

Exploring the Role of Technology Integration and Classroom Atmosphere in Developing Students' Speaking Skills

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Abstract

This study explored how technology integration and classroom atmosphere contribute to students' speaking development in an English as a Foreign Language (EFL) context. Employing a qualitative approach with a case study design, the study involved 11 fourth-semester students from the English Education Department at Universitas Muhammadiyah Tangerang. Data were collected through classroom observations and a ten-item yes/no questionnaire. The findings indicate that students perceived technology as useful for speaking practice. All participants reported that technology helped improve pronunciation, provided speaking models, and made practice more varied. Most students also reported greater motivation and confidence. Regarding classroom atmosphere, 72.7% stated that a friendly classroom reduced their fear of making mistakes, while 90.9% reported that a comfortable classroom helped them speak with fewer worries. Classroom observations showed that students were more engaged when lecturers created relaxed, interactive, and supportive learning environments, although participation remained uneven. The findings suggest that technology integration and classroom atmosphere can function as complementary factors in supporting speaking learning. The study implies that speaking instruction should combine digital resources with supportive classroom practices to create more varied and comfortable opportunities for English speaking practice.

Keywords: *classroom atmosphere; speaking skill; students' perceptions; technology integration*

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INTRODUCTION

Speaking is a fundamental skill in English as a Foreign Language (EFL) learning because it enables learners to communicate their thoughts, emotions, and ideas effectively in diverse contexts. As a productive skill, speaking requires learners to use language spontaneously and meaningfully while demonstrating several interrelated components, including fluency, accuracy, pronunciation, and interaction (Brown, 2001; Goh & Burns, 2012). However, speaking is often considered challenging for EFL learners because it requires the real-time production of language and involves both linguistic and psychological demands (Al Hosni, 2014). Learners may experience difficulties related to limited

vocabulary, lack of confidence, and anxiety about making mistakes. Therefore, identifying learning conditions that can support students' willingness and ability to engage in speaking activities is important.

One factor that has increasingly shaped EFL learning is technology integration. The development of digital tools and platforms has provided learners with new opportunities to access English input and practice speaking in flexible and interactive ways. Conversation applications, video-based platforms, voice recording tools, and other digital learning media can provide learners with opportunities to encounter diverse speaking models and practice language beyond conventional classroom activities. Warschauer and Meskill (2000) argue that technology can enhance learner motivation and participation by providing more authentic learning experiences. Similarly, Gilakjani and Sabouri (2014) emphasize that digital resources expose learners to varied oral input, which can support pronunciation and intonation development. Mobile-assisted language learning can also provide opportunities for language practice across different times and locations, thereby supporting learner autonomy (Kukulska-Hulme & Shield, 2008). More recently, Herwanis et al. (2025) found that digital learning media can increase student engagement and reduce language anxiety in speaking learning. These findings indicate that technology can provide both linguistic input and additional opportunities for students to practice oral English.

However, access to technology alone may not be sufficient to encourage students to participate actively in speaking activities. The classroom atmosphere is another important factor that can shape students' willingness to communicate. A supportive, interactive, and low-anxiety learning environment can provide students with a greater sense of psychological safety and encourage them to take risks when using a foreign language. Harmer (2007) explains that a low-anxiety classroom can encourage learners to take linguistic risks, which are important for developing speaking proficiency. Similarly, Nang (2023) found that collaborative and communicative environments, including group discussions and other forms of peer interaction, can increase students' confidence and reduce their fear of making mistakes. The lecturer also plays an important role in creating a conducive classroom atmosphere. Arjulayana (2023) emphasizes the importance of motivating students and employing engaging teaching strategies to encourage speaking participation. Thus, supportive teacher-student relationships, varied activities, and opportunities for interaction can contribute to a classroom environment in which students feel more comfortable using English.

Technology integration and classroom atmosphere can therefore be viewed as complementary rather than entirely separate factors in speaking instruction. Technology can expand students' access to language input and provide flexible opportunities for practice, whereas a supportive classroom environment can encourage students to actively use those opportunities. Kessler (2018) notes that technology-mediated communication can support learner autonomy, while supportive peers and instructors provide meaningful social interaction. In a similar vein, Arjulayana (2021) highlights the potential of collaborative and technology-supported learning environments to enhance students' participation and engagement. The combination of digital resources, interaction, and supportive classroom conditions may consequently provide students with more varied and less threatening opportunities to practice speaking.

