

AI-powered Voices and Rising Scores for Low-Achieving English Learners

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Abstract

The integration of artificial intelligence (AI) into language education holds transformative potential for addressing persistent gaps in speaking proficiency among English-as-a-second-language learners who lack exposure to immersive English environment. This study investigates the efficacy of Natural Reader, a text-to-speech (TTS) AI tool, in improving English speaking skills among secondary school students with limited language proficiency—a critical challenge in multilingual educational contexts. A quasi-experimental design was employed, involving 63 students (aged 12-13) from a public secondary school in Hong Kong, divided into an experimental (n = 43) and a control group (n = 22). Each group is further divided into low, mid-, and high-achieving subgroups. Over two months, the experimental group used Natural Reader for weekly speaking exercises, leveraging its features to listen to model pronunciations, record their speech, and compare outputs with AI-generated benchmarks. The control group continued traditional classroom instruction without AI integration. Pre- and post-intervention speaking assessments, scored by a standardized rubric, are compared between the two groups. The results revealed that the score difference between the post-test and pretest are positive for both groups, with the improvement for the experimental group higher than the control group. However, the difference is not statistically significant. Notably, the scores of the low-achieving students in the experimental group improved significantly. This may be attributed to the role of AI in creating a safe learning space for low-achieving students in language education. Unlike conventional methods, tools like Natural Reader offer easily accessible and stress-free solutions that cater to individual learning paces—a vital innovation for large-size exam-oriented classrooms that create extra stress to low-achieving students. By contextualizing AI within real-world pedagogical challenges, this research contributes to broader discussions on how technology can transform educational outcomes for better inclusivity. It advocates for policy frameworks that prioritize equitable access to AI tools, particularly in exam-oriented settings, to empower learners and foster inclusive, future-ready education systems.

Keywords

English-as-a-second-language Learners, Text-to-speech AI Tool, Speaking Proficiency, Safe Learning Space