Interactive Technologies in Improving English Speaking Skills for Fifth-grade Pupils: A Needs Analysis

Ding Weining, Rozniza Zaharudin*

School of Educational Studies, University of Sains Malaysia, Malaysia

*** Corresponding Author: roz@usm.my**

DOI: https://doi.org/10.47772/IJRISS.2025.91200250

Received: 29 December 2025; Accepted: 04 January 2026; Published: 14 January 2026

ABSTRACT

This study investigates the oral English needs of Grade 5 students and explores their perceptions of interactive technologies for supporting speaking development. A mixed-methods approach was employed, combining a questionnaire completed by 109 students with follow-up interviews with 10 participants. The questionnaire examined learners' background, self-assessed abilities, perceived problems, learning priorities, and attitudes toward interactive technologies, while the interviews provided deeper insights into students' experiences. The quantitative results revealed that students perceived notable weaknesses in vocabulary, fluency, grammar, and pronunciation, as well as affective barriers such as shyness and fear of mistakes. Preferences for interactive learning styles and interactive technologies were also identified. The qualitative findings complemented these trends, showing that breakout rooms, interactive whiteboards, multimedia, and AI chatbots were valued for reducing anxiety, enhancing engagement, and providing supportive practice. At the same time, challenges such as technical issues, silence in group work, and distraction from multimedia were also reported. Overall, the study contributes to the literature on needs analysis and technology-enhanced language learning by highlighting the role of interactive technologies. The findings offer practical implications for the design of learner-centered modules and provide directions for future research on the integration of interactive technologies in primary-level English education.

Keywords: need analysis, interactive technology, English speaking skills, fifth-grade pupils

INTRODUCTION

Oral English proficiency is fundamental in young learners' foreign language development, as it provides the basis for communicative competence and confidence (Cameron 2001). Yet primary school students often struggle with limited vocabulary, weak pronunciation, and low fluency, compounded by affective barriers such as shyness and fear of mistakes (Leong and Ahmadi 2017). Addressing these challenges requires a systematic understanding of learners' needs in order to inform more effective instruction.

Needs analysis provides a useful framework for this purpose. It is an essential step in foreign language curriculum design. According to Nunan (1988), it serves as the foundation for designing a syllabus or curriculum. Conducting a thorough needs analysis is essential for creating a targeted course that addresses the requirements of various stakeholders, such as learners, educational institutions, and employers. A well-executed and systematic needs analysis enhances the effectiveness of language instruction and supports the achievement of predetermined learning objectives. While this approach has been widely applied in adult and tertiary contexts (Long 2015), research on young learners in primary schools remains limited, despite their distinct developmental and motivational characteristics.

At the same time, interactive technologies are creating new opportunities to support oral language development. Interactive technologies in the context of online education refer to digital tools and platforms that facilitate the active participation of students in the learning process (Ryan et al. 2022； Guaña-Moya et al. 2024). These may include virtual simulations, educational games, real-time discussion forums, and interactive response systems, among others. In the context of this study, interactive technologies focus on the features and functions that afforded by educational platforms or digital tools.

Tools such as breakout rooms, interactive whiteboards, multimedia resources, and AI chatbots can provide scaffolding, reduce speaking anxiety, and enhance engagement (Chen et al. 2025; He et al. 2024). However, little is known about how primary school learners perceive such technologies in relation to their oral English needs.

This study addresses this gap by investigating the oral English needs of Grade 5 students, a representative group of primary learners. Using a mixed-methods design combining questionnaires and interviews, the research identifies learners' target and learning needs while examining their perceptions of interactive technologies. The findings aim to contribute to a clearer understanding of young learners' needs and provide practical implications for designing learner-centered, technology-enhanced oral English instruction.

LITERATURE REVIEW

Needs Analysis in Language Education

Needs analysis (NA) has long been recognized as a cornerstone of curriculum development and materials design in applied linguistics, it provides a systematic bridge between learners' current abilities and instructional design. Hutchinson and Waters' (1987) two concepts of needs: "target needs" and "learning needs", are preferred and frequently cited by Chinese researchers. "Target needs" refers to the learner's "necessities", "lacks" and "wants" for functioning effectively in the target situation; while "learning needs" concerns about the learner's motivation and attitudes, interests, personal reasons for learning, learning styles, resources and time available. Long (2005) further emphasized that needs analysis is not a peripheral step but a central process in establishing learner-centered syllabus.

While the majority of earlier needs analysis studies concentrated on English for Specific Purposes (ESP), more recent research has applied the approach to general EFL contexts, especially in relation to oral proficiency. Studies in various contexts confirm that speaking remains one of the most demanded yet underdeveloped skills across learner populations (Chostelidou 2010; Nguyen and Boers 2019). However, research focusing on young learners remains limited, despite increasing recognition that early oral development is crucial for building confidence and communicative competence in later learning stages (Butler 2018).

