Using AI to Enhance Students' English Oral Skills in Junior Secondary Students

Fung CHEUNG[1], Ka Yi LOK[2]
[1,2] New Life Schools Incorporation Lui Kwok Pat Fong College, Hong Kong SAR, China
cf@lkpfc.edu.hk, lkyi@lkpfc.edu.hk

Abstract: *This paper explores how AI can enhance English oral skills among Hong Kong junior secondary school students. It examines the challenges students face, the potential of AI tools, and research methods for implementation. Planning to conduct interviews and to collect data, this paper highlights the benefits, ethical considerations, and further applications of AI in enhancing English oral skills.*

Keywords: AI, Junior Secondary Students, English Oral Skills, Hong Kong Education, Learning Motivation

1. Introduction

Oral English proficiency is critical for students of junior secondary level, i.e. Key Stage (KS) 3, in Hong Kong to bridge the transition from primary education (KS 1 and KS2) and develop skills for coherent expression of ideas, information, and emotions. However, pedagogical challenges—including large class sizes (Harfitt, 2012), limited practice opportunities (Chan, 2023), anxiety-driven reluctance (Yu et al., 1995), and students' fear of criticism (Lee, 2008) — hinder effective skill development, which traditional methodologies often fail to address. This paper examines how AI-driven tools, such as speech recognition systems and conversational agents, can mitigate these systemic barriers and enhance oral language acquisition outcomes, aligning with objectives outlined in the *Key Learning Area Curriculum Guide for English Language Education* (Curriculum Development Council, 2018).

2. Literature Review

2.1. Limited Practice Opportunities

Students often encounter a significant lack of opportunities to practice their oral English skills, primarily due to larger class sizes and the predominance of a Cantonese-speaking environment outside of school. Harfitt (2012) discovered that students often have to rely heavily on their school for opportunities to engage in English oral practice; however, when class sizes exceed 30 students, this reliance becomes increasingly problematic. Aoumeur (2017) also indicated that many students feel uncomfortable in large class settings, which has negatively impacted their motivation to learn and diminished their self-confidence in using the English language.

2.2. Fear of Making Mistakes

Anxiety and the fear of being judged by both teachers and peers significantly deter students from participating in speaking activities, which in turn impedes their development of oral proficiency. According to Horwitz et al. (1986) and MacIntyre and Gregersen (2012), foreign language classroom anxiety, along with negative social dynamics within the language class, serves as a crucial factor that undermines learners' willingness to engage in verbal communication. This reluctance not only affects their ability to practice speaking but also hinders their overall language acquisition and confidence in using English in real-world situations.

2.3. Lack of Personalized Feedback

Traditional teaching methods often emphasize mass lectures delivered by teachers, which frequently lack detailed and individualized feedback regarding crucial aspects such as pronunciation, fluency, and grammar. This is largely because uniform marking schemes are unable to adequately address the unique needs of each student. Hattie and

Timperley (2007) and Ellis (2009) argued that for feedback to be truly effective, it must be specific and tailored to the individual learner, ensuring that it is actionable and relevant. Such personalized feedback is essential for fostering improvement and facilitating a deeper understanding of language skills, ultimately enhancing students' overall learning experience.

2.4. Variability in Proficiency Levels

Students' diverse proficiency levels present a significant challenge when it comes to designing activities that can effectively cater to everyone in the classroom. This diversity leaves teachers grappling with the difficulty of stretching each student's potential to the fullest extent (Wan, 2016). Such variability complicates both the learning and teaching processes in classrooms filled with students of varying abilities. Tomlinson (2014) emphasized the importance of creating layered and tiered tasks that can accommodate these differences. By implementing such strategies, educators can better engage all learners and support their unique pathways to success, thereby enhancing the overall educational experience.

3. Methodology

This study aimed to investigate the effectiveness of artificial intelligence (AI) tools in enhancing English oral skills among junior secondary school students. A mixed-methods approach was employed, integrating quantitative data from pre- and post-tests with qualitative insights gathered from student surveys. Twenty junior secondary school students (S1–S3) from a local secondary school in Hong Kong participated in the study. These students were purposefully selected to reflect a diverse range of English speaking abilities based on their performance in the first-term speaking exam results (see Table 1).

The intervention utilized an AI-powered platform, EvaSpeak (Laurry & Co. Limited, 2024), specifically designed to provide interactive speaking practice tailored to the needs of learners. This innovative platform featured one-on-one virtual interactions, real-time feedback, and multimodal support powered by cutting-edge natural language processing (NLP) technologies. It effectively simulated practical scenarios, including daily conversations, trending topics, and tasks aimed at interview preparation. To sustain engagement and motivation among students, various gamification elements such as experience points (EXP), achievement milestones, and personalized progress reports were incorporated, making the learning experience more enjoyable and rewarding.

