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Exploring the Impact of AI Tools on Communication, Executive Functioning, and Anxiety for Individuals with Exceptionalities: Perspectives of K-12 Teachers and Adults

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Abstract

This qualitative phenomenological study explores the experiences of individuals with autism spectrum disorder (ASD), dyslexia, and K–12 educators who support them with AI tools in education, particularly their effects on communication, executive functioning, and anxiety. Creswell's constructivist approach, which emphasizes the co-construction of knowledge between the researcher and participants, was used to conduct semi-structured interviews with three adults with ASD, three with dyslexia, and eight educators who were recruited using purposive sampling. Thematic analysis yielded five broad themes: Communication Support through AI Tools, AI as an Executive Functioning Tool, AI Tools and Anxiety Reduction, Social Interaction and Overall Communication Skills, and Instructional and Pedagogical Insights from Educator Experiences with AI Tools. Neurodiverse individuals and educators viewed AI as both a practical tool and an affective buffer for alleviating cognitive, communicative, and emotional strain. In addition, educators noted benefits in efficient and flexible instructional design, greater differentiation, and new opportunities for student autonomy with the use of AI tools. These reflections foregrounded a shift in pedagogical possibility—one where AI played a role in balancing access and rigor. While concerns about overreliance and misalignment emerged across groups, these critiques reflected a desire for thoughtful integration, grounded in trust, choice, and individual fit rather than rejecting AI. Together, the findings suggest that AI, when responsive and well-matched, can play a meaningful role in supporting communication, executive functioning, and emotional regulation, while also underscoring the need for an ethical implementation that values human agency as much as technological efficiency.

Keywords: Learning, disability, scaffolding, cognitive, design, agency, AI, technology.

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1. Introduction

Individuals with exceptionalities such as autism spectrum disorder (ASD), and dyslexia face several challenges with learning and communication. For instance, individuals with ASD often face challenges with social interaction and sensory regulation; those with dyslexia may have challenges with fluency and reading comprehension (Cole et al., 2024; Ross, 2019).

Artificial intelligence (AI) tools offer promising support for communication, executive functioning, and emotional regulation for individuals with such conditions (McNally et al., 2024; Panjwani-Charania & Zhai, 2024). These tools can assist K-12 educators and adults with exceptionalities in several ways, such as managing daily tasks, expressing themselves more clearly, and enhancing classroom instruction (Barua et al., 2022; Espinosa & Escobedo, 2021; Godoi et al., 2024). However, many implementations often lack consistency and fail to incorporate foundational pedagogical frameworks, such as Universal Design for Learning (UDL) and cognitive scaffolding. While UDL emphasizes flexible learning environments with multiple means of engagement, representation, and expression, essential for accommodating diverse cognitive and communication profiles (Cole et al., 2024; Gronseth & Hutchins, 2019; Rose, 2001), structured scaffolding strategies offer structured and incremental support learners need to move toward autonomy, particularly relevant in understanding how AI might help users manage time, stay organized, and complete complex tasks (Anderson & Krathwohl, 2001; Ross, 2019; van de Pol et al., 2010; Wiggins & McTighe, 2005). Moreover, while interest in AI-assisted education is expanding, research remains sparse in capturing the lived experiences of those most

directly affected: adults navigating the world with these diagnoses and the educators supporting them (Godoi et al., 2024; Hughes et al., 2022; Porayska-Pomsta et al., 2018).

The implications of these gaps go far beyond user frustration. The lack of pedagogical grounding contributes to fragmentation and limits long-term effectiveness (Goodman et al., 2024; Panjwani-Charania & Zhai, 2024; Pierrès et al., 2024; Shivani et al., 2024). In addition, the gap in user-centered research leaves critical questions unanswered about accessibility, functionality, and emotional impact for neurodiverse individuals (McNally et al., 2024; Panjwani-Charania & Zhai, 2024; Porayska-Pomsta et al., 2018). Therefore, the failure to incorporate users' actual lived experiences into design and implementation introduces the risk that educational and technological solutions may be ineffective or harmful, thereby reinforcing systemic inequities already faced by neurodivergent individuals. A lack of inclusive and intentional AI integration can, in turn, limit academic growth, restrict workforce entry, and deepen communication-related anxiety, ultimately impacting long-term independence and quality of life (Barua et al., 2022; Hughes et al., 2022; McNally et al., 2024).

Thus, this phenomenological study examines the lived experiences and perceptions of AI tools in both personal and educational settings among adults with ASD, and dyslexia as well as K–12 educators who support them. Specifically, this study examines the perceived impact of AI tools on key domains, including communication, executive functioning, anxiety, and instructional practice, through semi-structured interviews. A social constructivist approach was adopted to achieve these objectives, focusing on the nuanced ways individuals make sense of their experiences in everyday settings, such as school, work, and home (Creswell & Creswell, 2022). Amplifying the voices of these populations allows the exploration of key aspects of lived experience, such as meaning-making, emotion, and perception, which will inform the equitable design, implementation, and policy development of AI tools intended for education use across learning and life (Barua et al., 2022; Hughes et al., 2022).

2. Background

2.1 Supporting Communication and Expression Through AI

Communication needs for neurodiverse individuals are rarely fixed or uniform; instead, they shift across contexts, often shaped by anxiety, masking, sensory input, or restricted verbal speech (Carik et al., 2025; McNally et al., 2024). Emerging AI tools are scaffolding expressions in ways that respond to those moment-to-moment capacities. These tools support not only functionality but also participation and emotional safety, aligning with UDL principles (CAST, 2018). They are increasingly being adopted by individuals with ASD, and dyslexia to navigate environments that might otherwise inhibit expressive language (Godoi et al., 2024; Sitbon et al., 2023).

Augmentative and Alternative Communication (AAC) use among adults with ASD is often situational and adaptive. It offers a flexible mechanism for managing sensory overload, fatigue, or high-stakes communication (Zisk & Dalton, 2019). For example, tools with natural language processing, such as Voiceitt and Timlogo, can interpret atypical speech patterns and provide predictive language suggestions, improving both fluency and confidence for users with verbal disfluency or processing delays (Bhardwaj et al., 2024; Godoi et al., 2024). They also enable masked or selective communication in dynamic contexts (McNally et al., 2024). Together, these findings frame AAC not as a static assistive device but as a responsive and evolving system that supports communication as a context-dependent, user-defined act (McNally et al., 2024; Zisk & Dalton, 2019).

AI is expanding access to communication through multimodal channels, reflecting UDL principles. For instance, gesture recognition technologies using wearable sensors have achieved over 90% accuracy in mapping physical movements to communicative output, thereby opening expressive opportunities for minimally verbal users (Siddiqui et al., 2021). Visual and symbol-based AAC systems continue to support learners with mixed expressive profiles and literacy differences (Gupta et al., 2023; Zdravkova et al., 2022). In clinical applications, gamified desensitization tools have shown promise in re-engaging verbal expression among teens with selective mutism (Bunnell & Beidel, 2013).

2.2 Supporting Emotional Regulation and Anxiety Through AI

In addition to scalability concerns, researchers increasingly emphasize the ethical and inclusive dimensions of AI-assisted design. Nguyen *et al.* (2023) and Bibi (2024) identify transparency, human agency, and fairness as foundations of trustworthy AI integration. Cotilla Conceição and van der Stappen (2025) highlight inclusivity as an ethical requirement while cautioning that unexamined automation risks perpetuate representational bias.

Inclusive learning in AI contexts is facilitated by design choices that provide a visible structure and access to content. Cotilla Conceição and van der Stappen (2025) argue that the systems that promise personalization in

higher education practice can also perpetuate exclusion when data provenance and validation are limited. Complementary work on educational AI ethics identifies transparency and human agency as the operational conditions for inclusion, as they position people to identify and correct bias during design rather than after Technology-based tools have been rapidly evolving to support emotional regulation, anxiety reduction, and self-awareness, particularly for users with autism and selective mutism. These tools range from AI-guided chatbots to wearable biofeedback systems, often designed to supplement traditional therapeutic approaches with low-pressure, user-driven support. For example, Espinosa and Escobedo (2021) described the SATORI platform tailored to neurodivergent users with ASD, which offered proactive, adaptive interventions such as breathing prompts and emotional check-ins centered on user autonomy and scaffold emotional response before escalation based on real-time feedback on individualized stress markers from wearable sensors. Similarly, Manole et al. (2024) demonstrated reduced anxiety symptoms and improved user confidence in social and academic environments with a general wellness app that incorporated a generative AI chatbot equipped with cognitive-behavioral prompts.

