



bootcamp bootleg

d. 

Check this out – It's the d.school bootcamp bootleg.

This compilation is intended as an active toolkit to support your design thinking practice. The guide is not just to read – go out in the world and try these tools yourself. In the following pages, we outline each mode of a human-centered design process, and then describe dozens of specific methods to do design work. These process modes and methods provide a tangible toolkit which support the seven mindsets – shown on the following page – that are vital attitudes for a design thinker to hold.

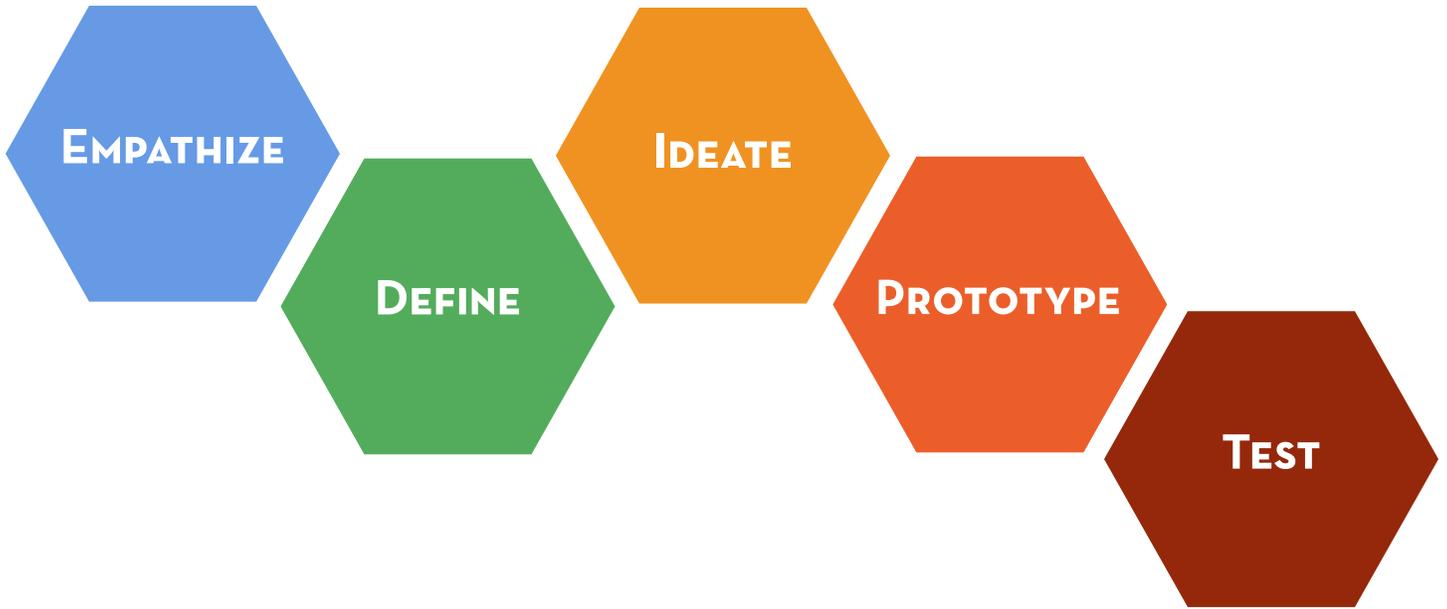
The bootleg is a working document, which captures some of the teaching we impart in “design thinking bootcamp,” our foundation course. An update from the 2009 edition, we reworked many of the methods based on what we learned from teaching and added a number of new methods to the mix. The methods presented in this guide are culled from a wide range of people and organizations who have helped us build the content we use to impart design thinking. Think of this guide as a curation of the work of many individuals, who hail both from the d.school and also from other far-reaching areas of the design world. We thank all the people who have contributed to the methods collected in this guide.

This resource is free for you to use and share - and we hope you do.