Data collection involved a series of pre- and post-tests using a proprietary IELTS-based AI assessment tool, which provided standardized measures of oral proficiency. Additionally, qualitative data were gathered through student surveys and two semi-structured interviews—one conducted after one month of platform use and the other after three months. The analysis of data focused on descriptive statistics for quantitative findings, while thematic analysis was applied to the qualitative data to identify recurring patterns in student experiences and perceptions. Ethical considerations were rigorously addressed by obtaining informed consent from all participants and ensuring the utmost data anonymity and confidentiality throughout the study.

Table 1. Students' Scores (First Term Speaking Exam)

Forms	Abilities	Frequency (N=20)	Average Speaking Exam Scores
1	Above-average	4	77.3
	Below-average	4	48.2
2	Above-average	4	71.2
	Below-average	4	46
3	Above-average	2	89.5
	Below-average	2	14.5

4. Findings

Around 70% of the participants reported that they utilized the app to practice speaking at least once a week. Among these users, 20% engaged with the app more than three times a week, dedicating approximately 15 to 30 minutes each session to practice. Throughout the trial period, the average time participants spent on the app totaled 260 minutes, with the longest recorded usage being 485 minutes for a particular participant.

The results from the pre-test and post-test indicated a notable improvement of around 5% on average, as measured by the IELTS-based speaking assessment. During the trial period, participants were recorded to have learned an impressive average of 190 vocabulary items. The qualitative data obtained from the interviews further confirmed these improvements, as a majority of participants expressed that their speaking skills had enhanced after using the AI speaking app. More than 60% of participants agreed that the AI speaking tool significantly contributed to their advancement in speaking skills, particularly in areas such as grammatical accuracy and vocabulary usage.

Overall, these findings suggest that the integration of AI tools can effectively support language learning by providing consistent practice opportunities and reinforcing key language skills among students.

5. Discussion

5.1. Contextualized Practice and Engagement

The AI tool used, EvaSpeak, provided scenario-based speaking tasks (e.g., mock interviews, role-plays) that aligned with real-world language use. Students reported greater motivation to participate, particularly when practicing real-life scenarios like university interview coaching. One student noted, *"The virtual AI tutor reacted like a real person, so I felt like I was practicing for actual situations."* In the subsequent interview, another student noted that after trying different speaking AI apps, what he loved about EvaSpeak was the ability to "*interact like a real human being with topics that are really related to his future like (topics that are) trending and (topics) that prepare for (his) future* ". Both responses coincide with the findings from Li & Vuono (2019) which students could learn from immersive environments with real-life scenarios.

5.2. Vocabulary Learning

Another benefit students could get was learning vocabulary in a contextualized situation. More than half of the students agreed that they learned vocabulary in a much more natural way and one of the responded that, "*I learned vocabulary items much better when I can listen to them and understand how they are used in a context*". As the research study done by Bashori et al. (2022) has revealed that utilizing automatic speech recognition (ASR), powered by AI, could help students retain receptive vocabulary knowledge better than traditional classroom learning with limited practice time.

5.3. Reduced Speaking Anxiety

Learners exhibited lower anxiety when interacting with AI compared to classroom settings. In the interviews with students after using the tool for almost a month, there is a consensus among both stronger and underperformed groups that they felt less anxiety. For instance, a student shared, *"I could repeat sentences until I got them right without feeling embarrassed."* Half of the participants responded in the second interview that took place after two months of try out that they felt more confident when they were corrected by AI instead of real human beings as the pressure to perform well was lower. The students also agreed that their pronunciation has improved using the app as it can "identify my pronunciation problems" as reported by a participant in the second interview. This was contributed to the NLP the speaking app adopted. The results aligns with Parker, et al.'s (2018) as they highlighted that low-pressure environments are associated with improved performance.

5.4. Personalized Feedback

AI tools provided instant feedback on pronunciation and fluency. These tools could record students' voice, enabling targeted instruction from teachers. Teachers could make use of the recordings to analyze students' pronunciation profile. A student explained, *"The AI showed me that I couldn't pronounce some words correctly, so I knew I had to ask my teacher about them."* These functions are paramount to support learners at various learning levels (Martínez Adrián, 2014). Another student commented that the AI tool would recommend a grammatically correct way to phrase certain ideas after they made grammatical errors, "*I am so happy that everything I said could be checked in a systematic way and I could how to speak (correctly)*."

