

# Needfinding

## Informative Visualization

Max Freundlich

Kristen Law

Elisa Lupin-Jimenez

# Mollie Fox

- ❖ Art History Major
- ❖ University of Michigan



# Amber Wilkie

- ❖ Photographer/Programmer
- ❖ Sweden



# Chrystal Lau

- ❖ Med school student
- ❖ Arkansas



# Lauren Kim

- ❖ Professional Golfer
- ❖ Palo Alto



# Interview Results

# Our Findings

- Visualization
  - Anatomy
  - Design inspiration
  - Golf course
- Guidance
  - Lost in a new place
  - Own boss
  - Initial push



# Tensions

- “High school cliques” - Chrystal
- Balance between social life and golf - Lauren
- Foreign environment - Amber
- Struggle to convey idea - Mollie



# Contradictions

- Discrepancy in practice hours - Lauren
- “Sweden is not all that different culturally from the states” - Amber



# Surprises

- Desire for guidance
- Artistically inclined



# Inferences & Analysis

## SAY

"Visualization is everything"

"Everything is all on you"

"Professors will sometimes shut down my ideas without fully understanding the **visualization** I have for the final product."

"It's so sad. I have no life and no friends"

"I need to be my own **disciplinarian**"

"I'm gonna do the thing that no one else does"

## THINK

Has to find her own way and be **independent**

Feels like she needs to **visualize** every hole and know every angle of the course

Very **independent** and career oriented

Likes to think and plan projects out before starting the creation process

## DO

Takes **inspiration** from surroundings, art books, museums, and online

Dives in head first to learn something new

Seeks **isolated** places to work

Watches a ton of golf videos

Starts design process by sketching/doodling

## FEEL

High **stress** since sponsors demand high performance

**Loneliness** from a packed and demanding schedule

**Anxious** to get past the design process and start working on the project

**Isolated** in a foreign country

# Analysis

- Very different people, yet have common attributes
  - Highly independent individuals
  - Stress now → Reward later
- Do we want to alleviate the stress they're feeling or is it a part of the learning and growing process?

**Common Theme:** Needing Guidance

# Thank you!

# APPENDIX

- Interviews
- Planning

## Mollie Fox

- switched to art history from poli-sci (didn't like econ / didn't really like art & museums) have cutthroat personality
  - ↳ museums: Italy
  - worked at SoM archaeology museum
  - Smithsonian, etc.
- grew up going to Henry Ford & other museum

Interest - wanted to go to an art college towards the beginning of high school

- ↳ started in kindergarten, elem & middle school → art camp at Cranbrook
- 7 semesters of art in high school
  - ↳ drawing & painting, ceramics, mixed media, photography, metalsmithing

### Art History major classes

- geographical & time periods
- one requirement is → studio art class
  - ↳ metalsmithing class

likes

- European style art
- textiles, fashion, and jewelry

### design process

- sketching, doodling esp. for jewelry
- inspiration from a song
- looking around
- looking at things that have been done before
  - outside, art books, museums

↳ photography: went to Henry Ford & photographed every clock

### creations

- metalsmithing (inspiration from piece made previously)
  - brooch that were gears that fit together ↳ mixed media project from high school
- self portrait series in Arizona, got to interact with environment

Brooch ~ 50 hours

- design process, wanted it to look real
- pieces of metal were so thin & delicate
- copper (other projects have different metals w/ different melting points)

project  
have to have  
meaning

necklace w/ lightbulbs

- progression of ideas through life
- 1<sup>st</sup> lightbulb - imagination free to run wild
- 2<sup>nd</sup> - ideas slightly refined by school, etc.
- 3<sup>rd</sup> - college, free to explore w/ild

metals / jewelry - very technical process, must be planned in advance  
mixed media - do as you go

fav  
memories

all-nighter for the broach

- everyone had to pull an all-nighter
- ordered pizza, "Send my experience"
- professor "has anyone left?"

reconstructed book for mixed media

- when

don't like / challenges

- Friday ideas, initial conception esp. w/ no prompt
- up if for class, having a prof. not there & see what you're going to do & saying it's not going to work
- can sometimes take a week to get started

