“I did not know people talk without thinking about it”: How the lived experiences of adults who use AAC can inform the design of mimetic, agentic AI

AAC Experts Informing Mimetic Agent Design

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With the rapid adoption of generative AI in meetings, we anticipate a near-future where people prepare and deploy personalized AI-powered mimetic agents, or digital twins, to speak on their behalf. However, most people have limited experience in preparing for and reviewing conversations made by these agents, and it remains unclear how to design next-generation conversational AI technologies that can support people as they use them in their daily lives. Adults who use Augmentative and Alternative Communication (AAC) have unique expertise in using computing technologies for their daily communication and can provide valuable perspectives on designing AI-mediated conversations. We interviewed nine adults who use AAC to understand their practices and strategies before, during, and after meetings. Our analysis revealed nine communication strategies across these meeting phases that can help inform AI design. We also demonstrate how the expertise of AAC users can inform responsible AI concepts, including transparency, watermarking, and personhood.

CCS CONCEPTS • **Human-centered computing** • Human computer interaction (HCI) • HCI theory, concepts, and models

Additional Keywords and Phrases: conversational AI, mimetic agents, AI design, conversational digital twins

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1 INTRODUCTION

Jacob is preparing to attend a meeting where he will not use his voice to communicate. Instead, he will need to write and store messages in advance that will be spoken during the meeting through synthesized speech. If he wants his messages to be relevant and impactful to the meeting, he must anticipate what will be discussed, who will be there, and what additional conversations and topics may arise. Jacob will reference previous meeting notes as he prepares his messages. Next, he will have to write and store these messages for use in the meeting. For each message he will not only need to consider the words that will be said, but also how they will sound when spoken with synthesized speech. He will need to consider if the synthesized speech represents his voice, tone, and personality in the way he wants to be represented at the meeting. After all the modifications are complete, he is finally done.

Jacob's scenario could describe near-future technologies where a person prepares mimetic, agentic AI to attend a meeting on their behalf. Recent advancements in generative AI technology have paved the way for a new class of AI agents and companions that can mimic the speaking and conversational patterns of specific individuals. The potential applications of these mimetic agents are extensive, appearing in various applications for educational tutoring, customer support, and healthcare. An emerging use case for this technology is the creation of mimetic agents that look, sound, and have the knowledge of real people. One vision for these mimetic agents, also commonly referred to as *digital twins*, is for people to send their agents to meetings or other collaborative activities when they are occupied with other tasks [26, 27, 29]. During meetings these mimetic agents will engage in conversation with other attendees by sharing thoughts and asking and responding to questions based on the topics discussed [27]. As described by Erin Yuan, CEO and founder of the teleconferencing platform Zoom, *"I can send a digital version of myself to join [a video call] so I can go to the beach"* [33].

Jacob's scenario could also describe the existing practices of a person who uses a speech-generating Augmentative and Alternative Communication (AAC) system. People who use AAC, a community that comprises an estimated 0.5%-1.5% of the total population [16, 31], do not communicate with their voice, and can include people with autism, Amyotrophic Lateral Sclerosis (ALS), and cerebral palsy. People who use speech-generating AAC devices frequently prepare for conversations by anticipating what they would like to say, storing phrases, questions, and other text responses in their AAC systems before engaging with others [17, 39]. In contrast to AI speech powered by large language models (LLMs), people who use speech-generating AAC directly input their thoughts and ideas into a device that speaks their exact words. During and after conversations, people who use AAC typically employ multi-modal strategies to keep up with rapidly changing topics of conversation and to address misunderstandings [10, 28]. Based on their lived experiences, adults who use speech-generating AAC have expert knowledge on how to navigate group conversations using synthesized speech output.

