Student Voices On Digital Pedagogy: A Case Study of Zoom-Based TOEFL Preparation For Non-English Department Students

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Abstract.
The increasing reliance on synchronous video-conferencing platforms in post-pandemic higher education has transformed the delivery of high-stakes language preparation programs, including TOEFL courses. While previous studies have largely focused on test score improvement and general online learning implementation, limited research has explored students' reflective experiences in Zoom-mediated TOEFL preparation contexts. This qualitative case study investigates non-English department students' feedback and reflections on the use of Zoom in a TOEFL preparation program at a private university in Indonesia. Data were collected through reflective journals and semi-structured interviews and analyzed using thematic analysis. The findings reveal two overarching themes. First, students perceive Zoom as facilitating learning effectiveness, flexibility, and real-time interaction, which support their understanding of TOEFL materials and test-taking strategies. Second, although the platform enhances motivation and accessibility, technical constraints such as unstable internet connections and reduced face-to-face interaction remain challenges. By foregrounding student voice, this study contributes nuanced insights into how synchronous digital pedagogy shapes learners' experiences in test-oriented language instruction. The findings offer pedagogical implications for instructors and institutions seeking to optimize Zoom-based TOEFL preparation programs while addressing technological and interactional limitations.

Keywords: digital pedagogy, student voice, TOEFL preparation, synchronous learning, Zoom

Introduction

In the current global era, English proficiency has become an essential competence for communication, knowledge acquisition, information exchange, and participation in international academic and professional contexts. In non-English-speaking countries, English proficiency is commonly measured through standardized tests, among which the Test of English as a Foreign Language (TOEFL) is one of the most widely recognized. TOEFL scores are frequently used to determine students' eligibility for university admission, scholarships, graduation requirements, and employment opportunities. As noted by Vu and Vu (2013), TOEFL has long functioned as a gatekeeping mechanism for international students seeking access to English-medium higher education institutions, particularly in countries such as the United States and Canada.

Given the high-stakes nature of TOEFL performance, many universities have established TOEFL preparation programs to help students strengthen their academic English skills,

particularly in reading, listening, and writing. These programs are designed to equip learners with both language competence and test-taking strategies necessary to meet institutional score requirements, which commonly range from 450 or above (Adam & Magfirah, 2021; Sakurai, 2020). Nevertheless, despite the availability of such programs, many learners continue to struggle to achieve the expected scores. This situation suggests that the effectiveness of instructional approaches and delivery modes remains a critical concern in TOEFL preparation contexts.

In response to evolving educational demands, the shift toward digital learning environments, particularly in the post-pandemic era, has significantly transformed how TOEFL preparation courses are delivered. Online learning platforms, including learning management systems, social media, and video-conferencing tools, are increasingly utilized to enhance accessibility and flexibility (Amin & Sundari, 2020). Among these tools, Zoom Cloud Meetings has gained prominence due to its interactive features, such as real-time video and audio communication, screen sharing, recording capabilities, and the capacity to accommodate large numbers of participants (Pratiwi & Wahyuni, 2019; Rahmat, 2021). These affordances suggest that Zoom may facilitate synchronous interaction, collaboration, and engagement that approximate face-to-face instruction.

A growing body of research has examined TOEFL preparation programs and the integration of online learning technologies (Suryani, 2021; Kayyis & Pratiwi, 2021; Putri & Syarif, 2021; Kim, 2020; Akmal et al., 2020). Overall, these studies report positive outcomes in terms of accessibility and learning effectiveness. However, most of this research primarily emphasizes test score improvement or general online learning implementation. Relatively limited attention has been given to learners' lived experiences, reflective feedback, and perceptions of synchronous video-conferencing platforms, such as Zoom, within TOEFL preparation settings. Consequently, there remains a lack of in-depth understanding of how students evaluate the pedagogical effectiveness, challenges, and overall learning quality of Zoom-mediated TOEFL instruction.

Understanding students' perspectives is particularly important because learner feedback can inform instructional design, technology integration, and program improvement. Students' reflections not only reveal perceived benefits and constraints but also illuminate how digital platforms shape engagement, motivation, and interaction in high-stakes test preparation contexts.

