4 *The Interpretation Session*

"I just talked to a potential customer at SXSW, and he said he wanted that feature we talked about—"

"But I just went along on a service call and that guy hated it—we should do this other thing—"

"No, I talked to a VP at one of our really big clients and she said—"

These are the voices of people who have talked to their users. Each one learned something valid. Now they are faced with the difficulty of communicating what they learned, reconciling the different messages from different people and coming to agreement on what the users really need. They have feedback of a sort; they do not have a shared understanding of what it means or what they should do about it.

The Contextual Interview is the first *immersion experience* into the world of the user—but only for the actual interviewer. The next challenge is to capture that data for use in such a way that it gets incorporated into the mindset of the team. Capturing the data is not the major problem for product teams—having a shared understanding of the world of the user is.

Interpretation Sessions let every team member experience multiple interviews

It's not enough for the members of a design team to understand the users they each visited and talked to themselves. If a team is to agree on what to deliver, all team members need to immerse themselves in the world of every user. It isn't a question of just communicating a few facts,

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as is typically done with a trip report. Team members need an appreciation of the user's world from the inside, as though they were there.

Interpretation Sessions are another immersive experience, providing a context for the team to understand the field interview data from a user interview in depth, listening to the details of the interview and capturing insights and learnings as they go, and also capturing the details of the user's practice for later use in design.

An Interpretation Session fosters this shared understanding through conversation and mutual inquiry into the meaning of the facts about the users' practice. Every team member learns about all the users, and they also learn each other's perspective, the unique focus each person brings to the problem. They can probe each other's understanding, learning from and teaching each other what to see. Together, the team generates a richer understanding of the user than one person alone would have been able to provide. Interpretation Sessions simultaneously immerse the team in the world of the users *and* create a shared understanding of the implications for the project.

Building a shared understanding

An Interpretation Session is a structured group meeting consisting of the interviewer plus two to five team members. The interviewer talks through the events of a single interview. The rest of the team listens, asks questions, draws models, and records issues, interpretations, and design ideas. In their discussions of what to model and what to record, the team wrestles with the data and what it means, learns how each team member views the data, and develops a shared understanding of that user.

A shared understanding gives the team a common focus

The Interpretation Session is the first and prototypical Contextual Design meeting, so it's worth looking at the specific benefits it provides. Contextual Design is structured into a series of design meetings where the team engages with the data and invents the evolving design together. All Contextual Design meetings are based on techniques and approaches that make

working in teams work. The Interpretation Session is the first of these design meetings and incorporates many of these techniques:

Better data: Because everyone asks questions of the interviewer, the interviewer remembers more than he would on his own. Walking the events in order, under questioning, prompts him to recall details he didn't know he remembered.

Written record of insights: One person acts as recorder and captures the key points as they occur. By the end of the Interpretation Session, the activities of this user have been characterized in models, and the team's insights, design ideas, and questions have been captured online. No one needs to take additional time to write up or analyze this user interview. People who weren't present can read the models and the notes to catch up on what was learned.

Effective cross-functional cooperation: The Interpretation Session is a forum in which diverse job functions cooperate, whether they be user researchers, UI designers, marketing, developers, testers, process or service designers, or anyone else. The Interpretation Session provides clear tasks and a clear set of roles for everyone in the meeting. It focuses the meeting not on the participants and their differences but on the data. Instead of arguing with each other, participants argue over whether a model or note accurately reflects the user. Instead of arguing about people's opinions, the only discussion is whether an interpretation can be justified based on the data. This makes a safe environment for a new team and people of diverse backgrounds to learn to work together. Learning to value the unique contribution of every participant happens almost by accident.

A clear way of working together helps a diverse team listen, contribute, and learn

Multiple perspectives on the problem: Each team member brings their own focus to the problem, from their personal history, their current job function, and their understanding of the project focus. A cross-functional design team will always see more in an interview than any one person would alone. For this reason, the interviewer does not filter the information at all; something she dismissed as irrelevant may be picked up by someone else to reveal an insight of great importance. Any kind of predigested presentation of the

interview—a report or presentation, for example—would limit the information that would be extracted from an interview to the point of view of one person.

A well-structured meeting is an efficient way to generate insight

Development of a shared perspective: The open discussion between team members helps them learn and take on each other's perspective. By hearing everyone's questions and insights on the data, every team member expands their own focus to include the concerns of others. The questions that people raise suggest new lines of inquiry and new directions to take future interviews. The team moves toward a common focus on the problem, which includes the particular issues of the team. Team members learn the new focus by participating in the interpretations; there is no need for an elaborate process to redefine the focus.

Immersion in the data: It is hard to process data—to think through what it means and might imply for design—when it is just presented. For a team member to truly make new information their own, so that it is part of their world view and can be used instinctually, they must be involved at a level you can't get from a report or presentation alone. An Interpretation Session reveals the data interactively through questioning and discussion. Team members immediately represent it in models, so they must internalize it to write the models and everyone else must internalize it to check them. And since everyone has a job, it's hard for attention to wander.

The structure of an Interpretation Session

It's hard to do creative work in on-going, face-to-face meetings. Industry does not provide many good models for face-to-face cooperation on the same project; it's easier and more common to split projects up into parts small enough for individuals to do independently. But there's no way to leverage multiple perspectives if everyone works independently. It's hard to develop a sense of common direction. Using structured meetings to interpret the data from a field study helps the team learn to work together. The Interpretation

Session is the first of such structured design meetings of Contextual Design.

In an Interpretation Session, the interviewer tells the story of the interview, using hand-written notes and memory. Team members ask questions about the interview, drawing out details that the interviewer might have overlooked, and offer insights from their own perspectives. One person acts as recorder, typing notes in a document. Other participants capture the selected Contextual Design models, representing the life and work context of the user. When the discussion sparks design ideas, they are captured in the notes.

Interpretation Sessions enable sharing that has to happen anyway

Here are the key elements of an Interpretation Session.

Who participates

The whole product team (UX, marketing, product management, professional services, editors, content providers, developers, etc.) is generally too large for an Interpretation Session. But everyone should be in some Interpretation Sessions to share perspectives and create the shared understanding. For any Contextual Design project, define a core team, a subset of people responsible for moving the work forward. This core team should have diverse job functions so they share different points of view during an Interpretation Session. Involve the whole team by rotating other team members in and out as schedules permit. Often there's only one UX team member—when that's the case, create involve others on the product team in an ongoing way to simultaneously help the UX person and spread the immersion experience. Use the sessions to spread knowledge of the users and to forge relationships with the team.

Schedule all on the product team into at least one Interpretation Session

Productive Interpretation Sessions have between two to five people, depending on how many Contextual Design models are captured (two to three for notes plus one model; four to five for two to four models). But the first session often includes everyone on the design team, or at least the whole core team. A meeting this large is hard to manage just because there are so many people trying to be

heard—and it's a waste of resources to have everyone in the same session. So after the initial session which gets everyone on the same page, it's more effective for large teams to interpret interviews in sub-teams and share the results with the larger team afterward. Mix job functions in each sub-team so diverse perspectives are brought to bear on every interview. In any case, never go above 12 in a meeting—it will be too chaotic.

Roles

Any effective meeting needs clear roles to drive it forward. The Interpretation Session is supported by roles that give the meeting structure, so everyone knows what to do and what is appropriate. The roles also give everyone in the meeting something concrete to do, which forces everyone to interact with and process the data. Everyone should have a defined role; double up on roles when you have fewer people.

Give everyone a job to keep them involved

The interviewer. The *interviewer* is the one who interviewed the user. They are the team's informant, describing everything just as it happened, in the order that it happened. Just as we try to keep users from giving summary information, the interviewer does not summarize. Just as interviewers extract retrospective accounts from users, the team interrupts the interviewer every time they think she skipped a step or missed a detail. In many ways, it's as though the team interviews the interviewer to find out what she learned in her interaction with the user. For this reason we tell the interviewers not to discuss the interview before the Interpretation Session. This keeps them from creating summarizations of what happened. As long as you interpret within 24–48 hours you will be able to reconstruct the interview in detail—so don't wait!

It's easier for participants to visualize the interview when they see how the space is laid out. So even if the Physical Model is not one of the Contextual Design models to be consolidated, it's often best for the interviewer to start by drawing it. (We describe how in

Chapter 8.) The Physical Model (Fig. 4.1) is a simple line drawing which helps the team see what the interviewer saw, whether it's the inside of the user's car, a drawing of an office or home, or anyplace else the user was located. A high-level outline drawing of the space illustrating everything relevant to the story is better than photos, which include too much detail and don't reveal the structure of the place. Below is a classic office drawing from the 1990s and what it revealed to the team.