The nonjudgmental nature of AI interactions appears to play a central role in reducing anxiety, particularly in users with selective mutism. Bunnell and Beidel (2013) reported that a teenage participant demonstrated increased verbal participation when engaged with a gamified iPad-based desensitization tool that minimized social pressure. Although not fully AI-driven, this tech-mediated intervention set the foundation for more interactive support tools. Similarly, Godoi et al. (2024) demonstrated that children with selective mutism exhibited greater verbal output and emotional responsiveness when interacting with humanoid robots equipped with adaptive dialogue capabilities versus a clinician. Together, these studies demonstrate that AI systems can create emotionally safer spaces for gradual engagement when they offer predictability and mitigate the threat of judgment. This approach aligns with principles of cognitive scaffolding, where users build toward complex interpersonal tasks through structured, emotionally manageable steps (van de Pol et al., 2010).

However, the outcomes of emotional regulation with AI tools are not universally positive. McNally et al. (2024) reported that some users with ASD reported increased anxiety when AI tools responded inconsistently or behaved unpredictably, particularly in high-stakes writing or communication tasks. Carik et al. (2025) further documented instances where neurodivergent students declined to use generative AI due to concerns over surveillance, misunderstanding of tone, or lack of agency in how the AI framed their ideas. Furthermore, Zhao et al. (2025) observed that AI tools were best received when users had control over pace, tone, and interface features. These studies highlight that emotional safety may not be a default outcome of AI use; instead, it must be designed for, and shaped by, the values and input of its users.

2.3 Executive Functioning and Cognitive Support Tools

For adults with disabilities, managing executive tasks is not just part of daily life; it defines how energy, time, and focus are spent. Upadhyay et al. (2023) emphasized the importance of executive functioning support in online learning environments, where neurodivergent adult learners often rely on AI tutors that provide pacing, feedback, and time management scaffolds. AI tools are increasingly being used as informal scaffolds to support planning, self-monitoring, and adaptive decision-making. These supports do not replace therapy or structured intervention, but they offer personalized, user-directed ways to manage cognitive and emotional load in real-world settings. McNally et al. (2024) found that many adults with ASD use AI in flexible, self-constructed ways—scripting difficult conversations, pre-drafting emails, or chunking overwhelming tasks. These adaptations often blur the line between emotional and executive support, which reflects how regulation is experienced as an ongoing blend of organization, self-monitoring, and affective management (McNally et al., 2024; Zhao et al., 2025).

At the same time, some users report that AI tools can become emotionally disruptive. Zhao et al. (2025) found that users experienced anxiety when regulation tools were inconsistent or felt prescriptive. Carik et al. (2025) documented fatigue among students with disabilities who disengaged from AI systems that prioritized productivity or tone correction over emotional nuance. In both cases, tools lost value when they failed to adjust to context or offered feedback that felt generic or performative (Carik et al., 2025; Zhao et al., 2025).

Thus, the shift toward issues of accessibility and user fit mandated inclusive user experience (UX) design and multimodal functionality. For neurodivergent individuals, access is rarely a matter of a single barrier; instead, it is shaped by a combination of cognitive load, language diversity, literacy level, sensory sensitivity, and interface usability. Tools that support multiple input and output modalities, such as visual symbols, audio, touch, and simplified text, are more likely to engage users with diverse needs and communication preferences (Sitbon et al., 2023; Zdravkova et al., 2022). These approaches are also evident in wearable and augmented reality platforms, which expand communication possibilities through non-traditional input methods (Zdravkova et al., 2022),

aligning with the UDL principle of inclusive learning.

Inclusive UX often hinges on personalization, clear symbolism, and simplified interface complexity. In their review of mobile AAC apps, Gupta et al. (2023) showed that customizable icon sets, visual timers, and simple layouts increased engagement and reduced frustration for children with ASD. Similarly, tools designed for multilingual learners benefited from clean navigation, layered translation, and intuitive structure, making digital content easier to access and retain (Gupta et al., 2023). When systems reflect a user's processing strengths, communication becomes more intuitive and effective. These tools do more than deliver content—they scaffold decision-making, attention, and sequencing in real time, particularly for users who rely on external structures to stay regulated and focused (Gupta et al., 2023).

Despite their potential, inclusive UX principles are still applied inconsistently across AI education tools. Fu et al. (2025) and Sitbon et al. (2023) critiqued evaluation models that emphasize speed and efficiency at the expense of adaptability and sensory accessibility. For example, students with dyslexia frequently abandon AI organizers and writing tools when faced with cluttered or poorly structured interfaces (Keelor et al., 2023). Educators also report that inflexible tools limit their ability to scaffold instruction in real time or adjust to emerging student needs (Sitbon et al., 2023). In response, many users find themselves "hacking" access—creating workarounds when the official tools fail to meet their needs, reflecting a deeper design gap (Fu et al., 2025; Keelor et al., 2023). Users do not opt out because the tools are complex; they opt out because the tools were never built for the ways they learn.

Design choices reflect values; they influence how learning feels, how autonomy is supported, and whether users can engage fully on their terms. When accessibility is co-defined by those who rely on the technology, inclusive UX becomes more than a feature set—it becomes a relationship built on trust, flexibility, and responsiveness. In this light, UX design is not only about functionality but about equity, participation, and belonging (CAST, 2018; Fu et al., 2025; Keelor et al., 2023; Sitbon et al., 2023).

2.4 Early Intervention and Personalized Learning

Since real-world practice among individuals with ASD, social anxiety, dyslexia, and speech-language challenges is often limited by emotional, sensory, or logistical barriers, timely and developmentally responsive support can shape future communication, confidence, and academic success. Hence, early intervention and personalization emerge as critical points of impact in the context of how AI supports individuals with exceptionalities across their learning journey.

In addition to delivering interventions, AI is being increasingly used to detect patterns, adapt in real-time, and guide learning during the most formative stages of development. AI tools, such as virtual tutors, simulation platforms, and conversational agents, are being used to create low-stakes environments where learners, who may not feel safe, prepared, or understood, can build confidence through role-play interactions and authentically learn social conventions. Several studies have highlighted the benefits of AI-mediated social rehearsal in reducing anxiety and improving expressive fluency, where AI tools serve as both responsive instructors and early scaffolds. Children with selective mutism, for example, showed increased engagement when interacting with a humanoid robot, which provided a predictable and less intimidating alternative to therapist-led conversation (Godoi et al., 2024). Bhardwaj et al. (2024) describe multimodal tools such as Timelog and Voiceitt that combine speech feedback, visual cues, and emotion recognition to support self-regulation and perspective-taking, thereby facilitating real-time speech development. These systems align with the findings of Zdravkova et al. (2022) on augmented reality-based interventions, which offer layered feedback and utilize visuals to mitigate cognitive strain.

In these cases, structured and emotionally neutral interactions with AI offer a way to rehearse these skills before using them in less predictable settings. These tools do more than train response patterns. They create safe practice spaces where learners can internalize emotional and social rhythms at their own pace. The structure and feedback they offer allow students to gradually move from supported to more independent expression (Bhardwaj et al., 2024; Vygotsky, 1978). From a cognitive scaffolding perspective, these technologies adjust to the learner's pace and fluency, modeling a form of cognitive scaffolding consistent with Vygotsky's Zone of Proximal Development, which suggests that learners benefit most when support meets them just beyond their current capacity (Vygotsky, 1978). They offer opportunities to rehearse just beyond a learner's independent ability. Judgment-free correction, repetition, and user-adjusted pacing reflect principles of guided support that fade as confidence builds. Tools that model affective feedback help bridge the gap between knowing what to say and learning how to say it in contextually appropriate ways (Bhardwaj et al., 2024; Vygotsky, 1978). Thus, these systems do more than digitize therapy; they serve as adaptive bridges between current skill and future growth.

AI is also being used to support early assessment in ways that lower anxiety and improve observation, as discussed in the preceding section (Godoi et al., 2024). Similarly, Zhao et al. (2025) documented tutoring systems that responded to real-time behavioral cues, adjusting pacing and feedback based on user engagement. In both studies, AI was utilized as an instructional tool and an intelligent observer, tracking patterns, providing scaffolds, and facilitating students' communication in ways that human-led approaches may overlook (Godoi et al., 2024; Zhao et al., 2025). This dual role represents a shift in early intervention from static diagnosis to ongoing, learner-informed interpretation.

However, equity concerns persist: Shinde et al. (2025) and Fu et al. (2025) caution that AI-based interventions often underrepresent learners from rural communities, non-dominant language backgrounds, or those with complex communication needs and advocate for participatory design approaches that prioritize cultural responsiveness and local context from the outset of development. While Bhardwaj et al. (2024) and Zdravkova et al. (2022) highlight promising features, both assume stable infrastructure and access to devices. Without attention to these systemic barriers, tools intended to personalize learning may unintentionally reinforce exclusion.

