Exploring the Impact of AI on Inclusive Education: Case Studies with Sign Language and Speech Therapy

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Abstract*: Artificial Intelligence (AI) has emerged as a transformative force in education, particularly in creating inclusive learning environments for students with diverse needs. This research paper examines the impact of AI technologies on inclusive education, specifically focusing on applications in sign language education and speech therapy. Through detailed case studies and comprehensive analysis, we investigate how AI-powered solutions are revolutionizing accessibility in educational settings. Our research employs a mixed-methods approach, combining quantitative data from implementational studies with qualitative insights from educators, therapists, and students. The findings demonstrate significant improvements in learning outcomes, with AI-driven sign language recognition systems achieving 89% accuracy in real-time translation and speech therapy applications showing a 40% increase in student engagement. The study also reveals challenges in implementation, including technical limitations and the need for specialized training. These insights contribute to the growing body of knowledge on AI in special education and provide practical recommendations for educational institutions seeking to enhance their inclusive learning environments.*

Keywords: AI in education, inclusive education, sign language, speech therapy, assistive technology, educational innovation