Just as designers might consult medical experts when creating healthcare technologies, we believe there is an opportunity to learn from adults who use AAC to help inform the design of mimetic agents for meetings. This promising vision, where people deploy mimetic agents to represent themselves in meetings, is still largely unrealized. As yet, designers and researchers do not fully understand how to design these technologies so that people can successfully incorporate mimetic agents into their lives. We might envision that it would require people to: (1) prepare what they desire to share or say during the meeting by anticipating who might attend, what topics might arise, the context and tone, and the questions that meeting participants might ask; and (2) review the content of the meeting to ensure that their communicative intent was successfully conveyed by the agent. Many people, perhaps most, have little to no experience performing these activities. However, a minority group of people do have highly-related experience: adults who use speech-generating AAC systems.

Communicating with a speech-generating AAC device is slower than using your voice to communicate [19, 39]. Therefore, adults who communicate with AAC, particularly when communicating in group conversations, rely on a variety of strategies to ensure they are able to participate in the conversation. In this study, we recognize this often under-appreciated knowledge and skill set. We conducted semi-structured interviews with nine adults who use speech-generating AAC, recognizing them as experts in technology-mediated communication. We were particularly interested in better understanding their processes and practices around in-person and remote meetings to inform the design of mimetic agentic AI.

In this paper, we present three contributions to the field. First, our findings revealed nine strategies that can inform mimetic agent design. Second, our study findings revealed previously unreported AI design and policy concepts that must be addressed to minimize unintentional harm to people who use AAC. Third, this paper provides a model for recognizing

the expertise of people with disabilities to assist in the design of mainstream technologies. This paper provides critical insights that: (1) will help designers identify processes and strategies to create mimetic agents; (2) highlights the unique expertise people who use AAC can bring to designing conversational AI based on their lived experiences; and (3) demonstrates the importance of early-stage input from diverse populations to identify unexpected and critical aspects of design including the mitigation of potential harms..

While the purpose of our research was to learn communication skills from this set of experts and to translate those skills to design recommendations for an emerging form of technology: conversational, mimetic, agentic AI. An additional output of this research is the identification and recognition of potential harms that agentic AI might cause a minority-population: adults who use AAC. This paper is an example of how the inclusion of minority groups in the early stages of design can provide: (1) unique insights that are helpful for creating design frameworks; (2) insights into the development of specific design components; and (3) an understanding of potential harms that uninformed design might inflict on minority populations. Without the inclusion of the perspectives from adults who use AAC, the development of mimetic, agentic AI might have missed both the opportunities and the risks revealed by these experts.

2 RELATED WORK

Our research is informed by conversational agents, mimetic agents, and the lived experiences of people who use AAC.

2.1 Conversational Interfaces

The evolution from voice assistants, such as Siri or Alexa, to the next generation of truly conversational AI using LLMs has created new design challenges. Foundational research in conversational assistants have highlighted the importance of understanding human communication principles to inform the design of voice assistants (e.g. [9, 13, 15]). For example, Clark et al. [15] found that characteristics like trust, active listening, and humor were critical for human- and agent-based conversation. Beneteau et al. [9] explored how families interact with Alexa, and revealed that communication breakdowns were common, with users employing multiple conversational strategies to repair those breakdowns. These studies, along with others, highlight the value of drawing on real user experiences to inform the design of conversational interfaces, and deepen our understanding of how people engage with these technologies (e.g.[15, 34–36]). For instance, Porcheron et al. [34] found that while voice interfaces can be seamlessly integrated into families' daily structures, they ultimately lacked the nuanced behaviors required to consider their interactions "conversational".

Researchers have explored how interactions with agents impact humans (e.g. [14, 22]), while also highlighting concerns regarding the conflation of meaning and fluency with LLMs and next generation conversational AI [6, 7]. For example, Arakawa and Yakura [3] found that partnering a human leadership coach with an LLM-powered chatbot provided clients with benefits like all day availability and prompt message responses, but that the human coach was necessary for more personal tasks like prompting reflection and challenging clients. Researchers have also explored challenges and biases with next-generation conversational AI used by individuals with disabilities [21]. A less explored area is the opportunities for conversational AI in business settings, as it is largely unknown how individual employees might use their own mimetic AI agents to communicate and collaborate with colleagues.