Interactive Technology in Language Learning

The rapid integration of interactive technology into education has reshaped how language learning is conceptualized and practiced. Interactive technology can be broadly defined as digital tools and platforms that enable reciprocal engagement between learners, teachers, peers, content, and intelligent systems (Godwin-Jones 2019; Stockwell 2022). The theoretical foundation of this concept can be traced to Moore's (1989) typology of interaction (learner–teacher, learner–learner, learner–content), later expanded by Anderson (2003) to include learner–computer interaction, acknowledging the growing influence of digital environments.

In language education, interactive technology is not valued solely for delivering input, but for creating dialogic opportunities that foster engagement, motivation, and authentic use of language (Chapelle 2003; Wang and Vásquez 2012). More recent studies emphasize that technologies operationalize interactivity through concrete functions such as online breakout rooms, interactive whiteboards, intelligent chatbots, and multimedia resources (Domagk et al. 2010; Aldhafiri 2020).). These affordances allow learners to participate actively rather than passively consume content, thereby strengthening both cognitive and affective dimensions of language learning. Empirical findings from the last five years further confirm that such technologies, when used purposefully, can reduce speaking anxiety, promote collaborative dialogue, and extend oral practice beyond classroom constraints (Yu et al. 2024; Selfa-Sastre et al. 2022).

Interactive Technologies for Young Learners' Speaking Development

Building on these insights, recent research has examined specific interactive technologies that support speaking development. Breakout rooms, widely implemented in synchronous online platforms, facilitate peer-to-peer interaction, small-group discussions, and role-play activities, which are essential for meaning negotiation and

fluency practice (Bárkányi and Brash 2025; Macur 2024). Interactive whiteboards enhance teacher–student engagement, student–student and student–tool interactions by enabling real-time annotation, visual scaffolding, and oral feedback, making them particularly suitable for younger learners who rely on multimodal support (Cutrim Schmid and Whyte 2012; Bui 2023). AI chatbots have recently attracted increasing attention: studies indicate that they provide a low-anxiety environment for oral practice, immediate corrective feedback, and personalized interaction, significantly boosting learners' willingness to communicate (Fryer and Carpenter 2006; Godwin-Jones 2019;). Finally, interactive multimedia resources such as videos, animations, and gamified tasks integrate input and output, sustaining learners' engagement, motivation and offering contextualized opportunities to practice speaking (Mayer 2013; Qiao et al. 2025).

Despite these promising developments, most existing studies focus on adult learners or university students, leaving the perspectives of primary school learners underexplored. However, younger learners have their distinctive developmental characteristics: shorter attention spans, reliance on scaffolding, and high affective sensitivity (Butler 2018). This gap highlights the need for systematic needs analysis that foregrounds children's voices in evaluating how interactive technologies can best support their English speaking development.

Theoretical Framework

This study is informed by two complementary frameworks: needs analysis and interaction theory.

Needs Analysis (NA). Hutchinson and Waters (1987) distinguished between target needs (What the learner needs to do in the target) and learning needs (What the learner needs to do in order to learn). While most needs analysis has focused on adult or tertiary learners (Long 2015), the research highlights that young learners possess unique linguistic and affective characteristics that influence their language learning (Butler 2015). Applying this framework to primary students allows for a systematic examination of both their linguistic priorities and their preferred learning conditions.

Interaction Theory. Moore (1989) identified three core interaction types: learner-teacher, learner-learner, and learner-content, later expanded by Anderson (2003) to include learner-computer interaction. This typology provides a lens for interpreting interactive technologies in this study: breakout rooms (learner-learner), interactive whiteboards (learner-teacher/content), multimedia resources (learner-content), and AI chatbots (learner-computer).

Taken together, these frameworks clarify both what learners need and how interactive technologies can meet those needs through different forms of interaction. This dual perspective underpins the study's design and analysis.

METHODOLOGY

This study employed a mixed-methods research design (Creswell and Plano Clark 2018), integrating a questionnaire survey with semi-structured interviews to investigate Grade 5 students' needs for English speaking development especially their preferences for interactive technologies. The mixed approach enabled both a broad overview and an in-depth understanding of learners' perspectives, with triangulation enhancing validity (Denzin 2017).

Sample

The participants of this study were 109 Grade 5 students enrolled in a public primary school in Heze city, China. The students were between 11 and 12 years old, representing a typical age range for this grade level. Among the participants, 52 were boys (47.7%) and 57 were girls (52.3%). All students had studied English as a foreign language for at least 3 years through the national curriculum and had similar exposure to English instruction in formal classroom settings. None of the participants reported having lived in an English-speaking country, and opportunities for authentic English communication outside school were limited. In addition, 10 students were interviewed to provide insights into the pedagogical feasibility of technology integration.

Instruments

The questionnaire was adapted from Andi and Arafah (2017). The questionnaire includes 18 questions in total and comprised five main sections: Background Information, Abilities, Problems, Priorities, and Attitudes. Items used a four-point Likert scale. Expert review and piloting established clarity and reliability.