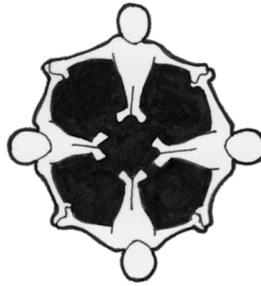
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We welcome your reactions to this guide. Please share the stories of how you use it in the field. Let us know what you find useful, and what methods you have created yourself – write to: bootleg@dschool.stanford.edu

Cheers,
The d.school



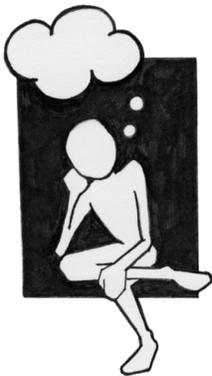
bias toward action



collaborate across boundaries



focus on human values



be mindful of process



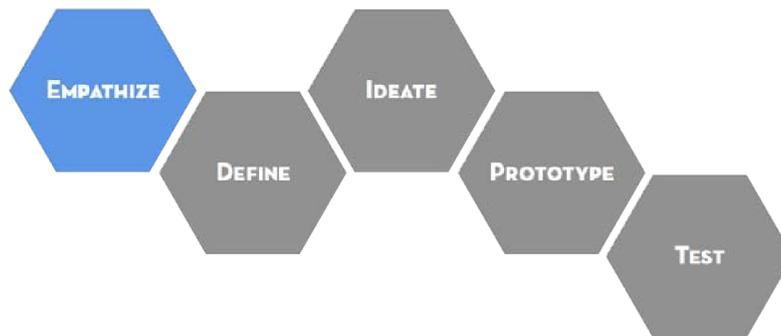
prototype toward a solution



show don't tell

MODE

EMPATHIZE



WHAT is the empathize mode

Empathy is the foundation of a human-centered design process. To empathize, you:

- **Observe.** View users and their behavior in the context of their lives.
- **Engage.** Interact with and interview users through both scheduled and short 'intercept' encounters.
- **Immerse.** Experience what your user experiences.

WHY empathize

As a human-centered designer you need to understand the people for whom you are designing. The problems you are trying to solve are rarely your own—they are those of particular users; in order to design for your users, you must build empathy for who they are and what is important to them.

Watching what people do and how they interact with their environment gives you clues about what they think and feel. It helps you to learn about what they need. By watching people you can capture physical manifestations of their experiences, what they do and say. This will allow you to interpret intangible meaning of those experiences in order to uncover insights. These insights will lead you to the innovative solutions. The best solutions come out of the best insights into human behavior. But learning to recognize those insights is harder than you might think. Why? Because our minds automatically filter out a lot of information in ways we aren't even aware of. We need to learn to see things "with a fresh set of eyes" - tools for empathy, along with a human-centered mindset, is what gives us those new eyes.

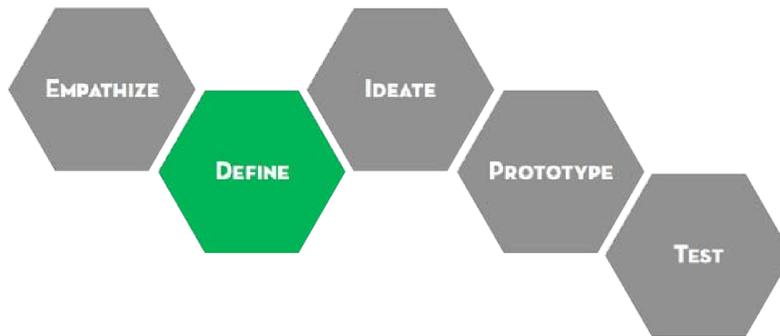
Engaging with people directly reveals a tremendous amount about the way they think and the values they hold. Sometimes these thoughts and values are not obvious to the people who hold them. A deep engagement can surprise both the designer and the designee by the unanticipated insights that are revealed. The stories that people tell and the things that people say they do—even if they are different from what they actually do—are strong indicators of their deeply held beliefs about the way the world is. Good designs are built on a solid understanding of these kinds of beliefs and values. Engage to:

- Uncover needs that people have which they may or may not be aware of
- Guide innovation efforts
- Identify the right users to design for
- Discover the emotions that guide behaviors

In addition to speaking with and observing your users, you need to have personal experience in the design space yourself. Find (or create if necessary) experiences to immerse yourself to better understand the situation that your users are in, and for which you are designing.

MODE

DEFINE



WHAT is the define mode

The define mode is when you unpack and synthesize your empathy findings into compelling needs and insights, and scope a specific and meaningful challenge. It is a mode of “focus” rather than “flaring.” Two goals of the define mode are to develop a deep understanding of your users and the design space and, based on that understanding, to come up with an actionable problem statement: **your point of view**. Your point of view should be a guiding statement that focuses on specific users, and insights and needs that you uncovered during the empathize mode.

More than simply defining the problem to work on, your point of view is your unique design vision that you crafted based on your discoveries during your empathy work. Understanding the meaningful challenge to address and the insights that you can leverage in your design work is fundamental to creating a successful solution.