Early intervention is most effective when it is both timely and attuned to the learner's emotional, sensory, and developmental needs. Across multiple studies, the tools that had the most significant impact were those that adapted to the user's responses to change, rather than predicting from static profiles (Bhardwaj et al., 2024; Fu et al., 2025; Godoi et al., 2024). When systems are shaped by those who use them and grounded in participatory, culturally responsive design, early learning becomes more than a developmental checkpoint. It serves as a foundation for equity, confidence, and growth that continues long after the intervention concludes (CAST, 2018; Fu et al., 2025; Shinde et al., 2025).

Researchers also caution against simulation tools that emphasize compliance over authenticity. Carik et al. (2025) argue that when systems prioritize correctness or social conformity without validating neurodivergent communication styles, they risk reinforcing the masking of neurodivergent individuals. McNally et al. (2024) report that while some users benefit from AI rehearsal, others feel discomfort or even alienation when tools attempt to simulate human interaction too closely or inconsistently. These findings point to the importance of personalization, transparency, and user autonomy in social simulation design. Supporting growth in this space means fostering expression, not performance. Thus, social success is not just about knowing what to say; it is about finding timing, confidence, and emotional safety in that expression. AI, when used thoughtfully, can create conditions where rehearsal becomes an invitation into real connection.

2.5 User-Led Innovation

While AI tools are used across contexts, their value and functionality may differ between classroom educators and adult users navigating professional or personal communication. Realizing the full potential of AI-augmented communication and emotional regulation depends on inclusive development, co-creation, and responsiveness to context. However, many tools are developed without meaningful involvement from people with disabilities, resulting in limited personalization, cultural mismatch, and unclear data practices (Carik et al., 2025; McNally et al., 2024).

In response, neurodivergent communities have created their adaptations, such as tailored GPT prompts and community-shared chatbot scripts, demonstrating that users are often the most adaptive and responsive designers (McNally et al., 2024; Sitbon et al., 2023), echoing the foundational UDL principle that access emerges from flexibility, personalization, and learner-led design (CAST, 2018). This kind of innovation is not rare. It is systemic, communal, and often collaborative. Disability-led communities regularly share workarounds, prompt libraries, and interface modifications across informal networks (Carik et al., 2025; McNally et al., 2024). McNally et al. (2024) described TikTok creators with ASD managing social and emotional labor by using generative AI tools like ChatGPT to create custom prompts to regulate tone, prepare for high-stakes conversations, and reduce masking. Sitbon et al. (2023) observed similar innovation among neurodivergent writers who use AI to experiment with pacing, tone, and narrative energy. Carik et al. (2025) documented students who bypass restrictive writing platforms by designing chatbots that reflect identity, cultural nuance, and neurodivergent humor.

These adaptations have allowed users to customize their workflows and co-develop tools that reflect their communication styles, sensory needs, and cognitive rhythms. In both cases, users demonstrate deep awareness of the technology's limits and possibilities—often designing around features that feel extractive or overstimulating. As a result, such adaptations not only fill design gaps but also challenge the assumption that accessibility must

be engineered for disabled users, rather than with or by them. These practices reflect functional authorship, where users become architects of their access, not out of preference, but necessity.

These findings echo the more prominent themes of co-design and trust in AI-mediated support. From a theoretical lens, these practices mirror cultural and cognitive scaffolding. AI can scaffold executive functioning and emotional regulation, but only when it does so on the user's terms. Instead of relying on fixed designs, users combine AI's features with lived expertise to build personalized systems for communication, organization, and regulation (Sitbon et al., 2023; Vygotsky, 1978). This approach reframes assistive tech as a shared, evolving process. It also echoes the values of UDL: flexibility, authenticity, and user-driven pathways (CAST, 2018).

At the same time, the research reveals persistent gaps. Tools that prioritize efficiency over autonomy, or standardization over personalization, often fall short (Fu et al., 2025; Keelor et al., 2023). AI tools are most effective when they respond to the user, not only in what they do, but in how they adapt to emotional, sensory, and cognitive realities (Zhao et al., 2025). Whether supporting early learning, executive function, or social rehearsal, AI systems show the most promise when designed with flexibility, transparency, and lived expertise at the center (Bhardwaj et al., 2024; CAST, 2018; Sitbon et al., 2023; Zhao et al., 2025).

2.5 AI and Workplace Communication for Adults with Disabilities

AI tools are also reshaping how adults with disabilities navigate communication demands in professional settings. Individuals with autism, ADHD, dyslexia, or social anxiety typically experience additional emotional and cognitive labor in crafting work-related emails, interpreting tone, or participating in high-stakes professional interactions. AI tools, such as writing assistants, chatbots, and scheduling bots, are increasingly used to reduce this burden, providing structure, guidance, and pacing that support smoother participation in the workplace (Carik et al., 2025; McNally et al., 2024).

McNally et al. (2024) describe how adults with ASD use generative AI to script conversations, generate email drafts, and interpret nuanced requests. These tools act as cognitive scaffolds, helping users initiate and regulate workplace interactions that might otherwise be draining or difficult to decode. Carik et al. (2025) found that some employees with disabilities rely on AI for communication, not because of writing difficulty, but to reduce masking or managing energy in neurotypical-dominated spaces. In both studies, participants used AI to adapt to the environment, rather than to the individual.

However, this use of AI is not without tension. Zhao et al. (2025) emphasize that AI-mediated tools are best received when users can control tone, pacing, and output style. Tools that impose a standardized voice can unintentionally strip users of their identity or create additional emotional labor as users re-edit the AI's output to make it sound more authentic (Carik et al., 2025; Zhao et al., 2025). McNally et al. (2024) note that some users abandon these tools entirely when they feel surveilled or misunderstood, reinforcing the importance of autonomy and customization.

Accessibility in the workplace is shaped by the presence of tools, how they are designed, and their use. Carik et al. (2025) document user-led adaptations, such as prompt libraries and peer-shared workflows, that reflect communal strategies for reclaiming tool functionality. McNally et al. (2024) highlight how these informal supports often do more to foster access than formal accommodations. When AI tools are rigid or extractive, users build around them, not to optimize productivity, but to preserve energy, communication clarity, and self-respect (Carik et al., 2025; McNally et al., 2024; Zhao et al., 2025).

These findings reflect broader themes in disability studies and design justice. Adults with disabilities are not passive recipients of technology—they are designers, testers, and critics of how access is shaped. When AI tools center productivity at the expense of voice or flexibility, they risk reinforcing norms that exclude the very people they claim to support. In the workplace, communication is more than a deliverable. It is a negotiation of identity, clarity, and presence. AI, when designed with disabled users, can help sustain that negotiation, not silence it.

2.6 Conceptual Framework

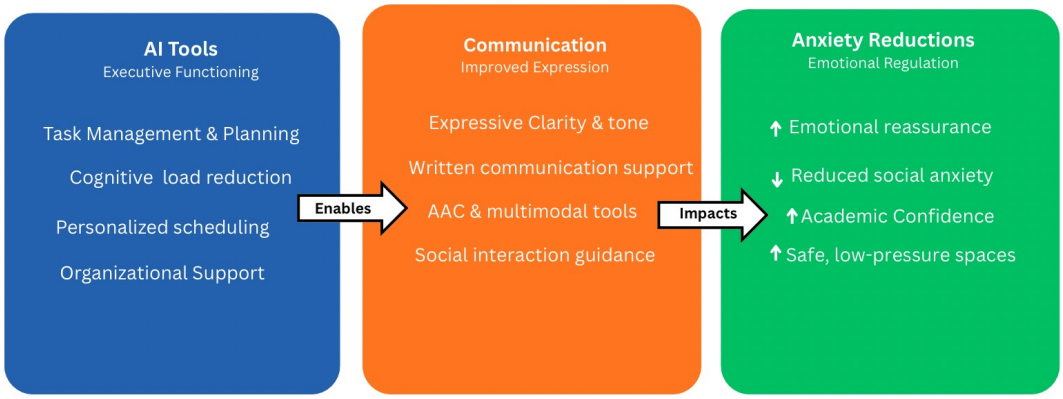

Figure 1: Conceptual Framework

Figure 1 depicts the conceptual framework guiding this study. The model proposes that AI tools provide direct supports for executive functioning (task management, planning, scheduling, and organizational support) and communication (clarity of expression, written communication support, AAC/multimodal tools, and social interaction guidance). These supports are expected to reduce anxiety by increasing emotional reassurance, lowering social stress, strengthening academic confidence, and creating safe, low-pressure opportunities for participation.

3 Methodology

3.1 Research Design

The following research questions guided this study:

1. How do adults with ASD, dyslexia, and selective mutism experience the use of AI tools for daily communication?
2. How do these adults describe their experiences with AI tools in managing executive functioning?
3. How do adults with ASD, dyslexia, or selective mutism—as well as educators—perceive the effectiveness of AI tools in reducing communication-related anxiety among students with disabilities?
4. How do both adults and educators perceive the role of AI in enhancing social interaction and overall communication skills?
5. How do K–12 educators experience the use of AI tools to support students with similar disabilities?

