





People’s cognition is marvelous. Learning about it doubles your success and provides better value to people. **Data Science That Listens** is a method that visualizes and tracks patterns of cognition for you to guide improvements over the years.

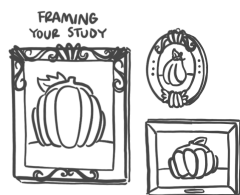
Elements of the method are listed here—try to find as many as you can on the Doodle page! 😊

Have fun!  
—indi & Jess

## DEFINITIONS LIST



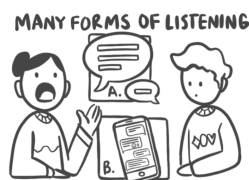
**Purpose:** An intent or goal that a person is consciously addressing, deciding, planning, making progress on, putting off, or trying to avoid entirely. It’s usually broader than a typical product goal because this is strategic research, whereas tactical research focuses on the solution and the “user” of the solution.



**Framing a study:** Define or set the scope of the conversations you want to have with people so that the knowledge your team is missing has a chance to emerge. There are broad frames, medium frames, and narrow frames. It’s one of several variables that determine how many people to recruit.



**Qualitative & quantitative data:** Quant data measures how much, and qual data represents conceptual patterns. Both have an “iffy” version full of assumptions and a solid, reliable version, two ends of the spectrum for both types of data. (For qual, reliable patterns occur at data saturation.)



**Listening deeply:** To get outside your own perspective, and resist cognitive bias, listen for another person’s core interior cognition. One-on-one. You can listen remote or in person, audible or by text. Also via sign language, drawing, movement, gestures, etc.



**Germinal question:** The one question that a listener poses at the beginning of a listening session, “What went through your mind the last (few) time(s) you were <the purpose>?”



**Topic:** A subject a person communicates. A person will bring up many topics during a listening session, like putting subjects on the table. The listener will not bring up any new topics. Example: “Our team has good relationships with most of our stakeholders.”



**Concept:** One of the discrete ideas or notions that a person brings up about a topic. There will be several concepts inside a topic, at the various layers. Example: “As I was reading about this method, I was also imagining how two of my stakeholders might react.”

Topic layers, as represented by a jawbreaker candy:

**Description layer** (the outer shell) contains concepts:

Explanation, scene setting, fact

**Expression layer** (next layer in) contains concepts:

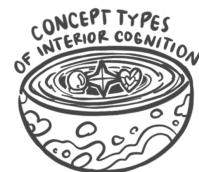
Opinion, preference, attitude, perception

**Almost cognition layer** (third layer) contains concepts:

generalized, implied, future

**Interior cognition** (core) contains concepts:

inner thinking, emotional reaction, personal rule



**Concept types of interior cognition:** A way of categorizing the concepts of core cognition. It is these types of concepts that we are interested in.



**Inner thinking:** A person’s active thought process, conscious or subconscious. Sometimes it’s that little voice inside your head.



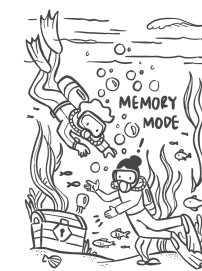
**Emotional reaction:** A spark of emotion, a feeling, mostly as a reaction to a person’s context. Example: “feel anxious,” “feel excited.” It’s often confused with an opinion, as in “feel that,” “feel like.”



**Personal rule:** An instruction or rule a person uses for actions or decisions. Each personal rule was created over the course of their lifetime. Can develop from values, superstition, discrimination. (Also called a “guiding principle.”)



**Pull - tab:** During a listing session, it’s a way to notice when there might be more to understand about what someone mentioned, such as phrases, hints, emotional shading, or suspecting your own assumptions.



**Memory mode:** It’s much easier for people to talk about their past interior cognition, rather than their present cognition. Much of the listening session will be spent in memory mode, where the person is focused on relating their cognition from “back in time.”



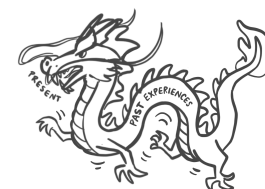
**Session mode:** The listening session will start and end with you both talking about the session itself, where it will go, whether there’s anything the person expected to say. In between the person will be in memory mode, and resurface often to check in.



**Find the root:** Help the person communicate how an opinion or preference originally formed, to understand their inner thinking, emotional reactions, and personal rules from back then.



**Pin to a place & time:** Help the person more easily communicate about their interior cognition by asking about a particular event in the past.



**Stay out of judgment:** The person’s interior cognition was partially shaped by the total body of their past experience. The dragon’s head is the moment of cognition, and the body is the past experience. This reminder helps you see interior cognition as utterly valid from the person’s point of view.



**Comb transcripts for concepts:** Search each transcript for all the inner thinking, emotional reactions, and personal rules. Gather repeats into single concepts, and untangle clumped ones, so that you can write a summary for each concept.

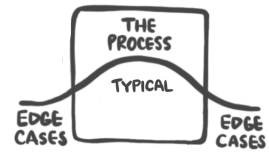


**Summary:** For each concept write a summary using their words. Use this formula, to make it easier to see patterns in the second part of data synthesis: verb + key point + supporting details. The key point is what the person is verb-ing. Example summary: Decide + to ask the doctor if codeine is okay + because uncle says she had a reaction as a kid.





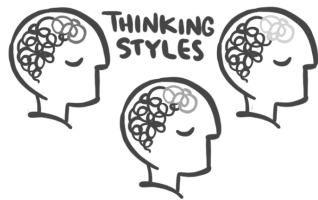
**Demographic assumptions:** A person's demographics don't cause their inner thinking, emotional reactions, or personal rules (except in experiences of discrimination). Saying "women like expensive purses" or "nerdy people are smarter than people who are athletic" or "girls love dolls" causes your team to make broad assumptions and create inappropriate or harmful solutions.