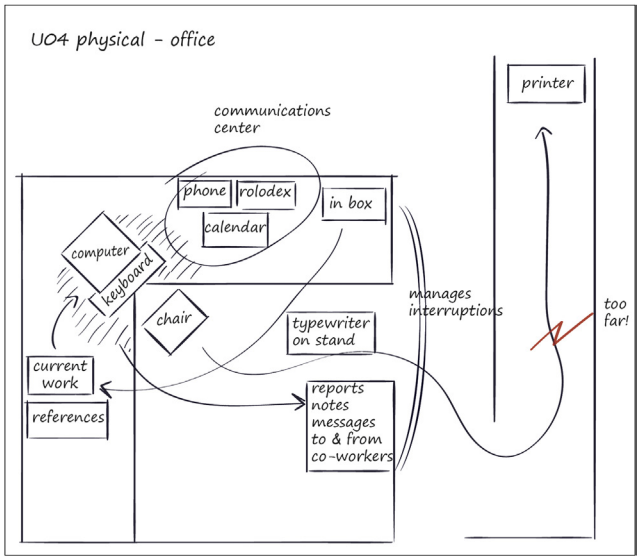

FIGURE 4.1 A classic Physical Model from the 1990s for an office, showing the workplace of one user. The model represents her cubicle and shows how she has structured her environment to help her get work done. The placement of her IBM Selectric in the doorway, the inbox next to the door, and the shelf used as a drop-off place all suggest a strategy to minimize interruptions caused by working in an open cubicle. The phone, rolodex, and calendar are all grouped together, suggesting that these tools work together to support communicating and coordinating with others. And the open space around her workstation suggests an intent to keep this area clear so she can lay out her next task. The team has annotated the model to reveal these distinctions and to show breakdowns, such as the printer being too far away. A photo would be too cluttered to reveal these distinctions clearly.

The recorder. The *recorder* keeps notes of the meeting online displayed, so everyone can see them using a monitor or projector. The notes capture the key observations, issues, and quotes the team deems important for moving the design forward. Notes record key practice issues, identity and cultural observations, tool and activity successes and breakdowns, task patterns, the use of time, place and different devices, design ideas, and any other issues that have relevance to the project. Later, these notes are transferred to sticky notes and used to build the Affinity Diagram.

The notes do not duplicate information from the Contextual Design models except for breakdowns or other insights important to understand the user's activities. Demographic information (e.g., the user's age, length of time on the job, skill level) does not go into the notes either. Demographics go in a profile describing the user (Fig. 4.2).

```
T05, editor for a medical information company: 32, female.
Travels most with her boyfriend, a web developer.
Has a Droid Incredible smartphone, iPad, iPod. Takes a work Windows
laptop between home and work. Uses gChat, gDocs, AutoEurope.com,
Delta.com,Google maps app on phone, Yelp app, AirBnB.com, Facebook
and Shutterfly.
```

Figure 4.2 A user profile. The team has assigned user code "T05" to this user—05 for the user number and "T" to indicate that this is a traveler, not an agent or any other role interviewed for this project.

Type while you listen—don't slow down the meeting to capture data

Teams often need help clarifying their points. The recorder may have to rephrase an idea which has only been expressed indirectly to capture it in a clear, succinct language. A good recorder hears the point the team is trying to express, states clearly what the insight or issue is, writes it, and moves the meeting on (Fig. 4.3). (Anyone else who hears what the underlying issue is can do the same—then they say it, someone says "capture that!", the recorder writes it and the meeting moves on).

```
T05-77 Kept prices of hotel and car options in a paper notebook.
       It took several weeks to get the best price.

T05-78 She knows prices change over time, so she searches at all
       different times of the day and days of the week looking for
       the best deal.

T05-79 She couldn't get both the cheapest price on airfare and the
       best price on cars--the cheaper places to fly to were more
       expensive places to return the car.

T05-80 Whenever she books a trip to a city where she knows
       someone, she emails them when she thinks she's found a good
       price. She figures locals will know if it's a good deal.

T05-81 Airline prices are not logical--not tied to distance. It
       takes specialized knowledge to know whether an itinerary is
       a good deal or if there are cheaper nearby alternatives.

T05-82 To her it's not a hassle to keep checking prices--she
       thinks travel planning is fun. "I do love it."

T05-83 DI: Capitalize on the competitive or fun aspect of travel
       planning--gamification, getting the best deal, using the
       best knowledge, sleuthing it out.
```

FIGURE 4.3 Extract from the online notes typed during an Interpretation Session. Each note is preceded by user code and note number. This section of the notes shows the development of an idea from a insight into the user's approach to an activity to a design idea (DI). These notes are displayed during the meeting so all can see and correct them. They are a permanent record of the design conversation, capturing the discussion and used to build the Affinity Diagram later.

Modelers. *Modelers* draw Contextual Design models on flip charts as they hear relevant data. When you start the project, decide which models will be most useful to your focus; these will be what you capture during the Interpretation Session (see Part 2). Each model captures its own kind of data from all the data of the interview. Modelers draw at the same time as everything else is happening. They do not stop the meeting to get agreement at each point; it's up to individual participants to raise an issue if they think the modeler got it wrong. Modelers have to be comfortable putting up one or two elements of a model as they hear them without waiting for the whole story to be complete—it's too slow to get the whole story, then stop the meeting and draw the model. Modelers do ask questions suggested by their models—if the sequence modeler can't write the trigger that started an activity because

the interviewer never said it, he won't be able to record this and will ask. This is another way of improving the data from the interview. Give each type of model to a different person; let people double up if necessary. The notetaker can double up with the sequence model if you're short of people. Let people rotate through the different jobs.

Contextual Design models separate user data into different points of view

Capturing models improves the quality of the data recovered from an interview. The models capture what the interviewer saw or recovered in a retrospective account; they keep the team grounded in concrete, trustworthy data. Also the whole team can see what is being captured and whether it's complete.

Models separate the user's world into different points of view and so make it possible for the team to consider different aspects of experience clearly in a tangible, shared way. Building them during the Interpretation Session teaches the team to start thinking about the users' world more holistically—and this improves the quality of the data collected in subsequent interviews.

The moderator. The *moderator* is the stage manager for the whole meeting. Any meeting has a *mainline conversation*—the discussion which is the primary purpose of the meeting. The moderator keeps the meeting focused on this conversation. In an Interpretation Session, the mainline conversation is: what happened in this interview and what do we learn from it? The moderator keeps the pace of the meeting brisk; ensures the interviewer doesn't lose his place with all the interruptions; ensures all the data is captured someplace; and makes sure everyone stays involved. The moderator has to stand outside the process enough so that they can see what is going on. Moderators who get too involved have to hand moderation over to someone else.

No meeting works without someone taking the role of moderator

Anytime you have more than three people in the Interpretation Session, you will benefit from declaring someone as the moderator. Do this explicitly and define the role, so that person has permission to guide the meeting—even when it's a manager departing from the mainline conversation!

Participants. Every participant listens to the story of the interview, asks questions for understanding, and develops their own insight into the data. They propose interpretations, make observations, and suggest design ideas. The team's design ideas are captured at the same time as the data (clearly flagged as such) partly to encourage the team to think about the implications of the data, but primarily so the designer can stop thinking about the idea and go back to the data. (This is a useful technique for keeping a meeting moving forward: anytime someone gets stuck on a point, write it down in a form that won't be forgotten and will be used at the appropriate point in the process. Then the person can drop it and go on.) Finally, participants watch the models to make sure they are complete and watch the online notes to make sure they agree with the way they are written.

Manage people problems with meeting techniques to keep them on topic

Also, helping out the moderator, everyone acts as a *Rat hole Watcher*: recognizing when the conversation has wandered from the mainline conversation and needs to be brought back to the point. They then call "Rat hole!", and everyone returns to the interview. The idea of rat holes is part of managing the team.[1] By naming the concept, the team accepts that rat holes exist and waste time. Without realizing it, each person on the team has given everyone else permission to point out when he or she is off topic. Then, instead of getting defensive and angry, when someone calls "rat hole," people laugh sheepishly and get back to the subject of the meeting.

Running the session

Interpretation Sessions are interleaved with interviews: interview a few people, interpret those interviews; interview a few more and interpret those. This way, you can always run the interpretation session soon after the interview so it's still fresh, and you can use your findings in future interviews.

[1] It has been brought to our attention that there is a community which considers these should be called "rabbit holes" rather than "rat holes" by analogy with the hole down which Alice fell. We do not traffic in such heresies.

If the session will happen the same day as the interview or the next, the interviewer can run the meeting from their handwritten notes. The best data is interpreted within 24 and at most 48 hours. Then memory will be good enough that, with the notes, the interviewer will remember enough of what happened. If the Interpretation Session does not happen until a day after that, the interviewer should annotate their notes from the audiotape of their interview. If they delay longer than 3 days, we suggest transcribing the notes to aid memory—but this is painful and not recommended, so do your interpretations right away, and life will be simpler.

