

Tamara Adlin

“Tamara the Process Addict”

Roles: Co-author, Consultant

Goals: To make products that make sense.

Objectives: Find ways to help people see the structural elements of just about everything.

Quote: “If you can’t see it, you can’t fix it.”

Holly Jamesen Carr

“Holly the Happy Hiker”

Roles: Sustainability Consultant, Usability Specialist, Outdoor Enthusiast.

Goals: To make it easier for people to do good in the world.

Objectives: To support organizations and businesses that work for environmental and social justice.

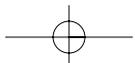
Quote: “It should be easy to do good.”



Story

Holly is still amazed by the power of the Internet. Intrigued with making this resource more accessible to non-techies like herself (she was a French major in college), she has advocated for users of software and Web-based products for over six years. She earned a Masters in Communication at the University of Washington, where she focused on online learning communities. At software startups Netpodium, Akamai, and Attenex, Holly worked closely with Tamara Adlin. Together they Mapped workflows, ran usability tests, created personas, designed interfaces for innovative new products, and had a darn good time.

Today, Holly directs her user experience skills to help design teams construct usable earth-friendly buildings. Holly lives in Washington, D.C.



10

REALITY AND DESIGN MAPS

Tamara Adlin and Holly Jamesen Carr

MAPS COMPLEMENT THE CREATION AND USE OF PERSONAS

This chapter is about Reality Maps and Design Maps, which are artifacts that help you understand and communicate information about the ways people achieve their goals and the ways they *could* achieve their goals with new tools. Maps are similar to other participatory design tools, but are useful in ways we have not found other tools to be. Reality Maps tell the story that is being experienced today by real people. Design Maps tell stories about the experiences of personas in the future.

As user experience professionals, we constantly have to learn about detailed and complex processes in order to design new solutions. We work to translate between the world of users and the world of developers. We try to observe people doing their actual jobs, but all too often find ourselves with no time or no access to actual users. If we do manage to collect information about how people get things done, we have to figure out how to communicate our findings at the right level of detail so that we can help information architects, graphic designers, product and program managers, developers, and even executives do their jobs. This is just not easy.

Maps can help us create and use personas. Reality Mapping is a way of collecting information we can use to create our personas. Once the personas are created, Design Maps help us understand the goals, scenarios, and tasks associated with our designs for new products—all from the

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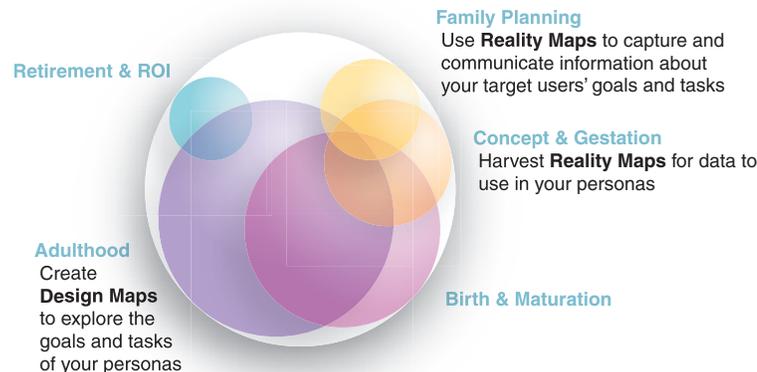


FIGURE 10.1: When (and how) Reality and Design Maps fit into the persona life cycle.

personas' points of view. We recommend that you try Reality Mapping as part of your *family planning* work and employ Design Mapping during the *adulthood* phase (see Figure 10.1). This chapter includes a description of exactly what Maps are, how to create them, how to use Reality Maps and Design Maps together, and how both kinds of Maps enhance and are enhanced by personas.

WHAT EXACTLY ARE MAPS?

Maps help you visualize and comprehend end-to-end user experiences. Mapping is the process of creating flow charts in collaboration with the users and/or members of your product Design and development team.

Maps show steps in a process or experience sequentially, with any questions, comments, or ideas regarding these steps arrayed underneath (see Figure 10.2). Finished Reality and Design Maps are large sheets of paper covered with color-coded sticky notes that describe the use experiences related to your product. Reality Maps are created by a facilitator during a structured conversation or interview with current users. Design Maps are created by the design team without the participation of users.

Maps are helpful information-gathering and Design tools because they are easy to create, iterate, and read. If they are kept in public spaces, they can become an accessible source of insights into user experiences (either as they exist today or as they are envisioned to become). Unlike prose documents or complex flow charts, Maps make it easy to quickly extract and understand the end-to-end user experience and/or focus on details of interest. Used together, Reality Maps and Design Maps can help you understand the current experiences related to your product space and design and help you test new experiences before you build a new product.

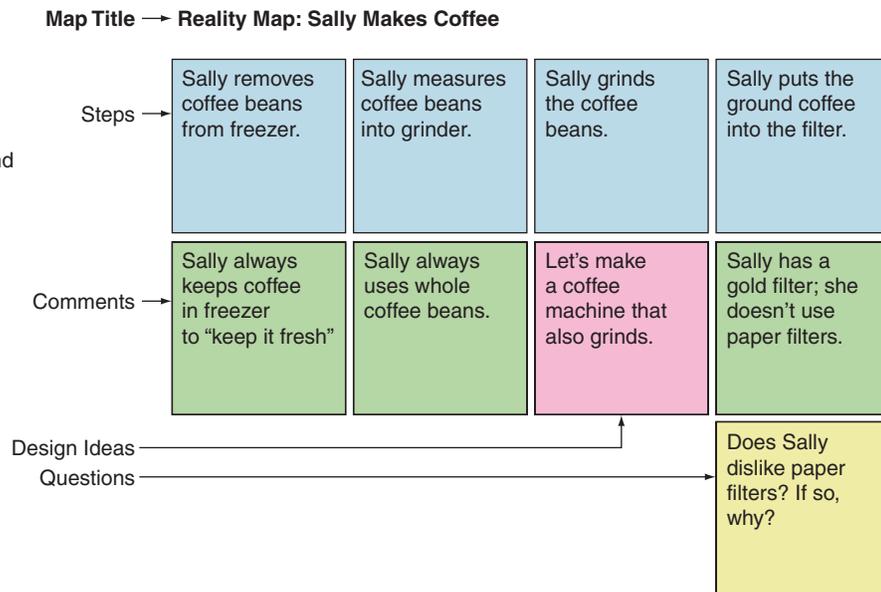


FIGURE 10.2: Steps, questions, comments, and design ideas in a Reality Map. If you were creating a new coffee maker, you would schedule Reality Mapping meetings with one or more coffee drinkers who make their own coffee. Reality Mapping is effective whether or not you are familiar with the product domain.

If you need more qualitative data to create your personas, and you have access to people who are using a current version of your product or are accomplishing the tasks related to your product in some other way, you can create Reality Maps to collect this data. If you have already created personas and want to quickly describe and evaluate experiences you *could* support with your new product, Design Maps will help.

Elements of every Map: titles, steps, questions, comments, and design ideas

All Maps have five basic building blocks: titles, steps, questions, comments, and design ideas. Titles should identify the type of Map (Reality or Design) and identify the goals or tasks the Map depicts. Steps should be arrayed horizontally, with related comments, questions, and design ideas arranged under the steps they reference. You can read across the row of steps to get a sense of the process from end to end (i.e., the steps in a task taken to reach a goal), or you can focus on a subset of the steps and read down the columns to understand related questions and ideas (see Figure 10.2).

Steps (blue sticky notes)

Steps are the “verbs” (or the “backbone”) of the process. The facilitator of the Mapping exercise places steps horizontally across the Map. For example, if you were Mapping the process

of making coffee your steps might look like the top row of blue squares in Figure 10.2. A good way to elicit steps is to ask, “What do you do next?” Steps are the building blocks of tasks.

Comments (green sticky notes)

Comments are qualifying statements about steps. They are the most flexible elements on a Map. Comments can describe behaviors, habits, awareness or lack of awareness of features or alternative actions, or even qualities of objects. If you hear an important piece of information but it is not a step, question, or design idea, record it as a green comment.

For example, in our Sally Makes Coffee Map (Figure 10.2), the comment “Sally always uses whole coffee beans” is a note about her actions that could be significant with respect to the rest of the experience. The comment is not a step, but it relates to the step listed above it: “Sally measures coffee beans into grinder.” The comment, in this example, serves to remind the facilitator and Map readers that “always using whole beans” does not necessarily indicate the standard behavior of everyone undertaking this task.

Questions (yellow sticky notes)

Yellow “questions” are the most useful interview management tool of the Reality Mapper. When you first start Mapping any process, you will identify many questions—some indicating areas where you need clarification and some that express your Mapping participants’ issues. In fact, you will probably encounter so many questions that the sheer volume and importance of them will threaten to derail your attempt to Map the entire process. Listing the questions on the Map allows you to record and move past them quickly so that you can capture as much of the process as possible without being derailed. Once you create a Map that captures most of an end-to-end process you can loop back and track down answers to the questions you have identified.

Questions can either come from the facilitator or the Mapping participants. For example, in our Sally Makes Coffee Map, questions include, “The coffee is usually perfect, but once in a while it tastes sour. Why?” (asked by Sally) and, “Do many people dislike paper filters? If so, why?” (asked by the Mapper).

Create a yellow question when:

- You have questions about the process
- The Mapping participant expresses confusion, concern, or ignorance related to part of the process
- Anyone participating in the Mapping session begins to belabor a point.

Design Ideas (pink sticky notes)

As you create your Reality Map, you will inevitably think of, or be presented with, an assortment of ideas on how to improve the process. Your Reality Mapping goal is to create a solid

picture of the experience as it is today. Although you do not want to allow your Reality Mapping session to turn into a discussion of potential new features, you also should not discard good ideas just because they come up at the “wrong time.” For example, in Figure 10.3 there is a pink sticky that says “Let’s make a coffee maker that also grinds.” This is an interesting idea and worth capturing. Ask anyone who comes up with a design idea to record it on a pink sticky note, place it on the Map, and move on.

Why use Maps?

Reality and Design Maps are interesting not because they are radical departures from existing methods but because they work well with both creating personas and using them to create new designs. Used with personas, Maps can help you understand the experience-related changes (both good and bad) your new product will demand. The primary advantages of Mapping as a tool for experience observation are:

- *Reality Maps are created in conversation with real users.* Reality Maps focus on the way users think about their experiences and can be used to fill in some of the qualitative information in persona descriptions. The Reality Mapping process also allows user researchers to explore nuances of users’ work flow and thought processes that are not easy to understand from pure observation. People do not just use products; they also *think* about the products they use. Your product will probably both have to *work within* and *change* the current context of tasks and goals. Maps will help you understand both the cognitive and physical landscapes of activities into which you will be introducing your product. As they help you create Reality Maps, users will identify processes that are problematic, important to maintain, confusing, or in need of obvious improvements.
- *Reality Maps enable researchers to quickly explore and understand their users’ task domain.* Reality Maps require no preparation by either the researcher or the users being mapped. A single Reality Mapping session will provide enough information about the task domain to help you plan your remaining user research needs.
- *If you can’t see it, you can’t fix it.* If the best way to create great user experiences is to look at and design for them holistically, the best way to understand flawed experiences, or to even identify the ways certain experiences *are* flawed, is to look at and analyze them holistically. Reality Maps give you a much-needed overview of today’s experiences. They allow you to have a bird’s-eye view of the chaos of everyday activities and annoyances. From above, you and your team will be able to find problem areas and create a plan to fix the entire experience as a whole.
- *Design Maps foster creativity while maintaining focus on user experience.* Design Maps focus designers on the holistic experiences that could be built for the personas, rather than on individual tools or features. Because Design Maps and reality Maps share the same format, they encourage designers to return to “reality” even as they design (e.g., to consult the information they have on current work flow even as they innovate). Design Maps allow product designers to create solutions that will work well for users, applying their expertise to the problems they used Reality Maps to understand.