As the research questions center on personalized integration of technology into learning and life contexts of neurodivergent adults and the K-12 educators who support them, this study employed a qualitative, exploratory design consistent with Creswell's recommendations for investigating complex social phenomena through multiple data sources, emergent design, inductive analysis, and reflexive interpretation (Creswell & Creswell, 2022). Given the diverse ways AI supports communication, executive functioning, and anxiety management, the methodology allowed for fluid adaptation and accommodations tailored to the expressive needs of neurodivergent participants. This design also reflects constructivist principles, emphasizing active participation, meaningful interaction, and co-construction of knowledge between the researcher and participants, which allowed for capturing rich, descriptive data in naturalistic settings, positioning the researcher as the primary instrument of data collection.

3.2 Participants and Sampling

This study utilized purposive sampling, consistent with Creswell's recommendations for focused inquiry within specific participant populations. Participants were recruited through Facebook groups, professional and academic networks, and referrals from a doctoral program community. Prospective participants completed a Google Form indicating their eligibility and completed consent to participate through Box signature. Then, those meeting the inclusion criteria—adults with ASD, dyslexia, or selective mutism who regularly utilize AI tools and teachers experienced in supporting neurodivergent students and utilizing AI tools in their instructional practices—were

enrolled in the study.

3.3 Data Collection Procedures

Data collection employed a layered, adaptive semi-structured interview protocol with tailored interview guides comprising core questions supplemented by follow-up prompts or examples informed by existing literature focusing on AI integration, executive functioning, communication strategies, and anxiety management among neurodiverse populations. Adults with exceptionalities were interviewed one-on-one using open-ended protocols designed to capture their insights on the role of AI in their daily routines, work, and personal lives. Teachers participated in focus groups to discuss how AI can mitigate communication-related anxiety, enhance student expression, and scaffold academic engagement (McNally et al., 2024; Panjwani-Charania & Zhai, 2024)

All interviews and focus groups were conducted remotely via Zoom between April and June 2025. Participants joined from various geographic locations across the U.S., choosing comfortable settings such as their homes, cars, or break rooms, which facilitated authentic interactions, particularly beneficial for neurodivergent participants. Each session lasted 30–50 minutes and was video- and audio-recorded with participant consent. Accommodation, including chat-based responses and question adaptations, ensured clarity and comfort during interviews.

3.4 Data Analysis

A collaborative and systematic coding approach was utilized to enhance reliability and reduce interpretive bias. Following Creswell's thematic coding methodology, the researcher first completed open and axial coding to organize data into thematic categories (communication, executive functioning, anxiety, general AI usage, and future AI recommendations). After this initial coding, transcripts were independently verified by one research extern per transcript. Research externs held qualifications in educational research methods through their doctoral preparation program and partnership with the lead researcher. Discrepancies between the researcher and coding assistant were collaboratively discussed and resolved over a two-week peer debriefing period to ensure accuracy and minimize bias. In vivo codes were also incorporated to preserve the authentic language of participants. Dedoose® (Manhattan Beach, CA, USA) qualitative analysis software was used to manage codes, enabling specificity and reducing overlap. Detailed memos recorded emergent trends, emotional nuances, and reflexive insights following each interview, enriching the analytical process. The adaptive coding strategy embodied constructivist principles by facilitating ongoing interpretation and co-creation of meaning between participants and researchers. Descriptors in Dedoose categorized participants by roles, enabling robust comparative coding analyses.

3.5 Managing Biases

The principal researcher's dual role as an academic and a parent of a child with autism informs this work, as does the expertise of externs trained in special education, who contribute to data collection and analysis. To uphold the integrity, transparency, and trustworthiness of this study, reflexive practices were employed throughout the process, including journaling, peer debriefing, and member checking (Creswell & Creswell, 2022). Reflexive journaling immediately following interviews and throughout coding documented emotional and analytic reflections, helping distinguish subjective interpretation from objective analysis. Furthermore, the principal researcher's role as interviewer and analyst required ongoing reflection to mitigate bias. Additionally, collaborative verification with research extern maintained rigor and sensitivity toward participant narratives.

3.6 Validity and Trustworthiness

Several strategies recommended by Creswell and Creswell (2022) were employed to ensure trustworthiness and validity. Triangulation involved independent verification by one research extern per transcript, with discrepancies collaboratively resolved. Reflexive memos provided contextual summaries and mitigated bias. Peer debriefing occurred over two weeks following coding to ensure consistency and reliability. Thick descriptions, including direct quotes from participants, reinforced authenticity. Member checking was not conducted; this decision was based on concerns about causing unnecessary stress or anxiety among neurodivergent participants, particularly due to the sensitivity of the topics discussed.

3.7 Ethical Considerations

Ethical measures included obtaining informed consent from participants, confidentiality protections, encrypted data storage, and flexible communication options to support neurodivergent participants. All data, including video recordings, consent forms, and de-identified transcripts, were securely stored in an encrypted Box folder employing a consistent naming convention for easy retrieval and analysis without recording any personal identifiers. These protocols aligned with Creswell's guidelines for maintaining dignity, autonomy, and emotional safety among vulnerable populations (Creswell & Creswell, 2022).

4 Results

The study comprised three adults with ASD, three with dyslexia, and eight K–12 educators. Despite targeted outreach via social media, hashtags, and direct communication with affiliated organizations, attempts to recruit participants with selective mutism were unsuccessful, limiting insights into this sub-population and highlighting an area for future exploration.

The study population was diverse in terms of geographic location across the United States as well as educational and professional backgrounds. The age range for adult participants was 25–55 years, while teacher participants had professional experience ranging from 3 to 20 years.

Thematic analysis yielded five broad themes: Communication Support Through AI Tools, AI as an Executive Functioning Tool, AI Tools and Anxiety Reduction, Social Interaction and Overall Communication Skills, and Instructional and Pedagogical Insights from Educators' Experiences with AI Tools.

4.1 Theme 1 – Communication Support Through AI Tools

Although most participants described communication as a source of both struggle and transformation, rather than just a skill, adults with exceptionalities and educators differed in their perception of support provided by AI tools: Adults emphasized personal and emotional benefits if AI tools such as reduced anxiety which helps them express ideas more clearly and without fear of judgment providing a sense of confidence, control, and validation. In contrast, teachers approached AI as a pedagogical scaffold that enhanced access, equity, fluency, and academic engagement. These divergent vantage points reflect the distinct roles participants inhabit in educational and communicative contexts: adults as users, teachers as facilitators. Nonetheless, narrative analysis revealed several shared phenomenological sub-themes across both groups, including expressive clarity and tone, adaptive reading support, mechanical support for written communication, personalized communication assistance, emotional labor in communication, and ethical considerations.

4.1.1Enhanced Expressive Clarity and Tone

Participants across both groups consistently emphasized AI's transformative role in expressive communication, particularly regarding clarity and tone. Most adults articulated widespread emotional relief and increased confidence resulting from AI-enabled improvements in their ability to communicate clearly and authentically. One representative adult with dyslexia expressed: *"I ask it to revise what I say to make sure it sounds right"* (Participant 2).

Similarly, educators widely reported transformative improvements in students' expressive abilities, significantly enhancing academic and social interactions: *"Many students have brilliant ideas but can't get them onto paper or clearly express them verbally. AI helps bridge that gap, significantly changing their engagement and confidence"* (Participant 11, Teacher).

For students with limited or unreliable verbal communication, educators reported that AI-enabled technologies played a more foundational role in enabling classroom participation. One teacher described the use of eye-gaze technology as a turning point: *"The eye-gaze devices give students who are nonverbal a voice, and that means they can participate with the rest of the class. That alone has changed how they see themselves in school"* (Participant 11). Communication support, in this context, intersected with identity and inclusion. It was not merely about accessing a lesson; it was about belonging within the learning environment.

4.1.2 Adaptive Reading and Comprehension Support

Educators described AI tools designed to adapt reading levels and content to individual student needs as helping reduce cognitive load, thereby enhancing comprehension and participation. Most educators highlighted AI tools, such as Diffit, as critical to their practice: *"Diffit is one I use a lot with my staff to help them differentiate things based on reading levels and student interest level and find the appropriate materials"* (Participant 11).

One teacher working with students with processing challenges explained, *"Speechify helps me with reading comprehension and fluency. My students with processing challenges benefit because it allows them to process more complex materials with less stress"* (Participant 13). In this framing, AI does not replace effort but recalibrates it by redistributing demand across modalities and reducing stress-induced barriers to engagement.

