as your site becomes more and more popular. The other items may be more open to interpretation depending on your audience and business goals. More pageviews could mean increased engagement, or it might mean that you have a highly motivated audience who can't find the information they're looking for right away. Bounce rate sounds fun, but it's not. A lower bounce rate means you offer something interesting enough for people to stick around, but if it's too low, that might mean that not enough people are discovering your site through search or other means. (Getting a lot of traffic through search is good, but visitors will bounce if your site wasn't quite what they were looking for.)

Some of the most interesting data points aren't about what's happening on your website at all, but where your traffic is coming from. Google Analytics will let you know how many people are coming from search results, other websites, or direct navigation—that relatively rare occurrence when someone just types in your URL.

You can even use the In-Page Analytics feature to click around your site and see what percentage of users is taking various actions on each page. Are they seeing what you want them to see and clicking the things you want them to click? A brief tour may very quickly resolve the hoary argument about whether users scroll down the page.

Clearly, access to data is no longer the issue. The question is what to do with all of these numbers. If you don't already have quantitative goals, define some. You can start by looking up averages for your type of site or industry. Those are the numbers to beat.

If you aren't making your numbers, review the data and prioritize changes. Bounce rate is a good place to start. Before you get around to fine-tuning your message, you need people not to run screaming and stick around long enough to hear it. A high bounce rate is often an indicator of unmet expectations or uncertainty about where to go next.

You can use analytics to see which pages are the most frequent entry points. Then review those pages for clarity. If you know what you want visitors to do, make sure that is coming through in the design and content of the page. How do you make sure? Well, you can do some usability testing to get more insight into the potential problems. Or venture into the scientific wonderland of split testing.

Lickety split

There are many solutions to every problem. If your problem is getting as many people as possible to sign up for the newsletter, there might be some debate over the most effective change to make to the site. To solve your dilemma, you could try *split testing*.

A split test is a clinical trial for a particular page or set of elements on your website. Some visitors are served the control—the current design—and others get a variation. The variation that performs significantly better for a specific metric is the winner. Then you can either decide to switch all traffic to the winner, or put it up against another challenger, or set of challengers. This method is called split testing because you split your traffic programmatically and randomly serve different variations of a page or element on your site to your users. Maybe half gets the current homepage design with a sign-up button to the right of the call to action and half sees the exact same page with a sign-up button underneath the call to action. Ahead of you on the horizon, the clouds part and you can see all the way to Mount Optimal, that mythic realm of mathematic perfection.

Like an international criminal, split testing has a lot of aliases, including A/B testing, A/B/n testing, bucket testing, multivariate testing, and the incredibly Panglossian “whole site experience testing,” which promises to deliver the best of all possible website experiences. Each of these denotes a variation on the same basic idea.

This approach is of special interest to marketers, and actually derives from a technique first used in ancient times when special offers were sent on paper by direct mail. Send a flyer with one offer (“Free dessert with every pizza”) to a thousand houses, and a flyer with a different offer (“Free salad with every pizza”) to a thousand other houses, and see which one generates the better response.

There is both an art and a science, and quite a lot of statistics, to using split testing effectively and appropriately. As a designer, you may be asked to participate in the process or create variations. So even if you aren’t in charge of running them, it’s helpful to know the basics so you can deal with the effects.

The split testing process

At last, SCIENCE. Bust out that lab coat, because you will be running experiments.

The general outline of events for split testing is as follows:

- Select your goal.
- Create variations.
- Choose an appropriate start date.
- Run the experiment until you've reached a ninety-five percent confidence level.
- Review the data.
- Decide what to do next: stick with the control, switch to the variation, or run more tests.

You will need a specific, quantifiable goal. This is a track race, not rhythmic gymnastics. No room for interpretation. You have to know the current conversion rate (or other metric) and how much you want to change it.

For example, five percent of all site visitors click on “Buy tickets,” and we want to increase the conversion rate to seven percent.

Next, determine how much traffic you need. The average number of visitors your site gets is important for a couple of reasons. Small, incremental changes will have a more significant influence on a high-traffic site (one percent of one million versus one percent of one thousand) and tests will be faster and more reliable with a larger sample size. How large a sample do you need? It depends on the sensitivity and how large an improvement you want to see. If you are looking at making a small change, you will need a larger sample to make sure that you can be confident in the result. A small change in a small sample size is more likely to be merely the result of chance.