Reality Map: Sally Makes Coffee	
Sally removes coffee beans from freezer.	Sally always keeps coffee in freezer to "keep it fresh"
Sally measures coffee beans into grinder.	Sally always uses whole coffee beans.
Sally grinds the coffee beans.	Sally has a gold filter; she doesn't use paper filters.
Sally puts the ground coffee into the filter.	Do many people dislike paper filters? If so, why?
Sally pours water into the coffee machine.	Why don't people set it up the night before?
Sally turns the coffee machine on.	Sally never waits for full brew cycle to finish before pouring.
Sally pours cup of coffee.	Let's automate this and build a milk/mug warmer into the machine!
Sally adds cream and/or sugar and stirs.	Sally wants both the milk and the mug to be warm.
Sally drinks her coffee.	There's got to be a better way...
	Let's make a coffee machine that also grinds.

FIGURE 10.3: Reality Map for "Sally Makes Coffee."

- *Maps are valuable communication and collaboration tools.* Maps depict both the big picture and important details of current user experiences in an accessible format. They allow *everyone* on a design and development team to understand the user experience as distinct from the system supporting that experience. When you have Maps hanging on your walls, it is impossible to lose sight of the big picture of your users' experiences.

Handy Detail

MAPPING IN CONTEXT—HOW REALITY AND DESIGN MAPPING DIFFER FROM SIMILAR UCD METHODS

There are many methods in the user-centered Designer's toolbox. The purpose of this sidebar is to describe these similarities (and interesting differences) and to place Mapping in context with other techniques that have similar methods or purposes.

User Analysis, Task Analysis, and Contextual Inquiry

To understand precisely how a user completes a task, it is imperative to actually observe that user at work in the context of his or her natural environment. Task, job, and process analysis are the methods of observing users at work and describing the actual activities that constitute the collection of tasks that make up a job or a process. The following excerpt is from Hackos and Redish [1998, p. 7]:

User and task analysis is the process of learning about ordinary users by observing them in action. It is different from asking them questions in focus groups outside the users' typical environments and away from their work.... In fact, experience has shown that users themselves do not know how to articulate what they do, especially if they are very familiar with the task they perform.

In their book *Contextual Design*, Beyer and Holtzblatt provide detailed suggestions for UCD professionals who want to observe people doing what they normally do in the places they normally do it and "make unarticulated knowledge about work explicit" [Beyer and Holtzblatt 1998a, p. 37]. During or after these observations, Beyer and Holtzblatt recommend communicating findings in one or more of their five "work model" diagrams (Flow, Sequence, Artifact, Cultural, and Physical). Each model (Figure 10.4) describes and allows researchers to analyze a different aspect of the current work and task environment of real users.

Reality Maps are very similar to Beyer and Holtzblatt's sequence work models (Figure 10.4) and they share some qualities with each of the other models as well. Sequence models include users' intent, a trigger to the sequence, steps, order of steps (including loops and branches), and breakdowns or problems. They, like Maps, are linear descriptions of work from the point of view of users. Unlike task analysis and contextual inquiry, which require direct observation of the user completing tasks, Reality Maps can be created in conversation with users and domain experts. Actual observation and modeling is critically important in good UCD, and there are many methods you can choose from.

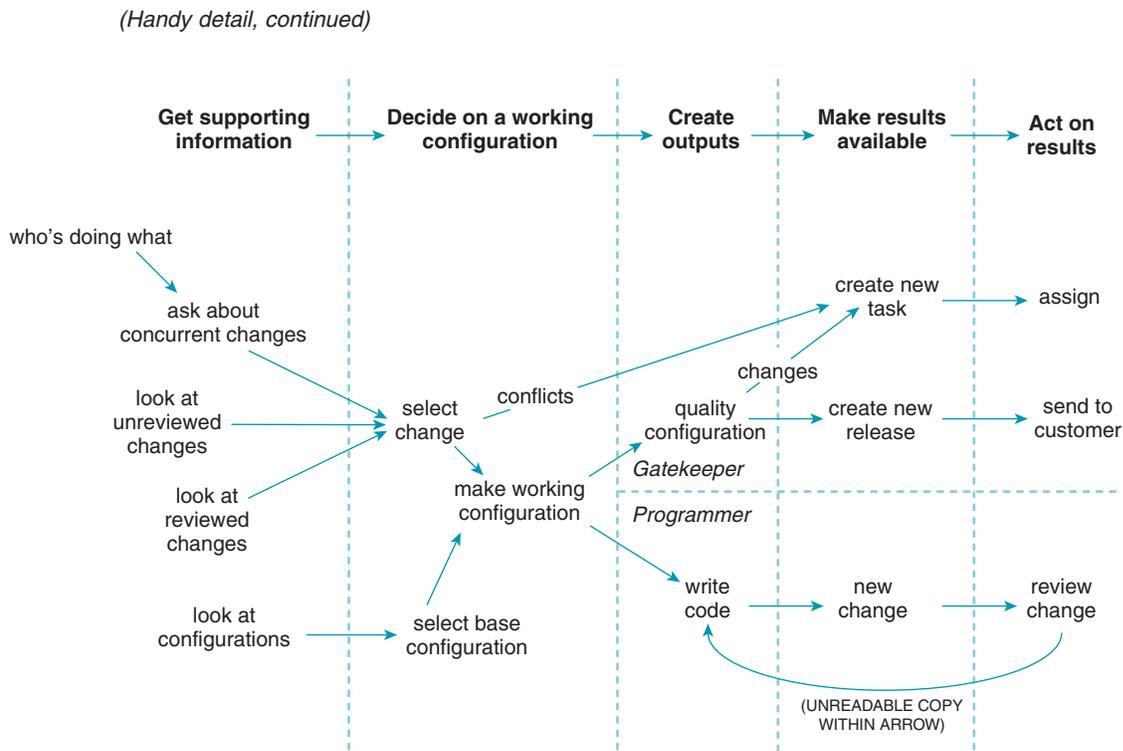


FIGURE 10.4: A sequence work model for the development of a software system. (Adapted from *InContext Enterprise*, 1995.)

The Bridge methodology

The Bridge is a three-part process for understanding the big picture of user tasks, translating that task flow into a series of “task objects” and then creating GUI elements to enable the completion of the identified tasks [Dayton et al. 1998]. The method “bridges” user tasks and GUIs by translating task flows into task objects that include attributes, actions, and containments. GUI “objects” can then be designed for each task object.

In a sense, the Bridge method combines aspects of Reality and Design Mapping. Bridge participants collaborate in a single meeting to capture the existing task flow and then work to rearrange or otherwise improve it to create a “blue sky” task flow. However, the Bridge always reduces experiences into task objects and interfaces, which may or may not capture the big picture of the user’s experience (see Figure 10.5).

(Handy detail, continued)

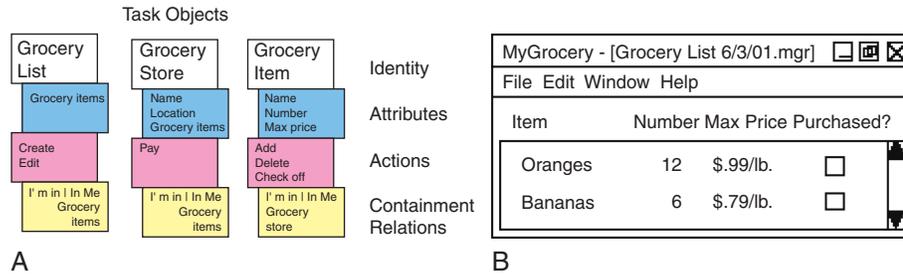


FIGURE 10.5: The Bridge methodology identifies task objects and then creates interfaces to bridge the identified tasks and the user experience. (Adapted from Participatory Design, 2003.)

Like the Bridge, Mapping can be used to both understand current experiences and design new systems. However, whereas the Bridge asks users to rearrange and improve task flows and objects, Design Maps rely on the skills of product designers and the user information contained in personas. Product designers can use Design Maps to describe new task flows from the point of view of the personas. Users are still involved, but as *testers* or *reviewers* of the Design Map, not as *authors*.

CARD and CUTA

CARD (Collaborative Analysis of Requirements and Design [Tudor et al. 1993]) and CUTA (Collaborative Users' Task Analysis [Lafreniere 1996]) are both card-based methods for collaborating with users to understand current experiences and design new experiences. Both methods require the practitioner to create cards that capture current tasks and events (CARD) or objects, people, and work situations (CUTA) specific to a particular environment or work flow. Once the cards are created, users can describe their experiences by interacting with and arranging the cards. In the case of CARD, users can collaborate with designers to create new task flows or work flows and new interactions (see Figure 10.6).

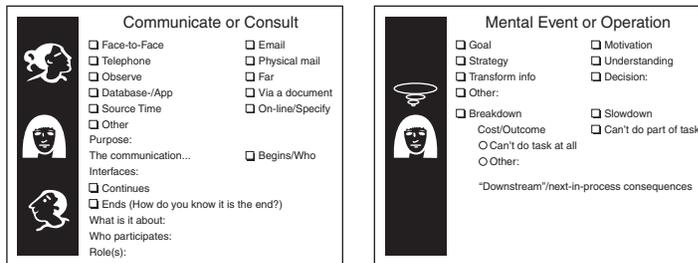


FIGURE 10.6: Two examples of cards used in the CARD methodology. (Adapted from Muller [2003].)

(Handy detail, continued)

Mapping, like CARD and CUTA, invites direct participation from users (who often enjoy the process of describing their activities in a new way), but this participation takes different forms. In CARD and CUTA, users collaborate with each other to arrange cards such that they describe a work process. In Reality Mapping, a user researcher facilitates a structured conversation with users to explore the task space. The discussion format actively involves the facilitator and allows her to focus on areas she thinks are important to the design of a new product. In CARD, users participate in the design process. Design Mapping works well whether or not users are involved in the creation of the new designs.

Experience prototyping

Buchenau and Suri [2000] define experience prototypes as “any kind of representation, in any medium, that is designed to understand, explore or communicate what it might be like to engage with the product, space or system we are designing.” Experience prototypes should actively engage users to elicit behaviors and reactions similar to those the product might elicit, so that the designers of new technology can learn from participating in these simulations. Experience prototyping is particularly interesting for designers of products that will create unusual experiences (Buchenau and Suri include examples of remote defibrillators and underwater remote vehicles).