4.1.3 Mechanical Supports and Clarity in Written Communication

Participants consistently described AI tools as essential mechanical support to manage emotional and cognitive demands by significantly reducing anxiety related to clarity, coherence, grammar, and professionalism in written communication. One participant with dyslexia noted the constant tension involved in basic writing tasks and the specific way that AI support lessened that burden: *"Grammarly makes me feel less anxious because I know I am*

not going to have a spelling error or a grammar error. That helps me write without second-guessing myself constantly" (Participant 9). The shift described was not just technical; it represented a kind of release from cycles of self-correction and internal monitoring that had historically defined the act of writing. Educators also valued AI's structured assistance explicitly: *"I wrote the paper just straight… I ran it through ChatGPT to ask how I could tighten certain things up or make things more clear"* (Participant 4, Teacher).

However, adults with ASD framed support needs differently from those with dyslexia. Rather than focusing on mechanical aspects of writing, participants with ASD highlighted the limitations of predictive systems that failed to capture nuance or intent. One participant explained, *"Sometimes predictive text does not get what I mean. It finishes the sentence wrong or limits what I was trying to say"* (Participant 3). For this participant, the challenge was not a lack of assistance but the risk of misrepresentation. Thus, tools that operate through assumption and prediction can—when misaligned—introduce their own forms of communicative friction.

4.1.4 Personalized Communication

Educators overwhelmingly described the transformative impacts of AI-powered personalized communication supports, particularly AAC tools, emphasizing improved autonomy, social participation, and emotional well-being among students: *"Using personalized learning, using AI platforms to create individualized learning paths... communication support through AI-powered devices, helping students with nonverbal autism express themselves more effectively"* (Participant 13, Teacher).

4.1.5 Communication as Emotional Labor

Most participants acknowledged that communication tasks are significant sources of emotional labor, highlighting AI's role in alleviating the associated anxiety and emotional stress. Adult narratives consistently reflected meaningful emotional relief: *"If I would've had ChatGPT to understand tone... I would've had a lot more friends"* (Participant 10, Adult with Dyslexia).

4.1.6 Ethical Considerations from Educators

Even as participants articulated the affordances of AI tools, educators consistently expressed ethical concerns regarding AI usage, particularly the risk of overreliance and dependency. One teacher noted, "*Some of my students lean on tools like Grammarly and AI writing support too much. They're not building the underlying skills as well. That's a concern"* (Participant 14). Most educators emphasized balancing immediate communication benefits provided by AI with the necessity of developing independent skills: *"I'm cautious about students becoming overly reliant. They need to develop independent communication skills without always having a tool mediate their interactions"* (Participant 14, Teacher).

4.2 Theme 2: AI as an Executive Functioning Tool

Analysis of participant narratives, across adults and educators, revealed several phenomenological sub-themes, including organizational support, task management, cognitive load reduction, personalized scheduling assistance, and ethical considerations.

4.2.1 Organizational Support

Participants consistently emphasized the critical role of AI in enhancing organizational structure and daily operations. Adults frequently described substantial reductions in stress and improvements in productivity due to AI-driven organizational tools: *"It helps me keep track of everything—I don't have to rely solely on memory anymore. It organizes tasks in a way that makes my days manageable"* (Participant 3, Adult with Autism). Adults emphasized the way AI could intervene in moments of paralysis—when the pressure to complete a task collided with organizational overwhelm. One participant with dyslexia shared: *"ChatGPT helped me get it done and feel proud of what I wrote. I could see the steps. I needed that"* (Participant 10). Here, AI operated as both scaffold and motivator, offering a path forward where there had previously been friction or stall.

Educators similarly described extensive reliance on AI tools to systematically maintain organizational structures, noting significant improvements in professional efficiency: *"AI helps me organize lesson plans and resources systematically. Without it, keeping track of everything would be overwhelming"* (Participant 12, Teacher).

4.2.2 Task Management

Participants highlighted AI as essential for managing complex tasks by breaking them down into smaller, manageable components. Most adults reported substantial improvements in initiating and completing tasks previously perceived as overwhelming: *"It helps me see what I need to do next. Without that, I just get stuck"* (Participant 3, Adult with Autism).

Educators noted similar improvements in students, emphasizing enhanced task initiation and reduced anxiety:

"Using AI tools to manage assignments helps students start their tasks promptly and persist through to completion, reducing anxiety about workload" (Participant 11, Teacher).

4.2.3 Cognitive Load Reduction

Most participants described significant relief from mental overload with the use of AI tools. While dyslexic participants sought help navigating tasks, participants with autism described a different, though related, relationship to executive functioning tools. Rather than support with structuring writing or completing steps, they emphasized automation and reminders to reduce emotional and sensory load. One adult with ASD explained: *"The more automatic they are, the more functional I am; I'm more consistent. That consistency reduces my anxiety and makes me feel capable. With AI, I no longer have to mentally juggle everything. It's like having extra cognitive resources available"* (Participant 3).

Educators reflected similar patterns in the classroom, often describing AI as a bridge between students and complex academic demands. In addition, they noted significant reductions in their own cognitive burden, enabling greater focus on instructional effectiveness and meaningful student interactions: *"AI reduces my cognitive load by handling routine planning and administrative tasks. It frees my mind to focus more on teaching and engaging with students"* (Participant 13, Teacher). Another teacher explained how summarization and simplification tools helped students feel less overwhelmed: *"It gave them enough information to hold onto so that they could get into a text and not feel lost"* (Participant 12). The goal was not to lower expectations but to distribute cognitive effort in a way that enabled students to engage meaningfully.

4.2.4 Personalized Scheduling Assistance

Participants described clear benefits from AI-driven, personalized scheduling tools, emphasizing improvements in productivity and emotional regulation. Educators provided examples of AI's value in scheduling: *"We use AI tools explicitly designed to map out students' weekly assignments and schedules, significantly reducing anxiety and increasing students' sense of preparedness and control"* (Participant 11, Teacher).

4.2.5 Ethical Considerations and Autonomy

Despite these benefits, educators raised ethical concerns regarding potential dependency on AI, which could lead to a decline in independent planning and problem-solving skills thus emphasizing the need to establish critical balance between immediate cognitive benefits and fostering long-term skill autonomy: *"I worry about students depending too heavily on AI tools for basic organizational skills. We need to ensure these tools support rather than replace their executive functioning skills"* (Participant 14, Teacher). The educator also framed AI use as potentially avoidant rather than enabling—a short-term solution that might obscure longer-term growth needs: *"They're leaning on these tools in a way that's not necessarily productive. They're using AI to avoid starting, not just to help along the way"* (Participant 14).

4.3 Theme 3: AI Tools and Anxiety Reduction

Participants consistently framed anxiety not as an abstract or clinical category, but as an immediate and often cyclical response to environments that demanded communication, sustained attention, or organization without sufficient support. AI tools were described as interrupting this cycle—lowering the stakes, providing scaffolding, and offering reassurance. Analysis of participant narratives revealed multiple phenomenological sub-themes consistently articulated by both adults and educators, including emotional reassurance, social anxiety alleviation, communication confidence, anxiety related to academic performance, support for anxiety management strategies, and ethical concerns related to emotional dependency.

4.3.1 Source of Anxiety

The sources and manifestations of anxiety varied by role and diagnosis, reflecting their respective vantage points. Adults tended to discuss anxiety as cumulative and internal—a product of years of struggle, failure, or self-monitoring. Teachers, in contrast, described situational anxiety tied to specific moments in the classroom. What adults characterized as psychological relief, educators saw as improved behavior and participation. Both interpretations were valid, though they revealed differing frameworks for understanding distress and its alleviation.

Differences between autistic and dyslexic participants were also apparent. For adults with dyslexia, anxiety was often tied to fear of error—especially in spelling, grammar, or public writing. Tools like Grammarly were framed as shields against judgment. In contrast, anxiety was more frequently linked with communication ambiguity or social unpredictability by adults with autism. One participant with ASD noted that AI support could help them prepare for interactions but also feared over-dependence: *"I worry about becoming too dependent, which itself*

creates anxiety" (Participant 3). Here, anxiety was both cause and consequence—a loop that AI could interrupt but not resolve entirely.

Educators described anxiety in students primarily in terms of performance—hesitation to participate, avoidance of tasks, or visible frustration. One teacher explained, *"Predictive texting allows my students to express themselves more confidently… significantly reducing their anxiety"* (Participant 12). The emphasis here was not only on the successful completion of tasks, but on the removal of barriers that prevented students from even attempting them. Tools that simplified language, scaffolded structure, or prompted responses helped mitigate avoidance and built tolerance for academic risk.

4.3.2 Emotional Reassurance

Despite differences in the perception of the sources and manifestations of anxiety by role and diagnosis, participants returned repeatedly to the emotional relief afforded by AI. Participants consistently emphasized the critical role of AI tools in providing emotional reassurance, significantly reducing communication-related anxiety. Adults frequently highlighted the deep sense of emotional security derived from immediate feedback provided by AI: "*AI tools reassure me that what I'm saying sounds right, reducing my anxiety tremendously in social interactions"* (Participant 9, Adult with Dyslexia).