Approach this process with patience and confidence. The confidence in this case is statistical confidence, the probability that the winner is really the winner, rather than the outcome of chance events. The standard is ninety-five percent, meaning that there is a ninety-five percent chance that you can rely on the result. On a high-traffic site, you can get to this level within a couple of days. Lower traffic, and the test will take longer. To rule out the effect of other variables, such as day of the week, you would ideally let the test run over a two-week holiday-free period, allowing you to make day-over-day comparisons. If you have less patience, you open yourself up to more potential errors, both false positives and false negatives.

Perhaps the Fantastic Science Center received an unusual mention in the *New York Times*, and the website variation you're testing is particularly popular with *Times* readers but not with your typical population of site visitors. You need to let the test run long enough to counter these kinds of outliers.

It's also important to keep in mind that if you want to test variations of a particular page against the current state, someone has to design those variations. Even if they're small changes, it's still work.

If you're testing a landing page with one call to action—one button a user can click on—you can change any aspect of that page with regard to that one measurement, including:

- The wording, size, color, and placement of the button.
- Any piece of copy on the page and the total amount of copy.
- The price or specific offer.
- The image or type of image used (photo vs. illustration).

The winner is often counterintuitive, in a “Who would have thought that brown buttons would work the best with this audience?” sort of way. If there's agreement about which metric you're optimizing for and the math is sound, it's an opportunity to learn. After a number of tests you might see patterns begin to emerge that you can apply to your design work when solving for specific conversion goals. By the same token, remember that specific conversion goals are frequently just one aspect of the overall success of a website or a business.

Cautions and considerations

More precautions apply to split testing than to most other information-gathering approaches for a couple of reasons. Testing can be seductive because it seems to promise mathematical certitude and a set-it-and-forget-it level of automation, even though human decision-making is still necessary and the results remain open to interpretation within the larger context. The best response to a user interface question is not necessarily a test. Additionally, these are activities that affect the live site itself, so that presents a little risk.

Much like Dr. Frankenstein, you have set up your laboratory in the same place you receive visitors, so it's important to design and run your experiments so as not to disrupt what's already working well. A consistent online experience can help build trust and habit, and split testing by its very nature introduces inconsistency. Keep this in mind as you decide what and how to test.

This is an incremental process—tweaking and knob-twiddling—not a source of high-level strategic guidance. Since you're changing things up, it's best suited for aspects of your design where users might expect to see variation, and where there is a single clear user behavior you want to elicit in a given context. Search engine marketing landing pages? Fantastic. Those are generally intended for new users. Global navigation? Maybe not.

Focusing on small positive changes can lead to a culture of incrementalism and risk aversion. How will you ever make a great leap that might have short-term negative effects?

On his excellent eponymous blog (<http://bkaprt.com/jer/21/>), entrepreneur and adviser Andrew Chen invokes the concept of the local maximum, which you may be excited to remember from calculus. The gist is that you can only do so much optimizing within an existing design system. If you focus on optimizing what you have rather than also considering larger innovations, who knows what vastly greater heights you might miss (FIG 9.1).

This is why understanding context and all the qualitative factors matters. Yahoo! could do all the split testing in the world and it wouldn't turn into Google, and Google's mathematical acumen is not turning Google+ into Facebook. You always need to answer "Why?" before asking "How?" And you need good answers for both.

DESIGNERS AND DATA JUNKIES CAN BE FRIENDS

We admire Mr. Spock for his logical Vulcan acumen but find him relatable because of his human side.

There is a tension between strategic design thinking and data-driven decision-making. In the best case this is a healthy tension that respects informed intuition and ambitious thinking



FIG 9.1: Split testing can help you optimize your current design until you reach a local maximum, but it can't tell you how much you can accomplish with a different approach.

and knows how to measure success. When data rules the roost, this can leave designers feeling frustrated and undervalued.