According to Buchenau and Suri’s definitions, Design Maps are a type of experience prototype, despite the fact that they do not provide the hands-on sensory experiences of the prototypes described in the article. For many software and Web applications and experiences, Design Maps provide representations of actual experiences sufficient to supply many of the benefits of other, more immersive, experience prototypes. In addition, Design Maps are certainly much easier to create.

THE REALITY MAPPING PROCESS

To get the most out of Reality Mapping you can approach the process in four steps:

- 1.** Create a Mapping plan.
- 2.** Create the Maps.
- 3.** Analyze the Maps.
- 4.** Harvest the Maps for information to use in your personas.

Step 1: Create a Mapping plan

The purpose of Reality Maps is to capture and communicate the entire end-to-end user experience from the user’s point of view. Once you have captured the end-to-end experience at a high level, you can iterate to fill in important or relevant details until you feel that you understand the user experience and/or have no more questions.

Let's return to the fictitious company used for case studies elsewhere in this book: G4K and their *www.G4kids.com* kids' destination site. The G4K team might have identified various processes or questions to explore through Reality Mapping, including:

- How do parents set up Web access for their kids today?
- How do parents monitor their kids' activity on the Internet?
- What do kids of various ages do on the Web today?
- How do teachers integrate the Web into their classes?

The number (and complexity) of Reality Maps you create will depend on the number of experiences you want to understand. You do not need a detailed plan to start Mapping.

Your process for getting started with Reality Mapping depends on how well you understand the domain and the Design challenges in the domain. If you understand the domain and the design challenges well, you will be able to readily identify which processes to Map and can dive right in (see the following Story from the Field). If you are Mapping an unfamiliar domain, you can use the Reality Mapping process to identify the process and people you want to Map (see "Story from the field: Sometimes You will Face a Completely Unfamiliar Domain" in material following).

Story from the field

SOMETIMES YOU WILL KNOW EXACTLY WHERE TO START MAPPING

Netpodium was a start-up software company that built an online interactive broadcasting tool set. The idea was to create software that would allow a presenter to create a slide presentation, upload it, and invite audience members to a live "event" on the Web. During the event, the presenter would control the slides during his presentation and the audience would hear the presenter via a streaming media connection. The presenter would also be able to answer written questions sent in by the audience members via an instant messenger-type interface. In this case, our team knew exactly which experiences we needed to Reality Map.

- *The administrator experience:* What was the current experience of organizing and hosting a streaming media presentation, especially a live one, on the Internet?
- *The presenter experience:* What was the current experience of creating a presentation, coordinating a live in-person "event," and managing audience questions?
- *The audience experience:* What do audience members expect at various times during a presentation? How do they communicate with the presenter before, during, and after the presentation?

After we created Reality Maps, we understood much more about the current experience of delivering presentations and the needs of the people involved in putting on events. We went on to create personas and Design Maps to describe the new experiences our software would enable.

Story from the field

SOMETIMES YOU WILL FACE A COMPLETELY UNFAMILIAR DOMAIN

Several years after our Netpodium days, the Netpodium team found ourselves together again at another start-up company. This company, Attenex, builds document management software for legal services. Suddenly, we had to learn about a completely different (and quite complicated) set of goals, tasks, activities, environment, and artifacts. In this case, we simply picked one person who knew about part of the overall document management process (a consultant who had been working in the field) and started Mapping.

By the time we had completed our first Mapping session (which lasted a little less than two hours), we knew exactly how to progress. Our first participant had helped us Map—in considerable detail—the part of the process he understood. He also told us who “owned” the other parts of the end-to-end process. Over the next few weeks we continued to “quilt” what turned out to be a very long and detailed Map of the entire process (when printed, it was over 20 feet long!). Each Mapping session left us knowing exactly who we needed to talk to, and about what, in our next session.

If you can readily identify experiences you need to Map in order to understand current experiences related to your product domain, that is great. If you cannot, simply identify a single experience—or even a single user or subject matter expert—and start Mapping.

Identify Mapping participants who you feel will shed light on existing processes. In general, when recruiting for Reality Mapping sessions, look for people who:

- Are frequent users of a product or process
- Are subject matter experts
- Depend on a product or process to achieve a different or related goal
- Have identifiable roles, goals, or tasks related to the product or process.

Usually, it is easiest to conduct Mapping sessions that include more than one subject matter expert if both share similar responsibilities (e.g., in the G4K Reality Map example you might want to talk to both parents together but schedule separate Mapping sessions for parents and kids).

Try to identify several people with overlapping or identical responsibilities. You can either create a Map during a single session with both experts or schedule separate sessions and plan to iterate and reality check your first Map with the second participant. You can also use Maps to bring together observations from different observers who have had the opportunity to watch real users.

Create a schedule

Mapping meetings work best if they are between two and three hours long. In our experience, less than two hours is usually too short (because it takes a while for participants to understand the Mapping process and to create a Map that captures all of their knowledge about a set of tasks). Three hours gets long and exhausting for everyone involved. Remember that you can always ask to come back to get additional details later.

Schedule Reality Mapping meetings and invite one or two task or subject matter experts to each Mapping meeting. Trying to keep more than three subject matter experts on track and on task can be a bit like trying to herd kittens—but it certainly can be done. Ask a colleague or two to take notes while you manage the session. Although it is possible to conduct a Mapping session and simultaneously record observations on sticky notes, it is not easy, and it is likely that you will miss important bits of information in your rush to write things down. The following is an example of a schedule that allows the Mapping facilitator to take advantage of the different perspectives of several Mapping participants over several sessions.

Reality Map: Parents monitor their kids' activities on the Internet. Participants:

- Anne and Philip Jones (parents of one fourth-grader and one sixth-grader)
- Albert Brown (single dad)
- Candace and John Smith (parents of one third-grader)

Mapping schedule:

- Monday, 9:00 to 11:00: Mapping with Anne and Philip
- Monday, 1:00 to 3:00: Mapping with Albert to add his process to the Map
- Tuesday, 9:00 to 11:00: Mapping with Candace and John to add their process to the Map
- Tuesday afternoon: Create an electronic version of the “Parental Controls” Map and print it
- Wednesday, 9:00 to 11:00: Follow-up Mapping with Anne, Philip, and Albert (to review the “Parental Controls” Map)
- Wednesday afternoon: Incorporate changes from morning session
- Thursday, 9:00 to 11:00: Follow-up Mapping with Candace and John to review latest draft of Map
- Thursday afternoon/Friday morning: Create “reviewed” version of “Parental Controls” Map and post it.

Handy Detail

MAPPING SUPPLIES

If you want to try your hand at Mapping, make sure you have supplies that won't let you down. There is nothing worse than having to stop a Mapping session because you have the wrong types of supplies.

Mapping Paper

Not all Mapping paper is created equal, and you will always run out. Invest in a large roll of white paper. We usually use a 3-foot by 8-foot sheet for each Mapping session. The paper does not need to be high quality or expensive. However, when you are purchasing paper for Mapping, bring a pad of sticky notes with you to the store. Make sure you get paper the sticky notes stick well to! We have found that brown butcher paper does not work well for Mapping because sticky notes do not stick very well to it.

For a Mapping meeting, measure out a piece of the paper you think is far too big, add 20%, and then double it. You will be surprised how many sticky notes the meeting will generate, and running out of paper is a pain.

Preserve Your Maps

Maps are meant to be big and covered with sticky notes. This makes them inherently difficult to manage as artifacts. Bring tape to your Mapping sessions. If you ever try to move a Map, or even if you just leave it hanging on a wall, it will shed sticky notes. Take some time at the end of your Mapping sessions to reinforce your sticky notes by taping them to the large sheet of paper.

When the Map is complete, and it is not changing much any more, consider transferring it into an electronic medium. This can range from taking digital photos of your Maps to transcribing all of the sticky notes to create an electronic version. We use Microsoft Visio to create electronic versions of our Maps, and print them on large-format printers. You can also use Adobe Illustrator, Macromedia Freehand, or Omnigraffle. As a general rule, pick vector-based software for your electronic Mapping.

If your company does not own a large-format printer or plotter and you want to create electronic versions of your Maps, you have several options. Print the Maps on standard-size paper and tape the pages together to create a large Map. It is worth it to see the entire process on the wall. If your company sees enough of these Maps, you just may convince someone to invest in a plotter. Alternatively, you can contact your local copy center. Printing on a large-format printer is usually quite expensive, but talk to the manager. Ask if they will give you a better price because your Maps will not use as much ink as most large-format, full-color posters and because you will use their services frequently.

If you want to conduct several Mapping sessions, you can save time by having multiple members of your team creating Maps with different participants concurrently.

Step 2: Create the Maps

Now that you have identified your Mapping participants, it is time to get them in a room with a facilitator (you or a colleague), a large sheet of paper, sticky notes, and markers. Label the large sheet of paper with the name of the role and the description of the goal (example: “Karen (Mom) monitors her child (Ben’s) Web use”). Create a color key/legend by putting four sticky notes with their code written on them on the wall in a visible place. If you have asked another member of your core team to help during the session, agree in advance that one of you will facilitate while the other helps to record the sticky notes.

Get people talking

When you describe the Mapping process to your participants, focus on the idea that this exercise is supposed to be easy and fun. They are there to help you understand what they do every day, but you are not there to judge their actions in any way (see the following Handy Detail).

Handy Detail

SAMPLE SCRIPT FOR YOUR FIRST REALITY MAPPING MEETING

Welcome, everyone! Thank you so much for making time in your schedule to participate in this activity. We are going to get started in just a minute, but first I want to explain what we are going to do today and why it is so important to us.

Today we are going to create a Reality Map. A Reality Map is really just a big flow chart that describes how people get things done. The Mapping process is simply the process of me asking you questions about the work you do, writing down your answers on sticky notes, and putting them up on this big sheet of paper. There are four colors of sticky notes, and each is for a different type of information.

- Blue sticky notes are for steps. For example, if we were Mapping the process of making toast one of the blue sticky notes might say something like “I open the bag of bread.”
- Pink sticky notes are for design ideas. For example, “Let’s make a toaster that automatically applies butter!”
- Yellow sticky notes are the most important color of all. They are for questions. Anytime we come across any type of question or confusion we will create a yellow sticky note and move on.
- Green sticky notes are for comments. These are comments that are not steps, not questions, and not design ideas. In our toast example, a green comment might say “I never change the settings on the toaster.”

(Handy detail, continued)

Today we are going to create a Map for process X. We are going to try to Map the entire process from end to end, so we may end up leaving out some important details. If that happens, it is okay. We can always come back and talk about the details later.

I want you to help me understand how you get work assignments, what you do, and how you know you are finished. I will ask you to tell me details about the tasks that are a part of process X, what you have to think about or understand to do the tasks properly, who you depend on, what types of artifacts you create, and so on. No detail is too small, no assumption or comment is too insignificant, and no question needs to be answered during this session. Just two more comments before we get started:

- This is probably going to feel pretty basic and maybe even a little bit silly at first. That is okay. Even details that seem silly or basic should go on the Map. We will do our best to use the information we collect today to build products that will make your lives easier.
- Sometimes, when we come across an important topic (such as a complex, difficult, or problematic aspect of your work) we may say “yellow sticky” and skip over the details for now. We are going to try to capture the big picture first and come back to explore the details.

Okay, let's get started Mapping process X. What's the first thing you do when you get started?