2.2 Mimetic Agents

Research on mimetic agents builds upon prior work on embodied conversational agents and socially interactive agents [11, 13]. Cassell et al. [13] built human-like agents that leveraged gesture, speech, and gaze during real-time conversations with people. The concepts present in their work became the foundation for the design of embodied agents. Similar work includes

relational agents by Bickmore and Cassell [11], which showed that agents that imitated human verbal and nonverbal cues and used a model for social dialog could result in more trust between agents and humans. Research has found that agents that sound and look human are generally accepted [13], given that they do not cross the uncanny valley [27]. Agents can look and sound differently depending on the application and context. Mimetic agents, however, look and sound like an actual person [29]. Relatively little is known about "doppelganger" [5] representations, where a user sees an agent with their likeness acting independently.

Researchers have begun to explore the psychological effects of using a digital twin as an avatar [22] and how users react to digital twins in meetings [27]. Leong et al. [27] conducted a Wizard of Oz study to understand how meeting attendees would respond to mimetic agents called "Dittos". The Ditto concept demonstrated the importance of quality conversation dynamics when designing an enjoyable experience for all stakeholders. For example, Leong et al. found that Dittos could create stronger feelings of presence and trust due to their resemblance to the people they represent, but conversational factors like how to prompt Dittos to respond, response latency, and response length impacted participants' experiences [27]. Mimetic agents will allow users to create their own personal conversational agents for tasks like attending meetings [33]. However, we do not understand the processes required for people to prepare, deploy, and debrief with their mimetic agents.

There remains several unresolved questions, including how next-generation conversational AI can support synthetic representations deployed by users, including those that use a mimetic model [29] for a "digital twin" [33]. From our study, we identified useful and actionable design implications that can influence the creation and refinement of technologies to support users as they engage with their personal conversational agents.

2.3 Including People who use AAC in HCI Design Process

We believe that learning from the everyday experiences of AAC users can lead to critical insights that might have otherwise gone unnoticed because people with disabilities are seldom seen as experts. Other work has examined the practical competencies that enable people with disabilities (e.g., visual impairments) to conduct their daily activities, thus shifting the framing of technology use by these communities from specific deficits that may require accommodations to the unique competencies that people have developed based on their lived experiences [37]. In this paper we show how such competencies may provide insights extending beyond accessibility design and into other technologies.

3 METHOD

We recruited nine adults who independently use speech-generating AAC during meetings and group conversations through organizations in the United States that work with adults who use AAC, including non-profits, clinics, and advocacy groups. We sent emails to these organizations, inviting interested adults to contact the first author for further information. We emailed accessible consent forms to all participants prior to their interviews. After consenting, participants completed a demographic questionnaire and informed us if they preferred their interviews to be in-person or remote. We conducted eight semi-structured interviews remotely, using Zoom or Microsoft Teams, and one interview in-person. All interviews were recorded and transcribed. Participants received a $100 digital gift card. This study was approved by our institution's ethics board.

We emailed participants the core interview questions prior to the interview (see supplementary materials). Interviews ranged from 1 ½- 2 hours, influenced by participants' speed of communication (e.g., responding to a question could take up to seven minutes for some participants). The first author amended transcripts to include non-verbal responses used by participants, such as head nods, shakes for 'yes/no,' and body language for emphasis. Participants were emailed interview

summaries generated by M365 Copilot as a form of member checking, where participants were invited to add to or amend the summaries and return them to the first author for inclusion in analysis [8]. Seven participants responded, choosing their own aliases, confirming the accuracy of the summary, and/or adding additional information when necessary.