Among adults, anxiety was described as deeply embedded in the writing process, particularly when past experiences had led to internalized doubt or shame. One adult with dyslexia recalled, *"Before Grammarly, sending emails felt overwhelming. I worried about what I missed, what it would say about me. Now, the anxiety is almost gone. This simple validation made a huge emotional difference. I felt smart for the first time in years"* (Participant 9). For this participant, the tool did more than correct grammar; it removed the constant fear of negative interpretation. In this framing, AI tools were not external aids but internal rebalancers, supporting not only output but identity.

Educators noted parallel benefits among students, emphasizing the calming effects of immediate AI feedback: *"Students feel calmer and less anxious because AI tools offer immediate reassurance about their work and interactions"* (Participant 12).

4.3.4 Social Anxiety Alleviation

Adults and educators consistently described AI tools as instrumental in significantly reducing social anxiety related to communication. Adults with autism and dyslexia articulated substantial improvements in their social interactions, noting increased confidence and reduced emotional distress: *"AI helps me interact confidently because it guides me on appropriate responses, significantly reducing my social anxiety"* (Participant 3, Adult with Autism).

Educators corroborated these experiences, noting improvements in students' social integration and communication: *"AI tools provide structured social interaction guidance, making students noticeably less anxious and more engaged socially"* (Participant 11).

4.3.5 Communication Confidence

Adults attributed increased communication confidence to AI tools, significantly alleviating anxiety related to being misunderstood. Adults with dyslexia particularly described transformative experiences in clearly communicating their thoughts: *"AI gives me the confidence that my communication is clear and appropriate, significantly lowering my anxiety"* (Participant 10).

Educators observed analogous benefits, emphasizing reduced emotional strain among students during communication tasks: *"AI significantly helps students articulate their ideas clearly, reducing their anxiety about participation and improving their overall confidence"* (Participant 13).

4.3.6 Anxiety Related to Academic Performance

Participants, particularly adults reflecting on their K-12 experiences, described significant reductions in anxiety linked to communication-based academic tasks through AI support. Adults with dyslexia recounted vivid experiences of reduced emotional distress related to classroom communication: *"AI changed how I felt about school because it took away the constant fear of failure. It reassured me I could succeed"* (Participant 9).

Educators affirmed this perspective, noting reductions in student anxiety related to classroom interactions and assessments: *"Students who previously felt constant academic anxiety now feel empowered and less overwhelmed because AI tools provide immediate and personalized support"* (Participant 11).

4.3.7 Support for Anxiety Management Strategies

Adults and educators highlighted the role of AI in reinforcing communication-based anxiety management strategies. Adults described AI tools as critical for managing emotional challenges related to daily communication: *"AI provides strategies and reminders that help me manage anxiety throughout my day, reinforcing my coping skills"* (Participant 3, Adult with Autism).

Educators observed AI's critical role in equipping students with effective anxiety management tools: *"The structured anxiety management supports provided by AI have become an essential component in helping students handle emotional challenges effectively"* (Participant 13).

4.3.8 Ethical Considerations and Emotional Dependency

Educators articulated ethical concerns regarding emotional dependency on AI tools, emphasizing balanced anxiety management approaches: *"I'm concerned that students may become emotionally reliant on AI, potentially diminishing their ability to self-regulate anxiety independently"* (Participant 14). Educators also expressed caution about students' reduced development of independent coping mechanisms: *"AI is helpful, but it shouldn't replace the emotional coping skills students need to develop independently. They need authentic emotional resilience… not just AI validation"* (Participant 14).

4.4 Theme 4: Social Interaction and Overall Communication Skills

Analysis of participant narratives revealed several phenomenological sub-themes consistently articulated by adults and educators, including improved social engagement, enhanced conversational skills, increased participation confidence, facilitation of peer relationships, and ethical considerations regarding the authenticity of interactions.

4.4.1 Social Engagement

Participants consistently described AI as significantly enhancing social engagement. Adults described how AI tools fostered increased willingness to engage socially by reducing fears of miscommunication or awkward interactions: *"AI helps me feel more comfortable initiating conversations, knowing I'm less likely to miscommunicate"* (Participant 3, Adult with Autism).

Similarly, educators emphasized notable improvements in student willingness to participate socially: *"Students previously hesitant to interact now actively engage because AI provides clarity and reassurance in social situations"* (Participant 11).

4.4.2 Conversational Skills

Participants attributed substantial improvements in conversational skills to AI tools, describing gains in clarity, responsiveness, and conversational flow. Adults articulated considerable progress in maintaining meaningful interactions: *"AI guides me on what to say next, helping me sustain conversations much longer and more naturally"* (Participant 10, Adult with Dyslexia).

Educators corroborated this experience, highlighting AI's role in enhancing students' conversational abilities: *"AI provides conversational frameworks that significantly help students develop natural, fluid communication skills"* (Participant 12).

4.4.3 Participation Confidence

Adults and educators described significant improvements in participation confidence with AI tools. Adults detailed transformative experiences in building confidence during social interactions: *"With AI, I feel more assured that I can participate without embarrassment, dramatically increasing my confidence"* (Participant 9, Adult with Dyslexia).

Educators emphasized notable improvements in student confidence, noting heightened classroom participation: *"AI encourages students to participate more actively because it reduces their fear of making mistakes in front of others"* (Participant 13).

4.4.5 Facilitation of Peer Relationships

Participants highlighted AI's role in facilitating peer relationships through structured interaction guidance. Adults described how AI significantly improved peer interaction outcomes: *"AI helps me form better connections because it guides me on how to respond appropriately, making my relationships more meaningful"* (Participant 3, Adult with Autism).

Educators provided further insights into AI's role in supporting students' peer interactions: *"AI tools significantly help students navigate peer relationships, leading to more meaningful and sustained friendships"* (Participant 11).

4.4.6 Ethical Considerations and Authenticity

Educators articulated ethical concerns related to the authenticity of social interactions mediated by AI: *"AI interactions can feel less genuine, and I'm concerned students might rely too much on structured responses rather than genuine self-expression"* (Participant 14). Furthermore, the educator expressed concerns about the communication challenges students may face in the absence of AI tools: *"I worry about students depending so heavily on AI that they might struggle with genuine social interactions when the AI isn't there."*

4.5 Theme 5: Instructional and Pedagogical Insights from Educator Experiences with AI Tools

While earlier themes primarily reflected teacher perspectives on student outcomes, this theme focused on how AI tools affected educators' daily professional activities. Across interviews, teachers described AI not just as a classroom tool, but as a system-level support—something that shaped lesson design, time management, and instructional differentiation. For many, the introduction of AI signaled a shift in how they thought about teaching and their own professional bandwidth. For some, AI expanded pedagogical flexibility.

4.5.1 Efficiency

A central theme across teacher accounts was the emphasis on efficiency. Several participants reported that AI tools enabled them to generate materials more quickly, modify lessons more easily, and address diverse student needs with greater responsiveness. One educator explained, *"AI has allowed me to create personalized lesson materials efficiently"* (Participant 11). Similarly, another participant explained, *"AI saves me hours. I can generate a draft lesson plan or modify reading levels without having to build everything from scratch. That means I can dedicate more attention to direct instruction"* (Participant 13).

4.5.2 Equity

Educators emphasized how AI-supported differentiation promoted equity. One teacher reflected on how these tools allowed for more consistent scaffolding, stating, *"It gives me ways to meet students where they are, without making them feel like they're being singled out"* (Participant 12). Another teacher emphasized the benefit of adaptability: *"I'm able to create multiple versions of the same assignment so my students don't feel like they're being given different work, even when they are"* (Participant 11). In this account, AI supported both instructional equity and student dignity. Differentiation became less visible, more fluid, and more sustainable. This insight suggests that AI's pedagogical potential lies not only in speed or automation but in the subtle architecture of inclusion—adapting instruction in ways that are both discreet and meaningful.

4.5.3 Classroom Engagement

Some educators described improved student independence and reduced reliance on one-on-one prompting with AI tools, highlighting a shift in how students approach tasks. One teacher shared, *"Students can independently manage their tasks and make progress without constant teacher intervention. That's a game changer"* (Participant 12). In these instances, AI acted not just as an academic support, but as a behavioral scaffold—helping students persist through tasks and develop executive routines.

4.5.4 Ethical Considerations and Intentionality

The same features that allowed flexibility for educators also raised concerns. Several educators described a sense of pedagogical unease, wondering whether the ease of content creation might lead to a loss of depth or intentionality. One participant explained, *"There's a temptation to rely on it too much. The more it does for you, the less critical you become about your own design decisions"* (Participant 14). The concern here was not simply about dependence, but about pedagogical drift—the risk that time-saving tools might weaken reflective practice.