Keep everyone engaged and on topic

Every user is assigned a user code. You promised the user confidentiality—this code protects the user's anonymity and is used in the notes, on all models, and in all discussions. It's recorded in a list of interviewees that the team keeps private.

The interviewer starts by giving a brief profile of the user—their job function or role, the type of organization, and any demographic information. This profile is recorded in a separate file, so that later when someone asks "was U10 a secretary or a scientist?" the answer is easy to get. The interviewer draws a Physical Model of the place the interview happened to introduce the context. For the rest of the interview, he walks through the interview using his notes, line by line. Everyone listens and probes to develop new insights into the user's life, calling out "capture that!" whenever there is a succinct insight, question, or design idea to capture.

Be nonjudgmental and keep a brisk pace

The tone of the meeting is active and involved, tending to be slightly chaotic: the interviewer is trying to tell the story, everyone is asking him questions, two or three people are drawing models, the recorder is typing away, and the moderator is advising people all at the same time. The tone of the meeting is also open and trusting; everyone is expected to share insights and design ideas without stopping to think whether they are going to look stupid or whether the design idea is any good. No evaluation happens at this point—only capturing people's thoughts and

insights. If one person thinks a point is important and another doesn't, don't get sucked into an argument about it—just record it. It's just another note. Arguing over whether a note is a duplicate or already captured wastes more time than writing it again. It will be sorted out in the Affinity Diagram process.

An Interpretation Session usually lasts as long as the interview, about 2 hours. The first interpretation in a project will be longer, and later interviews on very focused tasks may be shorter.

Models, insights, and design ideas are the first deliverables

At the end of the interview, the team takes a few minutes to clean up. They capture *insights*, the key learnings from this user. They note *vignettes*, insightful, characteristic stories from this user that give a good flavor of the data. And they flesh out the models to ensure that no important points were missed. Insights are captured online and on a flip chart; vignettes to be written are just captured in one place online. Together, insights and vignettes make it easier to talk about what the team learned while interviews are going on, giving a quick answer to a skeptical manager who asks, "So what did you learn from all these expensive field visits?"

In a productive Interpretation Session, everyone in the room has a job to do, so everyone has to process the data and think about its implications. This combination of listening, inquiring, thinking, and drawing or writing the implications creates the immersion in the data that results in real understanding and insight. By the end of the Interpretation Session, all participants "own" the data and have incorporated it into their view of the user and the project. Interpretation Sessions save time—there's nothing more to be done or shared with others after the Interpretation Session to handle the data from this user.

There's a culture in our industry that says real work doesn't happen in meetings. "Another time-wasting meeting!" we say to each other. Yet it's through the stimulus of bouncing ideas off each other that people work most creatively. It's through the cross-check of several people looking at the same user data that people work with the highest quality. The Interpretation Session is a working meeting that allows for creativity and quality. It brings together activities that might otherwise happen individually and sequentially and allows them to happen simultaneously in a team process. It's an efficient way of turning an interview into data useful to a project, recorded in a form that can be saved, communicated, and used to drive design. You'll know your Interpretation Sessions are working when people start clamoring to get in, because they know that's where the creative design work starts.

Remote and online Interpretation Sessions

It's often not convenient for a team to be all in one room for an Interpretation Session. Collaboration tools make distributed Interpretation Sessions feasible and no less productive than face-to-face meetings. But make sure the core team did a few sessions together first to familiarize them with the process and each other. Then they can work remotely or have adjunct team members or stakeholders remote into the meeting. To be effective:

- Make sure everyone has a job to do, especially people who are alone at their location. This helps keep them tied into the conversation.
- Use online meeting tools or phone conferencing to share the conversation. Use online meeting tools to share documents or a collaborative document tool such as Google Docs.
- Capture Affinity notes and some models online, updating them during the session. Once the team knows what to capture, you can keep these models online: Identity, Relationship, Day-in-the-Life, Sequence, and Decision Point Models.
- Some models must still be captured in paper but can be mailed back and forth, or use a camera to share. Collaboration and Physical Models should be drawn by someone who is *not* alone. Ideally, they are drawn at the interviewer's location, where the interviewer can check them for accuracy.

Working in teams

Real work and creativity happen in meetings if they are well structured

The Interpretation Session is the first intensive design meeting in Contextual Design, so this is a convenient time to discuss how to design a meeting that works. Much of design work happens in teams, which means meetings; how good your design process is, depends to a great degree on how good your meetings are. With that in mind, here are the principles we use for designing effective meetings.

Use a cross-functional team

Every person involved in product development comes to the job with his or her own personal experiences. We each naturally see the product from our own point of view. Marketing sees trends and motivations. Developers see the possibility of function ("fix this") and data structures. Usability testers tend to see problems. UX designers see the interaction, page layout, and graphic design. Data modelers see data. Business people see business problems. And so it goes.

Design with a cross-functional team working together face-to-face

The people who need to coordinate to get the work done don't actually live in the same world of experience. And yet all these points of view matter to the ultimate success of the product.

Inspired by Deming,[2] Contextual Design starts with a cross-functional team. The team's job is not to oversee the project or simply review direction, but to do the real work of requirements and product definition, together, face to face. Over the years, we have learned that a robust shared understanding comes from doing real work together in situations where individual expertise informs the joint work but does not divide responsibility by job role. Everybody works together as an equal participating in all aspects of Contextual Design. Because they are all immersed in the same user data and work out product direction through structured activities, they automatically take on each other's point of view while collectively

[2] Deming, Edwards, *Out of the Crisis,* MIT Press, 2000.

developing a shared understanding of the user, the opportunity, and the direction for the product. Then, armed with a common direction, they can act independently to guide the work of their independent job roles, guided by the same user and product assumptions. Contextual Design builds in buy-in and creates a well-functioning team naturally. We talk about how to form your team in Chapter 19.

Structure design meetings for creativity

Companies know that to produce products, people need to be able to effectively collaborate. At the very core of product design is the ability to get along and work with others. More than any other profession, engineering and product design is about a team coming together to get the work done every day of the week. But how can we make sure that creative collaboration happens consistently, particularly when the popular conception of meetings is that they are a waste of time?

In our experience, the fastest and best way to achieve a shared understanding of the user and a unified product direction is to bring the responsible people together in creative face-to-face meetings. In Contextual Design, time together is where all the real work happens—not alone at your desk. Contextual Design is a collection of creative meetings which combine to produce a successful design, while managing the process of doing the work with people. In Contextual Design, each working session has a defined procedure and clear rules of engagement. People of any background and skill can participate because they know how to move the work forward productively. Structure does not limit creativity—on the contrary, it frees people to be creative because they don't spend emotional time figuring out how to run the process, how to deal with the people in the room, and how to influence the outcome.

Contextual Design is a series of meetings to drive invention

Here are some of the basic principles that structure all our creative meetings.

Pick a process and stick to it. Typical corporate methodologies for product development provide general outlines about what to do to move from requirements to shipping but few communicate what

teams ought to be doing on a daily basis to get the work done. Even with more structured processes such as Agile, the requirements and design part of the process is left undefined and unclear. Contextual Design defines structure for these looser parts of the process, so it can fit any method. It provides a backbone structure to guide teams.

It's Monday morning—what's the first thing you do? If there's no clear process, each person on the team, with their separate skills and history of doing work, begins a process of influence, talking, designing meeting structures, and sometimes trying them out to varying degrees of success. People can waste a lot of time storming, forming, norming[3] and second-guessing what they are doing—and repeating the whole process over and over again each time a new person joins the team. Knowing what to do to get the work done cuts through much confusion, friction, and argument, and opens the way for creative, efficient design action. Whether the people are experienced or new members, with a defined procedure they know what is expected and how to work together for success.

Continuously discussing process wastes time—choose it in advance

Contextual Design structures front-end design with a set of creative meetings, each with their own structure. Central to each meeting is a defined procedure, clear roles, and clear rules of engagement. Meeting structure includes who does what, how long a process should take, when and how decisions are made, what quality work looks like—and who gets to decide. It builds in techniques to resolve differences of opinion and to work with differences of style.

Know and articulate the purpose of the meeting. This is a simple meeting principle, but it's at the center of any successful creative meeting. In Contextual Design, each creative session is convened for a specific purpose. It is structured to achieve only that purpose. For example, the Interpretation Session brings people together to hear the story of one user's data and capture what is relevant—and that's all. The affinity building session brings people together to take hundreds of individual notes from the research and structure them into themes. The visioning session is designed to help

[3] Tuckman, Bruce W. "Developmental sequence in small groups", *Psychological Bulletin*, Vol 63(6), Jun 1965, 384-399.

a team use the data to generate new product concepts. Everyone knows why they are there and the expected outcome.