Once you get your participants talking, your job is to translate the Mapping participants' comments into steps, questions, comments, and ideas. This is tricky at first, but you will find you quickly get used to it. Consider the following comment you might hear from Anne, one of the moms in our example Reality Map:

“Well, yes, I know I can look at the History feature of the browser to see what pages people have visited, so I do that a lot. But I do not know who went to which Web site, and it is not arranged to make it easy to find bad sites. I wish they were marked or something.”

You will need to ask Anne to talk about what her step-by-step process and experience was and what she was trying to accomplish. In this case, it would be fairly easy to walk through the process with her. As you discuss her original comment in more detail and “unpack” it, you could create the sticky notes shown in Figure 10.7.

You will also find that your Mapping participants will help categorize their own comments as they get used to the process.

Do not be afraid to move sticky notes around, but always keep your eye on the big picture. Continue to add steps until you feel you have completely captured the end-to-end process (see Figure 10.8). You might discover that your original definitions of the goals were wrong

or incomplete (e.g., Anne might divulge an additional goal regarding privacy of her family members: “Actually, it is really important to me not to invade my family members’ privacy. I do not like spying but I get very worried about what Bobby could find on the Net.”). This is fine. Move sticky notes or add sticky notes as needed, and move on.

Keep Mapping sessions focused and productive

Mapping meetings can stray off track if the facilitator does not manage the session carefully. As a facilitator, it is your job to encourage your participants to talk and to describe what they do, but it is equally important to keep them from diving into too much detail or churning on a single step or aspect of a process. For example, if you find yourself creating a separate blue sticky note for every form-field entry required of current users, you are probably delving too deeply. However, if you have Mapped a process you know to be complex with only ten blue steps you are probably not asking for enough detail. During a Reality Mapping session, ask questions such as the following:

- Who asks you to do this activity?
- What information do you have to have before you can get started? Where do you find it? Do you always find the info you need there?
- At what point do you have to bring someone else into the process? Is that person always available? What happens if not?
- Where does your work tend to break down? What about your work is particularly difficult or complicated?

Bright Idea

**LET PARTICIPANTS
CREATE THEIR OWN
STICKY NOTES**

Leave an assortment of sticky notes and pens on a table. You will find that Mapping participants quickly understand the rules and that many will create their own sticky notes to add to the Map.

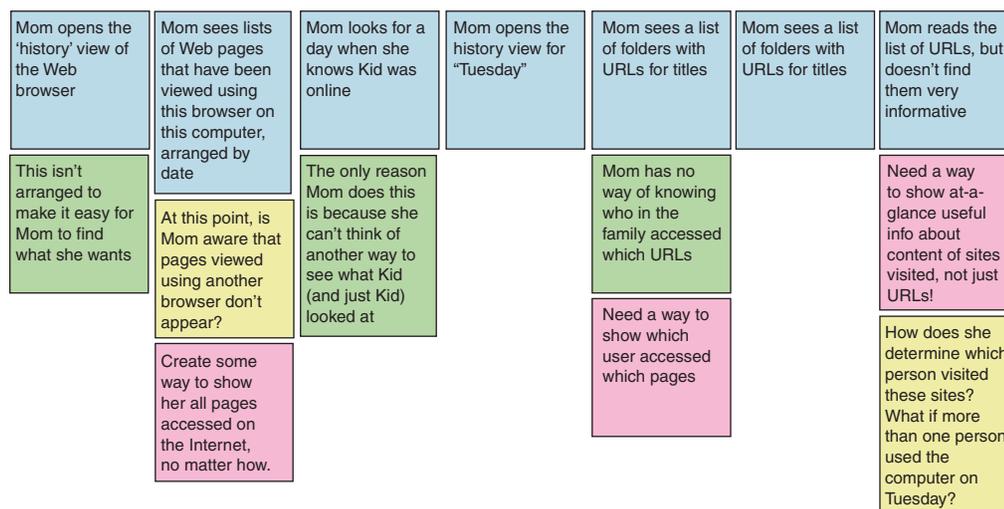


FIGURE 10.7: Reality Map sticky notes that could come out of a deeper discussion of Anne’s comment about her use of a browser history feature.

- Is there a point at which you are waiting for someone else to do something before you can continue?
- Is there a point when you are under pressure because someone else is waiting for you to provide something they need?
- Is there anything special you have to know in order to do this?
- Do you need any extra tools or documents to do this?

If the session starts to derail

Do not allow questions to derail the session. In our Mapping sessions, we distribute yellow sticky notes to everyone in the room. If a tangential discussion arises, someone will say, “Halt! Yellow Sticky!” to stop the “churning.” This is a cue for someone to record the question or issue on a yellow sticky note and place it on the Map. Yellow sticky notes can and should be handled after the big picture is complete. For example, you might have a participant who is very worried about security features for an existing or yet-to-be-designed product:

Participant: We have got to talk about network security before we talk about these other issues. Bob in IT and I were having a conversation the other day about this and we agree it is critical.

Facilitator: I understand that network security is a big issue, and will affect the entire process. Can you summarize the issue so that I can put it on a sticky?

Participant: Well, you cannot really summarize it. It is a huge issue across the entire product.

Facilitator: Okay. So I am going to create a yellow sticky that says, “Network security is a huge issue across the entire project,” or do you think, “How can we fix our major network security problems?” captures it more effectively? Before we leave today I’d like to schedule some time with you and Bob to go over the details of the network security issues as people experience them.

If you encounter situations such as these, focus on reassuring the participant that he or she is being heard. You might ask the participant to create a sticky note or series of sticky notes themselves and place them on the Reality Map. Remind the group that your goal for today is to get as much of the big picture Mapped as possible, and that you will schedule follow-up sessions to explore the issues that arise.

Handy Detail

IF YOU FEEL STUPID, YOU ARE DOING SOMETHING RIGHT

When you first start Reality Mapping, it is going to feel a bit odd. To create a useful Reality Map, you must be willing to walk task and subject matter experts through their processes in a step-by-step progression. It is difficult to sit in a room with someone who has a lot of expertise in a particular area and ask them to step you through their work processes in bite-size chunks. It often feels as though the information you are collecting is overly simplified, and in some cases obvious. If you have these feelings, you are doing something right.

Keep reminding yourself of your Reality Mapping goal, which is to create a solid end-to-end Map of the current user experience for the processes you are investigating. Also remember our experience: there have been many times when we have created Reality Maps with participants who start out grumpy or annoyed about the Mapping process but who won't walk out of the room without a promise that we will send them their own printout of the Map to hang on their wall!

Why does this happen? Because Maps recast familiar experiences in a fresh, unusual, and thorough way, Mapping participants may find ways they can use the completed Maps to train others or to otherwise explain how they do what they do.

Develop your Maps iteratively

After you finish a Mapping session, take some time to evaluate your Map. First, put the Map up on a wall and look at it from far away. A Map on a wall in your office can give you an at-a-glance progress indicator. The more yellow the Map, the more work you have to do to fully understand the process (see Figure 10.9).

You can continue to develop your Maps in several ways:

- *Keep working with a participant until they do not feel they have any more to tell you.* Schedule another meeting with the same participant or participants. If you feel your original participants still have a lot of good information you have not captured, this is a good next step. (See “How do you know you are done?” following.)
- *Find a new participant with new insights about an existing Map.* Schedule a meeting with a different participant who has (or has expertise related to) the same role you Mapped originally. (See material following for ideas on layering Maps to capture different opinions.)
- *Build out the big picture by Mapping new parts of the process.* If the overall process you are Mapping includes many people and/or happens in stages, work to create an overview of the end-to-end process before you explore details (see “Story from the field: Sometimes You Will Face a Completely Unfamiliar Domain” previously).

- Look for “puddles” of sticky notes. If you notice a large cluster of yellow and/or green sticky notes, you probably have some work to do. Puddles of yellow or green sticky notes (clusters of questions or assumptions) usually indicate:
 - An aspect of the process you have not fully explored yet
 - An aspect of the process that is very complex and perhaps no one knows how it works in detail
 - An aspect of the process that changes quite a bit from user to user.

As you continue to iterate your Map, it will probably contain fewer yellow sticky notes (questions tend to metamorphose into steps, comments, or ideas). It will probably also start to look more complex and messier (see Figure 10.10). Comments can also change. If in the course of iterating your Map you change any comment, you will need to review everything “downstream” (i.e., to the right) of the comment to see if the change affects anything else on the Map. In our Sally Makes Coffee Map, one of the comments describes the fact that Sally uses whole coffee beans. If you discover that most other people in your target user group use pre-ground coffee, this difference may be noted as a small branch in the Map and the steps you originally created with Sally might need to be adjusted.

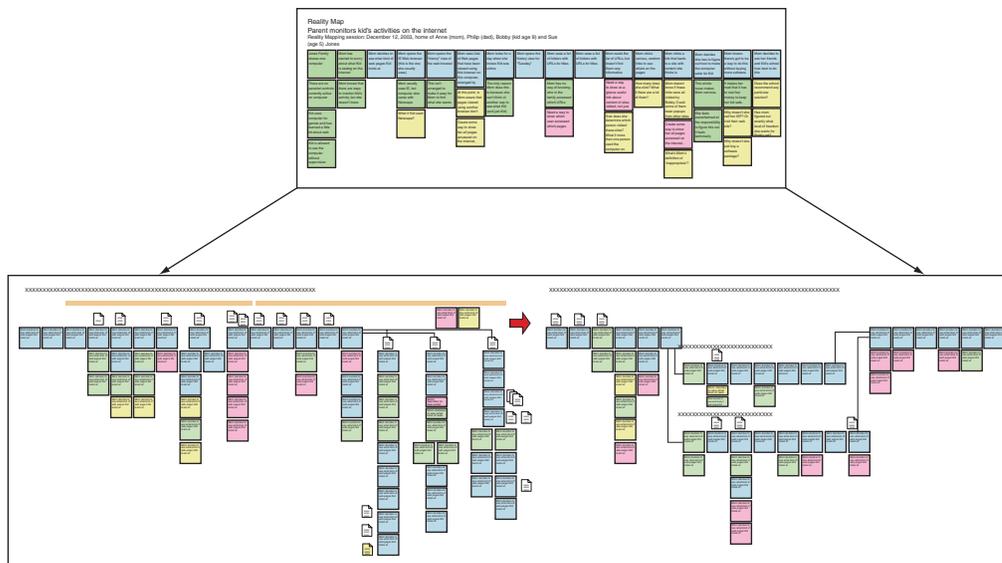


FIGURE 10.10: Reality Maps become bigger, more complex, and less “yellow” as they evolve.

Step 3: Analyze the Maps

During analysis you will add labels, compare different user Maps, add branches and/or layers, and evaluate the processes you have captured in the Maps. As you analyze your Maps, you will also find areas in them that would benefit from further iteration. You will also find aspects of the process that are ripe for improvements.