# Mollie Fox — Art history major

## SAY

- it can sometimes take a week to get started working on a project
- professors sometimes shut down ideas saying "It's not going to work" before idea can be fully realized
- one project required taking inspiration from a piece made previously

## THINK

- getting inspiration can take a lot of work & is often one of the most challenging aspects
  - \* likes to think & plan projects out before starting on it
- there are both technical & creative parts to art (esp. metalsmithing)  
(metals melting at different temps. for example)
- \* planning a piece is a complex process that requires knowing technical information

## DO

- uses images to help convey what she's talking about (artwork)
- takes inspiration from surroundings (sounds & visuals) as well as online, in books at museums
- starts off design process by sketching/doodling (esp. for designing jewelry)

## FEEL

- felt really happy when doing art project with a group of people during an all-nighter (individual projects, but still a good bonding experience)
- sounded proud of artwork when discussing favorite pieces
- seems really interested & excited about museums
  - \* listed off 15+ that she has been to within seconds of being asked

## Amber Wilkie interview

- “How are you doing today?” - good
- “What were you doing today?”
  - At programming boot camp, online ordering system for people who want food delivered to them
  - Working on features for that
- “How long have you been programming?”
  - Been wanting to for a couple years, self-paced learning
  - Two months ago, started intensive “Ruby on Rails” bootcamp
- “What does “the field” mean to you?”
  - Industry
  - Joining a big team
  - Building own application
  - Working on web development
- “What specific area would you like to work on with your skills?”
  - After doing bootcamp, she wants to be a backend person
  - Setting up databases, searching, creating APIs
  - Logic side is more interesting than pretty side
  - Very few women work in back end
  - Tech is gender unbalanced
  - “Women are in 30% of tech jobs, but 7% back end”
  - “Im gonna do the thing that no one else does”
- “What have you done in the past?”
  - I don’t do one thing for a great length of time
  - Get antsy when things too easy
  - Into psychology, wanted to be a doctor
  - Worked in nonprofit in latin america
  - Wrote for union trade newspaper
  - Got into photography -> started own business -> weddings
  - Learned about one-person business
  - Moved to Sweden
    - Learned Swedish
    - Now in programming bootcamp
- “What are your hobbies?”
  - Very skilled potter
- “What are your strategies for picking up something new?”
  - What I do - go at something new that she’s interested in really hard
  - Let it grab me
  - Give in to it and spend all your time doing it
- “What prompted your move to Sweden?”
  - Husband got a job as a researcher at one of the universities
  - Gothenburg - second largest city

- When he graduated from PhD, knew about two year stints
  - It would be possible to stay for one of the stints, but they moved
  - On the horizon the move is coming up
  - Move me somewhere cool if I need to give up my business!
- “How did you manage your move?”
  - Asked for context in the city
  - Asking if they knew anyone in sweden
  - Asked about running a small business
  - Sweden is not all that different culturally from the states
  - Doesn’t feel isolated there
- “What do you think would have made it easier?”
  - I don’t know...
  - One thing - exploring the city
  - After a week - she had nothing to do, was depressed for a good two, three weeks
  - Needed something “to do”
  - Prone to be in a funk if she doesn’t have some purpose
- “What was your experience with those resources for being a new place?”
  - Stuff to do for entertainment (museums and stuff)
  - Needed something to fill my day
- “Did you not feel like there were adequate resources to guide you?”
  - Thought she should be looking for a job, needs to learn Swedish first
  - Resources to help you study swedish
  - Sweden is good about providing resources to its people
  - Sweden is better in every way than US for helping people
  - Doesn’t have craigslist
  - Hard to job hunt in Sweden
- “What would you have liked to see during this job hunt?”
  - Still learning
  - Started job hunting, but switched over to education (bootcamp)
  - Used to escape reality of searching for a job
  - Only way to find public jobs is through the govt job agency
    - Most postings are from recruiters
    - Firm signs people and connects them to jobs
    - Inefficient and messed up, but very common
    - Is it government’s job to make it better?
    - Would much rather people that she would be working with and convince them she’s right for the job than meet with weird middle man
- “Have you used that service?”
  - Been rejected by that service
  - She was applying for a marketing position through govt job listings through hiring firms
  - Applied to several jobs, took time and thought and researched companies, didn’t hear from any