Without clear purpose or roles the team will flounder

We help this process by defining the *mainline conversation* for each meeting, as we did for the Interpretation Session. When people know what is on topic and what is not, it's easier to stay focused and easier to call people back to the topic when they wander.

Assign roles, responsibilities, and articulate expectations of participation. Depending on the purpose of the meeting, we define appropriate roles, responsibilities, and procedures. When any meeting seems to have no discernible structure, people think that no one is "running things." So they either check out mentally or take over and try to drive the meeting. But with a clear understanding of what to do, everyone gets down to doing the work.

In Contextual Design, every meeting defines the roles needed to get the work done. These are not job roles—they are meeting roles which can be played by anyone. Often we rotate who plays the roles. In the Interpretation Session, the roles are notetaker, modeler, interviewer, participant, etc. Everyone knows what they are doing so the meeting stays focused and the work gets done. Moreover, when a new person joins a meeting or participates intermittently, the team can tell them the rules, and they can join in smoothly.

Let a design artifact focus the team conversation

Externalize conversations. Many years ago, Lucy Suchman[4] discovered that when product teams think together, they hover over some external representation—often a picture or abstract model of concepts. It's a cliché that great ideas start out on the back of a napkin—they are written down, externalized as a drawing on the napkin. To help a group of people stay focused on the work of the meeting, we borrow this natural technique. So in an Interpretation Session the data is displayed for

[4] Suchman, L. *Plans and Situated Actions: The Problem of Human-Machine Communication*. Cambridge University Press, 1987.

all to see, the Affinity Diagram is built on the wall, the vision is captured on a flip chart, and so on.

Particularly when working with a team, having a representation of the product concept as it emerges is essential to avoid "talk in the air"—where misunderstandings are so prevalent. The artifacts of Contextual Design capture the findings and represent the ideas of the team; anything not captured is not part of the design considerations going forward. When the team understands this, they realize that general talk or side conversations not only get in the way of a shared understanding but also won't matter in the long run. So team members start to care that their thoughts are captured in the artifacts produced by each meeting.

Taken together, meeting artifacts represent both the conversation and the result of the meeting. Meeting artifacts, publicly displayed, pull the attention of meeting participants back on topic. They focus the direction and the action of the meeting. Moreover, when ideas are physical, they can be left and returned to with context preserved. When ideas are physical, they are no longer owned by an individual; they belong to the team. The artifact, not interpersonal dynamics, becomes the focal point of the meeting, keeping everyone productive and on track. When data and ideas are physical, they are the living representation of the emergent shared understanding. Look for the way we use physical artifacts to support creative meetings throughout Contextual Design.

Moderate and self-monitor. Any creative meeting can get off track. Sometimes, after we have taught clients how to run Contextual Design meeting, they call for advice because their meetings aren't smooth, people are arguing, taking too long, and so forth. The first thing we ask is, "Did you assign a moderator?" Usually, the answer is, "No." Anytime people come together—especially in groups larger than three to four—the work works best when someone is watching the process. A moderator makes sure people are operating by the rules of engagement, they make sure people are listening and heard, and they remind everyone of the process. The job of the moderator is to keep the meeting on track. Anyone can be a moderator, because everyone should know what to do. But in the heat of the moment, people don't watch themselves—so we assign a moderator to do it for them.

Self-moderate and address all issues in Process Checks

Moreover, roles and procedures may need to be tuned given the people, the company, and the needs of the project. To make any process work, you have to design and iterate that process given the context. So we define a Process Check which can be done daily if needed but should be done at least weekly. Even seasoned teams may recognize that they have become too chaotic and call for a Process Check. A Process Check is simply a time to list what is working and what is not with that meeting for those people—and to generate design ideas to improve it without losing the core purpose of the meeting. Then the team chooses to try something new and continues tuning the process.

Have a space. "Working as a team" traditionally means breaking the design problem into small bits and assigning it to individuals working in cubes. Then members review each other's work, make suggestions, and return the problem to the "owner" to fix. Today, remote teams reinforce this separation with geographic barriers. This can lead to overfeatured products, as each engineer expands his part because it is all he has to focus on. The result is incoherent products—often hung together by a menu bar linking together components representing each department that produced a subsystem.

A team room acknowledges that team work is continuous

Organizational architecture also reflects this way of working—where can people work together? Individuals have a space—but not the team or the product. The most common work environment for a developer is the cubicle—an area big enough for one person to work in, containing a laptop and a desk. But it is not big enough for several people to work together comfortably, and it has not got the wall space to support group work.

Some companies eliminate the walls and cubes and put everyone in one open area. The lack of walls, close proximity of people, and whiteboard walls may facilitate an easier flow of conversation. But because it's all open and people need to focus, chatting by a desk is discouraged—and a creative group meeting would disrupt the whole space.

Meeting rooms do exist, but a meeting room's key characteristic is that it is shared and booked by the hour. So the only work that it supports is that which can be completed in a short time—a half day at most—and nothing can be left in the room. Every conversation

has to restart from scratch, and every meeting has to start with spreading out all the design diagrams again.

In the end, if we want to work together—at least for the key period of building a shared understanding of the user and shared design response—we recommend that the team have a room that they don't have to clean up and that they can keep coming back to. Then the process, rules of engagement, and the space help the team work well together.

Manage interpersonal dynamics

Working together is a new skill for most people. Collaboration in teams is not explicitly taught in schools and is rarely taught on the job. Working together effectively means understanding how to keep a design conversation on track; how to focus on the work issue, not each other; how to manage everyone's personal idiosyncrasies; and how to uncover and address the root causes of disagreements. Unless teams learn to do this their designs suffer, because the models people have for handling disagreements trade off coherence of the design for keeping people happy.

We may call ourselves a team but we rarely work continuously face-to-face

One primary model people have for handling disagreement is horse-trading: "I think you're wrong on that. But I'll let you have it if you'll give me this other thing that is really important to me." Horse-trading leads to a product which is a patchwork of features, with no coherent theme. And horse-trading causes everyone on the team to disinvest from the design, because everyone has had to agree with at least one decision they thought was fundamentally wrong.

Other models for handling disagreement exist, but most don't work any better. There's the compromise model, which says, "You say we should design everything as dialog boxes. I think everything should be buttons. So we'll implement both and make everyone happy." Everyone is happy except the user, who has a dozen ways of doing each function, and no clear reason why one rather than another. Or there is the guru model, which says, "The guru is smart and knows everything. We'll all do what the guru says." Except that the population of gurus who are infallible on technical architecture, GUI design,

user work practice, marketing, project planning, and the host of other skills necessary to get a product out is vanishingly small.

Well-structured design sessions manage the interpersonal by eliminating the jockeying that goes on when people try to figure out how to move forward productively. The purpose of the meeting is clear, each person knows what is expected of them, and conversations are externalized. All this ensures the team is focused on the work of the session. Add a moderator watching the process, and much of the interpersonal friction disappears.

But even with all this, interpersonal differences and personalities will still play out and can get in the way of moving the work forward.

Plan to manage problem interpersonal dynamics such as disagreements

So Contextual Design defines techniques which help manage the interpersonal. It defines procedures for deciding among design alternatives based on data, not arguments or horse-trading. It helps people accept each other's differences by raising awareness of how such differences can both help and get in the way of the work. It includes ways that everyone can be heard and valued irrespective of personal style, gender, or culture. These interpersonal techniques are introduced along with the roles and procedures as relevant to each design session.

Here are a few core principles guiding the process. But the most basic principle is *make interpersonal dynamics that might get in the way explicit in advance*. Then everyone is on the lookout for it—and when it happens, people interpret it as a known event to be managed, not an interpersonal blowup.

Name behavior to raise awareness. A concept like "mainline conversation" is introduced to the team so they know what they are supposed to be talking about. Mainline conversation is a good example of naming behavior to help people manage their behavior. Any behavior that can get in the way of smooth communication can be named. In Contextual Design sessions, we routinely define and name cognitive styles and how they play out in different design sessions, participation tendencies (too little or too much), team-leading skills, and expectations about interruption (when it's ok and when it isn't), for example. We discuss interpersonal

With awareness of interpersonal differences, people can self-monitor and accept

styles by giving examples of the behavior with both its positive and negative attributes—revealing the value the style has for the time in the right circumstances, as well as discussing how it can get in the way. When the concept defines personal attributes such as cognitive style or participation tendencies, it allows people to self-recognize. We then provide ways people can both value and manage their own behavior and that of others in a nonconfrontational way: "Dan, you're doing your 'diver' thing again. We don't need to figure out every detail right now. Do you agree with the concept?"