To address this gap, the present study investigates students' feedback and reflections on the use of Zoom in an online TOEFL preparation program for non-English department students. By foregrounding learners' voices rather than focusing solely on test outcomes, this study offers deeper insight into the pedagogical implications of synchronous video-conferencing tools in high-stakes language instruction and contributes practical recommendations for designing technology-enhanced TOEFL courses.

Literature Review

Digital pedagogy and student voice

The concept of student voice emphasizes learners' active involvement in shaping their educational experiences through expressing perspectives, providing feedback, and influencing pedagogical decisions (Kageyama, 2025). In digital learning environments, student voice is closely associated with learner agency and empowerment, positioning students not merely as passive recipients of instruction but as co-constructors of knowledge (Conner, 2024). From this perspective, digital pedagogy extends beyond the use of technological tools; it involves creating

participatory learning spaces where students' experiences and reflections meaningfully inform instructional practice.

Cook-Sather (2017) demonstrated that digital platforms can amplify student voice by fostering reflective practices and encouraging collaborative dialogue between teachers and students. Similarly, Bowman (2017) argued that digital pedagogy opens dialogic spaces that challenge traditional hierarchies and promote more equitable classroom relationships. These arguments suggest that technology-mediated learning environments can reshape power dynamics and support more inclusive pedagogical processes.

Recent empirical evidence further reinforces the importance of integrating student perspectives into digital pedagogy. Maddison (2025) found that valuing student feedback contributes to more responsive and inclusive instructional design, while Biaddang (2024) highlighted the role of learner autonomy in virtual classrooms, showing that opportunities for decision-making enhance motivation and engagement. Collectively, these studies underscore that student voice functions not merely as feedback but as a catalyst for adaptive, participatory, and equitable forms of digital education. This theoretical framing provides a foundation for examining how students perceive and reflect upon their experiences in technology-mediated TOEFL preparation contexts.

Zoom-based learning and TOEFL preparation

Within the broader framework of digital pedagogy, Zoom-mediated instruction has emerged as a prominent modality in language education. From the perspective of technology-mediated learning theories, particularly connectivism, synchronous platforms such as Zoom enable real-time interaction, collaborative engagement, and distributed access to knowledge resources, framing learning as a networked process of connecting information, peers, and instructors (Siemens, 2005). This theoretical orientation positions Zoom not simply as a communication tool but as a dynamic learning environment that supports social and cognitive interaction.

Empirical studies have examined the integration of Zoom in English language teaching and TOEFL preparation contexts. Armand and Purnawarman (2025), Amalia et al. (2024), and Rojabi and Femilia (2023) report that learners generally perceive Zoom as accessible and flexible, particularly in contexts where traditional face-to-face instruction is limited or disrupted. Similarly, Fitria (2024) found that students considered Zoom effective and user-friendly in supporting TOEFL listening and reading sections. Interactive features such as question-and-answer sessions and breakout rooms were identified as facilitating participation and engagement.

However, these studies also highlight persistent challenges. Technological issues, including unstable internet connections and varying levels of digital competence, remain significant barriers to effective online learning. This duality suggests that while Zoom aligns with contemporary digital learning theories by enabling synchronous and networked interaction, its pedagogical effectiveness depends heavily on infrastructural reliability and thoughtful instructional integration.

Despite these growing discussions, existing literature tends to emphasize technological affordances and general effectiveness. Less attention has been paid to students' reflective experiences and how they interpret the pedagogical quality of Zoom-mediated TOEFL preparation. Therefore, examining students' voices within this context provides an important extension to current scholarship.

Linking digital pedagogy and TOEFL preparation

Taken together, research on student voice and Zoom-based instruction highlights the importance of understanding learners' lived experiences in digital learning environments. While previous studies have demonstrated the potential of synchronous platforms to support language development and test preparation, fewer investigations have foregrounded students' reflections as a central analytical lens.

In high-stakes contexts such as TOEFL preparation, where instructional effectiveness directly influences academic and professional opportunities, students' perceptions become particularly significant. Their feedback not only reveals perceived benefits and challenges but also illuminates how digital tools shape motivation, engagement, and learning strategies.