Although previous studies have demonstrated the value of technology for speaking development and have separately highlighted the importance of supportive classroom environments, there remains a need to examine how these two factors operate together in the context of speaking instruction. Technology may provide opportunities for language exposure and practice, but students' willingness to use those opportunities may also depend on the emotional and social conditions of the

classroom. Examining students' experiences and perceptions of both factors can therefore provide a more contextualized understanding of speaking instruction in contemporary EFL classrooms.

Based on this consideration, the present study explores how technology integration and classroom atmosphere contribute to the development of students' speaking skills in an EFL context. Specifically, the study examines students' perceptions and classroom experiences related to the use of technology and the learning environment during speaking instruction. The findings are expected to provide insights into how digital resources and supportive classroom conditions can be integrated to create more engaging and supportive opportunities for EFL speaking practice.

RESEARCH METHOD

This study employed a qualitative approach with a case study design to explore how technology integration and classroom atmosphere contribute to the development of students' speaking skills in the context of English as a Foreign Language (EFL) learning. The study focused on understanding students' experiences and perceptions regarding technology use and classroom conditions during speaking instruction.

Participants

The participants were 11 fourth-semester students enrolled in the English Education Department, Faculty of Teacher Training and Education, Universitas Muhammadiyah Tangerang. They were selected through purposive sampling based on specific criteria, including active participation in speaking classes, experience using technology in the learning process, particularly technological tools or platforms that support speaking development, and experience with different classroom atmospheres, including supportive and challenging learning environments. The participants were selected to provide relevant information about their experiences and perceptions of technology integration and classroom atmosphere in speaking instruction.

Research Instruments

Data were collected using two instruments: classroom observations and a questionnaire. The classroom observation instrument was adapted from Arjulayana (2016), who emphasizes the importance of students' learning styles and supportive classroom environments in developing speaking skills. A structured observation sheet was used to record ten observable aspects, including students' participation in speaking tasks, use of technological tools, peer interaction, and emotional responses during speaking activities. Each aspect included behavioral indicators and a column for descriptive notes. The observations were conducted during classroom speaking activities, including discussions, presentations, and speaking practice, with each observation lasting approximately 10–15 minutes.

A ten-item yes/no questionnaire was administered to obtain descriptive information about students' perceptions of technology integration and classroom atmosphere in speaking learning. The questionnaire addressed aspects including pronunciation, motivation, confidence, speaking practice, access to speaking models, classroom atmosphere, anxiety, and students' willingness to continue using technology in speaking classes. The questionnaire responses were used to complement the findings from classroom observations.

Data Analysis

The observation data were analyzed qualitatively by identifying recurring patterns related to technology use, classroom atmosphere, student participation, confidence, motivation, and speaking development. The questionnaire data were analyzed descriptively by calculating the frequency and percentage of Yes and No responses for each item. The questionnaire findings were used to support and complement the observations, allowing the study to provide a broader description of students' experiences and perceptions regarding technology integration and classroom atmosphere in speaking instruction.

RESULTS

In the current digital era, the integration of technology has become an important part of language learning, especially in English as a Foreign Language (EFL) contexts, as it supports the learning process. In this context, digital tools and platforms have emerged as essential mediums through which learners access English input and engage in language practice beyond the classroom. Technology integration not only facilitates access to authentic resources but also creates interactive and immersive experiences that promote speaking practice. Alshammari (2020) asserts that digital technologies in EFL classrooms enhance oral performance by providing learners with flexibility, instant feedback, and autonomous learning opportunities. Gilakjani (2017) also emphasizes that multimedia instruction improves pronunciation, fluency, and learner motivation, which are critical elements in speaking development.

In addition to technological factors, the classroom atmosphere plays an equally important role in shaping learners' speaking behavior. A supportive, inclusive, and motivating environment can reduce speaking anxiety and foster students' willingness to communicate. Dewaele and Li (2020) argue that positive emotional engagement in the classroom significantly influences learners' readiness to speak, especially when using a foreign language. When students feel psychologically safe, they are more inclined to express their thoughts, participate in discussions, and take linguistic risks without the fear of being judged.

