Implementation and Ethics Memo

Generative AI ESTM 60244 | Sarah Noel

Prior to this class, I had no exposure to writing or modifying code. Over the semester I learned about vibe coding and explored how people with limited technical background could make entire websites. Rather than spending time reading about syntax and debugging errors, I was able to spend that time thinking about user experience and therapeutic structure. My goal was to design a tool that functions as a digital speech-language companion that could meaningfully support chronic recovery outside clinical hours. This prototype was built using Google AI Studio. I additionally found it helpful to use gemini or GPT models to assist in prompt refinement. I could paste the prompt I originally wrote, and state the unintended output. From this point I learned where to include examples or very narrow guidance to get the intended output.

Because the end goal was for this platform to be used by real humans, human judgment throughout building was essential. I liked that I could give feedback as soon as I sent a prompt and could see the change. Based on the output, I could narrow on how I actually wanted the platform to appear/run. Through iterations, I refined prompts to specify tone, structure, timing, and behavioral rules. Additionally if I send a prompt that changed too much, I could easily go back to past versions. The prototype in this current form was created in collaboration with AI. AI supported the speed and scale of development, but my perspective guided it in clinical reality and patient usability.

I started with the guided speech drills as they were the core problem I was aiming to solve. Providing direct practice is creating what patients lose when they are unable to keep working with a speech language pathologist. A multimodal audio feature was necessary

because text would never capture articulation. A typed response lacks breath, hesitation, consonant placement which are all focused on during speech work. With microphone access and real-time transcription, the platform listens to the user speak, the system listens, and practice becomes active and reflective of real world communication. I prioritized actional practice over longitudinal or retroactive speech pattern tracking.

Recordings of people's voices, especially when they have identifiable deficits requires additional attention to uphold ethical responsibility. Although this impacts the effectuality of responses, no audio or session notes can be stored without explicit consent from users. A user should never wonder who has access to their recordings, what is retained, or how their recovery might be interpreted. Furthermore, many patients with aphasia would also have comorbid deficits with identity, memory, or embarrassment around speech. If the platform is brought to public use, clarity on this point establishes a level of trust. If this platform continues to evolve up to medical grade usage encryption, HIPAA alignment, and clinical supervision would be required. Having the forethought of this level of privacy and data security allows for easier scaling.

Building with Gen AI allowed me to start with the scaffolding of a website rather than a complete blank page. It was easier for me to say ‘yes or no’ to a design choice rather than completely creating one from scratch. The speed at which I was able to make key decisions would have never been achieved if I was building from scratch or had to communicate my ideas to a separate development team. I find full stack development very intimidating and frequently a roadblock in exploring ideas further. As a visual learner, I can’t determine if I am going to like the layout of a page or user experience until I have been able to interface with it. Through vibe coding I could quickly pivot on ideas. Within discussions on the decline of creative work in light of the explosion of generative AI, I now have the perspective to say that AI is not eliminating

creative expressions, but aiding in the amplification of it. It still requires humans to drive direction.