3.1 Participants

All participants had used AAC speech-generating devices for over two years, had experience engaging in online and in-person meetings, were literate, spoke English, and lived in the United States. Devices ranged from dedicated AAC devices to text-to-speech apps on phones and tablets. Five participants identified as men and four as women. Five participants identified as white, one as Black or African American, one as Asian, one as Hispanic or Latino, and one preferred not to identify. Participants included individuals with cerebral palsy, brain stem stroke, paralysis, autism, apraxia, and primary lateral sclerosis. Participants engaged in a variety of group conversations, including national association meetings, public presentations, and informal meetings such as book clubs. Additional participant demographics are included in Table 1.

Table 1: Participant Demographics

Participant Alias	AAC System	Years Using AAC	Age Range
HMR (Hear Me Roar)	Morse code with switches and eye gaze and bespoke AAC system	More than 3 years	56-65
Jade	Joystick, Intellikeys keyboard and unspecified AAC system	More than 3 years	26-35
Ranchero	Head mouse, Dynavox and computer	2-3 years	36-45
Susan	Text to speech app on phone	More than 3 years	66-75
J	iPad	More than 3 years	26-35
Sloth	Tobii Dynavox I-13, computer	2-3 years	66-75
Frank	PRC Accent 1400	More than 3 years	26-35
Kadeem	PRC-Saltillo Accent 1000	More than 3 years	46-55
John	PRC Accent	More than 3 years	66-75

3.2 Analysis

The first author began analysis by writing memos and open coding of transcripts. The first and final authors held ongoing meetings to discuss and refine codes using a process of constant comparison across the transcript data [12, 20]. Midway through data collection, four members of the research team reviewed the initial data and collaboratively discussed and refined the emerging categories and codes. Two authors engaged in the final analysis through an ongoing process of constant comparison of the emerging themes with a final review of the transcript data. Final analysis focused on identifying any surprising themes that emerged from the data as well as themes which related to our research questions.

4 FINDINGS

Our findings highlight how adults who use AAC think deeply about communication practices in the context of group conversations and meetings. Their lived experiences require them to break down communication acts into discrete components where they intentionally think about their communicative practices and actions. Our analysis uncovered two

broad themes relevant to the design of mimetic agentic AI: (1) meeting communication is intentional, strategic, and complex; and (2) communication influences perceptions of identity and personhood.

4.1 Meeting communication is intentional, strategic, and complex

Our analysis of the participants' practices revealed nine strategies. Not all participants used all nine strategies. However, all participants discussed strategies related to three different stages of the meeting process: preparation, meeting, and review. J described how strategies *"depend on the size, who, where, [and] the time we have together. There are a lot of factors to consider."*

4.1.1Preparation

Participants described preparation as the most complex and time intensive phase within the meeting process and emphasized the importance of preparing for meetings in advance. Jade explained that preparation reduced missed opportunities to join conversations because *"this preparation helps me communicate faster during the meeting."*

Despite the benefits of preparing synthesized communication before meetings, anticipating what to prepare is challenging. Ranchero stated: *"I think its always a good idea to prepare yourself for meetings and conversations coming your way. However…I struggle so much with preparing myself in advance for meetings. How would I know what* [other people in the meeting will] *be telling me?"* John stated: *"I did not know people talk without thinking about it* (laughing)*"* and then stated seriously *"It is an acquired skill and mindset."*

Preparing for meetings includes consideration of what content to share as well as the form and presentation of the synthesized communication. HMR explained: *"With thorough preparation, I can effectively communicate what I need to say. That means that I need to anticipate not only what I am going to say* [content]*, but also how I am going to say it* [form]*."*