- Small cultural difference between sweden and america
    - Swedes are big on formal names, formal certifications, TITLES
    - Saying that she tripled clients in three years < a degree
  - Why it's so important to talk to the person who does the job
    - If you don't know anything about marketing, you can't judge their skills
  - Heard from many swedes that degrees/certifications are really important
  - boot camp is in cohorts
    - Someone who just graduated interview with firm, and firm wanted to see his certificate, and not ask him to code
  - My diploma is an aesthetic package that I've never looked at
    - From Tulane, never needed it for anything, unopened
- "You have to completely change your method of job hunting..."
- She hasn't really done a hardcore job search
  - It's a who you know kind of thing
  - Work by network here and in Sweden
    - But maybe it doesn't work like that
  - Might end up working for the bootcamp - hopefully won't need to do a job search
- "How would you summarize Sweden (moved in in January)"
- Her year of learning
  - Learning swedish for six months
  - And programming
  - Hasn't worked while she's been there
  - Once you go out and get a job and there's no school and no parties and do the same thing every day, it makes time goes by faster
  - Doing new things and new experiences makes time slow down
  - This year has been GOOD because of the new experiences
  - Hasn't been easy, but has been very rewarding
  - Had to learn a lot and new experiences, feels pretty good
  - Like an adventure
- Tech is different in other countries
  - No one uses yelp there
  - Have to ask your friends
- "Do you think there are other apps in the states that don't transfer to other countries?"
- For some for sure but nothing like Yelp
- "Craigslist not available in your country - what?!"

## Chrystal Lau Interview

1. What's your current occupation
  - a. First year med school student
2. Typical day
  - a. Wake up at 630
    - i. Morning traffic is awful, in the morning it takes about 45 minutes
    - ii. Drives herself
  - b. 8 am lecture
    - i. Anatomy lecture
    - ii. Go to lab and do dissections
  - c. Eat lunch at hospital, go to class
  - d. Come home and do homework and eat dinner
    - i. Sometimes get home at 2pm and 6pm
3. How much homework do you have?
  - a. We don't have homework
  - b. It's all just studying
4. Is it hard to manage everything you need to study since you don't get assigned homework?
  - a. No, relisten to lecture.
  - b. Do all the relevant readings.
  - c. Really hard to find the motivation to study. "Everything is all on you"
  - d. Every day is new, no review
5. Do you have friends to work with?
  - a. "It's so sad. i have no life and no friends"
  - b. Too much work to go and meet people
  - c. No study groups, study all by myself
  - d. Everyone is in a clique from high school
6. Do you want to work with people?
  - a. "Half half"
  - b. Needs to work alone cause she needs to focus
  - c. But wants to work with people to talk about complicated things
7. Is this typical?
  - a. No not at all, although she thinks there might be a lot of other people who keep a low profile
  - b. A lot of people live on campus so they have an immediate friend group, but she lives at home
  - c. She can't study at the library because depressing
  - d. People stress her out with how much they study
8. Do you have any free days?
  - a. "No"
  - b. "I force myself to take time off"
9. What do you do in the free time?

- a. Meet with mom
  - b. Always studying on the weekend
10. What are your meals like? Since you seem so busy
- a. Pick up something quick for lunch at hospital
  - b. Eats dinner at home with parents since they cook
  - c. Often doesn't have time to eat, lost ten pounds since starting med school
11. What are you planning to do over winter break?
- a. Only two weeks,
  - b. Feels like it is too short
  - c. Might go to Dallas, doesn't want to go far
12. Challenges on a day to day basis?
- a. "Drivers in Little Rock are the worst drivers in the world"
    - i. Left lane is supposed to be the faster lane, but apparently no one gets that
    - ii. Morning commute
  - b. Parking is really bad at her school
    - i. There is a parking wait list for parking structure 1 and 2, the structures closest to school and hospital
    - ii. She was number 1000 so probably won't get on till senior year
    - iii. Has to park far away and walk, doesn't want to wait for shuttle
      - 1. 7-10 minute walk but it's really hot in Arkansas
      - 2. Needs to factor this into waking up
  - c. Doors in her school are really bad and old and heavy
13. How do you take notes?
- a. Doesn't even really take notes because her lecturer talks too fast
  - b. Pointless to even go to class, but needs to go to the lab
    - i. Only goes to class so she is early enough to get parking
    - ii. Needs to get to school at 8AM
14. What do you want to concentrate in?
- a. You choose a specialty when you're in Residency
  - b. Take a step 1 exam, which dictates which specialty you get into
  - c. Always had an interest in pediatrics
15. Why pediatrics?
- a. "Because I freaking love kids and I think they are so fascinating and cool"
  - b. Her whole CV is about kids
  - c. Never gets tired of them