5.5. Gamification and Motivation

Gamified elements (e.g. prompting AI tutors to make certain responses) increased participation rates in both strong and below-average groups. Students engaged in exploratory language use, such as testing new vocabulary to "*unlock*" AI responses. Interviews revealed that more than half of the students preferred gamified tasks over traditional drills, citing *"fun", "challenging" and "sense of achievement"* as key motivators. As the AI tool is used to customize the learning experience to students' abilities and enhance the levels along their learning journey, students feel a sense of achievement, this aligns with Anisa et al.'s (2020) findings. Another key feature that has attracted students to the app was that they could earn EXP (experience points) from the app by completing different speaking units and tasks. During the second interview, a student likened getting EXPs as the experience of fighting bosses in video games, which motivated him to complete more units. This coincides with the findings of Kasiveloo et al. (2022) that token economy could be very motivating among ESL students.

6. Ethical Consideration and Implications

6.1. Ethical Considerations

AI's integration into oral English teaching brings significant benefits, yet it also gives rise to crucial ethical concerns. Disparities in access to devices and AI tools can exacerbate educational inequalities, leaving some students at a disadvantage. Additionally, over-reliance on AI risks further eroding students' interpersonal interaction skills. The pandemic has already isolated students socially, and excessive dependence on technology may prevent them from developing essential real-world communication abilities, which are vital for oral English proficiency.

6.2. Implications

The rapid progress of AI technology holds both promise and potential challenges for oral English teaching. There may emerge technologies capable of analyzing students' speech, even when it contains mispronunciations and inappropriate words. While this could offer valuable corrective advice, it also raises questions about how such analysis is conducted and presented. For instance, the accuracy of identifying speech errors and the appropriateness of the feedback provided need careful consideration. Incorrect or overly harsh feedback might discourage students, while overly lenient or inaccurate analysis could hinder their learning progress.

6.3. Students Privacy

The increasing integration of AI in educational settings raises critical concerns about students' privacy. AI systems often require access to personal data. Furthermore in AI speaking system, the characteristics of students will also be recorded. Parents, teachers and students should have the consent on the level of disclosing the personal privacy to the system. The system provider should also declare the level of privacy protection to the stakeholders.

7. The Way forward

7.1. From a focus group study to large quantitative research

As a pilot study of a speaking app designed to enrich and enhance students' English-speaking skills, the results have been promising. However, further quantitative research is necessary to examine how speaking apps with unique

technological features perform under varying conditions, including differences in school environments, student nationalities, and methods of app utilization. Future studies could provide a deeper analysis of how these distinctive features contribute to students' language development and learning outcomes. Such research would offer valuable insights into optimizing the app's design and implementation to maximize its effectiveness across diverse educational settings.

7.2. From KS3 to other key stages in learning

This research study focused on Key Stage 3 (KS3) students, equivalent to junior secondary levels in Hong Kong, to examine how a speaking app could enhance their English-speaking skills. The findings indicate that the app has been successful in improving students' speaking abilities. Future research could explore the app's potential to support Key Stage 2 (KS2) students, specifically those in Primary 4 to 6, to investigate whether it facilitates a smoother transition to secondary school and better prepares them for the linguistic demands of Key Stage 3. Additionally, further studies could be conducted on Key Stage 4 (KS4) students, encompassing Secondary 4 to 6, to assess the app's effectiveness in helping students prepare for the English-speaking component of the Hong Kong Diploma of Secondary Education (HKDSE) examination.

7.3. From pilot learning to public assessment

In addition to testing the app across various school settings and key stages, another significant potential lies in its ability to mitigate markers' bias in public examinations. With the emergence of various assessment technologies, speaking apps could play a transformative role in objectively evaluating students' performance. These apps have the potential to reduce the human variables inherent in traditional assessments, where subjective judgments by human markers may influence outcomes. By standardizing the evaluation process, speaking apps could pave the way for more equitable and consistent assessments in public examinations, representing a forward-looking approach to language testing.

8. Conclusion

AI has the potential to significantly transform the development of English oral skills by providing personalized, interactive, and engaging learning experiences tailored to individual student needs. By effectively addressing challenges such as limited practice opportunities, fear of making mistakes, and a lack of timely feedback, AI tools can help build students' confidence and enhance their overall proficiency in speaking. These innovations create a supportive environment where learners feel more comfortable practicing their skills.

However, it is crucial to manage ethical concerns associated with the use of AI in education. Issues such as data privacy, algorithmic bias, and the potential for over-reliance on technology must be carefully considered to ensure that the benefits of AI do not come at the cost of student well-being or equity in learning opportunities.

Future research should explore the long-term impact of AI tools on language acquisition and investigate effective strategies for their integration into diverse educational contexts. This exploration will help educators understand how to best leverage AI in ways that complement traditional teaching methods while addressing the unique challenges faced by students in various learning environments.

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