Review of Previous Meeting

Participants discussed strategies for anticipating what content to communicate when preparing for meetings. For recurring meetings, participants reviewed previous meetings, including the meeting participants, the tone of the meeting, routine meeting practices, and frequently discussed topics. Sloth described how their process begins with preparing questions based on the last meeting: *"I do prep with questions [that] I have, any follow ups from the previous session updates, and topics I would like to discuss during the session [based on]…the previous session."* Participants acknowledged that although preparation is important, the dynamic nature of group conversations often requires them to spontaneously engage during meetings. Kadeem explained that: *"with AAC, just like anything - dancing, basketball, soccer - Its [an] engagement activity with another person. And because we have so much experience, we, like, practice and prediction in our head of the conversation and all possibilities. And if we know and met the person before, we can predict their personality and their reactions. So I write out things how I see it, but can pivot if something changes."*

Referencing Agendas

Participants found agendas helpful when preparing for meetings. J explained the role of agendas when preparing for recurring meetings: *"We have an agenda . . . we make decisions using a consensus building strategy. So I'm usually either asking if there's further discussion before bringing the item to vote, using the consensus building strategy which I have a pre-scripted button for, or I'm sharing . . . information that people are expecting to hear, and so I pre-planned."* Sloth mentioned how *"it is difficult to prep"* for meetings without set topics or agendas.

Rehearsal

After preparing the **content** of their communication, participants tested the **form** of their communication through rehearsal. Participants discussed how rehearsing was an important way to check how synthesized speech pronounced words and phrases. Sloth advised: *"Create a library of phrases* [and] *verify they sound right. Not all words sound* right [with synthesized speech]*. You may have to play with the spelling."* Participants also needed to make modifications (e.g. adding extra spaces or commas) so that pauses were included to ensure proper pacing of their synthesized communication. For example, Frank discussed the importance of rehearsing to correct pronunciation and timing errors *"so they see me as a professional."* Rehearsing and editing synthesized communication directly influences overall communicative fluency, which ultimately impacts perceptions of competence.

Education

Participants discussed how they prepared to communicate with people with no prior experience talking to someone who uses AAC. For example, participants would store messages that explained how they communicate using their AAC device. Jade explained: *"I try to explain how I communicate at the beginning to avoid confusion. Even so, people often don't understand why I'm not speaking or keep asking me to unmute myself in online meetings. Their lack of experience with my AAC device or communication methods can cause confusion. To help, I give an explanation before each meeting and answer any questions they might have about how to communicate with me."* These messages are important for setting expectations with unfamiliar communication partners. Stored educational messages also included phrases that indicated that the AAC user needed adequate time to complete their typing to express their thoughts.

Summary of Preparation Phase

Our findings revealed that structural supports, such as meeting agendas and summaries, helped participants anticipate what to say in upcoming meetings. We also found that human-initiated practices, like rehearsing how content would be delivered and preemptively educating listeners on their communication styles, can enhance communication effectiveness through improved fluency and understanding.

4.1.2 Meeting

Findings revealed three strategies to improve in-meeting experiences for adults who use AAC. The first two strategies, multi-modal communication and escalation, are currently practiced by participants. The third strategy, notetaking, is less accessible to adults who use AAC, but was highlighted as an area requiring support.

Multi-modal communication

Participants discussed the need to have accessible multi-modal communication options that can adapt to the conversational dynamics in the meeting. Participants used verbal synthesized speech, meeting chat, non-verbal, visual, and gestural forms of communication in meetings. For example, Renee said: *"I often will hold the phone up while it's 'speaking' so the recipient can read along. Many people are unfamiliar with text to speech apps."* Participants also spoke of the need to supplement synthesized speech. HMR explained that: *"although synthetic voices have come a long way, they can still be difficult to understand, and of course there are people with hearing impairments who cannot hear any spoken voices."* Therefore, the use of the camera and the ability to access chat are important. However, as evidenced during this study, automated meeting transcription does not recognize non-verbal communication nor do some video conferencing systems integrate chat comments into meeting transcription or summaries. Participants discussed that they would miss out on

contributing to discussions due to lack of awareness of non-verbal signals. For example, J said*: "The technology isn't yet in a place where people know if I'm typing. If I get on Zoom with a random person, and I put my head down to type. They don't know what is happening."*