Doug Bowman left Google to become the creative director at Twitter in part because of A/B testing run rampant, saying: “When a company is filled with engineers, it turns to engineering to solve problems. Reduce each decision to a simple logic problem. Remove all subjectivity and just look at the data” (<http://bkaprt.com/jer/22/>).

The best teams are Spock-like. They embrace data while encouraging and inspiring everyone working on a product to look beyond what can be measured to what might be valued.

You can optimize everything and still fail, because you have to optimize for the right things. That’s where reflection and qualitative approaches come in. By asking why, we can see the opportunity for something better beyond the bounds of the current best.

Even math has its limits.

CONCLUSION

If this book raised more questions than it answered, fantastic. I want you to be excited about asking questions. Questions are more powerful than answers. And asking often takes more courage than sticking with comfortable assumptions.

Every time you find a product or service that's a joy to use, meets a need maybe you didn't even know you had, and fits seamlessly into your life, you know that someone on the other end asked hard questions. Why should this exist? Who benefits? How can we make this better?

You can do the same for your users and your (or your client's) business. They deserve no less. Your effort and craft also deserve to be put to use in a way that has real meaning. So, always make sure you inquire into the real-world context surrounding your work. When blue-sky thinking meets reality, reality always wins. Make friends with reality. Cultivate a desire to be proven wrong as quickly as possible and for the lowest cost. If you work in a culture that prizes failing fast, there is no faster way to fail than by testing an idea that's still on the drawing board. Except maybe checking your assumptions before you even get down to drawing.

The right questions will keep you honest. They will help improve communication within your team. They will prevent you from wasting time and money. They will be your competitive advantage, guiding you toward workable solutions to real problems.

Form questions. Gather data. Analyze. One sequence, many approaches. I hope the techniques briefly outlined in this book help you get started (right now!) and encourage you to develop a research habit wherever and however you work. Research needn't be a burden or a luxury. It's simply a means to develop useful insights within your existing process.

I've listed some tools and websites for further exploration in the Resources section. Let curiosity be your guide. Your goals and available resources will help determine which are right for you.

How much research is just enough? You'll need to do just enough to find out.

RESOURCES

So, now that you're keen to get started here are some handy tools and guides, as well as places to turn for additional detail.

Websites and blogs

- **Helsinki Design Lab:** The government of Finland cares deeply about strategic design. This website is a trove of guides and templates, including an ethnography field guide (<http://bkaprt.com/jer/23/>).
- **Service Design Toolkit:** The Belgians, on the other hand, have focused on human-centered service design. Posters, guides, and workshop materials (<http://bkaprt.com/jer/24/>).
- **Service Design Tools:** Roberta Tassi's thesis work in the design department of the Politecnico di Milano resulted in this orderly collection of communication tools and methodologies (<http://bkaprt.com/jer/25/>).
- **Remote Research:** From the genuinely nice people who created Ethnio, a site to help you conduct remote research and testing (<http://bkaprt.com/jer/26/>).
- **Design Staff:** Google Ventures Design Studio publishes a fantastic blog full of smart and practical ideas for lightweight research, from recruiting to testing (<http://bkaprt.com/jer/27/>).
- **Userfocus:** This London-based usability consultancy publishes articles and ebooks. While many are free, some will cost a few pounds. Enjoy *Usability Test Moderation: The Comic* (<http://bkaprt.com/jer/28/>).
- **Nielsen Norman Group:** Jakob Nielsen's evidence-based usability pronouncements are legendary. They have probably started as many arguments as they've settled (<http://bkaprt.com/jer/29/>).

A few specifics

- **Getting People to Talk: An Ethnography & Interviewing Primer:** This video is handy because there are limits to how much you can glean about interviews from reading (<http://bkaprt.com/jer/30/>).

- **ICC/ESOMAR Code on Market and Social Research:** Professional and ethical rules defined by the International Chamber of Commerce and an international organization for market researchers. Works just as well as a code for design research (<http://bkaprt.com/jer/31/>).
- **Human-Centered Design Considered Harmful:** This critique of Human-Centered Design brings up several critical points about context (<http://bkaprt.com/jer/32/>).
- **An Ethnography Primer:** AIGA and Cheskin put together a downloadable primer on design ethnography with concise text and pretty photos. Very handy for certain internal audiences (<http://bkaprt.com/jer/33/>).