Accordingly, situating the present study at the intersection of digital pedagogy, student voice, and TOEFL preparation enables a more nuanced understanding of how Zoom functions within structured, test-oriented instruction. This literature review thus establishes the conceptual and empirical foundation for exploring students' feedback and reflections on Zoom-based TOEFL preparation for non-English department students.

Methodology

Research design and approach of the study

This study employed a qualitative case study design to explore students' feedback and reflections on the use of Zoom in an online TOEFL preparation program. A case study approach was selected because it allows for an in-depth examination of a bounded system within its real-life context, particularly when the boundaries between the phenomenon and context are not clearly evident. In this study, the bounded case consisted of a single Zoom-based TOEFL preparation program implemented for non-English department students at one private university.

The qualitative approach was deemed appropriate because the study aimed to understand participants' lived experiences, perceptions, and reflective interpretations rather than to measure instructional effectiveness quantitatively. Data were collected through reflective journals and semi-structured interviews to capture rich and detailed accounts of students' learning experiences. The data were analyzed using thematic analysis following Braun and Clarke (2006), which provides a systematic procedure for identifying and interpreting recurring patterns across qualitative data sets.

Research site and participants

The study was conducted at a private university in Lampung, Indonesia, where a TOEFL preparation course was delivered through ten synchronous Zoom meetings over one academic term. The course focused on TOEFL listening, structure, and reading sections and was facilitated by one instructor.

The participants were Mathematics Department students enrolled in the TOEFL preparation program. Out of 35 students, five participants were purposively selected based on active participation, regular attendance, and willingness to share reflective insights about their learning experiences. Purposive sampling was used to ensure that selected participants were

information-rich cases capable of providing detailed reflections relevant to the research objectives (Patton, 2015).

The selected participants represented diverse levels of TOEFL proficiency and digital familiarity, allowing for variation in perspectives while maintaining depth of analysis.

Data collection

Data were collected through two primary instruments: reflective journals and semi-structured interviews. First, participants were asked to write reflective journals at the end of the TOEFL preparation program. The journals guided students to describe their overall learning experience using Zoom, perceived benefits of Zoom-based instruction, challenges encountered during the course, and reflections on how the platform influenced their TOEFL learning.

Second, follow-up semi-structured interviews were conducted via Zoom to clarify, expand, and deepen the insights provided in the journals. Each interview lasted approximately 30–45 minutes. The interviews were audio-recorded with participants' consent and subsequently transcribed verbatim for analysis. Using both journals and interviews enabled data triangulation and strengthened the depth and credibility of the findings.

Data analysis

The data were analyzed using Braun and Clarke's (2006) six-step thematic analysis framework:
1. Familiarization with the data through repeated reading of journal entries and interview transcripts.
2. Initial coding by identifying meaningful units related to perceptions, benefits, and challenges.
3. Generating preliminary themes by grouping related codes.
4. Reviewing themes to ensure internal coherence and distinction across themes.
5. Defining and naming themes to capture the essence of each category.
6. Producing the report by organizing themes in relation to the research objectives.

Coding was conducted manually to maintain close engagement with the data. Themes were refined through iterative comparison between journal and interview data to ensure consistency and conceptual clarity.

Trustworthiness and ethical considerations

To enhance the credibility and trustworthiness of the study, several strategies were employed. Data triangulation was achieved by comparing findings from reflective journals and interviews. Member checking was conducted by sharing summarized interpretations with participants to confirm the accuracy of their statements. Additionally, detailed documentation of research procedures was maintained to ensure transparency and auditability.

Ethical considerations were carefully observed. Participants were informed about the purpose of the study, and their participation was voluntary. Written consent was obtained prior to data collection. Confidentiality was ensured by anonymizing participants' identities in transcripts

and reporting. All digital recordings and documents were securely stored and used solely for research purposes.

Findings

This section presents findings on students' feedback and reflections on the use of Zoom in the online TOEFL preparation program for non-English department students. The results are organized according to the research objectives and summarized into two main categories: students' feedback and students' reflections.

Students' feedback on the use of Zoom

Data from students' responses indicate that Zoom is generally perceived as an effective medium for conducting TOEFL preparation. All participants have experienced both online and offline TOEFL training. Although most students initially prefer offline classes, they report that Zoom-based learning still supports their TOEFL preparation effectively.