Rando notes from convo:

seen lots of cadavers

people are not respectful

breast implants cause they had breast cancer

people making comments

one guys came to a table and took scissors and stabbed them in leg and said he needed somewhere to put scissors

Easy to get disconnected, need to remember that they were a real person

At start it is weird and you see a naked body

after a while the body becomes unrecognizable because of all the cutting cutting through muscles, separating things

Hands are weird since they will have nail polish

At the beginning they will usually cover the face

Med school is switching to a pass fail system

Won't know difference between someone who got a 95 and a 75

Her school is honor, pass, fail

| SAY  | THINK   |
|--|---|
| <p>Quotes:</p> <ul style="list-style-type: none"><li>• "Drivers in Little Rock are the worst drivers in the world"</li><li>• "I force myself to take time off"</li><li>• "Because I freaking love kids and i think they are so fascinating and cool"</li><li>• "It's so sad. i have no life and no friends"</li><li>• "Everything is all on you"</li></ul> <p>Words:</p> <ul style="list-style-type: none"><li>• Alone</li><li>• Work</li><li>• Commute</li><li>• Feels isolated</li></ul> | <ul style="list-style-type: none"><li>• She is very career oriented</li><li>• Values a strong performance in med school over a social life</li><li>• Independent</li><li>• Whole life is oriented around school work</li><li>• Not enough family time</li></ul> |
| DO   | FEEL  |

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Joked a lot about how lonely it can be</li><li>• Relieved that the semester just ended</li><li>• Happy and excited to talk about her life</li><li>• Visibly annoyed with morning commute</li></ul> | <ul style="list-style-type: none"><li>• Loneliness</li><li>• High stress</li><li>• Wanting to be with family, she brought up how she wanted to be with family didn't have the time</li><li>• Feels like there isn't enough time during the day</li><li>• Feels that vacations are too short to do anything</li></ul> |
|--|--|

## Lauren Kim Interview

1. What's your current occupation?
  - a. Professional Golfer
2. Could you describe an average day?
  - a. Generally try to get as much sleep as possible
  - b. Morning workout 8-830
  - c. Practice 930-10, til 2-3
  - d. Go back and relax, day ends around 3
3. Where do you practice?
  - a. At stanford
4. Does it get repetitive?
  - a. No, the facility is so huge so there is so much variety in the grass
  - b. 6 different greens
5. Where do you workout?
  - a. Palo alto hills country club
6. Do you practice at the country club?
  - a. Play there but don't practice
7. Isn't it good to practice in different places?
  - a. Grew up practicing there so she knows it really well
  - b. Plays the course since its really hilly and gets better lies
8. How often do you have to travel to compete?
  - a. Every other week
  - b. But when season starts, three weeks in a row then week off
9. How do you manage living conditions?
  - a. Right now her mom is serving as her agent
    - i. Books flights, hotels, cars
  - b. Some tournaments have host families where players can stay
10. Who pays for hotels?
  - a. Comes out of her paycheck.
  - b. Paycheck comes from her sponsor
11. How do you get your meals?
  - a. Two parts for food: Food for the course, food off the course
  - b. Sometimes gets snacks for course before she leaves, depends on place
    - i. Questbars, nuts, berries
  - c. Doesn't eat out too much, tries to make own meals
12. How does golf rank players?
  - a. Whatever tour you are on, it has its own ranking
  - b. Eg LGPA tour is sponsored by CME group and ROLEX
  - c. Rankings are based on money earned, not stroke average
13. Does that ranking system make sense?
  - a. Yeah, it's your livelihood so who earns the most is the best
14. What do you do in your free time?