WHY define

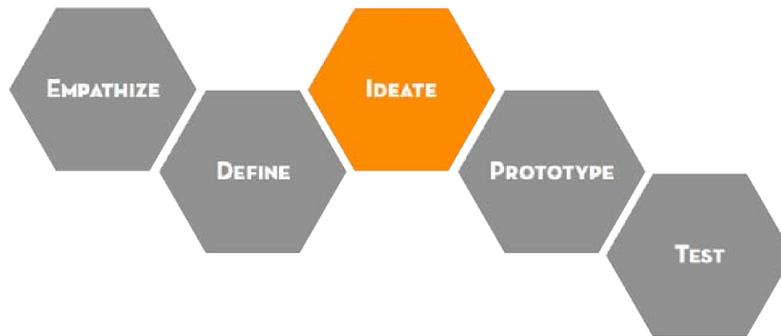
The define mode is critical to the design process because it explicitly expresses the problem you are striving to address through your efforts. Often, in order to be truly generative, you must first reframe the challenge based on new insights you have gained through your design work. This reframed problem statement can then be used as a solution-generating springboard.

As a test, a good point of view (POV) is one that:

- Provides focus and frames the problem
- Inspires your team
- Provides a reference for evaluating competing ideas
- Empowers team members to make decisions in response to the high-level goals of the team
- Fuels brainstorming by suggesting “how might we” statements
- Captures the hearts and minds of people you meet
- Saves you from the impossible task of developing solution concepts that are all things to all people
- You revisit and reformulate as you learn by doing
- Guides your innovation efforts

MODE

IDEATE



WHAT is the ideate mode

Ideate is the mode of your design process in which you aim to generate radical design alternatives. Mentally it represents a process of “going wide” in terms of concepts and outcomes—it is a mode of “flaring” rather than “focus.” The goal of ideation is to explore a wide solution space - both a large quantity of ideas and a diversity among those ideas. From this vast depository of ideas you can build prototypes to test with users.

WHY ideate

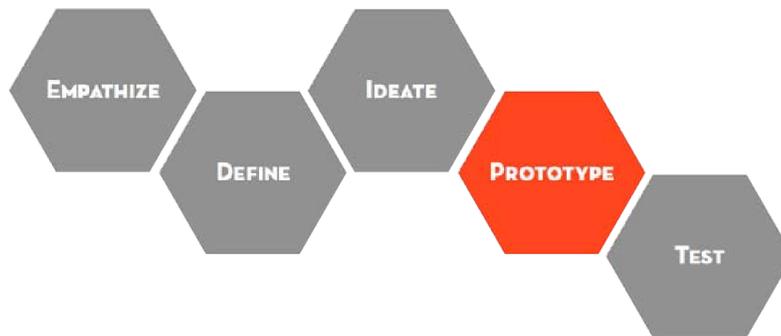
You ideate in order to transition from identifying problems into exploring solutions for your users. Various forms of ideation are leveraged to:

- Step beyond obvious solutions and thus increase the innovation potential of your solution set
- Harness the collective perspectives and strengths of your teams
- Uncover unexpected areas of exploration
- Create fluency (volume) and flexibility (variety) in your innovation options
- Get obvious solutions out of your heads, and drive your team beyond them

Regardless of what ideation method you use, the fundamental principle of ideation is to be cognizant of when you and your team are generating ideas and when you are evaluating ideas - typically keeping these two tasks separate, and only mixing the two intentionally.

MODE

Prototype



WHAT is the prototype mode

Prototyping is getting ideas and explorations out of your head and into the physical world. A prototype can be anything that takes a physical form – be it a wall of post-it notes, a role-playing activity, a space, an object, an interface, or even a storyboard. The resolution of your prototype should be commensurate with your progress in your project. In early explorations keep your prototypes rough and rapid to allow yourself to learn quickly and investigate a lot of different possibilities.

Prototypes are most successful when people (the design team, the user, and others) can experience and interact with them. What you learn from those interactions can help drive deeper empathy, as well as shape successful solutions.

WHY do we prototype

Traditionally prototyping is thought of as a way to test functionality. But prototyping is used for many reasons, including these (non-mutually-exclusive) categories:

- Empathy gaining: Prototyping is a tool to deepen your understanding of the design space and your user, even at a pre-solution phase of your project.
- Exploration: Build to think. Develop multiple solution options.
- Testing: Create prototypes (and develop the context) to test and refine solutions with users.
- Inspiration: Inspire others (teammates, clients, customers, investors) by showing your vision.

Many of the goals of prototyping are shared across all four of the above categories.