Interviews were conducted with 10 students, addressing experiences and attitudes toward interactive technologies, and classroom challenges focusing on breakout rooms, interactive whiteboards, AI chatbots, and interactive multimedia. Interviews were held in Chinese, transcribed, and thematically analyzed (Braun and Clarke, 2006).

Data Collection and Analysis

The quantitative phase involved the administration of a three-section questionnaire to the entire sample (N=109). The data collected were processed and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0. The analysis focused primarily on descriptive statistics, including means (M) and standard deviations (SD), to delineate central tendencies and variability in the participants' responses across different constructs.

Following the quantitative phase, a qualitative strand was implemented. Semi-structured interviews were conducted with a purposively selected sub-sample (n=10) to elucidate the quantitative findings. The interviews were transcribed verbatim and subjected to a thematic analysis (Braun and Clarke 2006). The analysis was inductive, allowing themes to emerge from the data rather than being imposed by pre-existing categories. This process ensured that the results reflected the participants' authentic perspectives and experiences.

RESULTS

The results obtained from data analysis outlined the learners' needs that served as the foundation for the development of the teaching materials. In parallel, qualitative analysis of interview data was conducted to provide interpretative depth and critical discussion on interactive technologies.

Demographic Profiles

Respondents' demographic details are provided in Table 1. A total of 109 primary school students participated in the study. As presented in Table 1, 52 participants (47.7%) were male and 57 (52.3%) were female, indicating a relatively balanced gender distribution. In terms of age, 54 students (49.5%) were 11 years old, and 55 students (50.5%) were 12 years old.

Table 1 Demographic Information of the Participants

	Frequency	Percentage (%)
Gender		
Male	52	47.7%
Female	57	52.3%
Total	109	
Age		
11	54	49.5%
12	55	50.5%
Total	109	

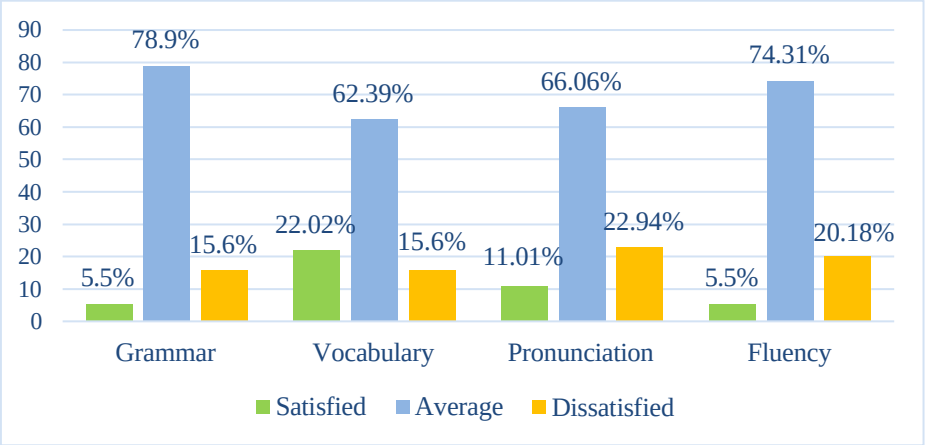
All participants had been learning English since Grade 3 and therefore had approximately three years of English learning experience. This suggests that the students had already developed a basic level of language proficiency suitable for engaging in English-speaking tasks. In addition, all participants reported that they had used interactive in their English learning. This indicates that the students were familiar with technology-assisted learning environments, which provided a consistent foundation for further analysis of English-speaking performance and the use of interactive technology.

Learning Abilities

As illustrated in Figure 1, the majority of students rated their oral English abilities as only average. Across all four dimensions, more than 70% of respondents selected "average," while fewer than one quarter expressed satisfaction. In particular, only 5.5% of students reported being satisfied with their grammar and fluency, and just 11.01% indicated satisfaction with pronunciation. Vocabulary received relatively higher positive responses (22.02%), yet nearly two-thirds (62.39%) still considered their vocabulary knowledge to be merely average.

At the same time, notable proportions of students expressed dissatisfaction, especially with pronunciation **(**22.94%**)** and fluency (20.18%). Taken together, these distributions highlight a general lack of confidence across all ability areas, with vocabulary standing out as the most urgent concern and fluency and pronunciation as the areas with the highest levels of dissatisfaction.

Figure 1 Student's Self-assessed Oral English Abilities



Learning Problem

Students reported multiple difficulties in oral English learning (see Table 1). All problems received mean scores above 3.0 on the four-point scale, indicating that they were generally perceived as important obstacles. Among linguistic challenges, vocabulary shortage emerged as the most salient (M = 3.22, SD = 0.53), while pronunciation difficulties were rated slightly lower (M = 3.04, SD = 0.45). Affective constraints were also prominent, with students highlighting fear of criticism (M = 3.12, SD = 0.60) and use of the native language (M = 3.11, SD = 0.63). Overall, the results reveal that both linguistic limitations and psychological barriers contribute significantly to learners' target needs in speaking English.