Make sure people are heard. The single biggest complaint in design meetings is people feeling unheard. People who feel unheard either keep raising the issue over and over—annoying everybody—or checks out of the meeting altogether. So Contextual Design builds in lots of ways to make sure what people say is heard—most often by capturing the thought physically. We capture thoughts in an interpretation note, on a model, as a design idea or question associated with multiple design artifacts, on a product vision, or in a "parking lot" for issues to be addressed later. This is another example of externalizing conversation—making thought concrete both captures it for productive use and deals with one of the most difficult interpersonal issues to manage. Everyone wants to be heard—Contextual Design builds in productive ways to listen.

To move fast, write down people's issues so they are heard

Provide a way to handle problem behaviors. Problem behaviors are rarely caused by people trying to make trouble. Usually, they are just people being their normal, unmoderated selves. Contextual Design introduces ways to recognize, name, and handle these behaviors. For example, in the Interpretation Session we introduce the role of the *Rat-hole Watcher* (which everyone plays). A rat hole is anything that is off the mainline conversation. The explicit, shared role of the Rat-hole Watcher communicates the expectation that everyone should look for rat holes and point them out—and simultaneously reminds everyone to stay on point. And because it is humorous, it simultaneously softens and legitimates the previously socially unacceptable behavior of publicly calling out people

for nonproductive behavior. We encourage people who interrupt too much to ask the team to let them know so they can build self-awareness—this encourages the team to work together to self-moderate. Quiet people are sometimes given flags or whistles so they can again humorously have a prop to help them participate. We have developed a bag of interpersonal tricks we developed to handle disruptions, many of which are described in this book. But don't stop there—start looking out for these issues and develop your own tricks!

Keep people engaged. People can't stand being bored or sitting around waiting for their turn to participate. If there is not enough air time because there are too many people in the room, if the process demands that they just sit and listen, if they have nothing to do, or if the task they are given doesn't match their interest and skills, they naturally zone out. When a person checks out mentally, they won't buy in to the data or the design—and they are more prone to disruptive behavior. Contextual Design meetings give everyone in the session a job and a voice. We make sure that the group size is small enough for everyone to be needed. Often, we'll deal with a large team by breaking it up into small teams of two to four people, all working simultaneously in the same room. Each person is engaged, and there's enough happening that everyone can be given a role that matches their skill set.

Fun techniques and lots of jobs help people engage and grow past natural tendencies

Contextual Design creates a culture within the team in which everyone makes the design session work by focusing on defined purpose, roles, and procedures—and by being aware of and helpful in managing natural differences between people.

Design a creative team culture

Contextual Design is about innovation—the creation of new products or new product features that serve users' needs in ways no one thought of before. But no matter how good the process,

innovation depends on the people in the team. They have to be given the tools and the freedom to think creatively, despite organizational, interpersonal, and procedural roadblocks thrown in their way.

Create an explicit team culture that manages diverse skill and style

At the core of Contextual Design is the deliberate creation of an articulated team culture designed for creativity. Contextual Design provides a base process for requirements and design. Contextual Design provides a structure so everyone knows what to do on Monday morning, how to work with each other, and how to modulate interpersonal dynamics. Then it puts process and team management tools in the hands of the team so they can adapt and improve from there. In this context, it does not matter what national or group culture, gender or interpersonal characteristics individuals have—the culture of the work sessions guides all members into effective participation. (And, a clear structure makes it easier to work remotely).

The other aspect of supporting a creative team, mentioned above, is to give the team a room. They need a place they can come together for extended periods of time, which they can mess up with their design artifacts. There's a reason a space for creativity gets called a "sandbox"—creativity needs a place.

6 *The Affinity Diagram*

The Affinity Diagram is the simplest way to organize field data. It arranges the notes from Interpretation Sessions into a hierarchy that reveals common issues and themes across all users. The Affinity shows the scope of the problem: it reveals in one place all the issues, worries, and key elements of the users' lives relevant to the team's focus. It also helps define the key quality requirements on the system: reliability, performance, hardware support, and so forth. The Affinity Diagram should be built for every project. It is the first model consolidated, allowing it to be used to harvest data that might be needed for other models and also to teach the consolidation thought process (Fig. 6.1).

To build the Affinity, all Interpretation Session notes from all users are printed on sticky notes in random order. Then the team arranges the notes into a hierarchy, using a facilitated process. An Affinity takes 1.5–2 days to build, depending on the number of notes and the size of the team building the Affinity. The notes are grouped on a wall to reveal distinctions relevant to the design problem; each group describes a single issue or a point. Groups are kept small, four to six notes in a group. Keeping groups small forces the team to make more groups when there is a lot of data on a point, pushing them to find more issues and more insights. Groups are not predefined—they emerge from the data and are specific to the data. Finally, the groups

Bring all the issues and opportunities of the market into one place

Contextual Design. http://dx.doi.org/10.1016/B978-0-12-800894-2.00006-5

are labeled with blue sticky notes[1] to characterize the point made by the group. The blue labels are then organized into larger areas of interest under pink labels, and the pink labels are grouped under green labels to show whole themes.

The Affinity or "K-J" process was introduced as one of the "seven quality processes" from Japan[2] back in the 1970s. It has since then become a widely used tool. We have optimized the process to handle much larger affinities, typically about 1500 notes—though we recommend not more than about 500 notes in your first Affinity. We build the Affinity after a good cross-section of users has been interviewed. This usually means between 12 and 16 users covering all target roles in three to five work or life contexts, assuming 50–100 notes per user. We always prefer to finish the Affinity in a single day, or at worst time-box it to 2 or 3 focused days. We can do this if we have one person per 80 notes or better. If the project plan is to collect more data than this, first do a preliminary consolidation, which you finish. This allows the team to refocus and clarify the most important data to collect in the remaining interviews. Then do the remaining interviews and roll in the data in all at once in another 1–3 day session.

The Affinity is a quick way to organize a lot of unstructured data

Building the Affinity is a managed team meeting with a process that ensures it gets done in the time designated. Letting the process drag on drains the team. If your team is small and you don't have enough people, invite others who are interested in the design to participate. Order pizza! Do whatever you have to do to get them into the room. Remember managers and team members alike experience elapsed time, not man-hours. Ten people working together for a day or two looks short. Two people working for a week looks long, even though it's fewer hours—you don't get the immersion, buy-in, and range of perspectives you would with a wider group. This is also

[1] When we started the process, there were only blue, green, and pink sticky notes. While working with teams, the colors took on meaning relative to the level of abstraction or the part of the model, so we keep these colors. Whatever you do have a consistent color associated with one of the three levels of the Affinity.

[2] M. Brassard, *Memory Jogger Plus*, GOAL/QPC, Methuen, MA, 1989.

why we don't build affinities in an online document—it's too much data, too much manipulation, and not enough team interaction to achieve a high-quality result, either for the Affinity or for buy-in and immersion.[3]

Figure 6.1 An Affinity Diagram during construction, showing how notes and pictures from individual interviews (*the yellow notes*) are grouped into a hierarchical structure (*the blue, pink, and green labels*). Photos taken during interviews are integrated into the Affinity wherever appropriate.

Building the Affinity Diagram

The Affinity is built bottom-up. We don't start with known categories such as "Usability issues" or "Quality." That would reduce building an Affinity to a sorting task; each note goes in its own bucket, and at the end you know no more than you did before. Instead, we allow the individual notes to suggest grouping they might belong to. We intentionally resist using categories that might be familiar to the team, suggested by their experience instead of by the user data. We even ban words the team is too familiar with—one configuration

[3] One day we may have real digital walls all over a room—then we can do it without the paper! But the team will still have a shared experience in the room.

management group was not allowed to use the word "version." Banning the term forces the team to say how the concept is relevant to the project focus and helps them to come at their problem with a fresh perspective (Fig. 6.2).