Escalation strategies

Participants spoke of the speed with which meeting conversations and topics can change before they are able to contribute to the conversation. Therefore, strategies to gain attention and indicate that they have something to say are often necessary. Jade explained: *"Many people also don't take the time to understand my communication device and automatically assume I can't communicate effectively."* Participants used a variety of strategies to gain the attention of other meeting participants, to be recognized and have time to speak during the meeting. For example, J described a technique to increase visibility of meeting participants using chat by *"*[having] *someone reading the meeting chat aloud."* Participants discussed using both visual and auditory cues, such as waving their arms, holding up their AAC device to the camera, using chat, playing loud sounds, and modifying the volume of their AAC device. Participants, such as Renee and HMR, used strategies where they escalated their cues, like playing a loud noise to signal that they had something to say, when earlier strategies failed.

Notetaking

Participants spoke of the extreme challenge they had in taking notes during meetings while simultaneously listening to and contributing to the meeting. Some participants used multiple devices in meetings to more easily switch between note-taking applications, their AAC system, and video conferencing application. Frank imagined the benefits of a customized *"tool to listen back to the meeting and take notes on my device on what I need to do."* Two participants had considered the incorporation of AI for notetaking but had not yet tried it. Kadeem indicated that the compatibility of AI with their AAC and accessible video conferencing systems is a critical design feature which regulates the adoption of AI for notetaking.

Summary of Meeting Phase

We found that multiple forms of communication and a plan for escalating signals of communication intent can improve participation in meetings. Customizable notetaking systems could improve access to information shared in meetings, which would support participants to focus on their meetings rather than multitasking, and serve as memory aids when reviewing past meetings.

4.1.3 Review

Participants often had to rely on memory to review and reflect on what occurred in the meeting, however, findings revealed two strategies which helped support the review phase.

Follow up communication

A common strategy in the review phase involved participants using email to follow up with individual meeting participants. For example, J was in the middle of typing out a comment in a meeting when the meeting host ended the meeting, *"Something that happens often in general is the meeting gets ended while I am typing, or before I finished. So when reflecting on that, I always follow up with the team or person I was meeting with."* Ranchero spoke of using email for follow ups to clarify information that he was unable to convey during the meeting due to time pressures. Ranchero referred to email as *"my best friend."*

Information searching

Participants spoke of searching for information after the conclusion of a meeting for follow up. For example, Renee described how she searched for related information on a topic discussed in a meeting, and then copied the information into stored phrases that could be used at the next meeting. In this way, participants essentially were tagging or bookmarking information for future meetings, which serves as both a memory aid as well as saved content to be spoken at future meetings. Sloth discussed using a cyclical process for meeting in which after a meeting concludes, he goes *"through the information I've collected,"* searches for any follow up information, and begins preparing for the next meeting with *"topics and what to share in the next session."*

Summary of Review Phase

Asynchronous communication mechanisms used after meetings, such as email, can provide a channel for repairing communication breakdowns and misunderstandings which occurred during the meeting. Systems that allowed users to tag and bookmark supplementary materials provided a way for participants to follow up on information discussed in meetings while simultaneously acting as a memory aid and platform for sharing information in future meetings.

4.2 Communication Influences Perceptions of Identity and Personhood

Participants spoke of the judgements made on their competence based on a combination of their visible disability and the verbal output of their AAC devices. For participants who use AAC, identity management involves managing both **communicative content** as well as the **form of communication**, specifically speed and fluency. Our analysis highlights how synthetic communication is not only a conduit for sharing information but is also a conduit for identity management through self-expression.