Table 2 The Perceptions of the Students' Learning Problems

Problems	M	SD
Shyness	3.01	0.62
Fear of making mistakes	3.03	0.59
Afraid to be criticized	3.12	0.60

Using native language	3.11	0.63
Lack of vocabulary	3.22	0.53
Bad grammar	3.13	0.55
Bad pronunciation	3.04	0.45
Limited topic knowledge	3.06	0.55

The findings regarding students' target needs revealed clear gaps in vocabulary, fluency, and confidence, as well as persistent affective barriers such as shyness and fear of mistakes. These limitations indicate not only what learners need to improve, but also highlight the kinds of support that might facilitate their progress. To better understand how such support could be provided, the survey further explored students' learning needs**,** focusing on their preferred learning styles and attitudes toward interactive technologies. The following section presents these results.

Learning Style

As shown in Table 2, students demonstrated a clear preference for communicative and collaborative learning styles. Talking in pairs received the highest rating (M = 3.54, SD = 0.52), followed by role play (M = 3.42, SD = 0.58) and talking to native speakers (M = 3.41, SD = 0.60). Similarly, talking to friends in English was valued positively (M = 3.37, SD = 0.57). Together, these findings suggest that learners favor opportunities for authentic or semi-authentic communication in supportive contexts.

By contrast, less interactive options were rated lower. Games received the lowest score (M = 2.83, SD = 0.88), with relatively high variability, indicating mixed attitudes among students. Studying alone (M = 3.12, SD = 0.71) and large-group activities (M = 3.16, SD = 0.71) also ranked lower, suggesting that highly individualized or large-scale formats are less preferred.

Table 3 The Students' Learning Style Preferences:

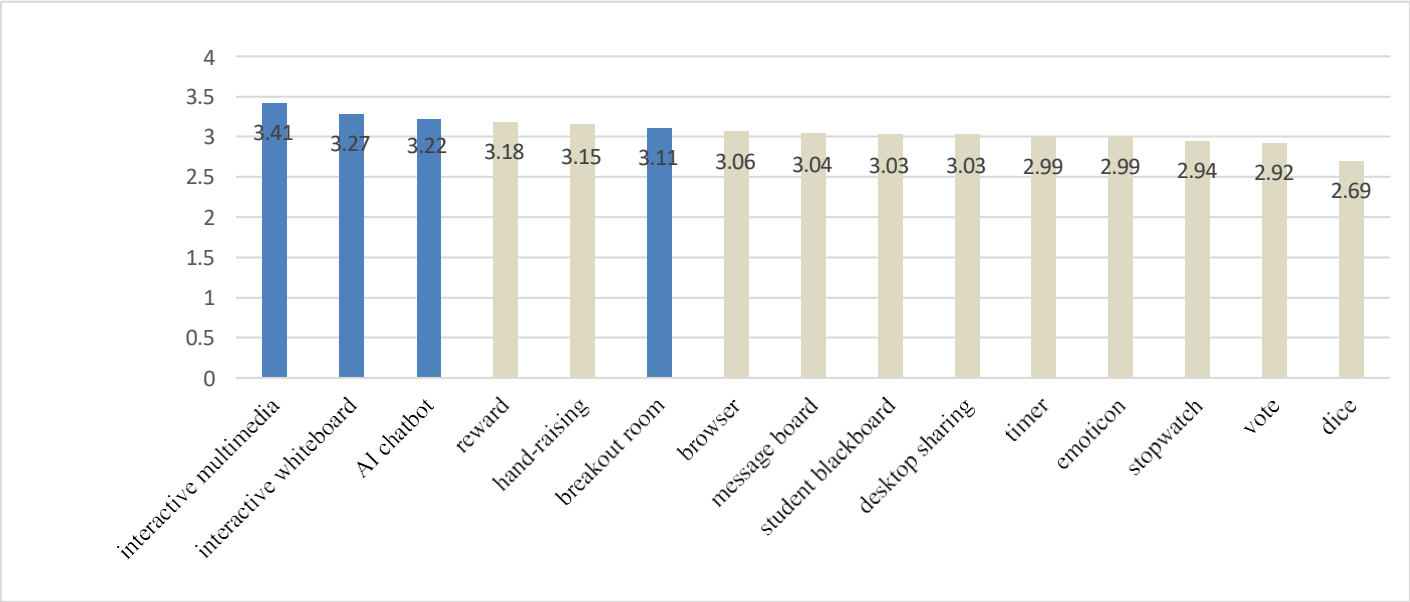
Learning style preference	M	SD
Games	2.83	0.88
Pictures	3.17	0.57
Film & video	3.26	0.57
Talking in pairs	3.54	0.52
Role play	3.42	0.58
Studying alone	3.12	0.71
Doing tasks	3.26	0.66
Small group	3.29	0.63
Large group	3.16	0.71
Talk to native speakers	3.41	0.60
Talk to friends in English	3.37	0.57

Overall, the results highlight that learners' learning needs are best met through interactive, small-scale, and communicative approaches rather than solitary or less structured activities.