Ban jargon and specialized words to force rethinking old concepts

Building an Affinity is inductive reasoning at its purest. The basic process is to put up one note, then for everyone to look at the notes in their hand for others that seem to go with it. When found, additional notes are added to the group. There's no need to justify *why* they go together. But we do push for a certain kind of "affinity": Two notes have an affinity if they are saying similar things about

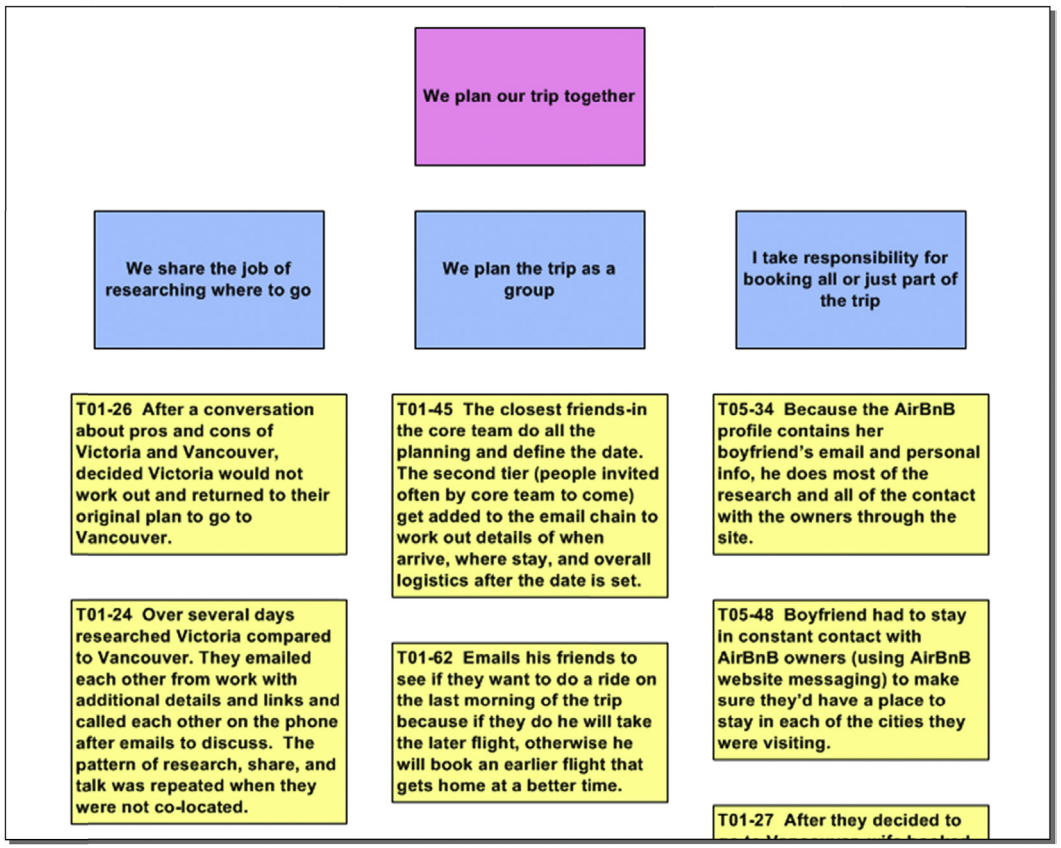

Figure 6.2 A slice of a much larger Affinity after it has been put online, showing how yellow sticky notes from individual interviews group into blues and pinks revealing issues and themes. Note that the blues and pinks are written in the voice of the user.

the user's life as it relates to the design focus of the team—the notes express a similar intent, problem, or issue. So deciding if notes go together is the result of an inquiry into the meaning of the words on the note to understand the practice issue they represent. When it's not clear how to interpret the words, the team can appeal to the interviewer to check whether an interpretation is valid.

Inquire into the design significance of each note

Here are some examples of using the data captured on a note to infer meaning for the practice. Each example gives some of the context (which the team would be aware of) and shows how to look at the data from a particular focus and see implications for redesigning the practice and technology. If these insights occurred to team members during the Interpretation Session, they would be captured in separate notes; otherwise the Affinity process gives the opportunity to consider the data again. These notes are all taken from interviews with people planning vacations.

```
U07-39 She likes Orbitz because their dates were flexible—
she sees a matrix with departure and return dates. She
can see each price and pick the best one.
```

This note discusses a particular feature of a travel site's UI (Orbitz), but it's hiding an implication about travel planning. When thinking about her vacation, the user isn't committed to a particular departure and return date. Those might change depending on the trip, the price, and other factors. And in fact, many decisions in vacation planning are tentative, dependent on other aspects of the vacation working out. Any tool we build needs to take this flexible, uncommitted attitude toward planning into account.

```
T05-90 She says her mom never traveled much, and her mom
was proud of U5 when U5 started traveling a lot: "you do
it all, you see it all."
```

This note suggests values and experiences associated with identity—the mother's attitude and by implication the traveler's own. The notes in an Affinity relevant to values and how we see

ourselves will group together to reveal themes. This section of the wall will both reveal these values and will also be relevant data to create identity elements, described in Chapter 7. Here it suggests that being adventurous is valued by both mother and daughter—and it reveals that the mother would like to encourage the daughter to do what she could not. As the team looks for the meaning and key ideas in the notes, they can group like notes together. The meaning a team reads in a note and the way they group them are driven by the project focus. The above notes could be taken in different directions—features in cars, finding restaurants, providing search functionality. But put together, they point toward one of the Cool Concepts (in fact, they are where the concept came from). Together, they suggest "Think for me"—give me what I'm looking for *without* asking me, without search, and without setup. Grouping them this way across domains reveals the higher-level principle.

Notes will represent and enrich the meaning of the Cool Concepts

```
I love getting local results immediately, without having
                          to ask
```

```
U6-40 She likes that Google gives you local listings first
for restaurants and stores nearby
```

```
U5-58 Likes using the built-in Zagat feature in his car
to find good restaurants in the area.
```

```
U4-60 He uses the icon feature of the map in his car to
help him find gas stations nearby.
```

Now we collect notes with similar themes together and give them a *label* representing the insight suggested by the group. A good group label states the issue that holds all the individual notes together. It is a succinct phrase that summarizes the content of the group. "Different ways of finding nearby things" would not summarize the content in

the above example; it would just say what you could learn by reading the content. Including "without having to ask" states the key principle; the individual notes give examples of this general statement. The data in the individual notes below the label supports the statement in the label. If the label is good, it reveals the distinction important for design. The label is the synthesis of the detailed data—now there is no need to read the notes. The label is sufficient. So a good label matters.

Labels are the user's voice speaking from the wall—succinctly

A good group label is written as though the user was talking to the designer; direct, immediate language has more impact than third-person language. The label is not a sentence; it is succinct declarative personal message from the user. When the labels use the user's voice, the whole wall speaks directly to the design team—the labels are a central communication device. Here are some examples of good first-level labels, all revealing how travel planning supports relationship between people:

```
Planning the trip is another opportunity to connect and
have fun
```

```
The closer I am to a person, the more ways I have to
communicate with them
```

```
It's important to plan regular trips so we can get
together
```

First-level groupings such as the above are themselves collected into higher-order groups. The result is a hierarchical structure that breaks the data about the user into manageable chunks. We use green sticky notes at the highest level, which describe a whole area of concern. Under this, pink labels describe the specific issues which define that area of concern. Blue labels describe each aspect of the issue. And the individual notes under the blue labels describe the instances illustrating the blue label. When well written, the labels tell a story about the user, structuring the problem, identifying specific issues, and organizing everything

known about that issue. The labels represent the new information in an Affinity. All labels are written in the voice of the user.

Labels are the synthesis of the data revealing meaning

We limit each first-level group to four to six notes to force the team to look deeply and make more distinctions than they would otherwise be inclined to. It pushes more of the knowledge up into the group labels. Remember your findings are in the labels—they are what will drive design thinking. A pink label can contain up to eight blue labels, and a green label might have six to eight pink labels. Bigger groups than that mean there's not enough structure to see what's going on quickly.

When complete, each green section tells a story about the users' life. It raises the distinctions relevant for the project focus, revealing what matters. In this way, the labels synthesize the findings and drive design thinking. For example, here is a section of an Affinity describing how travel supports the Cool Concept of

Metrics for Affinity building

Start when you have multiple users to organize.
- About half the users or at least 300 notes from four to five users

Groupings start with observation notes
- Not design ideas or questions—the first note frames the group meaning

Number of notes below the blue (1st level) labels is based on the size of the Affinity:
- Less than 1000 notes: two to four in a grouping
- 1000–1800 notes: four to six in a grouping
- More than 1800 notes: 6–10 in a grouping *if* there is a lot of real duplication

Notes under higher-level labels:
- Pink (2nd level) six to eight blues under a pink
- Green (3rd top level) 4–10 pinks under a green

Build a preliminary Affinity if there will be more than 20 user interviews:
- Build preliminary Affinity after 10–16 interviews—or about half
- Preliminary Affinity should be complete but broad and shallow: only one to three individual notes beneath each blue label
- Later interviews will deepen the groups and create new labels

Accomplishment. (Individual notes have been skipped for brevity—colored triangles map to colored notes in the Affinity):

- Challenge is a part of task accomplishment
  - Travel provides an opportunity to pursue personal goals
    - Travel is an opportunity to continue working on things I or my family do at home
    - Travel is an opportunity and inspiration for me to improve myself
    - I look for apps to help me connect my interests (such as food) to travel
    - I want to learn new things, and travel/travel planning helps me do that
  - Travel itself gives me a sense of accomplishment
    - Getting a good deal makes me feel good
    - I enjoy and take pride in planning travel
    - Figuring out the best deal, route, etc. is fun
  - I care about keeping track of my accomplishments
    - I keep track of the places I've traveled
    - I want to have a full collection of all my travel photos
    - I like getting feedback about how I'm doing

This section of the Affinity brings together data from many users and many situations to tell the story of travel and the experience of challenge. When sharing the data or reviewing the wall yourself, you might read it like a story: "People see travel as a challenge, and that's a good thing. It gives them a sense of accomplishing personal goals, furthering their interests, and growing as a person. And overcoming the challenges of travel is fun and meaningful in itself. I'm proud of what I did and want to share it with my world." Each pink label names an issue

which is described by the blue labels underneath it, so that each section of the Affinity tells a coherent story about part of the practice, and the whole wall brings together all issues and observations to tell a single story about the user population.

