

Rigorous Qualitative Human-Centered Methods to Inform Criteria for Broadening Participation in Emerging Technologies for Institutions and Organizations

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INTRODUCTION

New human-centered qualitative research methods can reduce bias, highlight all voices, and demonstrate inclusive approaches to meet mandates of the 2022 CHIPS & Science Act to measure “ability to attract and retain a diverse and nontraditional student [& staff] population in the fields of science, technology, engineering, and mathematics.”

METHODS

- Identified wide variety of research participants via **deliberate inclusive recruiting methods**
- Evolved** Indi Young’s “listening sessions” for policy work to include facts & opinions not used in private sector product work
- Initial questions spark conversation, moderator **follows participant’s lead**
- Automated transcription captures **verbatim record, minimizing bias versus manual notetaking**
- Participants’ words analyzed/“combed” into insights & themes in **specialized template**

Theme	Insight	Summary	ID Responses	Inner thinking / Reaction / Guiding Principle / Fact / Opinion / Story
The theme that appears from a grouping of insights				
The insight that appears from a grouping of summaries				
		active first person verb summary from participant's response with detail from their response. Each summary should be sentence that works with 1 + active first person verb + details.	P01 Participant's verbatim response, captured by automated transcription, broken into individual rows of separate thoughts / insights	What kind of insight is it? Inner thinking, reaction/feeling, guiding principle, fact, opinion, or story.
		felt attracted to AI in the beginning because there's always something new, another opportunity to find creative solutions to new problems	P01 Moderator: How do you not with the changes as they come in the tech world? User: That's part of what attracted me to AI in the beginning. It's, um, there's always something new. There's always, you know, another opportunity to learn, you know, find creative solutions to the new problems. I mean to what keeps it interesting for me.	Reaction
		ensure that AI isn't a space that is gated because AI requires diverse perspectives, passions, and interests as we introduce that technology into society	P03 I think AI is a really important area where, AI of different, diverse perspectives in. Maybe in topics of study and passions and interests, and things that are really related to that space. And I just want to	guiding principle
		find those teachable moments don't scale at a 10k person company, where people are resistant to ethics & bias and for whatever reasons	P02 Do in some cases it was just finding, you know, finding those kinds of things, but that's a very rare one. It doesn't really scale when you're talking about trying to be. Each you know ethics and bias	inner thinking
The insight that appears from a grouping of summaries				
		active first person verb summary from participant's response with detail from their response. Each summary should be sentence that works with 1 + active first person verb + details.	P04 Participant's verbatim response, captured by automated transcription, broken into individual rows of separate thoughts / insights	What kind of insight is it? Inner thinking, reaction/feeling, guiding principle, fact, opinion, or story.
		clear and all-around transparent verbatim rules paratir	P07 Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.	Story

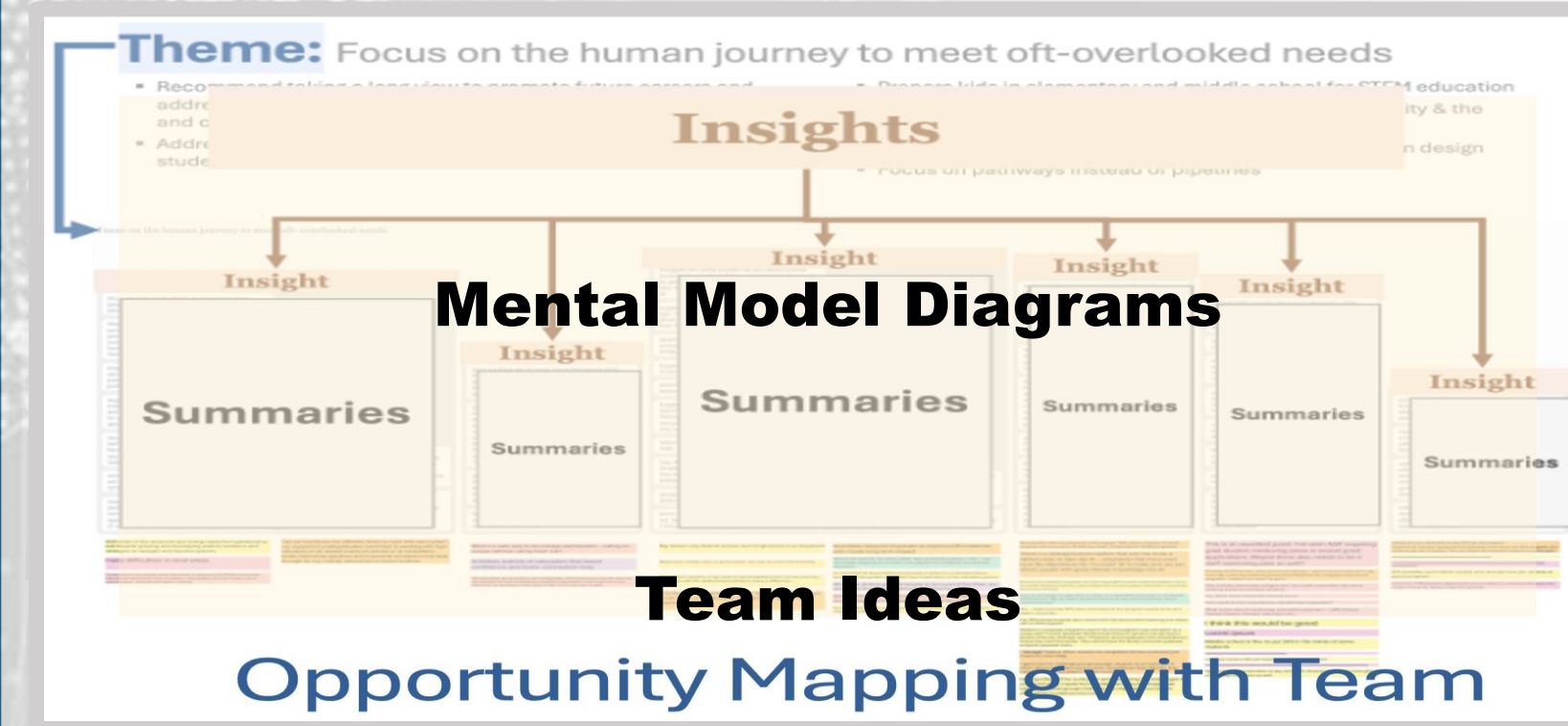
“If you bring historically excluded groups into an environment that’s not inclusive, they are only surviving it.”

— interview participant

Rigorous human-centered methodologies must **prioritize the spectrum of humanity’s lived experiences and expertise, are necessary to foster robust and collaborative environments, policies, and services.**

METHODS, continued

- Generated **mental model diagram (MMD)** of their own words in specialized spreadsheet



- MMD are used in **opportunity mapping** to cultivate cognitive empathy on team

DISCUSSION

- To meet this mandate, research across projects recruited diverse perspectives especially historically excluded populations, noted intersectional data patterns, and used automated verbatim transcription to reduce biases from notetaker interpretation.
- This inclusive method prioritizes surfacing participants’ own words throughout to highlight often undervalued needs.
- Indi Young’s method excludes facts and opinions for the private sector, where this evolution retains them as they are valuable for public policy design and implementation.

RESULTS

- Prioritized participants’ own words to deliver actionable insights and elements that an inclusive culture or workplace needs for robust, resilient outcomes
- Provided evidence from people with disabilities that agencies used to evolve physical and digital services and policies
- Evolved Young’s method for public sector where facts and opinions are useful

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