Interactive Technology Preference

Mean scores were based on a 4-point Likert scale (1 = not important, 4 = very important). Descriptive analysis of student perceptions revealed clear preferences among the interactive technologies. As shown in Figure 2, interactive multimedia resources (M = 3.20) and AI chatbots (M = 3.18) were rated as most important for supporting speaking practice. Students valued multimedia for its engaging input and chatbots for providing low-stakes practice. Breakout rooms and interactive whiteboards were also perceived favorably (both M = 3.10), underscoring the value placed on peer interaction and visual scaffolding. In contrast, ancillary tools like timers (M = 2.88), emojis (M = 2.78), and dice-rolling functions (M = 2.69) were considered less critical.

Figure 2 Students' Interactive Technology Preference



Overall, students prioritized technologies that offer direct, supportive, and authentic speaking opportunities over those with purely gamified or structural functions.

While the survey data identified overall patterns in students' target and learning needs, they did not fully explain the reasons behind these preferences. To complement the quantitative findings, qualitative interviews were conducted, providing richer insights and illustrative examples of learners' experiences.

Views on Interactive Technologies

Thematic analysis of the ten student interviews identified four recurrent themes concerning their needs in oral English learning and their perceptions of interactive technologies. The themes include (1) anxiety and the preference for low-stakes practice, (2) reliance on teacher scaffolding and visual support, (3) engagement through multimedia, and (4) opportunities for personalized practice with AI chatbots. (5) challenges in using interactive technologies. Each theme is presented below with illustrative excerpts from students' accounts.

Theme 1: Anxiety and the preference for low-stakes practice

Among the ten students interviewed, seven reported feeling anxious when speaking in front of the whole class, describing experiences of nervousness, hesitation, or self-consciousness. For instance, one participant noted, *"I feel nervous when I have to talk in front of everyone. My voice gets smaller"* (Student 3). Another student explained that they sometimes avoided participation *"because I'm afraid of saying the wrong word"* (Student 6). In contrast, eight students expressed greater ease and willingness to speak in smaller or less public settings. As one student commented, *"In small groups I talk more, because it's not so scary"* (Student 7).

These findings indicate that speaking anxiety is a common barrier to oral participation. Students clearly perceive low-stakes and small-group contexts such as breakout rooms as safer and more supportive spaces for language practice, where fear of negative evaluation is reduced. This finding is consistent with previous research highlighting the importance of psychological safety in promoting second language communication (e.g., MacIntyre & Gardner, 1991； Hu, Zhang, & McGeown, 2021).

Theme 2: Reliance on teacher scaffolding and visual support

All ten students acknowledged the importance of teacher guidance in facilitating their oral English performance. Eight students specifically mentioned that visual prompts and written support on the interactive whiteboard made speaking tasks clearer and more manageable. As one student explained, *"When the teacher writes the words on the board, I can say them more easily"* (Student 2). Another commented that *"Pictures on the screen help me remember what to say"* (Student 5), while a third noted, *"If the teacher shows examples, then I know how to answer"* (Student 10).

These comments suggest that although students are open to using digital tools for oral practice, they still rely heavily on teacher-led scaffolding to structure and support their speaking attempts. Recent research in the Chinese EFL primary context confirms the centrality of teacher support in scaffolding young learners' oral participation (Li, 2021) and shows that teachers perceive multimedia and visual prompts as effective tools for improving students' English-speaking abilities (Ning et al., 2024). Together, these findings highlight the importance of combining technological affordances with explicit teacher mediation to create supportive, comprehensible, and confidence-building learning environments for young EFL learners.

Theme 3: Engagement through multimedia resources

Most students expressed strong interest in the use of multimedia resources such as videos, animations, and games during English lessons. Nine out of ten learners reported that these materials not only captured their attention but also made them more eager to speak in class. As one participant stated, *"I like watching the videos first. Then I feel ready to talk"* (Student 1). Another commented, *"The games are fun, and I want to try speaking when we play"* (Student 9), while a third added, *"Animations help me understand the story, and then I can talk about it"* (Student 6).

These reflections indicate that multimedia tools can effectively lower students' affective barriers and foster a sense of enjoyment that encourages oral participation. Similar findings have been reported in recent studies showing that animation, picture-book, and game-based learning can enhance engagement and motivation among Chinese primary EFL learners by providing rich, meaningful input and a low-anxiety environment (Chen et al., 2021; Lin, 2023). Such evidence highlights the pedagogical value of integrating interactive and visually appealing multimedia resources to stimulate young learners' willingness to communicate.