We prototype to:

Learn. If a picture is worth a thousand words, a prototype is worth a thousand pictures.

Solve disagreements. Prototyping is a powerful tool that can eliminate ambiguity, assist in ideation, and reduce miscommunication.

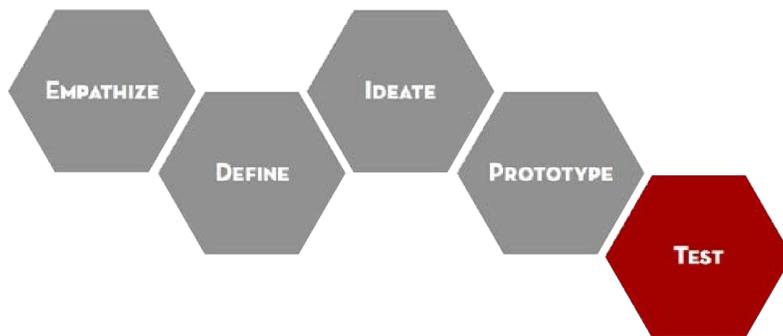
Start a conversation. A prototype can be a great way to have a different kind of conversation with users.

Fail quickly and cheaply. Creating quick and dirty prototypes allows you to test a number of ideas without investing a lot of time and money up front.

Manage the solution-building process. Identifying a variable to explore encourages you to break a large problem down into smaller, testable chunks.

MODE

TEST



WHAT is the test mode

Testing is the chance to get feedback on your solutions, refine solutions to make them better, and continue to learn about your users. The test mode is an iterative mode in which you place your low-resolution artifacts in the appropriate context of the user's life. Prototype as if you know you're right, but test as if you know you're wrong.

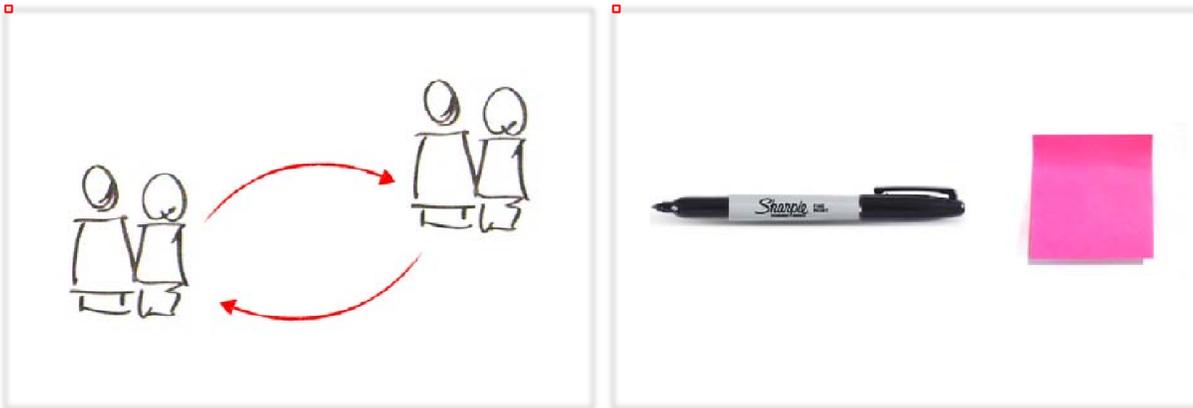
WHY test

To refine your prototypes and solutions. Testing informs the next iterations of prototypes. Sometimes this means going back to the drawing board.

To learn more about your user. Testing is another opportunity to build empathy through observation and engagement—it often yields unexpected insights.

To test and refine your POV. Sometimes testing reveals that not only did you not get the solution right, but also that you have failed to frame the problem correctly.