Further reading

- *Observing the User Experience* (2nd Edition), Goodman, Kuniavsky, Moed.
- *Designing and Conducting Ethnographic Research*, Margaret D. LeCompte and Jean Schensul.
- *Mental Models: Aligning Design Strategy with Human Behavior*, Indi Young.
- *Interviewing Users: How to Uncover Compelling Insights*, Steve Portigal.
- *Designing for the Digital Age: How to Create Human-Centered Products*, Kim Goodwin.

Research tools

Recruiting

- **Ethnio:** An online recruiting tool from the guys who wrote the book on remote user research. It's the best thing to happen to ethnographic research since the clipboard. After you sign up, the app guides you through creating a screener (the survey that qualifies potential participants), then generates a line of JavaScript that displays a screener to your website visitors. If you have a high-traffic website, this is recruiting magic, like dropping a net into a stream full of big fat salmon.

If your website doesn't have much traffic, or if you want to recruit people who have never visited the site, you can send a direct link to the screener in an email or on Twitter. The price varies with the amount of traffic and number of respondents. *(Web)*

Screeners

A recruiting screener is just a particular type of survey, so you can use Google Docs or SurveyMonkey or any other similar tool to make one if you have some in-house survey-writing expertise. *(Web)*

Audio, video, and screen recording

Having recordings of interviews and test sessions for reference makes everything easier. Getting those recordings can be a little fiddly, though. Recording is easier when you make phone calls over VOIP. And always, always remember to get permission before you start recording.

- **Audio Hijack Pro:** Record any audio on your Mac. Great for VOIP phone interviews. *(Mac OS X)*
- **Digital or analog (tape) recorder:** For landline or not-smart cell phone calls, you'll need a device that connects to the phone itself. There are a great many makes and models; look for one that suits your needs.
- **iTalk Recorder:** Dead simple. Press the big red button to record audio. Press it again to stop. *(iOS, Android)*
- **Ecamm Call Recorder for Skype:** Save audio and video as QuickTime and easily convert to MP3. *(Mac OS X)*
- **Snapz Pro:** This handy Mac application will record anything on your screen as a QuickTime movie or screenshot. *(Mac OS X)*
- **Camtasia:** Camtasia allows you to record and edit screencasts. The two versions have slightly different features depending on the platform. *(Mac OS X, Windows)*

Usability testing

- **Silverback:** Pretty nifty. Captures screen plus live video and audio. Eliminates setup for in-person usability testing. Exports everything to QuickTime. (*Mac OS X*)
- **Morae:** Morae is a Windows-only remote usability software package that offers a lot of features at a steep price. (*Windows*)

Remote research and testing

- **Skype:** Video calling, conference calling, screensharing. (*Web and many platforms*)
- **GoToMeeting:** Conference calling and screensharing. Promises screensharing from mobile devices in the near future. (*Web and many platforms*)

File storage and sharing

- **Dropbox:** All that data you generate, notes, photos, audio, and video start to take up a lot of room. Store them on Dropbox and your whole team will have access to them. (*Web and many platforms*)

Analytics and split testing

Split testing services cost between \$0 (Google) and \$300,000 (Accenture) per year depending on the vendor, level of service, and amount of traffic. If you already have Google Analytics set up, you can give Content Experiments (formerly Optimizer) a try. It's free and the documentation is clear and thorough. For not too much money, KISSmetrics is an analytics startup with reasonable, tiered pricing (starting at less than \$50 per month), a refreshingly people-oriented philosophy, and a user-friendly interface.

Diagramming

When you turn your research into models, you're going to need to make some diagrams. This is really an area to use what you're comfortable with. Some people like to diagram in PowerPoint. No judgment.