Theme 4: AI chatbots as supportive speaking partners

Several students described AI chatbots as helpful tools for practicing speaking in a low-pressure setting. They appreciated the chatbot's non-judgmental nature and immediate pronunciation feedback, which encouraged them to take more risks in speaking. As Student 4 explained, *"the robot doesn't laugh when I make mistakes, so I feel okay to try."* Similarly, Student 8 shared, *"it tells me the right way to say the word, and I can practice again."* Repetition was also valued, as Student 2 remarked, *"I like talking to the robot because I can practice many times."*

These reflections indicate that chatbots were perceived as both emotionally supportive and cognitively beneficial, allowing students to engage in individualized and repeated oral practice without the social pressure of classroom speaking. This finding is consistent with Atan et al. (2025)**,** whose study of the *LEARN* chatbot demonstrated significant improvements in primary students' pronunciation, fluency, and confidence through safe, interactive AI-assisted practice. Furthermore, a systematic review by Wiboolyasarin et al. (2025) concluded that AI-driven chatbots can effectively reduce speaking anxiety, enhance learners' willingness to communicate, and foster autonomous speaking practice across various educational contexts. Together, these findings reinforce the

potential of AI chatbots to complement traditional classroom instruction by creating psychologically safe and flexible environments for oral language development among young EFL learners.

Theme 5: Challenges in using interactive technologies

Although students generally expressed positive attitudes toward technology-enhanced speaking activities, they also encountered several challenges that affected their participation and learning experience. In breakout rooms, for instance, interaction was not always consistent. As Student 4 observed, *"Sometimes in the breakout room, nobody talks, and I don't know how to continue."* This highlights the need for clearer task guidance and teacher monitoring to sustain peer interaction in digital spaces.

Technical limitations also created barriers. Student 8 remarked, *"When the internet is slow, the pictures on the board don't show clearly,"* suggesting that unstable connectivity can disrupt the visual scaffolding provided by interactive whiteboards. Similarly, some learners experienced comprehension difficulties when engaging with AI chatbots. As Student 6 explained, *"The chatbot sometimes says things I don't understand, so I feel confused."* This indicates that while chatbots offer valuable speaking opportunities, their language output may occasionally exceed learners' proficiency level.

Finally, the stimulating nature of multimedia activities was at times counterproductive. Student 9 commented, *"When there are too many videos, I just want to watch but not speak."* Such responses imply that excessive visual input may shift students' focus from active production to passive consumption.

Across the ten interviews, students emphasized the need for learning environments that reduce anxiety, provide teacher scaffolding, and sustain motivation through engaging materials. While traditional support mechanisms such as teacher-led guidance remain vital, learners also expressed enthusiasm for interactive technologies, particularly multimedia resources and AI chatbots, which were seen as valuable tools for building confidence and practicing speaking in flexible ways.

DISCUSSION

The current study reveals that Grade 5 learners perceive notable weaknesses in their oral English, especially in vocabulary, fluency, and pronunciation, compounded by affective barriers such as anxiety and fear of making mistakes. Concurrently, students express strong preferences for interactive, supportive learning experiences: pair work, small group tasks, role play, and technologically mediated interaction. Qualitative findings deepen this understanding, showing that tools like breakout rooms, interactive whiteboards, multimedia, and AI chatbots are valued for lowering speaking tension, enhancing motivation, and scaffolding learning, albeit with challenges such as technical hiccups, silence in group work, and occasional distractions.

From a pedagogical perspective, these results suggest several implications. First, integrating interactive technologies into speaking modules should be done with attention to affective factors: for instance, providing low-pressure speaking environments and clear guidance during group work. Second, technologies especially AI chatbots and multimedia should be tailored to be age-appropriate, easy to understand, and used in moderation to avoid cognitive overload. Third, teacher training will be critical: instructors must know not just which technologies to use but how to facilitate their use effectively.

This study has several limitations. The sample was restricted to Grade 5 students, which limits the generalizability of the findings. Future studies should include larger and more diverse groups of learners. In addition, the data were based on self-reported questionnaires and interviews, which may not fully capture actual oral performance; observational or performance-based assessments are recommended to complement perceptions. Finally, the study focused on four interactive technologies, leaving out other tools such as virtual reality that may also support speaking development.

Further research could adopt longitudinal designs to trace changes in learners' needs over time and compare the effectiveness of online, blended, and face-to-face modules. Including teacher perspectives would also provide valuable insights into the pedagogical feasibility of technology integration at the primary level.

CONCLUSSION

This study examined the Grade 5 students's needs in English speaking skills learning and their perceptions of interactive technologies. The findings from both quantitative and qualitative data highlighted clear target needs**,** with learners identifying vocabulary, fluency, grammar and pronunciation as their main areas of weakness, alongside strong affective barriers such as shyness and fear of mistakes. At the same time, students demonstrated distinct learning needs, expressing preferences for interactive and communicative activities supported by technology. Breakout rooms, interactive whiteboards, multimedia, and AI chatbots were valued for enhancing confidence, engagement, and motivation, though challenges such as technical issues, limited participation, and distraction were also reported.

