From Insights to Ideas: The Ideation Process

Making Sense of Complexity

Once I had a clear sense of the real challenges students were facing, I moved into ideation. But this wasn't a typical brainstorming session with a team around a whiteboard. This was me, alone with all the research findings, trying to make sense of what I'd learned and figure out what to build.

I laid out everything on a large table: interview transcripts, observation notes, the sticky note clusters from my wall, key quotes that had stuck with me, and patterns I'd identified in the data. I needed to see it all at once, to understand how the pieces connected and where the real leverage points might be.

The challenge felt both exciting and overwhelming. I had clear insights about what students needed, but translating insight into actionable design direction required careful thinking about constraints, feasibility, and what would actually work in the complex reality of schools and families.

Exploring the Possibility Space

I started by mapping out every possible direction I could imagine, without judgment or immediate filtering. This included:

VR-based practice environments where students could rehearse social scenarios in immersive, controlled settings. The appeal was obvious: complete control over variables, ability to repeat scenarios, visual and spatial learning. But the barriers were significant: cost, accessibility, the need for dedicated hardware, and questions about whether VR practice would transfer to real-world environments.

Simple conversation guide tools that students could reference before or during social interactions. These would be low-tech, accessible, and easy to implement. But they didn't address the core problem: students needed support in the moment, not general guidance they'd have to remember and apply under stress.

Peer buddy systems that paired students with social-emotional needs with trained peer mentors. This had strong research support and addressed the desire for authentic social connection. But it raised concerns about privacy, the burden on peer mentors, and whether students would feel comfortable being publicly paired with a "helper."

Wearable technology providing real-time physiological feedback to help students recognize when they were becoming anxious or overwhelmed. This aligned with research on heart rate variability and emotional regulation. But it raised questions about stigma, device management, and whether physiological data alone would provide enough support.

AI-powered coaching accessible through familiar devices that students could practice with privately, on their own time, without anyone watching. This offered privacy, accessibility, and adaptability. But it required careful design to feel supportive rather than robotic, and raised questions about whether students would actually use it.

I sketched rough concepts for each direction, thinking through user flows, potential barriers, and what each approach would require to succeed.

Identifying Core Themes

As I sorted through possibilities, certain themes kept surfacing across every conversation I'd had and every observation I'd made:

Privacy was non-negotiable. Students needed support that didn't announce their struggles to peers, teachers, or even parents. Any solution that drew attention to their differences would likely be rejected, no matter how effective it might be.

Subtlety mattered more than perfection. Students didn't want a system that corrected every mistake or tracked every interaction. They wanted gentle guidance that helped them navigate without making them feel surveilled or judged.

Real-time support was essential. Feedback delivered hours or days after a social interaction had limited value. Students needed help in the moment, or at least in practice scenarios that closely mimicked real moments.

Teacher burden had to be minimal. Any solution requiring significant teacher setup, monitoring, or management would fail in practice. Teachers were already stretched thin. Adding to their workload, even with good intentions, wouldn't serve anyone.

The support had to adapt to individual needs. Social-emotional challenges vary dramatically from student to student. What helps one person might overwhelm another. Generic, one-size-fits-all approaches wouldn't work.

These themes became my design criteria. Any direction I pursued had to address all of them, or I needed a compelling reason why one criterion might be temporarily sacrificed for others.

The Hybrid Solution Takes Shape

The concept that aligned best with these criteria was a hybrid approach: a discreet wearable device paired with an AI-powered coach accessible through an app. This combination offered several advantages:

Privacy through personal technology. Students could practice social scenarios on their own time, in their own space, without anyone watching. The AI coach didn't require face-to-face interaction, which research suggests can actually be beneficial for some autistic learners who find human social interaction more stressful than necessary for skill-building.

Real-time physiological awareness. A wearable could track heart rate variability and other stress indicators, helping students become aware of their bodies' responses to social situations. This awareness is the first step toward self-regulation.

Adaptive, personalized learning. AI could adjust difficulty, pacing, and content based on individual needs and progress. Unlike human-delivered programs with fixed curricula, the system could meet each student exactly where they were.

Minimal teacher involvement. The core practice and coaching could happen independently. Teachers would have optional access to high-level insights about patterns and progress, but wouldn't need to manage the day-to-day use.

Scalability and accessibility. While initial development required significant work, once built, the system could reach far more students than face-to-face interventions could ever serve.

Research Validation

This direction wasn't just based on intuition. It was grounded in research showing that technology-based social skills interventions can be as effective as face-to-face instruction for autistic learners, and in some contexts, even more effective (Ramdoss et al., 2012). The reasons make sense when you consider what students told me:

Predictability. Technology provides consistent responses and doesn't have bad days, get frustrated, or show subtle signs of judgment that students might pick up on and internalize.

Patience. An AI coach can let students take as long as they need to respond, can repeat scenarios as many times as necessary, and never communicates impatience or disappointment.

Low-pressure practice. Practicing with technology removes the social pressure of practicing with another person, which can itself be a source of anxiety that interferes with learning.

Privacy. Students can make mistakes without worrying about social consequences or how others perceive them.

These advantages aligned directly with what students had told me they needed: support that felt invisible, allowed for repeated practice, and protected their dignity while they learned.

Defining Core Features

With the general direction clear, I started defining what the system would actually include:

A private, judgment-free space for practicing social scenarios. Students could rehearse conversations, responses to common situations, and strategies for emotional regulation without anyone watching or evaluating their performance.

Voice-based interaction that mirrors real conversation. Rather than clicking through multiple-choice questions or reading text responses, students would actually speak with the AI coach. This creates muscle memory for real interactions and feels more natural than abstract skill-building exercises.

Physiological monitoring to help students recognize stress patterns. A wearable device would track heart rate variability, helping students become aware of when their bodies were entering fight-or-flight mode. This awareness enables earlier intervention and builds the foundation for self-regulation.

Adaptive lesson systems that adjust to student needs. The AI would generate personalized scenarios based on grade level, specific skill needs, and past performance. If a student struggled with greetings, the system would provide more practice there. If they excelled at one skill, it would naturally progress to more complex challenges.

Optional insights for teachers and parents without adding new tasks. Rather than detailed logs requiring review, the system would surface high-level patterns: Which students seem to be struggling more than usual? What types of scenarios generate the most stress? Where is progress happening? These insights would inform adult support without creating new administrative burden.

Auto-generated instructional videos modeling social scenarios. Many students, particularly those with autism, process information better through concrete visual examples than through abstract verbal explanation. Short videos demonstrating scenarios would complement the practice conversations.

What This Phase Taught Me

The ideation process taught me something important about design: creativity isn't about generating as many ideas as possible. It's about deeply understanding the problem and then letting that understanding guide you toward solutions that actually make sense for the people you're serving.

I could have pursued any number of creative, innovative approaches. But the hybrid wearable-AI system emerged as the clearest path forward because it directly addressed every core need students, teachers, and parents had articulated. It wasn't the flashiest idea or the

most technically ambitious. It was the idea most grounded in what the research revealed people actually needed.

That alignment between user need and proposed solution gave me confidence to move forward into prototyping. I wasn't building something I hoped would work. I was building something that research and lived experience suggested had a real chance of making a meaningful difference in students' lives.

The next challenge would be translating this conceptual direction into something tangible that students could actually use, test, and provide feedback on. That's where the prototyping phase would begin.