The Affinity tells a story of the user's life

Labels in the Affinity bubble up from the data. Together they tell the story of the practice and life of people in the market. The data, as always, represents detailed information about the target activity. But with the introduction of the Cool Concepts, the data now also represents detailed data about the life, use of mobile devices, identity, and motives of people. And the Cool Concepts also focus the team in

Label Guidelines

Labels should enable the reader to:
- Read blue labels to see themes without reading individual notes
- Read quickly without having to parse any sentences
- Focus on generating design ideas, not figuring out language

Blue label guidelines:
- Represent the data to highlight the key point
  - There should be one key point
  - If the group hangs together this is easy—if it doesn't, break it up
- Use direct language summarizing an observation, not a category
  - Good: "I don't choose a destination until I check out available accommodations"
  - Bad: "How I choose accommodations"—forcing review of individual notes for the point
- Written from the user's point of view, talking to the team
- Use short succinct "Hemingway-type" statements—simple, direct, unadorned prose and no long sentences with clauses
  - Does not need to be a complete sentence
  - No more than two to three handwritten lines long on the Post-it
  - Not design ideas
    - "Booking accommodations is too complicated" not "I want an easy way to book accommodations"

Pink and green labels organize sections.
- They reflect a theme/category of findings, but still use "I" language
- For example, "I use multiple strategies to decide where to go"

new ways on details of sensation, direct tool interaction, tool hassles, and learning. Because this is not traditional task-oriented data, it's easy to miss during consolidation.

Cool Concepts change classic Affinity building

So to be sure that the team pulls together the data needed for the Contextual Design Experience Models and ideation techniques, we need to raise up issues of design for life. To do this, before building the Affinity, we suggest the team start with a set of preliminary green labels related to Cool Concepts. These are placeholders which can be changed later by looking at the data grouped into that section. All of the green labels talking about the target task bubble up naturally. We do not recommend predefining green labels for the primary task—that won't help the team break their preliminary assumptions. But by using initial labels associated with the Cool Concepts, we help the team recognize this important data and bring it together. Below are the green labels we suggest to ensure a design for life focus.

- My on-the-go life
- I connect to people that matter
- I define myself personally and professionally
- My tools are a sensual delight
- My tools are Direct into Action
- My tools are a hassle
- I have to learn how to use my tools

These *placeholder* labels allow the related data to find their way together more easily. A team might not have all Cool Concepts in their project focus; if so, they will only use the preliminary green labels that are relevant for them.

Affinity building reveals the core process of consolidation: look at individual observations and group like data from different users. Bubble up key distinctions relevant for design. Label the distinctions at multiple levels of abstraction—in the Affinity, the blue labels reveal detailed distinctions, and the pinks show key aspects

of one overall theme or story area represented by the green label. Let the groupings emerge through inductive reasoning to reveal new themes, aspects, and distinctions. Present the whole in a structure that's easy to understand and walk. For the Affinity, this structure is a simple hierarchy.

Building an Affinity teaches inductive reasoning to find important themes

You can read a good Affinity from beginning to end to see every issue in the practice and everything the team has learned so far, all tied to real instances. There's no better way to see the broad scope of the problem quickly. And it's also the first example of the process of consolidation.

Building the Affinity as a team

Building the Affinity is a group process. Building the data into a consolidation with multiple people is critical because it ensures that the lapsed time is reasonable. But more importantly, building the Affinity together is another immersion experience for those who did not go to the field to collect data. It exposes people to the users' lives and naturally expands their understanding of that life. And through manipulating the data and building into a structure that all share, they buy into the implications of the data.

For any group process, people need to know the rules of engagement; they benefit from a clear structure to guide getting the collaborative work done. We saw how Contextual Design provides such a structure for the Interpretation Session; we also provide a clear structure for the Affinity and other team tasks as well. Here are the basic steps to building the Affinity.[4]

During Affinity building we encourage quiet, one-on-one discussion between team members. This process is an opportunity to explore the data together and bounce ideas for labels off each other. Working in

[4] See **Holtzblatt et al.** (**December 28, 2004**) for more detailed step-by-step description of Affinity building.

Steps to build the Affinity Diagram

Prep work

1. Print the notes captured during Interpretation Sessions on printable sticky notes or in a 3″ × 5″ grid, cut apart so each is on its own label-sized slip of paper. Preferably mix up the notes so different user's notes are interleaved.
2. Print all notes of all users in order, just as a list, for reference.
3. Prepare a room with bare walls. Hang good-quality butcher paper one the walls (floor to ceiling). Build your Affinity on this.

The morning

4. Give everyone building the Affinity a set of notes to start—8 to 10 per person
5. Put notes up on the wall one at a time as a group. Read out the note. After each note goes up, others add notes that go with it. Don't discuss the positioning—anyone can put a note anywhere.
6. Continue this formal process until a bunch of groupings, about 20, are up on the wall.
7. Now everyone works individually putting up notes until the stack of notes is all up on the wall without labels. People get more notes as they need them.
8. People will naturally put groups together that are variations on a theme. While working, they will announce where things are.
9. Remember everyone can move any note to create and recreate groupings as they accommodate new data.

The afternoon (and following days if needed)

10. Before starting formal labeling, put rough "type" labels using any other color over these rough groups so you know what is where. (We keep them at an angle so we know they are not real and don't need review.)
11. Collect similar together based on the rough labels.
12. Introduce labeling and start labeling together, breaking down long groups and writing real blue labels; pink labels will naturally emerge.
13. Assign pairs to each section of the wall, dealing with priority areas first. Each pair writes labels for their own part of the wall, relocating notes that don't belong to their area.
14. As groups continue to add individual notes, break them down so there are no more than four notes in a group, or the number appropriate for your Affinity size.
15. Add pink and green level notes to collect groups and keep the structure tight.
16. Check all sections and labels for quality and that key distinctions have bubbled up, and that labels are in the correct language at every level.

pairs, people can discuss their insights and get someone else to check their thinking. Writing the labels reveals what you're thinking; if someone disagrees with the grouping structure, they may move notes and rewrite the label. Adding notes to a group will naturally change what its label needs to say. All the data instances are there to support one interpretation or another, so it's easy to change your emphasis or split a group to show several distinctions.

There is no need for consensus before creating or changing a label or grouping. But if a pair gets stuck on their part of the wall, they can ask others to come in to help. Never stop and have a whole-team discussion on any part of the wall! Let two or three people make a quick decision and move on. Working in parallel, the wall will naturally shift to better reflect the themes that matter for your project. Green label sections become separate areas of work; move people around the sections so multiple minds consider each part. Ownership of a part is a problem, not a goal.

Use the minds of the whole team—everyone works the whole Affinity

Doing the work in pairs helps move people from thinking in buckets (all notes with the term "hotel" on them get tossed in one group) to thinking about the practice. Moving from section to section to stay fresh lets people review each other's notes and labels for clarity, rightness for that group, and to see that a story is being created. When people can't agree on where a note should go, they talk about what underlying issues they see. When people don't understand a note, they go back to the list of notes from that Interpretation Session or to the interviewer to ask what happened in the interview. If a note seems to have two points, cut it in half or write a second note. Remember the Affinity will never be "perfect." Perfection is not a goal; structuring the data so it is useful to drive design thinking is. Everyone should be able to look at the resulting wall and see how it addresses the project focus and any business issues.

Use the Affinity process to think in new ways about the practice

To help manage the team we put strict boundaries on disagreement, just as we did in the Interpretation Session. Team members may draw different meanings from the same note. A note might fit into an existing blue group or might be used to create a new one. In that case, create

a new group and a new distinction. More insight is better. Rarely do you need the note in both places; if you already have two good notes in a group you don't need a third—use it elsewhere to push new insight. A note might fit into several existing groups—in that case, just pick the weakest grouping and beef it up by adding the note to it. If a team member has an insight from the Interpretation Sessions but doesn't have the notes to support it, it's up to them to find the supporting data first (the notes may have been buried in other categories) and then write the label to support it. But most of all, remember that no one note is critical.

Manage disagreements within the rules of the process

Building the Affinity in a few days creates a team event that binds the team together and is also important for creating new insight. Building smaller Affinities more quickly or building up one Affinity over time lets team members incorporate each piece of data into an already existing structure of understanding before having to deal with the next; this leads to assimilation of each point instead of promoting a paradigm shift. With the above process, in a single day the team has to face a whole new way of looking at the users' world.