- **Mockingbird:** A web-based tool to create and share wireframes. Great for super-fast “paper” prototyping and usability tests. Very wireframe specific, though. Not a general-purpose tool. Price goes up with the number of active projects. *(Web)*
- **Creately:** This is a cloud-based diagramming tool that allows teams to collaborate on making charts and graphs. Price increases with the number of team members. *(Web)*
- **OmniGraffle:** Terrific for mapping. Fast to use once you get the hang of it. Not cheap. Not built for collaboration. *(Mac OS X, iPad)*

Physical objects

- **Sticky notes:** Frequently seen as a visual metaphor for the qualitative research analysis, these little guys are invaluable. Stock up on a bale. They make it easy to jot down observations, quotes, and insights and arrange and rearrange into patterns. Very few people are intimidated by sticky notes, so hand out sticky notes and pens to encourage the whole team to get involved. Extra points for using different colors to code different types of data in your analysis sessions.
- **Whiteboards:** It's sometimes shocking how little whiteboard space is available in offices where design and development are going on. Laptops are not conducive to collaborative thinking. You need a place to stick and rearrange all those notes. Ideally you will have a conference room with whiteboard walls. In a pinch, you can use mobile boards, apply whiteboard wallpaper, or have the team over to brainstorm in your shower.

REFERENCES

Shortened URLs are numbered sequentially; the related long URLs are listed below for reference.

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Resources

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- 24 <http://www.servicedesigntoolkit.org>
- 25 <http://www.servicedesigntools.org/>
- 26 <http://remoteresea.ch/>
- 27 <http://www.designstaff.org/>
- 28 <http://www.userfocus.co.uk/articles/index.html>
- 29 <http://www.nngroup.com/articles/>
- 30 <https://vimeo.com/1269848>
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- 32 <http://www.jnd.org/dn.mss/human-centered.html>
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NOT ENOUGH THANKS

This is the point at which my disbelief that I have really, truly finished writing this book gives way to the hope I've done right by anyone who takes the time to read it, and everyone who helped and inspired me along the way.

Of course I must first recognize my publishing superheroes at A Book Apart. Jeffrey Zeldman's enthusiasm and support made the whole endeavor possible. Mandy Brown is the very best kind of editor—the sort I would trust as a surgeon—whose thoughtfulness and compassion are equal to the precision of her scalpel. The overall book design and individual diagrams shine with Jason Santa Maria's sophisticated unicorn magic. Krista Stevens copyedited with a generous spirit and a keen eye. And Katel LeDu compelled the whole thing to coalesce at the moment the greatest number of pieces seemed to be whirling about.

The support and shining examples of so many worthy friends, colleagues, and leaders in the field (accruing over more years than I want to contemplate) provided me with the knowledge and confidence to attack a project of this scope. Jeff Tidwell and Karen Wickre got me started in the design business and have been good friends and sounding boards ever since. Mike Kuniavsky and Liz Goodman continually impress me with their fortitude and discipline, and their unflagging and strangely complementary senses of humor in the midst of applying said fortitude. Jared Braiterman, the first professional ethnographer I ever met, will forever be a model of intellectual curiosity, genuine collaboration, and sartorial flair. Indi Young's deep work on mental models has proven tremendously useful. Her distance swimming tips were also invaluable when I was deep in the middle of the work, feeling far from shore. Nate Bolt deserves mad credit for liberating research from the lab and removing the pain from recruiting. I've frequently consulted Kim Goodwin's comprehensive guide to the digital design process, and completing my own relatively minuscule work leaves me in even deeper awe of her ambition and achievement. Hiten Shah took time out from putting principles into practice to offer his astute insights,

and I appreciate his generosity. Kristina Halvorson encouraged me and offered amusing book-writing anecdotes.

A hearty toast to the Mule team. They do this stuff every day and are always thinking of new ways to do it better. Working with such a dedicated and entertaining group ensures I never stop learning. Thanks to all the current staff and free-range members of the Mule Design Studio family, with a few special mentions. Katie Spence and Katie Gillum helped establish and formalize the research practice. David McCreath consistently translates Klingon directives into clear technical requirements with grace and good humor. Rawle Anders and Tom Carmony set the standard for teamwork and fair play. Jim Ray and Benjamin Nguyen would clearly run our espionage division... if we had one. Valeda Stull was instrumental in distilling and clarifying some of the thornier, complex concepts. She and Angela Kilduff also assisted in shaping key ideas into a companion talk. John Slingerland posed for the remote research photo, and Dianne Learned played the part of the persona with her son Delton.

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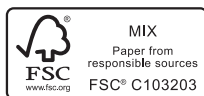
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