Story Share-and-Capture



WHY story share-and-capture

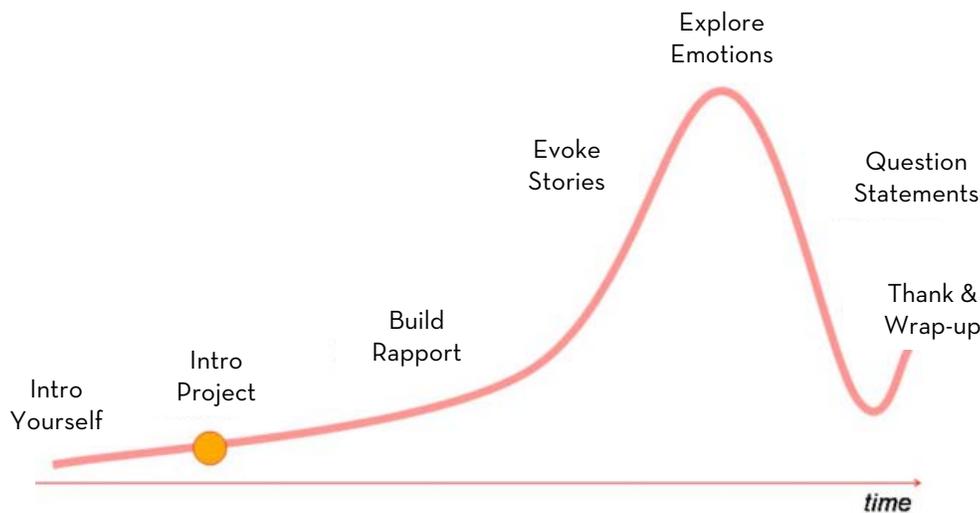
A team share serves at least three purposes. First, it allows team members to come up to speed about what different people saw and heard in the field. Even if all the team members were present for the same fieldwork, comparing how each experienced it is valuable. Second, in listening and probing for more information, team members can draw out more nuance and meaning from the experience than you may have initially realized. This starts the synthesis process. Third, in capturing each interesting detail of the fieldwork, you begin the space saturation process.

HOW to story share-and-capture

Unpack observations and air all the stories that stick out to you about what you saw and heard during your empathy fieldwork. Each member in the group should tell user stories and share notes while other members headline quotes, surprises, and other interesting bits—one headline per post-it. These post-its become part of the team's space saturation, and can also be physically grouped to illuminate theme and patterns that emerge (See "Saturate and Group" method card). The end goal is to understand what is really going on with each user. Discover who that person is and what that person needs in regard to your problem space.

METHOD

INTERVIEW FOR EMPATHY



WHY interview

You want to understand a person's thoughts, emotions, and motivations, so that you can determine how to innovate for him or her. By understanding the choices that person makes and the behaviors that person engages in, you can identify their needs, and design to meet those needs.

HOW to interview

Ask why. Even when you think you know the answer, ask people why they do or say things. The answers will sometimes surprise you. A conversation started from one question should go on as long as it needs to.

Never say "usually" when asking a question. Instead, ask about a specific instance or occurrence, such as "tell me about the last time you ____"

Encourage stories. Whether or not the stories people tell are true, they reveal how they think about the world. Ask questions that get people telling stories.

Look for inconsistencies. Sometimes what people say and what they do are different. These inconsistencies often hide interesting insights.

Pay attention to nonverbal cues. Be aware of body language and emotions.

Don't be afraid of silence. Interviewers often feel the need to ask another question when there is a pause. If you allow for silence, a person can reflect on what they've just said and may reveal something deeper.

Don't suggest answers to your questions. Even if they pause before answering, don't help them by suggesting an answer. This can unintentionally get people to say things that agree with your expectations.

Ask questions neutrally. "What do you think about buying gifts for your spouse?" is a better question than "Don't you think shopping is great?" because the first question doesn't imply that there is a right answer.

Don't ask binary questions. Binary questions can be answered in a word; you want to host a conversation built upon stories.

Make sure you're prepared to capture. Always interview in pairs. If this is not possible, you should use a voice recorder—it is impossible to properly engage a user and take detailed notes at the same time.

COMPOSITE CHARACTER PROFILE



Franklin

- 38 years old
- Divorced
- 2 kids
- Diabetic
- Free-clinic care-giver
- Has extreme tendencies in consumption and preparation of food.
- Balances his health and that of others, favoring the health of others.

WHY use a composite character profile

You can use the composite character profile to bucket interesting observations into one specific, recognizable character. Teams sometimes get hung up on outlying (or non-essential) characteristics of any of a number of particular potential users, and the composite character profile is a way for them to focus the team's attention on the salient and relevant characteristics of the user whom they wish to address. Forming a composite character can be a great way to create a "guinea pig" to keep the team moving forward.