Identify and label interesting aspects of the Map

As you work on your Map, you will probably start to discover some important aspects of the process that are not steps, questions, comments, or ideas. As you learn more about the process, you and your team can add symbols to your Maps to capture your observations. It's also helpful to keep additional sticky note colors handy in case you decide to capture some of the following information during a Mapping exercise. In my experience, it is helpful to enrich Reality Maps with symbols (see Figure 10.11) that represent:

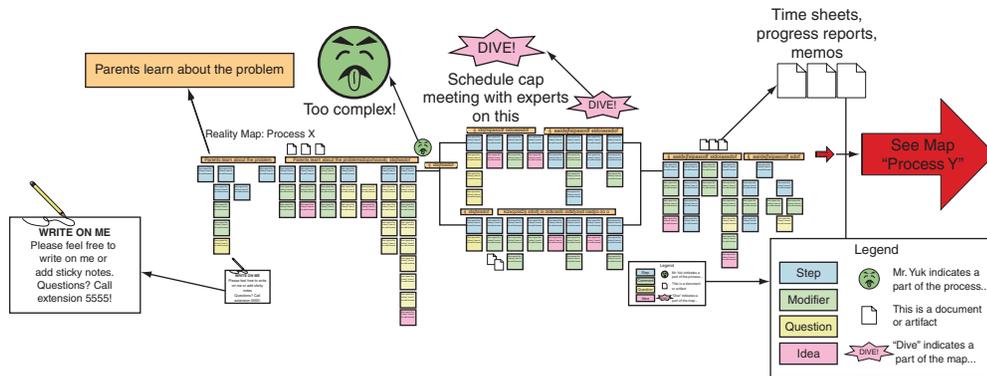


FIGURE 10.11: Additional Mapping symbols. Additional symbols can help you highlight requests for contributions, phases in the overall process, problem areas in the process, areas you need to delve for more information, artifacts related to the process, and how the Map connects to other Maps.

- Distinct phases of the process (see Figure 10.12)
- Artifacts or documents that support or are generated by the process
- Problem areas
- Areas that need further exploration
- Places where the process branches or connects to another process you need (or plan to) Map.

Phase labels

During early Mapping sessions, you focus on individual steps. As your Map evolves, you may find that your Mapping participants have named some of the phases of the process. These phases are collections of individual steps, and the fact that they are seen as cohesive

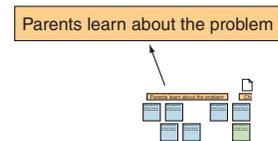


FIGURE 10.12: Phase labels.

of effort can be important as you develop your designs. For example, you may find that many parents describe some of the phases of implementing online parental controls as:

- Learning about the problem or researching solutions
- Purchasing and installing a solution
- Managing and monitoring access.

Record these phases by drawing a line over the series of steps each encompasses and labeling the line (see Figure 10.12).

Artifact indicators

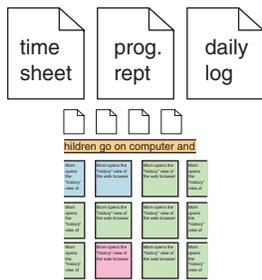
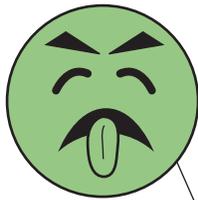


FIGURE 10.13: *Artifact indicators.*

During Mapping sessions, your participants may describe various artifacts or documents that support or otherwise relate to their tasks. As we suggested in the section on field studies, you should try to get versions of the artifacts or documents to study (make sure you have permission to obtain copies of any corporate artifact you want to study). It is also helpful to note them on the Map. You can use a document symbol (a rectangle with a “dog-ear” on one corner) to indicate the step in the Mapped process where the artifact or document is used (see Figure 10.13). In Figure 10.13, you will note that there are many document icons sprinkled on the Reality Map. If you notice that there are quite a few documents required to complete a task that should be relatively automated, you may have found an aspect of the process that is ripe for improvement. If you want to capture information about artifacts during a Mapping session, choose sticky notes in a new color (not blue, green, yellow, or pink) and write the name of each artifact on its own sticky note. You can place these directly on the Map near the appropriate step artifacts.

“Mr. Yuk” indicators



Too complex!

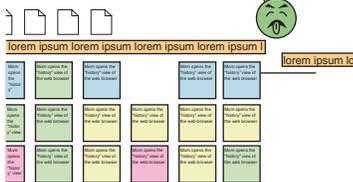


FIGURE 10.14: *Mr. Yuk indicator to highlight complexity.*

Almost every Map identifies aspects of a process that could use improvement. A great way to find these areas is to look for stubborn clusters of yellow sticky notes. If you find a series of questions that are clustered and are resistant to “being answered,” you have probably found a process problem. If you find an aspect of the process that is not in question, but that everyone has ideas about or all Mapping participants seem to dislike, you have probably also found a problem area. For internal versions of your Map, it is handy to create and use a symbol to highlight that area. In our Maps, we use a hand-drawn frowning face that reminds us of the “Mr. Yuk” sticker that used to be applied to indicate the presence of poisons in household cleaners (see Figure 10.14). The Mr. Yuk sticker indicates an area of the Map that is ripe for attention during later design mapping sessions. Note, however, that you may want to create versions of your Map that contain less incendiary symbols. Subject matter experts do not always appreciate being told that parts of their processes are “yucky.” Find a nicer (and more specific) way of indicating a problem in the process on these versions of your Maps. If you want to capture “Mr. Yuk” aspects of a process during a Mapping session, assign “Mr. Yuk” a sticky note color.

“Deep dive” indicators

You will identify aspects of the process you are Mapping that will need more attention, or a “deep dive.” If you find a part of the process you want to “take offline” or create another Mapping session to explore, note this part by placing a “deep dive” sticker (see Figure 10.15) on the Map. You can use another color of sticky note or create your own symbol. Think of “deep dive” stickers as similar to the indicators on street maps that tell the reader to refer to a detailed map in some other area. Like densely crisscrossed downtown streetscapes, some phases of some processes require their own detailed Maps. Anytime you find yourself creating many “yellow” questions, consider adding a deep dive indicator to remind yourself to come back and explore that area of the process in depth.

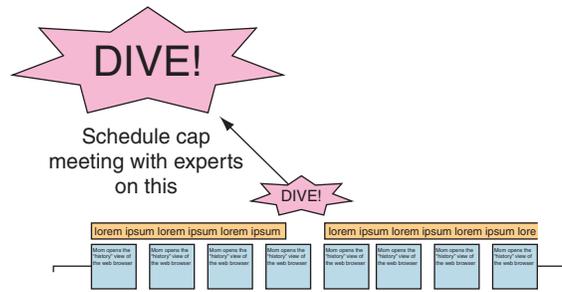


FIGURE 10.15: Deep dive indicator.

Map connection arrows

You will create different Maps for various user roles and/or goals. It is helpful to indicate how the Maps “fit together” in an end-to-end experience. Use arrows or notes on the Maps to show the reader how the Maps precede and follow each other to depict the entire experience (see Figure 10.16).

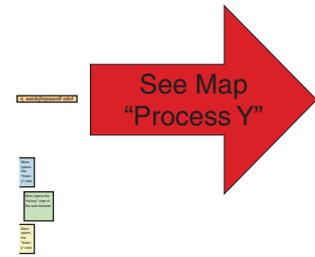


FIGURE 10.16: Map connection arrow.

Map legend

Add a legend to your Maps so that people can read and interpret them without your help. Include short definitions of each symbol and what it stands for on your Map (see Figure 10.17). If you create your own Mapping symbols, make sure you add them to your legend.

Look for shared—and unique—approaches to similar tasks

Every time you create a Reality Map, you run the risk of capturing a process that is heavily influenced by the personal preferences or skill and experience levels of the Mapping participant. For example, Anne’s process may be very different from Albert’s or Candace’s. Perhaps Candace is very computer savvy and has set up her own system using several commercially available Internet childproofing software packages. Who is doing the process the “right” way? Which process should you pay more attention to? In other words, how do you know if you are Mapping the “right” person and the “right” way of accomplishing the goal? The truth is that you cannot know.

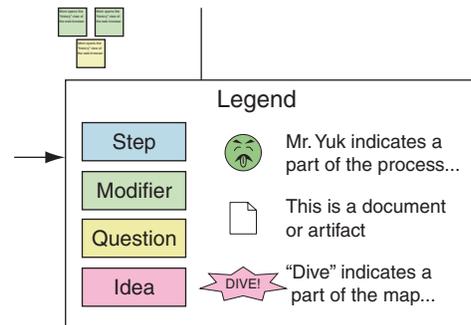


FIGURE 10.17: Map legend.

When we create Reality Maps, we try to understand the end-to-end flow of tasks and activities real people use to accomplish a goal. We try to capture the process from more than one person so that we can identify aspects of the overall process that vary according to the individual.

Most of the time, it is easy to identify the major milestones of any process, and most of the time these major milestones are the same (even if the ways different individuals reach these milestones are quite different). In the Internet childproofing case, if we went on to talk to more parents we would probably find that the major milestones (e.g., learn about security issues and research methods to improve the childproofing, set up a childproofing system, regularly monitor child's activities using available tools, and so on) are very similar and occur in the same order.

So, why not just identify the major milestones? Because understanding the specific ways in which people approach and organize themselves around tasks can help you make good decisions about the design of your new product. Different Mapping participants who have similar goals will be able to tell you which parts of the process are shared by everyone, and which vary according to personal knowledge or preferences.

Together, Anne, Philip, Albert, Candace, and John will help you understand how parents tend to think about and behave regarding online security for their children. Individually, they will help you understand how different people have tried to solve this issue for themselves. Both types of information can be helpful. When you look at the contributions of each parent to your Maps, you will probably find that each approach inspires ideas for process improvements and that their differences help illuminate the complexities you will want to analyze when you create your Design Maps. In this way, Reality Maps function much like usability tests. The insights you get from them are not statistically significant and are not guaranteed to be unbiased, but they do uncover experiences and difficulties many of your users are likely to share.

Explore complex processes and interactions with branches and layers

Although we do believe that most experiences can be expressed in a relatively linear fashion, it is also true that many processes branch and/or depend on very specific interactions among various subprocesses. You can use branching and layering to explore these aspects of your task domain.

Maps tend to look more complex and messier as you add more details to them, as you talk to more people, and as you learn more about existing processes. This makes sense. If there is a good business case for your product, it is probably because someone understood that the current process needed improvement. Your goal should not be to work on the Maps until there is nothing left to learn about the process. Rather, your goal should be to continue Mapping until you believe you have built a solid understanding of the task domain.

Branching

All processes include decision points. Many of these decision points are relatively minor and do not affect the overall process significantly (e.g., Tanner deciding to find a clue for the Skatepunkz game versus the Moneybags game). However, there are some decisions that

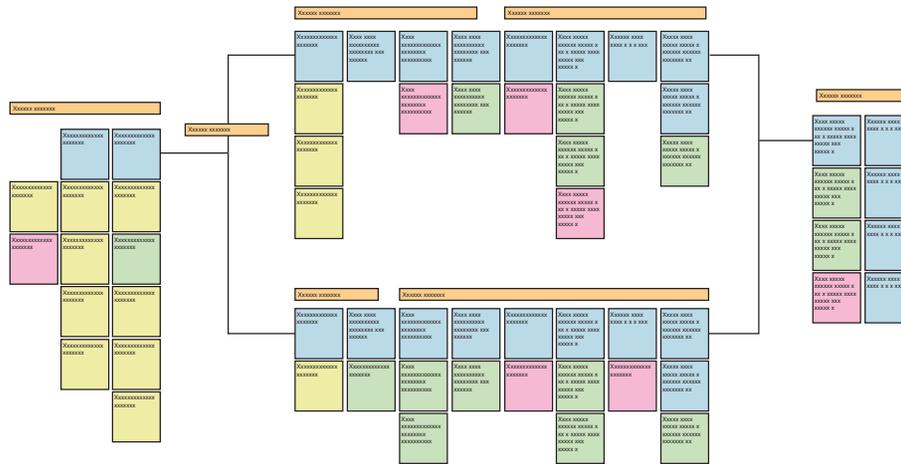


FIGURE 10.18: Map with branches.

radically affect the user experience (e.g., whether the child registering is old enough to do so independently or not). When you encounter this type of decision and its consequences, you can:

- Create a new Map to express the differences in user experience associated with each choice (or, if there are many, a representative subset of choices). This is a good idea if you think the choice leads to completely divergent experiences.
- Branch your existing Map to express the differences in user experience (see Figure 10.18). This is good idea if you think the choice leads to experiences that diverge in the short term and that converge later in the process.