Building a 1500-note Affinity is exhausting, so knowing how to handle disagreements and individual differences is key. It's an entire day of reading and conceptualizing hundreds of separate bits of data and matching them with other bits of data. It's like a combination of Concentration, the memory game, and translating Shakespeare into Latin: the words on a note have to be interpreted to translate them into the underlying practice issue; then the note has to be matched with the note you saw 5 minutes ago and you know is on the wall somewhere. Everyone's working at once, moving back and forth along the wall, discussing notes with each other, and yelling general questions to the group at large ("Who interviewed U4?").[5]

Organize hundreds of observations into a coherent story in a single day

Some people will be overwhelmed when the first notes are going up with no labels, and others will love it. But the people who hate it find that their overwhelm evaporates when they have one piece of the wall to label. Now the task is bounded, and they can focus on putting in

[5] See a real time Affinity being built here: https://goo.gl/a4zvm4.

structure. Some people will be great labelers and others will be able to find groups but won't write good labels. Working as a group means the team can lean on the strengths and work around the weaknesses of individuals. No process will feel comfortable to everyone all the time. But if people know what to expect and what to do, we find they can deal with it.

When the team is done, they have a single structure representing all their user data, which organizes their knowledge and insight and gives them a basis for design. And when they see it finished—then everyone gets excited!

Managing people during Affinity building

Building an Affinity is not an easy process for some and people will react to the process in different ways. Here are some guidelines.

People's response	Advice
The number of Affinity notes and the lack of structure are overwhelming. These people can organize a limited part of the Affinity but find it hard to put up the original groups.	Talk about this before starting so people who get overwhelmed will know it is normal to feel this way. Reassure them that they will find it easier later in the process and that at the end when the wall is organized they will have the structure they need. Explain that building the Affinity this way is the quickest way to get the Affinity notes up and organized, while taking advantage of multiple perspectives.
Some get concerned about creating the "right" Affinity.	Help them see that there are many ways to put an Affinity together and you will produce only one. This is okay—the purpose is to push your understanding of the users by revealing key distinctions. As long as your Affinity makes you think new design thoughts, it is good for your purposes.
Some people need to clear out distractions and focus on just a part of the problem.	They may not be able to deal with working with someone else because talking and thinking is too hard. If you have two people such as these, suggest that they pair up because they will work in parallel but engage in some discussion.
Some will get frustrated trying to track "their" section of the wall when others add to their groups or move their notes somewhere else.	Coach people to be comfortable with multiple people creating the diagram, without anyone keeping the whole thing coherent. Tell them to trust that something good will come out. This is how to move quickly.

Design communication and the Affinity Diagram

Once the Affinity is built, structured, and labeled, it is time to ensure it is really ready to be used in an ideation session. Because teams always love the Affinity, it is our gold standard for learning what really works for communication design. So let's look at its attributes. Just as the Affinity teaches the inductive thinking process needed for any consolidation, it illustrates principles of good communication design.

The Affinity illustrates principles of good communication design

Meaningful structure: A meaningful structure is one that can be used, understood, and consumed quickly by anyone walking up to the model. A hierarchy such as the Affinity presents is the most familiar structure for information across all professions. How you organize that hierarchy is critical for success. The Affinity structure contains the overall story of the practice and life of the target population. Read top-down, it presents the story in sections, or chapters, denoted by the green labels. So the Affinity presents the key issues of the market in digestible chunks. A person can read through one green label grouping and only focus on what that group is trying to say. This helps focus design thinking and generates targeted design ideas. The green label says "Look here, think about this—now what will you invent to deal with my issues?"

Each green is composed of chunks too—the pink groups—and so on. Each chunk is a call for design thinking. When information is chunked well within an overall framework (like the Affinity hierarchy), people know how to approach complex data without overwhelm. The green labels lead the reader through the data, creating natural stopping points such as "chapters" in a story. It invites but circumscribes the design problem to something manageable. Any good communication design must have a recognizable structure that chunks information while it moves a reader systematically and naturally through the full story represented in the whole model.

The structure of your communication makes it overwhelming or consumable

So what makes a good Affinity? We provide metrics on size so that the chunks don't get too big. We put the greens in a sensible order so people can move through them without disrupting their understanding of the big picture. To use it, anyone can start anywhere—but no matter where they start, the flow from panel to panel will end up telling the whole story.

The labels, and language of the labels, are critical too. If they are too long, people have to stop to parse them, disrupting their flow. If they are too categorical, they force the reader into the notes, again disrupting the flow. If there are just too many words on a label, they can't be easily and quickly scanned. To simultaneously get the big picture and the detail, the data must be read like a novel, moving through it quickly so that the mind can be free to generate ideas while reading. Anything in the way of fluid movement through the data gets in the way of design thinking.

The last step in creating the Affinity is to check that the size and order of groupings are correct, that the most important themes are revealed, and that the labels are short, succinct, and invite immediate understanding.

Story language: People are wired to tell and consume stories. We write our stories on steles, on cave walls, in novels, in newspapers. We share stories as examples of larger principles. Although we can abstract, we naturally know how to consume content in the form of a story. And when we see an abstract concept, we naturally generate stories (or examples which are themselves stories) to tell ourselves what the abstraction means. So if we want people to internalize the data easily, we'd better use story language.

People know how to absorb a story—so give them one

A framework for understanding provides a set of abstract concepts which organize understanding. But without story examples—real-life examples of how that concept plays out in life—abstract concepts alone will not drive design thinking. Or worse—the concept, without story, invites us to make up stories to fill in the blank. This drives designers to lean on their own life experience, not the market data. The most powerful way to drive data into the mind of designers is to find the organizing concepts through inductive reasoning and then illustrate them—tell their tale in story form.

The labels in the Affinity simultaneously organize and name the core concepts and tell their story. They are constructed in first-person language expressing the users' experience. Because they are deliberately short, declarative, and succinct, they are easily consumed. In this way the designers learn the core concepts through story language in the voice of the market. And it's all tied to the actual data, available to flesh out the concept.

The story language used in the Affinity Diagram invites design thinking and drives designers away from design from the "I." It provides a way for readers to quickly immerse themselves in the life of the users just by "walking the wall" as we will discuss in Part 3.

A Way In: A wall-size graphic of complex data can be overwhelming. Since our goal is to invite the readers to engage with the data, we need to build a "way in" right into the structure of the graphic. Every consolidated model must guide the reader through the data by its structure and layout. Every consolidated model provides a big picture of one aspect of the users' lives. But we cannot swallow it whole—we must move through it linearly, or at least one piece at a time.

Help everyone know how to approach your data representation—by its structure

The Affinity Diagram provides a natural Way In through its groupings. Every green label defines a coherent part to be dealt with. The hierarchical structure tells people that blue labels define pink labels and pink labels define green labels. The flow from one green to the next guides movement through the model—and lets those who are looking for one favorite part to find it at the green level. The way in is clear.

The Way In is not defined by structure alone. The story language also invites inquiry and pulls the reader through the story. The Affinity hierarchy—well designed and labeled—is a great way to represent discrete observations in an accessible way. But other models show other views of the practice. The structure of a practice is not best represented in a hierarchy. In the next chapters we will talk about each model's structure and how to create a Way In for them.

Interaction: Even the best designed graphical representation of data doesn't communicate by itself. If passed around as a big document, readers might glance over it or think it looks cool—but

will they really engage with the data? Will they use it? Will it drive design thinking? To be sure that the data get into the design, you must push designers to interact with the data—to think about it, manipulate it, dialog with it, and respond to it. So support for this interaction must be built into the communication design of any model.

Give people something to do while interacting with the data

The Wall Walk described in Part 3 is the step where we ask people to engage with the data by giving them an activity to do while they move through the model. Reading alone does not ensure they are using the data for design. We must create a link between the data and design to be sure that it gets in to the mind of designers.

If designers are asked to write design ideas in response to the labels in the Affinity, they naturally start designing from data. If we tell them that a more systemic, better, idea is one that responds to a pink or green label, addressing a whole theme, they naturally move away from one-off ideas responding to individual notes. And it doesn't hurt if it creates a little competition to get the most, and most systemic, notes up.

People need something to do besides read when they engage with data. We build engagement into the process and into the structure of the model for all the consolidated models, as we describe below. But there are lots of ways to create interactive activities that drive designers into the data.

Communication design is at the core of bridging the gap between data and design thinking. So create a meaningful structure, use story language, define an obvious way in and a process for interaction. Once you have done that you are ready for ideation.

Communication design bridges the gap between data and design

The Affinity Diagram is a fabulous teaching tool for your team. It teaches induction, how to structure information, how to raise up distinctions, and how to manage complex information. And when done well, it is an excellent communication design. Now we turn to the other models to learn how to build them and how they also can drive design thinking.