

**NEURODIVERGENT LANGUAGE LEARNING WITH AI:
SUPPORTING ADHD AND AUTISM**

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Abstract: In today's diverse educational environment, supporting neurodivergent students- particularly those with Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD)—is no longer optional but essential. This paper explores the intersection of Artificial Intelligence (AI) and foreign language learning for neurodivergent learners. It talks about the real challenges they face, how AI tools can adapt to their needs, and how we can create better learning experiences for them. The findings show that AI, if used wisely, can help turn struggles into success and loneliness into social skills. This article offers practical insights and recommendations for educators, developers, and policy-makers.

Keywords: Neurodivergence, Artificial Intelligence, ADHD, Autism, Inclusive Education, Language Learning, Assistive Technology

Аннотация: В современном разнообразном образовательном пространстве поддержка нейроразличающихся студентов — особенно тех, кто живёт с синдромом дефицита внимания и гиперактивности (СДВГ) и расстройствами аутистического спектра (РАС) — становится не просто желательной, а необходимой. В данной статье исследуется пересечение искусственного интеллекта (ИИ) и изучения иностранных языков в контексте нейроразличающихся учащихся. Рассматриваются реальные трудности, с которыми они сталкиваются, способы адаптации ИИ-инструментов к их потребностям и пути создания более эффективных и комфортных условий обучения. Результаты показывают, что при разумном применении ИИ может способствовать преодолению трудностей и развитию социальных навыков. Статья предлагает практические рекомендации для педагогов, разработчиков и представителей образовательной политики.

Ключевые слова: нейроразличие, искусственный интеллект, СДВГ, аутизм, инклюзивное образование, изучение языков, вспомогательные технологии.

In today's global society, the education system is becoming more inclusive and digital. For students with neurodivergent - that is, atypical neurological

development (in particular, individuals with Attention Deficit Hyperactivity Disorder - ADHD and autism spectrum disorders), modern technologies, especially artificial intelligence tools, are creating great opportunities. Learning a foreign language poses particular challenges for this category of students. Therefore, there is a need to introduce adaptive and intuitive learning methods that meet their needs [1].

Students with ADHD often have difficulty paying attention, following through on tasks, and concentrating for long periods of time. They benefit from short, visual, and interactive content [2].

Students on the autism spectrum often experience communication ambiguities, unclear language, and difficulty expressing themselves in traditional ways. They require repetitive, emotionally neutral, and clearly structured materials [3].

Understanding the needs of these students, allowing them to express themselves, and channeling their talents is a modern-day task for teachers.

In recent years, AI technologies have been rapidly developing, especially in the field of language teaching. The following advantages can be cited for neurodivergent learners:

- personalized content: AI adjusts the level of exercises according to the needs of each learner [4].

- motivation through gamification: AI-powered gamified platforms motivate learners to be active and maintain their attention [5].

- multimodal learning materials: Adapt to the individual sensory preferences of learners through audio, video, and text content [6].

- adaptive assessment: AI-based systems can provide real-time feedback, clarification, and suggestions [7].

For example, chatbots based on GPT establish personal communication with the reader, respond to various questions, and help increase vocabulary through conversations.

The unique advantage of AI is its flexibility. AI does not get tired or impatient. It can present material repeatedly without judgment, ensuring neurodivergent learners can revisit concepts as often as needed. In contrast to traditional classrooms, where pacing is uniform and peer comparisons are inevitable, AI fosters an environment that respects the learner's pace and cognitive rhythms. This non-linear learning path, supported by AI, is often more aligned with how neurodivergent individuals thrive.

AI also opens up new channels of expression. For students who are non-verbal or who find spoken language challenging, AI-based text-to-speech and speech-to-text tools offer bridges to communication. These technologies can translate thoughts into words—literally—and help build confidence over time. Such features are particularly empowering for learners who struggle with traditional classroom participation due to anxiety, sensory overload, or verbal processing delays.

The formation of an individual approach using AI not only effectively teaches a foreign language, but also increases the student's self-confidence. A positive attitude and understanding of neurodiversity can lead to significant changes in education [1][3].

This article stands out because it looks at how AI can help neurodivergent learners, especially in learning languages. The idea is simple: when education is inclusive and adapts to different needs, it works better for everyone. With AI tools becoming easier to get, it's important for teachers, developers, and schools to work together to make sure these tools reflect the experiences of neurodivergent individuals. The relevance of such research cannot be overstated. As AI becomes more integrated into education, questions of equity and accessibility must come to the forefront. For neurodivergent students, AI is more than a digital assistant—it's an advocate, mentor, and translator of both language and learning itself. The practical significance is far-reaching. Schools and universities can incorporate AI-based language platforms into their curriculum as optional but powerful supplements. Developers can design interfaces with calming visuals, predictable structures, and user control. Policymakers can support funding for inclusive digital tools that open the door to success for learners too often left behind. To sum it up, AI isn't here to take over teaching. Instead, it can be a helpful tool, especially for those students who haven't always fit into the usual school systems. By using AI, we can not just recognize the differences among students but also value them. This way, we can get closer to a society where every student, no matter their background, can express themselves in another language.

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