Layering

Branches allow you to depict major decision points and their experiential ramifications for the user. Layers allow you to show disagreement among Mapping participants and/or the flow of experiences among various players in the process. In other words, layered Maps can:

- Highlight differences in experiences among users with *the same* roles and goals
- Highlight differences in experiences among users with *different* roles and goals.

Layered Maps for users with the same roles and goals

Consider Figure 10.19. In this example, the two layers correspond to two different Mapping participants. You might create a Map like this if you first Map with Herbert and then Map with Phyllis, who disagrees with the process Herbert described. Note that the major phases in the process are distinguished. Wherever there are sticky notes for both Herbert and Phyllis, the readers of the Map can assume that Herbert and Phyllis disagree on the process. When there

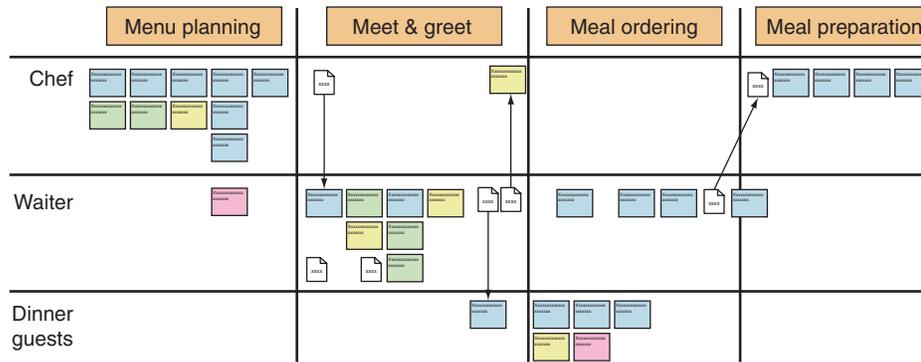


FIGURE 10.20: Layered Map showing the experience flow that might occur among a chef, a waiter, and a dinner guest at a restaurant.

that are part of the existing process. For example, in figure 10.19, the artifacts each teacher describes might shed some light on these differences. Perhaps the first document in Herbert’s row includes his planning notes from the many previous years he has taught this class. Phyllis’s definition of a syllabus might be very different from Herbert’s. Examining the various artifacts in the Maps can help you solve the “mystery” behind differences.

Layered Maps for users with different roles and goals

Layered Maps can also highlight the flow of experience as it moves from one person to the next. For example, examine Figure 10.20. Unlike Figure 10.19, the layers in this Map correspond to users with different roles and goals.

This type of layered Map can illustrate how responsibilities are handed off among various people. If you create a Map like this one, pay special attention to *how* the various people communicate with and depend on one another. These are often experiences that are rich with opportunities for improvement.

Analyze Maps for repetitiveness, complexity, and overall flow

Once you identify aspects of the current process that could use improvement, you can analyze the root causes and begin the redesign process. Some of the problems with the current process may even have obvious solutions (and the solutions may have already been suggested by one or more of your Mapping participants, as illustrated in Figure 10.21). Even if you see obvious localized improvements you can make, it is worth completing a more thorough analysis to see if there are holistic changes that could improve the end-to-end experience.

“Perform” your Reality Maps

Walk through the experiences depicted in your Reality Maps with your core team. If you have personas (even if they are just skeletons or collections of assumptions at this point), have one

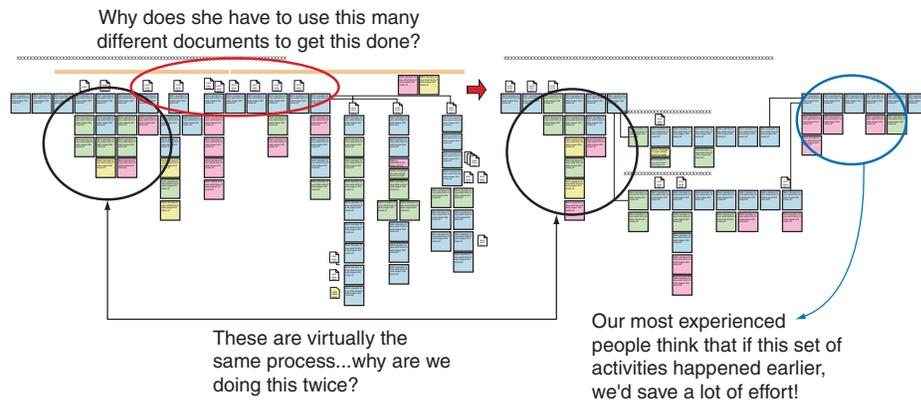


FIGURE 10.21: Reality informs Design. When you have created your Reality Maps, evaluate them carefully to identify potential process improvements.

of your core team members read through the Reality Map from the point of view of the Mapping participants. The rest of your core team can observe as the reader “performs” the Reality Map and reacts to the tasks. Your walkthrough will help you identify aspects of the process that are confusing, irritating, or difficult. When you find an area of the process that is ripe for improvements, you can move on to analyze why and how the current process is broken so that you can redesign it. You can use insights from this exercise to get started with the Design Maps you will use to build a new experience for your personas.

When you and your team have evaluated the Reality Maps and have some ideas for improvements, you can create Design Maps to explore the effects of changes you would like to make. Design Maps will allow you to quickly (and inexpensively) visualize new end-to-end experiences before you create wireframes, prototypes, or mock-ups.

How do you know when a Reality Map is “done” and when you have created enough Reality Maps?

Whatever you do, do not allow Reality Mapping to become an endless process. Your job is not to create a perfectly complete set of Reality Maps; it is to collect enough information about your target users and what they do today to help you design a new product. To do this, it is not necessary to make sure the Maps are absolutely complete down to the last detail. It is also not necessary to interview every single person who might be able to add insights to the Map. The purpose is to understand the big picture and provide a venue for exploration of subsections of existing processes. Think of Maps as being similar to prototypes:

- You do not need to (and probably should not) create an exhaustive set of them to get the value.

- You are looking for big insights and obvious problem areas.
- When you start to see repeated experiences and information, it means it is time to stop.

As they near completion, Maps:

- Look a lot less yellow.
- Acquire new sticky notes far less often.
- Need to be printed less often.
- Are in high demand. Mapping participants ask you to give them copies of the Maps.
 - “I’ve never seen my whole world in front of me like this!”
 - “I can use this for training.”
 - “I just want to put it on my wall! It is cool!”

Step 4: Harvest the Maps for information to use in your personas

Personas should describe not only characteristics of people but behaviors related to your product domain. Your Maps will be good sources of information about the scope of particular roles and the ways different roles and goals overlap with one another. Your Maps will also expose the particularly good and particularly bad aspects of current experiences you can use to enrich your personas. During the *adulthood* phase, it is useful to provide detailed examples of real experiences to help designers and developers identify with the personas you have created. Maps allow you to do this based on data you have gathered rather than on assumptions. You can ‘ask’ your Maps the following questions:

- What is the basic outline of the task or job?
- If you hired someone to do this job or set of tasks, and had to give them a sense of the entire process end-to-end, how would you do it?
- What are the most important tasks in the Map?
- What are the results of this process?
- Is this process done alone?
- Is this process part of a bigger process? Where does it fit in?
- How do people *think* about this task domain?

If your project ever changes, or if for any reason you have to revisit or partially recreate your personas, your Maps will be helpful. Because Maps describe entire experiences, they can be “reharvested.” Because the Maps convey the way users think about what they do, they often provide answers to questions you did not think about when Mapping and/or that come up long after the Mapping has been completed. This means that you can return to Reality Maps to answer questions as they come up, often without revisiting the users.

WHAT ARE DESIGN MAPS?

Design Maps tell stories that look into the future. These stories describe how your personas will behave once your new product is built. Design Maps are created by your team based on their understanding of several important design factors. First, thanks to your Reality Maps, your team is familiar with the existing process. With the help of your persona set, they now share an understanding of the roles, existing and imagined, needed to carry out your task. Your team also has a very strong knowledge of the technologies that can be incorporated into your new product to make users' lives easier.

Those familiar with scenario-based design will recognize that Design Maps have a distinct similarity to scenarios, and Whitney Quesenbery's chapter on personas and storytelling describes Maps as a type of story (see Chapter 9). Scenarios are short prose stories that describe how aspects of your product will be—or should be—used. Design Maps are both a special type of scenario and a process by which to create scenarios and modify them. Design Maps are flow-chart versions of many scenarios strung together to create a big picture of the experience your product will support. Design Maps are inexpensive (both in terms of time and materials) and are most helpful when built before paper prototypes and certainly before any code is written.

The process for creating Design Maps is largely the same as the process for creating Reality Maps. You will still use the same color codes for the four colors of sticky notes and you will still create a row of steps with associated questions, comments, and design ideas arrayed beneath. Just as you did for your Reality Maps, you will identify major goals and explore the start-to-finish tasks required to achieve those goals. Reality Maps describe goals and their associated tasks, as do Design Maps. While the goals described in Reality Maps and Design Maps will probably be very similar, the tasks may be markedly different (see Figure 10.22).

Reality Maps describe the present; Design Maps explore the future

The Reality Maps you built described the roles and tasks for a process in the present. Your Design Maps will describe a future process your software will support. Because Design Maps

Reality Maps	Design Maps
Describe the present	Describe the future
Describe the activities of real people	Describe the activities of personas
Created in cooperation with users	Created with your internal team
Have a right answer (they either accurately describe the present or they don't)	Don't have a single right answer (they explore possible futures)

FIGURE 10.22: Differences between Reality Maps and Design Maps.

are experiments, you may build more than one to test out different ideas and see which one makes the most sense *before* you write code or even create paper prototypes.

Reality Maps analyze the tasks and experiences of real people; Design Maps are the bridge between task analysis and design

By referring to your personas instead of real users when you start building your Design Maps, you immediately begin to reap all of the benefits personas offer your team. First, with everyone talking about personas the team stops focusing on the quirks of individual users and starts thinking about the commonalities among users. Second, when your team shares a vision of the users you are working to help, they can make design decisions based on this vision.