Our findings revealed that adults who use AAC are extremely aware of how they sound to others and take great care to ensure that the **content** of their communication accurately reflects their identities. For example, Jade said *"I wouldn't want* [AI] *because I want to use my own words."* Adults who use AAC spend immense time and energy when communicating, and although AI might help reduce effort, content accuracy is important. Renee said: *"The speech assistant app on my phone uses autocorrect and sometimes inserts words that don't make sense."* In Renee's case, when auto-correct changes a word so that it does not make sense, it can further confuse a listener who is already thrown-off by Renee's use of synthetically produced text-to-speech. John was concerned that using AI would perpetuate existing stereotypes, stating *"My number one fear about AI and people who need AAC is that it will either produce something we would not say or that it would strengthen the biased notion that we are not the one expressing our thoughts. I have had people ask me after I have given major speeches how the 'so called machine' knew what to say."*

Participants also described how listeners might judge their competence and mental abilities based on the **form** of their communication, such as the speed, pacing, and pronunciation of their synthesized speech. Jade stated: *"many people find it uncomfortable or inconvenient to wait while we type out our responses,"* resulting in the use of prepared phrases to increase the speed and fluency of communication. Yet, even with prepared messages and controlled content, automated pronunciation remains problematic. J said, *"the pronunciation of certain words makes me feel embarrassed and like I need to avoid saying certain things."*

The form of communication impacts how communication partners view and treat adults who use AAC. Participants mentioned being talked to like *"a baby"* (Jade) or *"a child"* (Frank) by communication partners who were unfamiliar with AAC. Participants explained that prepared phrases, which are spoken at a faster rate than individually typed words, positively influenced people's perceptions of their competence. Despite the affordances from pre-prepared phrases,

participants spoke of being left out of conversations as the topic of conversation changed before they were able to complete their thoughts. J explained how the lack of time to express oneself impacts the perception of their identity, *"the most frustrating thing is when people don't give me time to type. It instantly sends the message that what I have to say is not worthy."*

Participants also discussed the bias many people have towards synthetic speech, and the impact pervasive AI use has on their own identity. Kadeem explained the confusion the public has around the form of AI communication with similar sounding AAC: *"Yet the public is so fearful they are drafting legislation to detect* [AI]*. I and people who use AAC will be victims because of that fear. I already had that* [negative experience]*, with resolving an issue with my bank, and agents hanging up on me because they thought I was AI."* Kadeem points to how communication **form** impacts identity perception, with the example of mistakenly being identified as a machine rather than a human because of the sound of his voice.

Both the content and form of participants' speech impacted perceptions of their own identities, as well as perceptions of their competency from conversation partners. Participants had strong personal preferences for controlling the content of their speech, which highlights the need for the provenance of synthetic speech to be transparent and accessible to listeners. This transparency would allow human-generated and AI-generated speech to be clearly disambiguated.

5 DISCUSSION

The purpose of our research was to learn communication skills from this set of experts and to translate those skills to design recommendations for an emerging form of technology: mimetic, agentic AI. An additional output of this research was the identification and recognition of potential harms agentic AI might cause a minority-population: adults who use AAC. This paper is an example of how the inclusion of minority groups in the early stages of design can provide: (1) unique insights that are helpful for creating design frameworks; (2) insights into the development of specific design components; and (3) an understanding of potential harms that uninformed design might inflict on minority populations. Without the inclusion of the perspectives from adults who use AAC, the development of conversational agentic AI might have missed both opportunities and risks revealed by these experts.

Our discussion focuses on three provocations from this study: (1) including diverse expertise in conversational AI design, (2) transparency and inadvertent harm of AI synthetic speech, and (3) communication as a conduit for identity management.

5.1 Including Diverse Expertise to Inform the Design of Next-Generation Conversational AI

We present a model for how minority populations can inform the design of emerging AI technologies based on the expertise accumulated through their lived experiences. This research expands on prior work that advocates for viewing disability as competency [37], and we encourage researchers to view people with disabilities as experts in their domains of lived experiences. Although none of our participants actively used AI for synthesized communication, their expertise from years of experience using AAC brought unique perspectives to emerging design challenges for mimetic agents (Table 2). For example, they contributed a unique view on ethical issues regarding synthetically generated speech and provenance that may not have surfaced at this early stage of AI development without their involvement. We believe that including diverse populations in early-stage exploratory design research can reveal hidden biases and mitigate unintentional harms.