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No.	Questionnaire Statement	Yes (%)	No (%)
1	Do you think technology helps you improve your speaking pronunciation?	100%	0%
2	Does the use of technology in class make you more motivated to speak English?	90.9%	9.1%
3	Do you feel that technology used in your speaking class helps you practice more confidently?	90.9%	9.1%
4	Have you ever felt that technical problems (poor internet, broken devices) disrupted your speaking practice?	81.8%	18.2%
5	Do you feel that technology makes speaking practice more varied?	100%	0%
6	Does a friendly classroom atmosphere make you less afraid of making speaking mistakes?	72.7%	27.3%
7	Do you feel that technology gives you better access to speaking models (like videos or audios)?	100%	0%
8	Does a comfortable classroom atmosphere help you speak English with fewer worries?	90.9%	9.1%
9	Do you think integrating technology and a positive classroom atmosphere together improves your speaking skill?	100%	0%
10	Would you like to keep using technology in future speaking classes?	90.9%	9.1%

Table 1. Students' Responses on Technology Integration and Classroom Atmosphere in Speaking

The findings from this study, which were drawn from both questionnaire responses and classroom observations, illustrate the dual importance of technology integration and classroom atmosphere. A majority of students expressed positive perceptions toward the use of technology in speaking classes. Many students agreed that tools such as language learning apps, online videos, and educational games helped them practice pronunciation, enrich vocabulary, and gain confidence. Several learners stated that using these tools outside of the classroom was particularly

beneficial, especially for those who were shy or hesitant to speak during in-person discussions. These findings align with earlier research suggesting that digital platforms offer safe spaces for learners to practice oral English on their own terms (Shadiev & Yang, 2020).

Classroom observations revealed that students were more engaged and willing to speak when the lecturer created a relaxed, interactive, and student-centered learning environment. In classrooms where the lecturer encouraged participation, utilized diverse media, and showed positive interpersonal behavior, students demonstrated greater willingness to speak. The use of visuals, games, and group tasks seemed to stimulate verbal interaction and reduce students' fear of making mistakes. However, the data also showed that active speaking participation was unevenly distributed. Only a small group of students consistently spoke up, while others remained passive or hesitant despite the supportive setting. This discrepancy suggests that while the classroom context and available tools can create favorable conditions for speaking, internal factors such as self-confidence, emotional regulation, and personality continue to play a substantial role. (Derakhshan & Eslami, 2020) note that individual learner differences, including social anxiety and introversion significantly influence speaking performance in EFL contexts.

These findings underscore the critical role of the lecturer in managing both the physical and emotional classroom space. Effective integration of technology should be accompanied by pedagogical strategies that address students' affective needs. Rahimi and Yadollahi (2015) highlight, teachers' classroom discipline and relational skills strongly impact students' motivation and success in language learning. Therefore, lecturer must not only facilitate access to digital tools but also foster emotional safety and engagement, particularly for students who may struggle with confidence or fear of speaking.

DISCUSSION

Technology Integration and Students' Speaking Development

The findings indicate that technology provided students with additional opportunities to access English input and engage in speaking practice. All participants (100%) reported that technology helped them improve their pronunciation, made speaking practice more varied, and provided better access to speaking models such as videos and audio materials. Furthermore, 90.9% of the participants reported that technology increased their motivation to speak and helped them practice more confidently. These findings suggest that technology served not only as a classroom aid but also as a means of expanding students' opportunities to encounter and practice spoken English.

This finding is consistent with previous studies on technology-supported language learning. Warschauer and Meskill (2000) argue that technology can increase learner motivation and participation by providing more authentic learning experiences. Similarly, Gilakjani and Sabouri (2014) emphasize that digital resources expose learners to varied oral input, which can support pronunciation and other aspects of speaking development. Herwanis et al. (2025) also reported that digital learning media can increase student engagement and reduce language anxiety in speaking activities. The present findings support these observations, particularly in relation to students' access to speaking models and their perceived confidence in practicing English.

The findings also indicate that technology offered flexibility for speaking practice. Students reported using digital tools such as language learning applications, videos, and educational games not only during classroom activities but also outside the classroom. This finding is in line with Kukulska-Hulme and Shield (2008), who explain that mobile-assisted language learning enables learners to practice language at different times and locations, thereby supporting greater autonomy. In the present study, this flexibility appeared particularly relevant for students who were hesitant to speak directly in classroom discussions, as digital resources provided alternative opportunities to practice before participating in face-to-face interaction.

Nevertheless, technology integration was not free from limitations. Although most students reported positive experiences, 81.8% indicated that technical problems, including poor internet connections and malfunctioning devices, had disrupted their speaking practice. This finding indicates that the availability of digital tools alone does not guarantee effective speaking practice. Technology needs to be supported by adequate infrastructure and appropriate pedagogical planning. Therefore, lecturers need to anticipate technical difficulties and provide alternative activities so that students' opportunities for speaking practice are maintained when technological problems occur.

Classroom Atmosphere and Students' Willingness to Speak

The findings further demonstrate the importance of classroom atmosphere in supporting students' willingness to speak English. A total of 72.7% of the participants reported that a friendly classroom atmosphere made them less afraid of making speaking mistakes, while 90.9% stated that a comfortable classroom helped them speak with fewer worries. These responses indicate that students' perceptions of emotional safety were closely associated with their willingness to participate in speaking activities.