By integrating learners' target and learning needs (Hutchinson and Waters 1987) with the interaction opportunities afforded by technology (Moore 1989; Anderson 2003), the study demonstrates how interactive tools can support both linguistic development and affective engagement in primary English speaking learning. Ultimately, the study offers practical evidence to inform the design of learner-centered modules and provides a foundation for future research on the effective integration of interactive technologies in primary English education.

REFERENCES

1. Anderson, T. (2003). Modes of interaction in distance education: Recent developments and research questions. In M. G. Moore (Ed.), Handbook of distance education (pp. 129–144). Mahwah, NJ: Erlbaum.
2. Andi, K., & Arafah, B. (2017). Using needs analysis to develop English teaching materials in initial speaking skills for Indonesian college students of English. The Turkish Online Journal of Design, Art and Communication (TOJDAC), Special Edition 6(9), 419–436. doi: https://doi.org/10.7456/1070ASE/045
3. Atan, S., Aw, G. P., Anwar, K., Sundararaj, D., Ravi, D. K., Lim, K. Y., & Muhammad Hidir Mohd Ezat. (2025). Enhancing primary students' oral proficiency with AI-powered chatbots: Introducing LEARN. International Journal of Environmental Sciences, 11(15 s), 571–580. https://doi.org/10.64252/hj2dkw44
4. Bárkányi, Z., & Brash, B. (2025). Foreign language speaking anxiety online: Mitigating strategies and speaking practices. ReCALL, 1–20.doi: https://doi.org/10.1017/S0958344025000060
5. Basturkmen, H. (2010). Developing courses in English for specific purposes. Basingstoke, UK: Palgrave Macmillan. doi: https://doi.org/10.1057/9780230290518
6. Bui, N. B. T. (2023). Interactive whiteboards in primary schools: A Vietnamese language arts classroom with a quasi-experimental study. Asia Pacific Education Review, 24(4), 647–657. Doi: https://doi.org/10.1007/s12564-023-09860-2
7. Butler, Y. G. (2015). English language education among young learners in East Asia: A review of current research (2004–2014). Language Teaching, 48(3), 303–342. doi: https://doi.org/10.1017/S0261444815000105
8. Butler, Y. G. (2018). The role of context in young learners' processes for responding to self-assessment items. The Modern Language Journal, 102(1), 242–261. doi: https://doi.org/10.1111/modl.12459
9. Cameron, L. (2001). Teaching languages to young learners. Cambridge, UK: Cambridge University Press. doi: https://doi.org/10.1017/CBO9780511733109
10. Chapelle, C. (2003). The changing world of English language teaching. In English Language Learning and Technology: Lectures on applied linguistics in the age of information and communication technology (pp. 1-33). John Benjamins Publishing Company. https://doi.org/10.1075/lllt.7.02the
11. Chen, F.-Z., Chen, L.-A., Tseng, C.-C., Pai, C.-H., Tsai, K.-E., Liang, E.-C., & Chen, C.-W. (2025). Enhancing student engagement and learning outcomes in life sciences: Implementing interactive learning environments and flipped classroom models. Discover Education, 4(1), 102. https://doi.org/10.1007/s44217-025-00501-x
12. Chen, J., Yang, S., & Mei, B. (2021). Towards the sustainable development of digital educational games for primary school students in China. Sustainability, 13(14), 7919. https://doi.org/10.3390/su13147919