Sometimes in redesigning a process, an entirely new role emerges for whom there was no “real” person in your Reality Maps. In building a software product to help law firms complete the electronic discovery process for very large cases, we realized that, where documents were previously printed out for attorney review by hand, our Design Map called for software that would run a series of processes on the electronic documents before they were ever printed. Loading the electronic documents and running these processes required a new role, a new person who had not existed in the Reality Map. In this case we could not talk about real people because there was no one doing this work in the real world yet. We created a persona, Simon, to take on these tasks in the Design Map.

Design Maps can be created with or without real users

Design Maps allow you to explore innovative processes and methods, and it is important that you be free from current users’ habits and biases as you explore the potential for your product. Design Maps are a designer’s tool, and users should only be involved if they are part of the design team. Design Maps should be built using the birds-eye view of the problem. This view encompasses the problems current users have *and* the potential of new technologies.

Often someone peering into a situation from the outside (you) has the advantage of a fresh perspective and new ideas that users just do not see. The users you work with will have clever ideas that will make even the most seasoned designer say, “Duh, why didn’t I think of that!?” Luckily, you have already captured many of these ideas as pink sticky notes on your Reality Map. Don’t worry; the personas you have developed will speak for your users. You have also left the communication channels open with the real people who informed your personas so that they can contact you if they have additional ideas after your Reality Mapping sessions. In addition, once you have built a Design Map (or series of alternative Design Maps) you can bring users and stakeholders back in to give feedback. It is generally easier for users to give feedback on your design ideas than to ask them to start with a blank slate.

Design Maps will help you create materials for supporting the development process

Design Maps aren't just an interesting exercise. Once you have created your Design Maps, there are some very practical ways you can use them to support the product development process. In step 3, below, we describe how you can use your Design Maps to:

- Create additional scenarios and use cases for exploration and comparison
- Conduct walkthroughs of your new design before a line of code is written
- Track Design changes during the development process
- Streamline the communication between the product design and development team and other groups in your organization.

Story from the field

FORGET EVANGELISM. SHOW RESULTS AND NEW METHODS WILL SPREAD LIKE WILDFIRE

Sylvia Olveda and **Raina Brody**, Usability Specialists, Amazon.com

Persona development and Reality and Design Mapping sessions were introduced over a year ago by a single usability specialist at Amazon.com. Initially, just a few teams tried Reality Maps and personas to help with new projects and redesigns of existing features. These teams then cautiously began to use their personas as the 'characters' in Design Maps. They used the Design Maps to explore key processes and discover problematic experiences related to their projects.

How did we get from a few isolated projects to the persona and Mapping "mania" we have today? The truth is, we didn't do a thing. We tried to evangelize these new methods, but acceptance and interest only built momentum via word of mouth among the designers. One or two designers realized that personas and Maps made it easier to get from ideas to designs and helped them build better products. Other designers asked how they got the good results and soon many designers were approaching us to determine if personas and Mapping were appropriate for their projects. We even had designers asking us to convince the rest of their teams to come to us earlier in the design process because it would help make requirements gathering and product definition easier.

Recently, teams have started coming to us with their personas already drafted. These teams are ready to dive right into a Mapping exercise. We knew persona and Mapping mania were in full force when we started to hear developers we had not even met talk about these processes in hallways and in the cafeteria. Persona development and Mapping have become services offered by all members of the usability team at Amazon.com—it's the only way we can keep up with the demand! Now when we introduce additional new methods, we don't do as much active evangelizing. Instead, we use the new methods in a few projects and let the results speak for themselves.

THE DESIGN MAPPING PROCESS

Design Maps show the experiences your personas *might* have given various designs for your future product or process. Design Maps are experiments in process reengineering. They use the same linear format and allow designers to “prototype” new experiences, from the perspective of the personas, using the same basic elements they used when creating the Reality Maps. Design Maps are built by your team based on their:

- Knowledge of existing processes (captured in Reality Maps)
- Understanding of the personas
- Understanding of the technologies available to incorporate into the product
- Ability to streamline work processes.

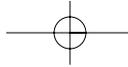
G4K Meanwhile, at G4K...

MAPPING AT G4K

Reality Maps have given the G4K team a clear sense of how real kids, parents, and teachers approach the Internet and the satisfactions, frustrations, and fears they encounter. G4K also has their cast of personas:

- *Tanner Thompson (the tenacious tinkerer)*: An intense nine-year-old boy who loves computers, games, and gadgets of all types
- *Colbi Chandler (the creative child)*: A charming seven-year-old elementary school girl who loves to do anything imaginative, crafty, or fun
- *Austin Chandler (the active competitor)*: An athletic 13-year-old boy who is interested in anything competitive or challenging
- *Preston Pasquez (a precocious preschooler)*: A bright-eyed and inquisitive three-year-old boy who is intrigued by anything new
- *Irene Pasquez (the involved parent)*: Mother of Preston who is, in one word, *engaged* (regarding her child)
- *Elaine Evans (the enlightened elementary school teacher)*: A young and relatively new elementary school teacher who loves what she does and takes it very seriously.

With these personas in mind, the G4K team can now create Design Maps to explore the features and services the G4K site will contain. They have ideas about how their personas are likely to respond to the idea of a new destination site for kids, and have a good idea about what their expectations and initial biases will be. They also know all about the technologies available to design into G4kids.com, and know the goals the company has for the site. They hopefully know which of their competitors' sites



(Meanwhile, at G4K..., continued)

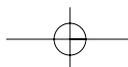
are working well and which are not, and know what types of features kids, parents, and teachers would love to see in their product.

What they do not immediately know is how to build a product out of all of this information. They do not know exactly what will make the site exciting for Tanner and Colbi, acceptable for Irene, and useful for Elaine. They know that successful products must solve real problems for real people, and offer alternatives to the “old” ways of doing things that are attractive enough to be worth learning. Design Maps allow them to experiment with ways of putting these puzzle pieces together on one big sheet of paper and reorganizing them until they fit together perfectly. Design Maps will merge the lessons learned in Reality Maps and the potential of technology to change things for the better. Equipped with this information and a lot of sticky notes, the G4K team can get started.

Step 1: Decide which processes you want to Map

When you created your Reality Maps, you focused on capturing the big picture before diving into details. You will do the same thing as you create your Design Maps. You can try to create Design Maps for all of the experiences your product will support, but this may prove to be a daunting task. When we create Design Maps, we create them as follows:

- *Design a Map for the big picture:* This Map shows the entire experience end to end, and therefore describes activities in very broad terms. Think of this overview Design Map as analogous to a Map of the United States with a line drawn on it to show the route of a cross-country driving trip. The overview Map should give the reader a general sense of direction and the order of progression, but should not contain details. For example, the G4K team could create a high-level Design Map for Tanner’s entire experience with G4K.com, from getting an account to logging on and navigating, to activities and playing games.
- *Design Maps for achieving major milestones:* These Maps should “fit into” the overall Map, but should explore individual goals and tasks more specifically. In the cross-country trip example, a “major milestone” Map would be the equivalent of a highway Map showing the roads you used to traverse a single state. For example, the G4K team could dive to a more detailed level in Mapping the singular process of Tanner getting a G4kids.com account.
- *Design Maps for critical details:* These Maps should fit into the milestone Maps much as the milestones fit into the big picture. These Maps explore very specific details of particular tasks, the way an enlargement of a downtown area shows the specific details of the way streets crisscross a city. At this level of detail, the G4K team could Map the navigational process that Tanner would follow to choose a specific activity.



The Design Maps you create should explore the ways your personas achieve the goals you have established for them. Remember that their roles and goals may change in your new designs. In the G4K example, the team might decide to use Design Maps to explore the following experiences:

- Tanner gets a G4kids.com account and visits G4K.com a couple of times a week.
- Colbi uses G4kids.com to finish an assignment created by Elaine.
- Paige plays on G4kids.com with Irene’s help.

Step 2: Create the Maps

Gather the appropriate stakeholders from your team and start creating your Design Maps. Let the Design Mapping participants know what you expect of them. The purpose of a Design Mapping session is to explore and record one end-to-end experience you could create for your Personas. For the G4K example, the team started the Mapping exercise by asking themselves, “Knowing what we do about the way things are done today and the possibilities that are available, how is Tanner going to interact with G4kids.com?”

The process for creating a Design Map looks just like the process for a Reality Map. However, instead of interviewing a real participant you consult with one or more of your personas. Figure 10.23 shows a Design Map of Tanner’s registration process on G4K’s yet-to-be-built Web portal.

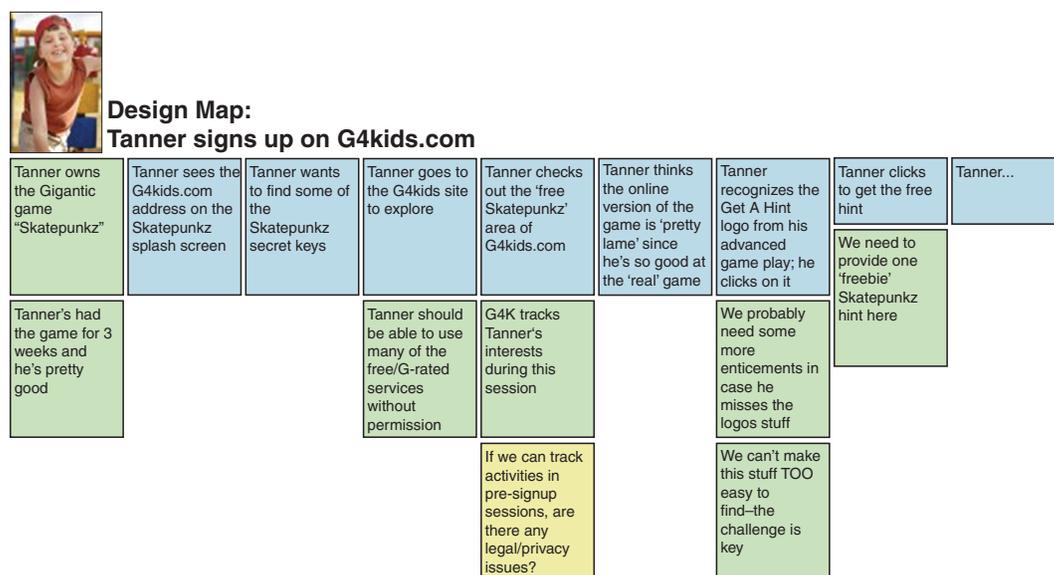


FIGURE 10.23: A Design Map exploring how Tanner registers himself on the G4K site. Design Maps are created by your team and explore the new experiences you are going to build into your product.

Handy Detail

SCRIPT FOR THE FIRST DESIGN MAPPING SESSION

Welcome, everyone! Thanks for making the time to participate in our Design Mapping session today. A lot of work has gone into preparing for these sessions. Interviews have been conducted with a number of people who will use our product in different ways. From these interviews, Reality Maps have been built to describe the way people are doing X today. Personas were also developed to describe the major roles as they are envisioned for people using our new product. We have determined that people have difficulty with X in the products currently available. In the new product, we will work to solve this problem for users. You are all familiar with the Reality Maps and personas and we're ready to create a delightful new product for X users everywhere!

For those of you who participated in Reality Mapping, the process is very similar. We will be creating a giant flow chart, but instead of charting how users do X now, this time we will record a possibility for how our personas will be able to do X with our new product. We will still use sticky notes with the same color codes: blue for steps, green for comments (anything that tells us more about a step), yellow for questions, and pink for ideas.