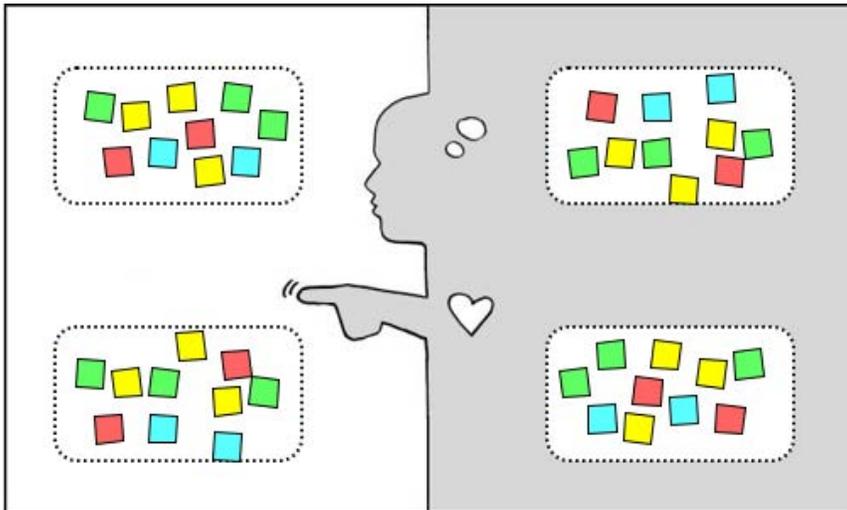
HOW to use a composite character profile

The composite character profile is a synthesis method whereby the team creates a (semi)-fictional character who embodies the human observations the team has made in the field. These might include "typical" characteristics, trends, and other patterns that the team has identified in your user group over the course of your field work.

In order to create a composite character profile, a team needs to have unpacked its field observations and saturated its team space. After this is done, a team should survey across the individual users it encountered in the field to identify relevant dimensions of commonality and/or complementarity - these dimensions could be demographic information, strange proclivities and habits, or sources of motivation, to name only a few. After several dimensions of commonality have been identified, list these features of the user; if there are any dimensions of complementarity (those which may not be shared by all users, but are interesting to the team and not necessarily mutually exclusive), the team should add these as well. Last, give your character a name, and make sure every member of the team buys into the identity and corresponding characteristics that the team has created.

METHOD

EMPATHY MAP



WHY use an empathy map

Good design is grounded in a deep understanding of the person for whom you are designing. Designers have many techniques for developing this sort of empathy. An Empathy Map is one tool to help you synthesize your observations and draw out unexpected insights.

HOW to use an empathy map

UNPACK: Create a four quadrant layout on paper or a whiteboard. Populate the map by taking note of the following four traits of your user as you review your notes, audio, and video from your fieldwork:

SAY: What are some quotes and defining words your user said?

DO: What actions and behaviors did you notice?

THINK: What might your user be thinking? What does this tell you about his or her beliefs?

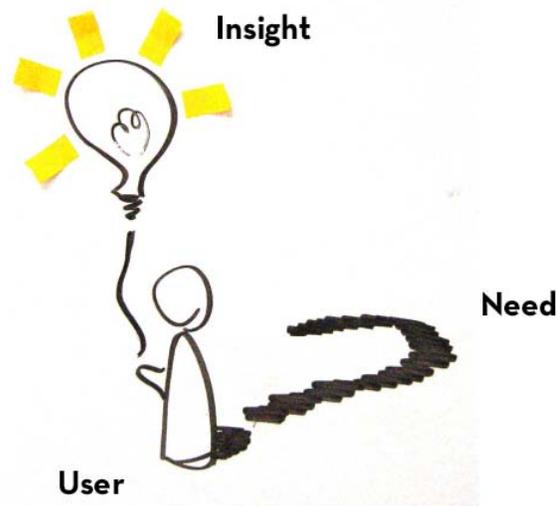
FEEL: What emotions might your subject be feeling?

Note that thoughts/beliefs and feelings/emotions cannot be observed directly. They must be inferred by paying careful attention to various clues. Pay attention to body language, tone, and choice of words.

IDENTIFY NEEDS: “Needs” are human emotional or physical necessities. Needs help define your design challenge. Remember: Needs are *verbs* (activities and desires with which your user could use help), not *nouns* (solutions). Identify needs directly out of the user traits you noted, or from contradictions between two traits – such as a disconnect between what she says and what she does. Write down needs on the side of your Empathy Map.

IDENTIFY INSIGHTS: An “Insight” is a remarkable realization that you could leverage to better respond to a design challenge. Insights often grow from contradictions between two user attributes (either within a quadrant or from two different quadrants) or from asking yourself “Why?” when you notice strange behavior. Write down potential insights on the side of your Empathy Map. One way to identify the seeds of insights is to capture “tensions” and “contradictions” as you work.

POINT-OF-VIEW MADLIB

**WHY** use a POV madlib

A point-of-view (POV) is your reframing of a design challenge into an actionable problem statement that will launch you into generative ideation. A POV Madlib provides a scaffolding to develop your POV. A good POV will allow you to ideate in a directed manner, by creating How-Might-We (HMW) questions based on your POV (see “Facilitating Brainstorms”). Most of all, your POV captures your design vision – your responsibility and opportunity as a designer is to discover and articulate the meaningful challenge.