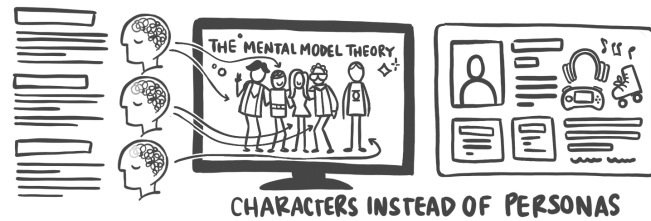
**Edge cases:** Don't use this phrase to describe groups of people. Edge cases only apply to a process. Edge cases are other ways to do the process when the context is slightly different, like "it's below freezing" or "several people are out sick today."



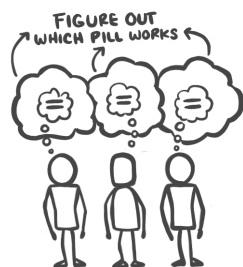
**Average user:** A myth. You have a variety of people in your audience. One solution only fits half (or less) of your audience.



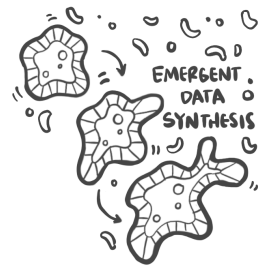
**Thinking styles:** Groups of people whose cognition is similar as framed by the person's purpose. Not made up! Thinking styles emerge from the listening sessions. How? Most cognition is common across participants, but a few concepts define unique cognitive approaches toward the purpose.



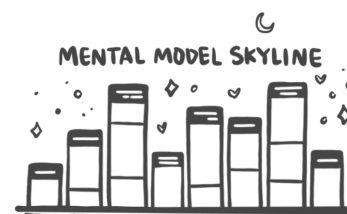
**Characters instead of personas:** To tell a good story you need characters and a plot. Make up a cast of characters to use over and over, like episodes on TV, featuring one character by themselves, or a few of them interacting. Episodes let teams explore something from the mental model skyline that the organization wants to support. Across episodes, characters will represent different thinking styles, like wearing different hats. It's fun to show characters wearing a thinking style hat that is at odds with common biases about their demographics.



**Focus of mental attention:** This is the affinity technique to group summaries by each person's next-level-out focus of mental attention. Groups emerge from people's mental contexts. It is different from affinity techniques that group by keyword, by concepts used at your org, by timeline, etc.



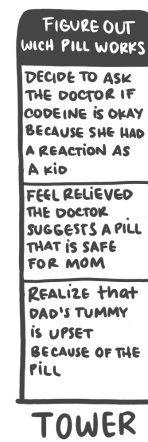
**Emergent data synthesis:** To resist cognitive bias, the affinity groups come from people's cognition. Compare each summary to every other summary to see if the focus of mental attention is similar; if so, group these summaries together. The resulting groups shift and change as each summary gets added to the whole, like an amoeba. Eventually reliable patterns emerge.



**Mental model skyline:** A visual representation of the patterns of focus-of-mental attention from the data. Because these patterns come from interior cognition, this visualization lasts for decades. You can layer other data on this visual skyline over the years.



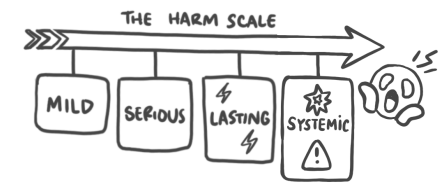
**Capabilities:** Align your solution features beneath the towers they are meant to support. Often gaps appear because the solution features were not designed for a person's focus of mental attention, but instead because it sounded interesting to leadership.



**Tower:** A group of concept summaries in visual format. A tower represents a focus of mental attention common across several people that emerged as we compared summaries to other summaries. For example, these are different towers: "Keep the swelling down," "Learn how to move around," "Figure out which pills work," "Deal with getting the medicine," and "Make sure I don't get addicted."



**Block:** A "city block" of towers having the same next-level-higher focus of mental attention. Just as summaries group themselves into towers, towers group themselves into city blocks. For example, "Reduce the pain," which contains the towers above. (Also called a "mental space.")



**Harms scale:** Words to describe how we harm some thinking styles beyond frustration and confusion. There's serious harm such as interruption and emotional triggering. There's lasting harm such as lost productivity or relationships. There's systemic harm that gets structured into our laws & policies, at a public level and also within an org. See Resources/#images on indiyoun.com to download the full descriptions as a diagram.



**Measure value to people:** Define your evaluative studies by a small subset of towers and thinking styles, then map the results back to the skyline beneath the towers as points. These points form sparklines that show whether the thinking style is being helped or harmed. Track and change these points over time with successive iterations of evaluative studies, to show how the team is improving value to people.



**Recognize missing audiences:** Use the gaps and sparklines in the mental model skyline to decide where to focus your efforts to improve support for certain thinking styles.

**Innovate for people:** Use mental model skyline to choose where to focus and to catalyze ideas for innovation.



**Teach AI to recognize thinking styles:** Teach your AI the thinking styles derived using this strategic research method, and then it will be able to recognize who is after what kind of experience, and guide them to a pre-designed solution.



**See work fitting together:** Across teams, a mental model skyline can hold one cohesive understanding of how users might be supported. It works not only for user experience, layout, and product management, but also for systems architects, content writers, marketing, ops, ethics teams, and strategists.



**Extend your total addressable market:** By understanding the variety of cognition, your org can finally see and address more people.