Some educators were worried about their own emerging dependence. One participant reflected, *"It's easy to let the tool make choices for you. If you're not careful, you stop asking whether those choices make sense for your students"* (Participant 14). This reflection underscores the need for critical engagement—not just with what AI can do, but with how it influences professional judgment and instructional design.

Importantly, participants did not frame these concerns as reasons to reject AI, but as calls for intentional use. One participant explained, *"Students need foundational skills for life outside technology-supported environments. If we let AI do too much, we're not preparing them for the long term"* (Participant 14). The strongest reflections emerged not in opposition to technology, but in recognition of its complexity. Teachers voiced a desire for professional development that could help them evaluate tools critically, understanding not only what a tool does, but how, for whom, and at what cost.

5 Discussion

This qualitative phenomenological study examined the impact of AI tools on communication, executive functioning, anxiety, and instructional practices among neurodiverse adults and K-12 educators. Participants described AI tools as both practical support and affective buffers for alleviating some cognitive, communicative, and emotional strain for individuals with exceptionalities. While specific applications varied by role and neurotype, several throughlines emerged: AI-supported self-expression, reduced executive overload, and mediated anxiety, often in ways that felt both immediate and deeply personal.

5.1 RQ1: How do adults with ASD, dyslexia, and selective mutism experience the use of AI tools for daily communication?

AI tools have significantly enhanced communication by alleviating emotional and cognitive barriers, extending existing research that highlights the communicative clarity supported by AI (Espinosa & Escobedo, 2021). The shared narratives of adult participants suggest that AI tools have enhanced written communication clarity, significantly reducing emotional and cognitive burdens, in line with recent literature on AI-enhanced writing instruction (Manole et al., 2024). Whether through grammar correction, automation, or planning support, tools were seen as reducing the emotional labor of navigating systems that had historically excluded or penalized differences. Adults often framed AI as a corrective force, not just for mechanical errors, but also for internalized doubt, thereby reducing emotional pressures associated with communication. This finding aligns with the literature, which emphasizes emotional safety as a critical communicative outcome in educational environments (Panjwani-Charania & Zhai, 2024). Furthermore, the shared experiences demonstrate AI's capability to support reading comprehension and academic engagement, clearly aligning with UDL principles (McNally et al., 2024). Notably, the experiences of adults in the current study underscore AI's crucial role in fostering inclusive education practices (Godoi et al., 2024).

However, the phenomenological tension between support and substitution—between empowerment and dependency—surfaced throughout the dataset, aligning with ongoing scholarly discussions on the ethical use of AI (Espinosa & Escobedo, 2021). These accounts suggest that while AI can play a transformative role in supporting communication, especially when tailored to individual needs, they also reveal the complexities of design and implementation—particularly when tools fail to capture intent, encourage dependence, or foreground efficiency over expression. This tension between immediate AI-supported benefits and long-term skill independence reflects a larger question about how to integrate assistive technologies in ways that sustain growth without eroding core skill development.

These findings offer both practical and theoretical insights, clearly situating them within the broader scholarly discourse and laying a robust foundation for further investigation. Communication, for participants in this study, was never just about producing language. It was about being understood on one's own terms. This insight carries substantial implications for educational practices designed to support neurodiverse individuals. Additionally, acknowledging the tension between AI-supported benefits and autonomy offers critical insights for future AI implementation policies in educational settings. Thus, further research may explore the long-term impacts of these adaptive tools on student autonomy and literacy development.

5.2 RQ2: How do these adults describe their experiences with AI tools in managing executive functioning?

Participant narratives highlighted AI's impact on cognitive efficiency and emotional relief, with substantial reductions in cognitive load aligning with theoretical frameworks that emphasize structured support for executive functioning (Espinosa & Escobedo, 2021; McNally et al., 2024). Participants described AI tools as essential support in managing the multifaceted demands of executive functioning, from organizing tasks to reducing cognitive overload. AI tools were credited with helping users sustain engagement, structure time, and complete assignments, albeit issues related to autonomy and dependence reemerged in the context of executive functioning as well. These concerns underscore the nuanced complexity of AI integration, reinforcing previously documented ethical tensions and emphasizing the need for careful consideration in AI tool implementation strategies (Espinosa & Escobedo, 2021; McNally et al., 2024).

Furthermore, participant narratives highlight the phenomenological essence of predictability and stability provided by AI scheduling tools, which clearly supports broader educational and psychological frameworks on structured learning and anxiety reduction (Espinosa & Escobedo, 2021; Panjwani-Charania & Zhai, 2024). This direct connection to reduced anxiety highlights the practical implications for educational policies and classroom practices that support emotional regulation through structured scheduling.

However, adults with exceptionalities and educators expressed different facets of executive functioning support

from AI tools: For adults, executive functioning support was deeply tied to daily survival and emotional regulation, where AI tools reduced daily executive burden and restored momentum, while educators viewed executive functioning support through a developmental lens—valuing autonomy, progress, and the eventual reduction of external assistance. For educators, AI tools were more often linked to task completion, academic performance, and behavioral consistency. This distinction between adult and educator perspectives again revealed a tension between individual coping and instructional scaffolding, highlighting the broader epistemological split between accommodation and instruction.

In addition, diagnosis-specific differences were also evident in this theme. Participants with dyslexia discussed the challenges of sequencing and self-initiation, often viewing AI as a planning partner or an external brain. They emphasized tools that improved clarity, sequence, and output quality. On the other hand, participants with autism focused on consistency, automation, and alignment with intent, describing tools in terms of emotional regulation, emphasizing stability, rhythm, and predictable reminders. While AI tools extended participants' capacity to function within systems that were not designed for their cognitive profiles in both cases, the observed differences underscore the need for design specificity, suggesting that AI integration cannot rely on general categories of "support" but must attend to the precise cognitive and emotional contexts in which tools are used.

Ultimately, executive functioning was framed not simply as a set of deficits to be patched but as a context in which AI could serve as cognitive infrastructure—not replacing internal skills but enabling access to them. Whether through organization, automation, or emotional support, participants identified AI as a means of reclaiming agency in environments that often overwhelmed or excluded them. These phenomenological insights reinforce previous findings regarding AI's effectiveness in structured learning environments, demonstrating practical guidelines for educators aiming to enhance executive functioning through AI integration (Panjwani-Charania & Zhai, 2024).

These phenomenological insights address the research question, demonstrating how adults perceive AI as significantly enhancing executive functioning through organizational support, task management, cognitive load reduction, personalized scheduling, and consideration of ethical implications. In line with the provided literature (Espinosa & Escobedo, 2021; McNally et al., 2024; Panjwani-Charania & Zhai, 2024), these findings offer robust theoretical and practical implications, guiding future research and informing strategic integration of AI tools in educational and occupational environments for neurodiverse individuals. The divergence in perception of AI tools by role and diagnosis underscores the importance of developing targeted strategies, policies, training programs, and conducting future research in educational practice to balance AI support with skill autonomy, thereby optimizing educational outcomes (McNally et al., 2024).

5.3 RQ3: How do adults with ASD, dyslexia, or selective mutism—as well as educators—perceive the effectiveness of AI tools in reducing communication-related anxiety among students with disabilities?

Analysis of participant narratives collectively underscores AI tools' profound role in mitigating anxiety by addressing emotional and psychological stressors associated with communication. Across interviews, participants consistently positioned AI as a mediator—not just between task and user, but between fear and function. Whether helping an adult send an email or enabling a student to write a paragraph, AI tools lowered affective barriers that had previously disrupted engagement. These narratives align with the literature that identifies AI as a critical emotional scaffolding resource, offering timely and consistent reassurance beyond traditional support systems (Espinosa & Escobedo, 2021).

Furthermore, participants highlighted AI's ability to facilitate structured social interactions, which significantly reduces anxiety and enhances communication effectiveness and communication-based emotional well-being, with clear implications for targeted intervention programs, in line with the findings of previous studies (McNally et al., 2024; Panjwani-Charania & Zhai, 2024). Additionally, participants acknowledged that emotional safety must be balanced with intentional development. The tools could reduce anxiety, but they could not eliminate their causes without broader changes to educational expectations, pacing, and inclusiveness. These findings align closely with educational research emphasizing AI's role in creating inclusive, supportive communication environments, reinforcing strategies that promote emotional health and academic resilience (Espinosa & Escobedo, 2021).

As with the other themes, the educator-centric perspective included the risk of AI tools substituting rather than supplementing emotional development. While teachers acknowledged the emotional regulation benefits of AI, some questioned whether externalized reassurance might delay the development of coping strategies or interpersonal confidence. This perspective emphasized a potential downside of AI integration and highlights the critical ethical tensions addressed in existing literature, underscoring the importance of balanced AI integration

to ensure sustained coping skills and emotional resilience by reducing dependency on AI tools (Espinosa & Escobedo, 2021).