HOW to use a POV madlib

Use the following madlib to capture and harmonize three elements of a POV: user, need, and insight.

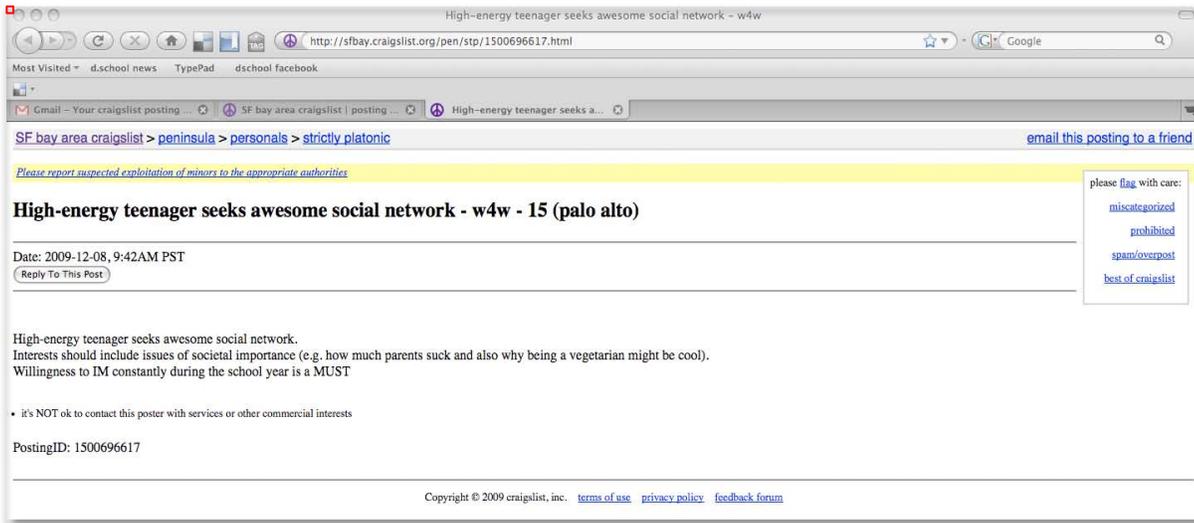
[USER] needs to [USER’S NEED] because [SURPRISING INSIGHT]

Use a whiteboard or scratch paper to try out a number of options, playing with each variable and the combinations of them. The need and insight should flow from your unpacking and synthesis work. Remember, ‘needs’ should be verbs, and the insight typically should not simply be a reason for the need, but rather a synthesized statement that you can leverage in designing a solution. Keep it sexy (it should intrigue people) and hold the tension in your POV.

For example, instead of “A teenage girl needs more nutritious food because vitamins are vital to good health” try “A teenage girl with a bleak outlook needs to feel more socially accepted when eating healthy food, because in her hood a social risk is more dangerous than a health risk.” Note how the latter is an actionable, and potentially generative, problem statement, while the former is little more than a statement of fact, which spurs little excitement or direction to develop solutions.

METHOD

Point-of-View Want Ad



WHY use a POV want ad

A point-of-view (POV) is your reframing of a design challenge into an actionable problem statement that will launch you into generative ideation. A POV Want Ad can be a good way to express your distilled findings in an intriguing format. The want ad format tends to accentuate a specific user, and her important character traits.

HOW to use a POV want ad

Embed your user, his or her need, and your insights within the format of a want ad. This way of expressing a POV is often more playful and nuanced than the simple USER+NEED+INSIGHT madlib, but should still have a clarity about how you have reframed the problem.

Try this format:

Descriptive characterization of a user,
followed by “seeks” an ambiguous method to meet an implied need,
plus additional flavor to capture your findings.

For example: “High-energy teenager seeks awesome social network. Interests should include issues of societal importance (e.g. how much parents suck and also why being a vegetarian might be cool). Willingness to IM constantly during the school year is a MUST!”

“How Might We” Questions

How Might We....?



WHY create how might we questions

“How might we” (HMW) questions are short questions that launch brainstorms. HMWs are seeds for your ideation that fall out of your point-of-view statement, design principles, or insights. Create a seed that is broad enough that there are a wide range of solutions but narrow enough that the team is provoked to think of specific, unique ideas. For example, between the (possibly) too narrow “HMW create a cone to eat ice cream without dripping” and the too broad “HMW redesign dessert” might be the properly scoped “HMW redesign ice cream to be more portable.” It should be noted, the the proper scope of the seed will vary with the project and how much progress you have made in your project work.