13. Chostelidou, D. (2010). A needs analysis approach to ESP syllabus design in Greek tertiary education: A descriptive account of students' needs. Procedia - Social and Behavioral Sciences, 2(2), 4507–4512. https://doi.org/10.1016/j.sbspro.2010.03.721
14. Creswell, J. W., & Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). Thousand Oaks, CA: Sage.
15. Cutrim Schmid, E., & Whyte, S. (2012). Interactive whiteboards in state school settings: Teacher responses to socio-constructivist hegemonies. Language Learning & Technology, 16(2), 65–86. https://doi.org/10.64152/10125/44287
16. Denzin, N. K. (2017). The research act: A theoretical introduction to sociological methods. New York, NY: Routledge. https://doi.org/10.4324/9781315134543
17. Dhafiri, M. D. A. (2020). The effectiveness of using interactive white boards in improving the Arabic listening skills of undergraduates majoring in Arabic language at Kuwaiti universities. Education and Information Technologies, 25(5), 3577–3591. https://doi.org/10.1007/s10639-020-10107-5
18. Domagk, S., Schwartz, R. N., & Plass, J. L. (2010). Interactivity in multimedia learning: An integrated model. Computers in Human Behavior, 26(5), 1024–1033. https://psycnet.apa.org/doi/10.1016/j.chb.2010.03.003
19. Fryer, L., & Carpenter, R. (2006). Emerging technologies: Bots as language learning tools. Language Learning & Technology, 10(3), 8–14. https://doi.org/10.64152/10125/44068
20. Godwin-Jones, R. (2019). In a world of SMART technology, why learn another language? Journal of Educational Technology & Society, 22(2), 4–13. https://www.jstor.org/stable/26819613
21. Guaña-Moya, J., Arteaga-Alcívar, Y., Criollo-C, S., & Cajamarca-Carrazco, D. (2024). Use of interactive technologies to increase motivation in university online courses. Education Sciences, 14(12), 1406. https://doi.org/10.3390/educsci14121406
22. He, R., Xu, W., Dong, D., & Yu, Z. (2024). A meta-analysis of the effect of interactive technologies on language education. International Journal of Adult Education and Technology (IJAET), 15(1), 1–28. https://doi.org/10.4018/IJAET.340933
23. Hu, X., Zhang, L. J., & McGeown, S. P. (2021). Foreign language anxiety and achievement: The case of Chinese primary school students learning English. Language Teaching Research, 25(5), 688–707. https://doi.org/10.1177/1362168820938811
24. Hutchinson, T., & Waters, A. (1987). English for specific purposes: A learning-centred approach. Cambridge, UK: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511733031
25. Leong, L.-M., & Ahmadi, S. M. (2017). An analysis of factors influencing learners' English speaking skills. International Journal of Research in English Education, 34–41. https://doi.org/10.18869/acadpub.ijree.2.1.34
26. Li, W., & Zou, W. (2021). Exploring Primary-School EFL Teacher Expertise in Scaffolding: A Comparative Study. Sage Open, 11(4). https://doi.org/10.1177/21582440211061574 (Original work published 2021)
27. Lin, Z. (2023). A study on the effects of multimedia on children's second language acquisition — Take children's song, picture book, and animation as examples. Lecture Notes in Education Psychology and Public Media, 18, 216–221. https://doi.org/10.54254/2753-7048/18/20231322
28. Long, M. H. (2005). Second language needs analysis. Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9780511667299
29. Long, M. H. (2015). Second language acquisition and task-based language teaching. Malden, MA: Wiley-Blackwell.
30. MacIntyre, P. D., & Gardner, R. C. (1991). Methods and results in the study of anxiety and language learning: A review of the literature. Language Learning, 41(1), 85–117. https://doi.org/10.1111/j.1467-1770.1991.tb00677.x
31. Macur, G. M. A. (2024). Teacher perspectives on breakout rooms in online education in a K–12 bilingual school in China. Journal of Education and Educational Development, 11(1), 7–24. http://dx.doi.org/10.22555/joeed.v11i1.931
32. Mayer, R. E. (2013). Multimedia instruction. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), Handbook of research on educational communications and technology (pp. 385–399). New York, NY: Springer. https://doi.org/10.1007/978-1-4614-3185-5_31

33. Moore, M. G. (1989). Editorial: Three types of interaction. American Journal of Distance Education, 3(2), 1–7. https://doi.org/10.1080/08923648909526659
34. Nguyen, H., & Boers, F. (2019). The effect of content retelling on vocabulary acquisition from a TED talk. TESOL Quarterly, 53(1), 5–28. https://doi.org/10.1002/tesq.441
35. Ning, P., DeWitt, D., Chin, H.-L., Li, Y., & Liu, G. (2024). Chinese primary school teachers' perceptions of social media-based microlearning for improving students' English-speaking abilities. Journal of Information Technology Education: Research, 23, Article 9. https://doi.org/10.28945/5282
36. Qiao, S., Chu, S. K. W., & Yeung, S. S. S. (2025). Understanding how gamification of English morphological analysis in a blended learning environment influences students' engagement and reading comprehension. Computer Assisted Language Learning, 38(4), 831–864. https://doi.org/10.1080/09588221.2023.2230273
37. Ryan, G. V., Callaghan, S., Rafferty, A., Higgins, M. F., Mangina, E., & McAuliffe, F. (2022). Learning outcomes of immersive technologies in health care student education: Systematic review of the literature. Journal of Medical Internet Research, 24(2), e30082. https://doi.org/10.2196/30082
38. Selfa-Sastre, M., Pifarre, M., Cujba, A., Cutillas, L., & Falguera, E. (2022). The role of digital technologies to promote collaborative creativity in language education. Frontiers in Psychology, 13, 828981. https://doi.org/10.3389/fpsyg.2022.828981
39. Stockwell, G. (2022). Mobile-assisted language learning: Concepts, contexts, and challenges. Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/9781108652087
40. Wang, S., & Vásquez, C. (2012). Web 2.0 and second language learning: What does the research tell us? CALICO Journal, 29(3), 412–430.
41. Wiboolyasarin, W., Wiboolyasarin, K., Tiranant, P., Jinowat, N., & Boonyakitanont, P. (2025). AI-driven chatbots in second language education: A systematic review of their efficacy and pedagogical implications. Ampersand, 14, Article 100224. https://doi.org/10.1016/j.amper.2025.100224
42. Yu, S., Zhang, E. D., & Liu, C. (2024). Research into practice: Digital multimodal composition in second language writing. Language Teaching, 1–17.