We are going to start with a single persona and a single goal and describe what it might feel like to use our software to achieve that goal. Remember, there is not necessarily a right answer. In fact, we may build several Design Maps that describe different ways a persona can achieve a certain goal. Also, keep in mind that we won't dive into the details during this exercise. This is not the time to decide what color certain buttons should be. Stick to fairly broad brush strokes and we will settle details in the specifications for each feature that will be informed by this Map. As we move to Design new experiences, please keep the following questions in mind:

- Are we furthering the goals of the persona with this Design?
- Do the tasks the personas perform match their stated skills or skills they are likely to be willing to learn?
- Does the new process we are building provide clear advantages over the old way?

If we can answer yes to these questions as we move through the Mapping process, we will be on the right track. Okay, let's get started. Let's begin by describing the experience of persona X as he makes coffee for himself and his wife. Are there any assumptions we need to start out with?

Managing Design Mapping sessions

Encourage Mapping participants to focus on the *experience*, not on the *tool*. The goal is not to have a Map that tells you “the serial number registration tracking database will feed the score records to the page via ASP” but one that says, “Tanner can see his Skatepunkz high scores on G4kids.com.”

During Design Mapping sessions, remind your team to consider the following:

- Do the tasks assigned to personas in the Design Map correspond to your personas' skills? For example, if Paige the preschooler is expected to type in a URL address to access the site, she is not being well served by the new design. If Tanner's Design Map allows him to invite his buddies to come play games with him online with just a couple of mouse clicks, you are on the right track.
- Does this new process being constructed in the Map offer undeniable advantages to the personas over the old way of doing things?
- Are we assuming things have to be done a certain way just because that is the way they are done now?

As you move through a Mapping session, remember to table questions that might sidetrack your work by providing everyone with yellow sticky notes and encouraging participants to write down difficult questions and issues and post them on the Map. During your Design Mapping session, you might hear a comment such as, "Well, if we're assuming Tanner uses the Internet at school all the time, can we assume he's pretty good at navigating Web sites? If he is, that would make things a lot easier. We would not have to dedicate part of the site to teaching him how to use links." This is a good opportunity to refer to your personas. Do you have information about Tanner's level of Web experience? How long will it take him to learn the differences between doing things online versus doing things on a PC? Your personas will be able to immediately answer some of these questions. Others will have to go onto to the Map to be answered later.

Sometimes you will want to move fairly quickly, placing blue steps across the top of the Map and filling in details later. Other times your team might find it most effective to hash out the details under each step before moving to the next one. In either case, you will want to limit Mapping sessions to two to three hours each.

After each session, follow up on any questions or issues raised and add answers to the Map. As with Reality Maps, it can be useful to convert the sticky-note paper versions of your Maps into electronic versions in Microsoft Visio or a similar tool. This makes it easy for participants to review progress and quickly scan for new material. The electronic versions are useful for printing in various formats and sending to stakeholders for review at a distance. An example of a completed Design Map is shown in Figure 10.24.

Use Design Maps to create wireframes

Wireframes tend to evolve naturally from Design Maps (see Figure 10.25). Once you and your team have agreed on the experience you want to facilitate for your personas, it is relatively easy to use the steps, assumptions, questions, and design ideas in the Maps to create wireframes of the product's UI.

With your team, identify the columns of the Design Map that "go together" and should be grouped on a single interface. At this point, the user interface designer or graphic designer



Design Map:
Tanner signs up on G4kids.com



FIGURE 10.24: A completed Design Map for “Tanner signs up on G4K.com.”

should be heavily involved. Consider what information you are collecting from the personas, and when you are collecting it, so that you can plan to display it on the UI at the right times (e.g., if you have not asked the persona for their name yet, you cannot create a wireframe for a personalized interface).

In Figure 10.25, you can see that the G4K team created very basic wireframes of the G4K.com pages based on the activities they described in the Design Map “Tanner signs up on G4K.com.” As they created the wireframes, they identified a few more questions (note the yellow sticky on one of the early wireframes). As they evolved the wireframes, they continued to reference the original Design Map to make sure the site design supported the experience design in the Design Map.

Step 3: Evaluate and communicate your solutions

Perhaps the most important benefit of Design Maps (and wireframes) is that they hold and communicate a shared vision of the project for your entire team. Seeing the big picture early on in the project helps motivate everyone toward the common goal of making it real. Design Maps enable your entire team to see the product from the personas’ points of view, giving the architects of the product the opportunity to understand and empathize with users. A deeper understanding of the planned product and personas early on in the development process can enhance each team member’s work on your product—whether they are coding, marketing, managing, testing, funding, or selling it.

Use Design Maps to get different views of your product in action

Remember that you can continue to make Design Maps to explore various solutions your product could support. It is very useful to be able to take these variations to stakeholders for

Handy Detail

USE YOUR MAPS TO INTRIGUE (AND INVITE PARTICIPATION FROM) YOUR CO-WORKERS

Maps are intriguing artifacts. They are colorful, and the paper versions that still have sticky notes all over them tend to “flutter” as people walk by. Use these attention-getting aspects of the Maps to your advantage. Anyone who stops and reads a portion of the Map will begin to understand how real people experience real tasks and have real goals related to your company’s product space. Your colleagues may begin to cluster around the Maps, and discussions will sprout. People will come into your office to ask you what the heck the big things in the hallway are, and you will be able to tell them that the Maps are “windows into the world of our real users.” Later, when you create Design Maps that describe the experiences you want your personas to have, your colleagues will be somewhat familiar with the format and understand what the Maps are trying to convey. If you do post the Reality Maps in your company, make sure that you carefully and very visibly note:

- What draft the Map is, and whether you consider it complete
- The experience it depicts.

We have also found it helpful to make new material very visible on the Maps. We do this by placing red borders around the notes added from the most recent session (or since the last printing). In this way, interested parties can scan a posted Map and quickly see what has been changed or added recently.

Note: Share with Care!

If you choose to share your Map, do it carefully. You will have to decide for yourself whether it is appropriate to post your Maps in a publicly accessible area, and if so what Mapping symbols should be removed before doing so. For example, before you post them, take real names out of the Reality Maps. Later, when you launch your completed personas into your organization, you do not want colleagues to *already* be talking about the real people (Anne, Albert, John) you have Mapped with. Consider using the name of the role instead; in this case, “the parent.” You might also want to remove any notations that are critical of the current process. You can certainly note areas that are ripe for improvement without posting a version of your Map with a “Mr. Yuk” on it.

Invite Participation

If you hang your Maps in visible places—especially Design Maps—invite passersby to participate by adding comments, questions, or design ideas (see Figure 10.26). Leave a pile of colored sticky notes and pens for this very purpose. If you are inviting participation on a sticky-note version of the Map (in other words, not a digitized version), make sure the sticky notes you leave out are a color different from those already on the Map so that new comments are not confused with original Map elements.

(Handy detail, continued)



FIGURE 10.26: *Invite participation when you hang your Maps.*

of all of the personas. This type of Map can be very helpful, especially for illuminating communication patterns and getting an overview of “who does what when” across a lengthy process.

Use Design Maps to support walkthroughs and to create scenarios and use cases

Design Maps (and their associated wireframes) are a perfect document to work from when communicating project plans to stakeholders. Once your Design Maps are completed, you can use them to perform design walkthroughs of your product with other team members. Have someone read through the Map, and another person check the prototype or the product to make sure the Mapped process is supported by the product’s design.

Your Design Maps will become official historical documents, much like a formal specification document. You can use your Maps (and the assumptions they contain about how you think your product should be experienced by the personas) to make sure your product is not swerving in the wrong direction as those inevitable compromises are made during development.

You can use Design Maps to help communicate and clarify what, exactly, a given feature is. This is accomplished via *walkthrough scenarios* that demonstrate the feature in use by the personas in a step-by-step fashion. Design Maps show the persona’s experience using your yet-to-be-built product from end to end. They are long scenarios, and they are a wonderful source of

use cases. After you have decided which Design Map you are going to follow to build your product, you can pull individual scenarios and use cases out of the Maps. Because you have created the Maps first, you know that the scenarios you pull out of them fit together seamlessly.

For example, when preparing to write the interface specification for the kid’s registration interface of G4kids.com, the product manager can focus in on the “Tanner signs up on G4kids.com” Design Map. He or she can use subsets of the sticky notes to create an interface document or technical specification document. Using this portion of the Design Map for reference, the project manager can create a section of the specification document that addresses the technical underpinnings required to support the experiences.

Use Design Maps to evaluate design changes during development

Even the best and most thorough designs evolve and change during the development process. As your development team begins coding your new product, check in frequently to evaluate what they are building against what you *thought* they were going to build. Use the Design Maps to “test” the emerging product. Does the product being built actually support the experience you have designed?

If for some reason the product cannot be created as designed, return to your Design Maps and evaluate the effect of the changes on your personas’ experiences. If you find yourself changing elements of the Map to accommodate unexpected design changes, do not despair. It is much better to know sooner than later about these changes and the potential problems they will cause. Reconvene your Mapping team—and members of the development staff—to analyze the effects of changes and to tweak the design accordingly. If you cannot solve experience problems with code (perhaps it is too late to fix something you discovered to be broken), you can at the very least create support materials to mitigate the impact on the personas (or, rather, the end users they represent).

Story from the field

A PICTURE OF A DESIGN MAP COULD SAVE YOU HOURS

—**Whitney Quesenbery**, Whitney Interactive Design (wqusability.com)

I was asked to review an early version of this chapter and as a result was carrying this chapter around with me for a short period. In a meeting with a new partner, we were struggling to find a way to bring together some very incoherent Design ideas from our client. After almost 15 minutes of hand waving, I threw caution to the wind and showed them a complete Map as illustrated in this chapter. They immediately got excited—and saw instantly what it would do for us and how it would help us collaborate. It saved me hours.

Use Design Maps to communicate with other departments

Teams responsible for product launch and post-launch activities and materials love Design Maps—especially if they are kept up to date and do actually reflect the experiences your product will support. Documentation teams can use Design Maps as outlines for documentation, testing teams can extract use cases and test cases, marketing teams can build materials that express the value of the new experiences you have created, and so on.

SUMMARY

Reality and Design Maps will not build your product for you, but they can help. The most difficult part of Mapping is the courage it takes to stand up in front of a lot of experts and ask them to essentially “dumb down” the processes they undertake every day. But if you can drum up the courage to do this, you will find yourself—and your product team—in possession of a clear picture of the problems you need to fix with your new product.

The best thing about Reality and Design Maps is that they break down barriers. Sticky notes are not intimidating and function as a sort of equalizer. If people who hold very different positions in hierarchies and job roles can all agree to work on a Map together, they usually find themselves communicating more clearly than they ever could before. It is almost as if the Mapper’s willingness to ask for a basic explanation of a complex set of tasks releases everyone to talk openly with one another. Like personas, Maps are, if nothing else, excellent communication tools.

Together, Reality and Design Maps help you understand the bridge you are asking your future users to cross: from the familiar shores of what they do today to the unknown terrain of the new processes supported by your product. The real people who helped you create your Reality Maps will purchase your product, and as they change the way they accomplish their goals, they will have more and more in common with your personas.