- a. Run, exercise
  - b. Hanging with friends, lunch
  - c. Painting
  - d. Reading
15. How do you keep your cool while you're playing poorly?
- a. "That's the hardest part"
  - b. Being able to control mental state is what separates the elites from the losers
  - c. Important to "focus on the process"
  - d. "What can i do to get better, what can i do to get better"
  - e. Do not focus on "I failed I failed I failed"
  - f. On the course it is hard to not get wrapped up in playing poorly
    - i. "Be one with your environment"
    - ii. Try to be just in that moment, don't think about your score
    - iii. Almost like a meditation practice
16. How often do you get flustered and upset when your playing?
- a. As a kid get used to get so mad she could feel herself getting warmer
  - b. Turning point was freshman year of college and coach said she needed a better attitude
  - c. After that her game took off
  - d. Now she's better about it outwardly, but within she still has thoughts she shouldn't be thinking.
    - i. Go away faster than she is used
    - ii. Self deprecating thoughts
17. Do you find it hard to hit all the hours of practice?
- a. Sometimes
  - b. "I need to be my own disciplinarian"
  - c. Hard to get out of bed, go workout, go practice
  - d. "In the back of my mind I have bigger goals that I know I want to accomplish"
18. Any challenges day to day?
- a. Always feels like she needs to be networking
  - b. Should be taking advantage of people in the area, especially in golf where you need access to the best equipment which means bigtime sponsors
19. Would you want a coach?
- a. Has a swing instructor
  - b. Wants someone who could walk her through this process
  - c. Such a different process so she has to figure it all out on her own for the first time
20. When you're at a new course, how do you get your understanding of the course?
- a. As a rookie she hasn't seen a lot of these courses prior
  - b. Has a practice round
    - i. Important for building confidence
    - ii. Helps to get into mentality and find trouble spots
    - iii. Lots of planning and strategy
21. If you could see the course beforehand would you want to?

- a. "Oh yeah"
- b. Talked to a VR professor about doing some VR with golf courses
- c. Golf is so visual and "visualization is everything"
- d. If she could walk through the course then it would make it a lot more comfortable before she got there and Teed off
  - i. "Would be really cool if there was some tech that could do that"

| SAY   | THINK   |
|---|---|
| <ul style="list-style-type: none"> <li>• "I always repeat: what can i do to get better, what can i do to get better"</li> <li>• "In the back of my mind I have bigger goals that I know I want to accomplish"</li> <li>• "I need to be my own disciplinarian"</li> <li>• "visualization is everything"</li> </ul> | <ul style="list-style-type: none"> <li>• Values hard work, but also wants to be able to socialize with friends</li> <li>• Wants to spend around 6-7 hours working, but only spends 4.5-5</li> <li>• Wants to always be calm, but feels like it is unrealistic</li> <li>• Feels like she needs to visualize every hole and know every angle of the course</li> </ul> |
| DO  | FEEL  |
|   | <ul style="list-style-type: none"> <li>• Stress to ensure that she trains the right amount every day</li> <li>• Tired because of all the early mornings</li> <li>• Good at being outwardly calm and happy since she deals with such high stress during tournaments</li> </ul>   |

People to interview:

1. Shawnee Baughman (or Tobin Asher) - VHIL Lab Manager (Elisa)
2. Jazmin Cano - High Fidelity (Elisa)
3. Zili Wang - master student majoring in CE (Michelle)
4. Kalanit Grill-Spector - Psych 30 professor (Max)
5. Alan Lau - Google SWE, Android Wear (Kristen)
6. Zach Johnson (maybe) - Google SWE, Android Wear, formerly Google Glass (Kristen)
7. Nitin Gupta - Google SWE, VR (Kristen)

Plan:

- a. Potential ideas: Domain of interest = something that encourages exploration among the general public
  - i. Traveller matching - find people who are going to the same place to travel together
  - ii. Guide matching - be a travel guide and get matched with tourists
  - iii. Remodel room with 3D scans
  - iv. **Real world minecraft - general public**
    1. Entertainment or utility
    2. Geotagging + recognition of surroundings
  - v. Navigation guidance via overlay on ground
  - vi. Getting more info (reviews, etc.) on products while shopping
    1. Barcodes
- b. Interview list is above
- c. Questions
  - i. "Have you ever used Virtual Reality?"
  - ii. "Have you ever used Augmented Reality?"
  - iii. "What do you think is the future of virtual reality/augmented reality?"
  - iv. "What do you know about MR?"
  - v. "Was there ever a time when you felt that AR/VR would help solve a problem??"
  - vi. "What do you think about products like Google Glass / people wearing headsets"
  - vii. "Do you see yourself buying some kind of VR/AR enabled hardware in the future?"
  - viii. "How do you imagine MR to take place in your daily routine?"
  - ix. "What hesitations do you have about the future of MR?"
  - x. "What do you think will take off first AR or VR?"
    1. "What do you think will more widely accepted?"
  - xi. "What are the ethical ramifications of releasing VR/AR products to the general public?"
  - xii. "How do you think MR will improve the world?"
  - xiii. "How do you think MR will be detrimental to traditional human interaction?"
  - xiv. "What price are you willing to pay to have access to current AR/VR products?"
  - xv. "What improvements do you hope to see as MR technology continues to grow?"

## **Take 2 (after getting feedback from John):**

Plan of action:

1. Find a user population that we think may have needs that can be solved with AR/VR
2. Find people within that user population and ask them questions about their needs & day-to-day problems
3. Come up with potential AR/VR solution that can address the problems the interviewees brought up (eventually -- for this assignment we probably just need to evaluate the results from the interviews)

Potential user populations:

- People in health care
- Teachers
- Athletic coaches
- Interior designers
- Artists
- Salespeople

People to interview:

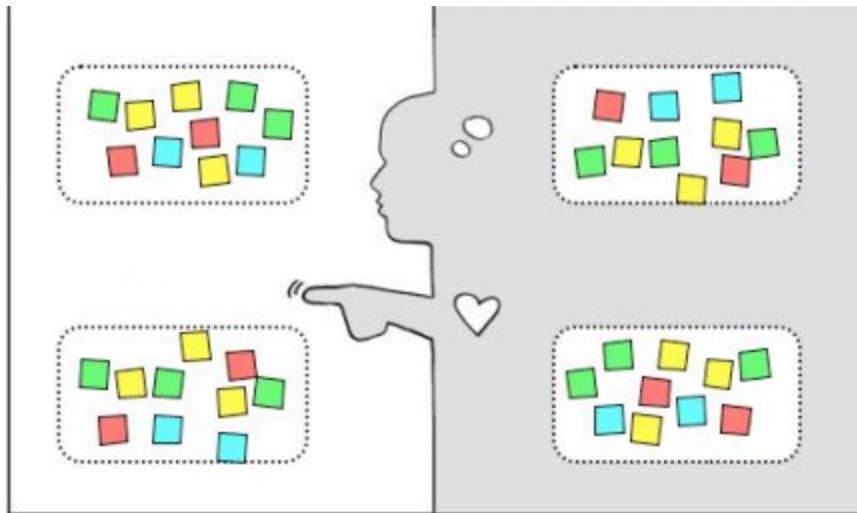
1. VR Expert
  - Nitin Gupta - Google software engineer
2. Artist
  - Mollie Fox - Art history major, University of Michigan
3. Medical
  - Chrystal Lau - 2nd year med school student, Arkansas Med School
4. Law
  - Austin Freundlich - Lawyer
5. Average User
  - ~~Wyatt Horan - Stanford Student~~
6. Professional Athlete
  - Lauren Kim - Golfer
7. Amber Wilkie - Wedding photographer

Questions:

- "What do you do for a living?"
- "Can you describe a typical day for you?"
- "What made you interested in (user population topic: health, teaching, etc.)?"
- "Are there any challenges that you face on a day-to-day basis?"
- "Is there anything about your job/hobby that you wish you could change?"
- "How do you spend your free days?"

- “How would you like to spend your free days?”
- “What grinds your gears?”
- “What is the name of your first grade teacher?”
- “Have you ever been convicted of a felony?”
- “What idea of yours do you wish you could make happen but don’t have the means to do so?”
- “When was the last time that you tried something new?”
- “What was that experience like for you?”
- 

## **HOW TO 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.