These phenomenological insights comprehensively demonstrate AI's effectiveness in mitigating communication-related anxiety through emotional reassurance, alleviation of social anxiety, enhancement of communication confidence, reduction of academic anxiety, development of anxiety management strategies, and consideration of ethical implications. These findings have significant theoretical and practical implications for future research, educational interventions, and therapeutic practices that integrate AI to support emotional well-being and resilience, aligning with previous studies (Espinosa & Escobedo, 2021; McNally et al., 2024; Panjwani-Charania & Zhai, 2024).

5.4 RQ4: How do both adults and educators perceive the role of AI in enhancing social interaction and overall communication skills?

Both adults and educators recognize the positive impact of AI tools in enhancing overall communication skills by fostering social confidence, promoting social interaction, and strengthening peer relationships. These narratives align with existing literature that highlights AI's potential to improve communication effectiveness (Panjwani-Charania & Zhai, 2024), promote active participation (McNally et al., 2024), and facilitate quality social interactions by reducing communication-related anxieties (Espinosa & Escobedo, 2021) in educational settings. These findings offer substantial theoretical and practical implications, guiding future research, educational strategies, and therapeutic practices in effectively integrating AI into inclusive social communication interventions.

Notably, ethical concerns regarding interaction authenticity primarily emerged from educators. These educator-centric concerns highlight significant ethical tensions surrounding AI-mediated interactions, emphasizing the need for balanced strategies that support genuine self-expression alongside structured AI support. The discussion of authenticity concerns enriches the phenomenological understanding of AI's impact, underscoring the necessity for further research into the long-term effects of AI reliance on social skill authenticity and development of balanced approaches that promote authentic interpersonal skills development alongside AI-supported interactions (Espinosa & Escobedo, 2021).

5.5 RQ5: How do K–12 educators experience the use of AI tools to support students with similar disabilities?
Overall, educators viewed AI as a powerful pedagogical resource—one that enables greater differentiation, accelerates preparation, and improves access. Rather than seeing AI solely as a student-facing accommodation, educators described it as an embedded feature of lesson planning, content differentiation, and teacher workflow. AI tools enabled more flexible instructional design, greater differentiation, and new opportunities for student autonomy. These reflections foregrounded a shift in pedagogical possibility—one where AI played a role in balancing access and rigor.

Efficiency was a recurring thread in these accounts. Educators have noted the faster creation of tailored instructional materials using AI tools, which reduces planning time. The benefit here was not merely time saved, but time reallocated to students, feedback, and higher-order tasks that often go under-served in fast-paced classrooms. Thus, AI did not displace pedagogical labor but redistributed it—allowing time and energy to shift from content production to individualized support. As a result, educators noted potential impacts of AI tools on students' cognitive engagement.

However, even as they embraced these tools, educators articulated concerns about their long-term pedagogical implications. Some questioned whether the ease of AI-driven planning might compromise instructional intentionality. While AI tools offered immediate support, others questioned whether they hinder students' ability to solve problems on their own and stifle the development of core academic habits. In this framing, AI poses a familiar instructional tension: support versus over-accommodation. The goal is to reduce barriers without inadvertently reducing challenges.

There was also a shared recognition of ethical responsibility. Several teachers emphasized that AI must not replace efforts to teach foundational skills. For these educators, the goal was not to abandon AI, but to use it in a way that preserved growth, challenge, and authenticity. Educators did not present themselves as passive adopters of technology. Instead, they described an ongoing process of reflection—one that required balancing innovation with intention. The most compelling insights emerged not from enthusiasm or resistance alone, but from the space between them: the space of strategic use, iterative learning, and pedagogical self-awareness. Thus, rather than seeking seamless integration, educators called for thoughtful design and integration grounded in trust, choice, and individual fit, ensuring that the use of AI aligns with learning goals, respects developmental needs, and preserves the relational dimensions of teaching.

5.6 Implications for Theory and Practice

This phenomenological study contributes to theoretical discourse in several domains. First, this study challenges and expands existing theoretical frameworks for assistive technology by demonstrating how AI tools address barriers related to communication, executive functioning, and anxiety for individuals with exceptionalities, aligning with previous studies (Espinosa & Escobedo, 2021; McNally et al., 2024). The AI-driven conversational frameworks emerging from participant narratives integrate cognitive and emotional dimensions of communicative competence, prompting a theoretical shift towards the holistic interplay between emotional support and communication technologies, warranting a comprehensive integration of emotional reassurance and cognitive load reduction as significant factors influencing educational outcomes.

Second, this study revealed practical examples of how AI tools facilitate the transition from externally structured support to internally regulated learning behaviors, thereby fostering independence among neurodiverse learners and enriching theoretical constructs of self-regulated learning and autonomy (Panjwani-Charania & Zhai, 2024). These insights offer theoretical clarity on the specific conditions that foster effective self-regulation and inform broader discussions on striking a balance between external scaffolding and learner autonomy.

Third, our findings position technology as a fundamental component of comprehensive emotional and communicative interventions, rather than merely as a supportive tool, thereby broadening the theoretical perspectives on communication and social anxiety-related interventions. Participant experiences demonstrate how AI-mediated support systematically reduces communication-related anxieties, highlighting the need for theoretical integration of technological components within emotional support frameworks (Espinosa & Escobedo, 2021; Panjwani-Charania & Zhai, 2024).

In line with these theoretical insights, our findings offer several practical implications for educational practice and the integration of AI tools to support individuals with exceptionalities. For instance, drawing directly from findings on instructional differentiation, educators can accommodate diverse learning profiles by leveraging AI-driven tools such as Diffit to individualize reading levels and personalize instructional tasks (Espinosa & Escobedo, 2021). In addition, given the importance of structured support for executive functioning observed in this study, the adoption of AI tools that scaffold students' organization, task management, and cognitive efficiency can help students structure their daily tasks, set clear goals, and independently monitor their progress (McNally et al., 2024).

Our findings also reinforce the observations of Panjwani-Charania and Zhai (2024) that structured conversational frameworks provided by AI, when integrated into the curricula to encourage student participation, can reduce communication-related anxiety and foster conversational confidence and fluency. Therefore, educators are encouraged to integrate AI-based communicative support within inclusive curricula. However, this warrants ongoing professional development programs with an extensive feedback process to ensure that educators follow best practices for integrating AI, recognizing signs of dependency, and maintaining balanced technological support. Lastly, educators and policymakers should urgently develop clear guidelines and best practices to strike a balance between genuine skill-building and the risks of dependency and reduced authenticity associated with AI tools. Practices such as periodic AI-free tasks and responsible technology integration can help maintain balance while meeting the diverse needs of various stakeholders (Karamuk, 2025).

In any case, the successful implementation of policies, practices, and AI-integrated curricula will require careful consideration of contextual variability such as resource availability and differing student needs, along with continuous monitoring, assessments, and adjustments to ensure that the AI tools produce sustainable improvements, remain effective, and produce authentic user outcomes.

5.7 Strengths and Limitations

The study's biggest strength lies in its methodological approach, which is grounded in constructivist inquiry, responsive participant design, and collaborative verification processes, ensuring the authentic representation of neurodivergent participants' perspectives. The flexible yet rigorous design exemplified best practices in inclusive, technology-mediated qualitative research, linking methodological choices to the constructivist theoretical framework guiding this study.

However, this study is not without its limitations. First, we were unable to recruit participants with selective mutism despite targeted campaigns, which limited the generalizability and comprehensiveness of our findings. Future studies should engage with specialized clinics, advocacy groups, and online communities to enhance participant diversity and provide comprehensive insights into AI's impact across all targeted disabilities. Second, our findings rely on participants' self-reported experiences, inherently introducing potential biases and memory

limitations. Lastly, concerns related to transferability and broader applicability of the findings are inherent to any qualitative study, as contextual differences, such as educational environments, geographic locations, and resource availability, can impact study outcomes. Adopting longitudinal and observational study designs across diverse educational, cultural, and resource availability contexts is required to validate self-reported outcomes and clarify long-term effects.

6 Conclusion

The findings of the phenomenological study suggest that AI tools, when responsive and well-matched, can play a meaningful role in supporting social skills, communication, executive functioning, and emotional regulation in adults with ASD and dyslexia, especially when they prioritize human agency alongside technological efficiency. It offers critical implications for future educational practices, theoretical frameworks, and broader societal considerations regarding inclusive education. Thus, continued targeted research and mindful integration of AI can significantly contribute to creating inclusive, supportive, and equitable educational environments, enhancing the overall quality of life for individuals with diverse needs.

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