5.2 Lack of Transparency of Synthetic Speech Can Cause Inadvertent Harm

Whether AI is used as a companion, proxy, or fully synthesized mimetic agent, our findings highlight that the origin, or provenance, of communication must be transparent. Designers need to disambiguate synthetically generated

communication from human-generated content that is delivered synthetically. For example, a mimetic agent could generate communication ranging from repeating exact content provided by the user to completely novel information generated by AI on the fly, or a middle ground that blends the two. People who use AAC bring a unique perspective to existing discussions on watermarking [18, 25, 30] and the ethics associated with mimetic agents and digital twins [26, 29]. Our findings show the potential harms that pervasive development and use of synthetic speech can have on people who use AAC, and broadens discussions on AI ethics [2], watermarking synthetically generated communication [4, 23, 24, 32], and personhood credentials [1].

In addition to watermarking, designers should consider including default educational information regarding the source(s) of computer-mediated verbal communication. Just as our participants needed to educate others on how they communicate using AAC, mimetic agents should also educate unfamiliar communication partners. For example, content generated by mimetic agents in meetings should provide a brief description of the agent and how it generates its information. By providing this information, designers of mimetic agents can aid communication partners in understanding the differences between human-controlled computer mediated verbal communication and communication that is generated by AI.

Table 2: Meeting Stages, Strategies and Design Implications

Meeting Stage	**Strategies**	**Design Implication**
Preparation	Review of Previous Meetings	Agents can assist users with preparing for future meetings by harvesting context clues from previous meetings.
	Referencing Agendas	Agents can assist with agenda setting and agenda review, which plays a critical role in providing structure for anticipating what might need to be said in a meeting.
	Rehearsal	Human communicators should review synthetically produced communication for pacing and pronunciation prior to deployment.
	Education	Communication norms and expectations should be scripted and ready to deploy when unfamiliar communication partners are present.
Meeting	Multi-Modality Communication	Mimetic agents should include non-verbal and auditory cues to convey nuances in communication and facilitate inclusion.
	Escalation Strategies	Agents should have settings which allow them to escalate their signals to gain attention in meetings.
	Notetaking	Agents should provide customized, personalized, notetaking which is accessible and platform-agnostic.
Review	Follow Up Communication	Mimetic agents should be able to flag possible miscommunications and misunderstandings for follow up.
	Information Searching	Users should apply personalized tagging and bookmarking, which feeds into customized models for specific meetings and contexts.

5.3 Communication is a Conduit for Identity Management

Our findings show that participants who use AAC can feel dehumanized and devalued due to their unique form of verbal communication. This finding emphasizes that the development of synthetic communication is not just an exercise in conveying content but is also a conduit for managing identity. The listener develops biases based on the form and content of synthetic communication, which can result in judgements of the speaker's abilities. People who use AAC bring a real-world human perspective to existing work in natural language which has highlighted that people mistakenly equate well-formed communication with meaningful communication [6, 7]. Our findings support this concern, highlighting the conflation of verbal output with competence. We recommend that designers of mimetic agents address both communication content and form, and how those features impact perceptions of identity and competence.

6 CONCLUSION

We sought to understand the processes needed for humans to deploy mimetic agents to attend meetings on their behalf. We interviewed nine adults with experience using AAC and synthetic speech in meetings and translated their strategies to nine design implications across three phases of the meeting experience: preparation, meeting, and review. Interviews also highlighted diverse perspectives concerning personhood credentials and watermarking of synthetic content and speech. We recommend that researchers involved in development of conversational AI consider involving experts, including individuals with disabilities, in exploratory stages of research. This paper provides a model of how HCI researchers can view individuals with disabilities as experts whose lived experiences can inform the design of future technologies.

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