This finding is consistent with Harmer (2007), who emphasizes that a low-anxiety classroom can encourage learners to take linguistic risks, which are necessary for developing speaking proficiency. Nang (2023) similarly found that collaborative and communicative learning environments provide students with opportunities for interaction and peer support, thereby increasing their confidence in speaking. The classroom observations in the present study reinforce these findings. Students appeared more engaged and willing to participate when the lecturer created a relaxed, interactive, and student-centered environment through group activities, games, visual materials, and positive interpersonal interaction.

However, the observation findings also showed that participation was not evenly distributed. Some students remained passive or hesitant even when the classroom environment was supportive. This finding suggests that a positive classroom atmosphere is an important condition for speaking participation but may not be sufficient to encourage all students to participate actively. Individual factors such as confidence, anxiety, and personality may also shape students' willingness to speak. Thus, speaking instruction needs to consider both environmental conditions and individual learner characteristics rather than assuming that the same classroom strategy will produce the same response from every learner.

The role of the lecturer is particularly important in creating such an environment. Arjulayana (2023) emphasizes that teachers need to motivate students and employ engaging strategies to encourage speaking participation. The present observation findings support this perspective, as students appeared more willing to engage when the lecturer combined varied

activities with supportive interpersonal behavior. This suggests that classroom atmosphere is not simply a physical condition but is also shaped by the lecturer's instructional decisions, classroom management, and interaction with students.

The Complementary Role of Technology and Classroom Atmosphere

An important finding of the present study is that students perceived technology integration and classroom atmosphere as complementary factors in speaking learning. All participants (100%) agreed that integrating technology with a positive classroom atmosphere improved their speaking skills. Although this response represents students' perceptions rather than an objectively measured improvement in speaking proficiency, it indicates that students viewed the combination of technological support and a supportive learning environment positively.

The finding is consistent with Kessler (2018), who suggests that technology-mediated communication can support learner autonomy while interaction with peers and instructors provides the social dimension necessary for meaningful language learning. In the present study, technology provided students with access to speaking models, varied activities, and opportunities for practice, while the classroom atmosphere appeared to determine how comfortably students engaged with those opportunities. Thus, technology and classroom atmosphere can be understood as complementary rather than independent elements of speaking instruction.

This interpretation is also supported by Arjulayana (2021), who highlights the potential of collaborative and technology-supported learning environments to increase students' participation and engagement. The present findings similarly suggest that digital resources were more meaningful when they were incorporated into interactive classroom activities rather than used as isolated technological tools. Videos, games, and other digital media appeared to encourage participation when combined with group work, discussion, and supportive lecturer-student interaction.

Therefore, the findings suggest that effective technology integration requires more than providing students with access to digital resources. Lecturers need to design activities that connect technology with interaction, collaboration, and emotional support. A technology-enriched classroom may provide greater opportunities for language exposure and practice, but students are more likely to benefit from these opportunities when they feel comfortable participating and are not excessively concerned about making mistakes. The combination of technological resources and a supportive classroom atmosphere can consequently provide broader and more varied conditions for speaking practice.

Overall, the findings indicate that technology integration and classroom atmosphere made complementary contributions to students' speaking learning. Technology expanded students' access to language input and practice opportunities, while a supportive classroom atmosphere appeared to encourage confidence and participation. However, the findings should be interpreted within the scope of the study. Because the research relied on students' perceptions, questionnaire responses, and classroom observations rather than pre- and post-speaking assessments, the results demonstrate perceived and observed contributions rather than a causal effect of technology integration or classroom atmosphere on speaking proficiency.

CONCLUSION

This research explored the role of technology integration and classroom atmosphere in supporting students' speaking development. Based on the questionnaire data, most students gave positive responses. They believed that technology helped them with their pronunciation, gave more speaking opportunities, and provided useful models through videos or audio. In addition, a friendly and supportive classroom atmosphere helped reduce students' fear of making mistakes and encouraged them to speak more confidently.

Although some technical problems occurred, such as poor internet or broken devices, these did not greatly stop students from participating in speaking activities. Most students still showed interest in using technology in future classes, showing that they are becoming more familiar and comfortable with digital tools in learning.

The observation findings further indicated, students' experiences supported the idea that the combination of technology and a positive classroom atmosphere can improve speaking skills. Similarly, these show that technology and classroom atmosphere together can create better conditions for students to speak more actively and confidently. As students prepare for future academic or professional opportunities such as strong speaking skills supported by technology will become valuable for their success.

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