HOW to generate how might we questions

Begin with your Point of View (POV), insights, or problem statement. Create small actionable questions that retain your unique and specific perspective. Write these questions beginning with the phrase, “How might we...”. It is often helpful to brainstorm the HMW questions before the solutions brainstorm. For example, consider the following POV and resulting HMW statements.

Challenge: Redesign the ground experience at the local international airport

POV: Harried mother of three, rushing through the airport only to wait hours at the gate, needs to entertain her playful children because “annoying little brats” only irritate already frustrated fellow passengers.

Amp up the good: HMW use the kids’ energy to entertain fellow passenger?

Remove the bad: HMW separate the kids from fellow passengers?

Explore the opposite: HMW make the wait the most exciting part of the trip?

Question an assumption: HMW entirely remove the wait time at the airport?

Go after adjectives: HMW we make the rush refreshing instead of harrying?

ID unexpected resources: HMW leverage free time of fellow passengers to share the load?

Create an analogy from need or context: HMW make the airport like a spa? Like a playground?

Play against the challenge: HMW make the airport a place that kids want to go?

Change a status quo: HMW make playful, loud kids less annoying?

Break POV into pieces: HMW entertain kids? HMW slow a mom down? HMW mollify delayed passengers?

“HOW MIGHT WE” QUESTIONS
TURN YOUR PERSPECTIVE INTO
ACTIONABLE PROVOCATIONS

HEADLINE YOUR CURRENT
INSIGHT OR POINT-OF-VIEW HERE

AN EXAMPLE

Imagine you are in the ice cream business and you have the insight that:

“Licking someone else’s ice cream
cone is more tender than a hug.”

You might create the following How-Might-We questions:

Amp up the good:

HMW make the “tandem” of ice cream cones?
HMW make an ice cream parlor the perfect first
date venue?

Focus on emotions:

HMW help a father shows his love to his daughter
with an ice cream cone?
HMW design an ice cream cone to say goodbye?
HMW make the “I’m sorry” ice cream experience?

Take it to an extreme:

HMW make a mourning ice cream experience?

Explore the opposite:

HMW make solitary-confinement ice cream?

Question an assumption:

HMW share ice cream without a cone or cup?

Create an analogy from insight or context:

HMW make ice cream like a therapy session?

Focus in on an element:

HMW amplify and celebrate the dripping of an ice
cream cone?

AMP UP THE GOOD AND FOCUS ON EMOTIONS

TAKE IT TO AN EXTREME AND EXPLORE THE OPPOSITE

METHOD

BRAINSTORMING



One Conversation at a Time

Go for Quantity

Headline!

Build on the Ideas of Others

Encourage wild ideas

Be Visual

Stay on Topic

**Defer Judgement -
NO Blocking**

WHY brainstorm

Brainstorming is a great way to come up with a lot of ideas that you would not be able to generate by just sitting down with a pen and paper. The intention of brainstorming is to leverage the collective thinking of the group, by engaging with each other, listening, and building on other ideas. Conducting a brainstorm also creates a distinct segment of time when you intentionally turn up the generative part of your brain and turn down the evaluative part. Brainstorming can be used throughout a design process; of course to come up with design solutions, but also any time you are trying to come up with ideas, such as planning where to do empathy work, or thinking about product and services related to your project – as two examples.

HOW to brainstorm

Be intentional about setting aside a period of time when your team will be in “brainstorm mode” – when the sole goal is to come up with as many ideas as possible, and when judgment of those ideas will not come into the discussion. Invest energy into a short period of time, such as 15 or 30 minutes of high engagement. Get in front of a whiteboard or around a table, but take an active posture of standing or sitting upright. Get close together.

Write down clearly what you are brainstorming. Using a How-Might-We (HMW) question is a great way to frame a brainstorm (e.g. HMW give each shopper a personal checkout experience?). (See more on the “How Might We” Questions” method card.)

There are at least two ways to capture the ideas of a brainstorming:

1. Scribe: the scribe legibly and visually captures on the board ideas that team members call out. It is very important to capture every idea, regardless of your own feelings about each idea.
2. All-in: Each person will write down each of his or her ideas as they come, and **verbally share it** with the group. It is great to do this with post-it notes, so you can write your idea and then stick it on the board.

Follow and (nicely) enforce the brainstorming rules – they are intended to increase your creative output.