Students state that the platform helps them understand TOEFL materials, practice test strategies, and interact with tutors and peers. Only a small number of students report technical barriers, mainly unstable internet connections.

Table 1. *Thematic analysis of students' feedback on Zoom-based TOEFL preparation*

Themes	Codes	Description
1. Perceived Learning Effectiveness	Clarity of explanation; Real-time clarification; Structured TOEFL practice	Students reported that Zoom sessions enabled clear delivery of materials, immediate feedback, and systematic practice of TOEFL sections (listening, structure, reading).
2. Skill Development Support	Grammar improvement; Vocabulary enrichment; Test-taking strategies; Time management awareness	Participants perceived measurable improvement in linguistic competence and strategic knowledge related to TOEFL performance.
3. Interaction and Communication	Tutor–student interaction; Peer discussion; Q&A participation	Zoom facilitated synchronous communication, allowing students to ask questions, engage in discussion, and interact actively during sessions.
4. Learning Motivation and Engagement	Enjoyable atmosphere; Increased interest; Active participation	Students described the learning experience as engaging and motivating, supported by interactive digital features.
5. Flexibility and Accessibility	Time efficiency; Cost saving; Learning from home	Participants valued the flexibility of attending sessions remotely, which reduced transportation time and financial costs.
6. Technical Constraints	Unstable internet; Data quota limitations	Some students experienced connectivity issues and data-related constraints, although these did not significantly diminish overall satisfaction.

Table 1 presents the thematic structure derived from students' feedback regarding the use of Zoom in the TOEFL preparation program. The analysis identified six interrelated themes that reflect how students perceived the pedagogical, interactional, motivational, and technical dimensions of Zoom-mediated instruction.

Perceived learning effectiveness, the first theme highlights students' perception that Zoom effectively supported instructional delivery. Codes such as clarity of explanation, real-time clarification, and structured TOEFL practice indicate that students valued the synchronous nature of the platform. They reported that the tutor's explanations were clear and that they could immediately ask questions when encountering difficulties. This immediacy of feedback contributed to better understanding of TOEFL materials, particularly grammar and reading strategies. Rather than perceiving Zoom as a passive content-delivery tool, students recognized it as a structured instructional environment capable of supporting systematic test preparation.

Skill development support, the second theme reflects students' perception of linguistic and strategic improvement. Codes such as grammar improvement, vocabulary enrichment, test-taking strategies, and time management awareness suggest that students associated the Zoom sessions with measurable gains in TOEFL-related competencies. Importantly, their feedback extended beyond general English improvement to include awareness of specific test strategies, such as identifying distractors and managing limited time during reading and listening sections. This indicates that students viewed the platform as supporting not only knowledge acquisition but also procedural competence.

Interaction and communication, the third theme emphasizes the role of synchronous interaction in shaping students' experiences. Codes such as tutor–student interaction, peer discussion, and Q&A participation reveal that Zoom facilitated active communication during sessions. Students reported feeling able to engage directly with the instructor and classmates, which reduced feelings of isolation commonly associated with online learning. The opportunity to participate in real-time discussion contributed to a sense of classroom presence and collaborative learning.

Learning motivation and engagement, the fourth theme captures the affective dimension of students' experiences. Codes such as enjoyable atmosphere, increased interest, and active participation demonstrate that students perceived the Zoom-based learning environment as stimulating and engaging. The use of interactive features appeared to sustain attention and reduce monotony. Students' reflections suggest that motivation was influenced not only by content but also by the dynamic structure of online interaction.

Flexibility and accessibility, the fifth theme relates to practical advantages associated with online delivery. Codes such as time efficiency, cost saving, and learning from home show that students valued the logistical flexibility provided by Zoom. They reported saving transportation costs and time while still being able to access the full instructional program. This flexibility contributed positively to their overall evaluation of the course, particularly for students balancing academic responsibilities.

Technical constraints, the final theme acknowledges structural limitations. Codes such as unstable internet and data quota limitations indicate that some students experienced technical barriers during synchronous sessions. Although these challenges were reported, they did not dominate the overall perception of the platform. Instead, students framed them as manageable obstacles rather than fundamental weaknesses of the instructional model.

Students' reflections on the learning experience

Table 2. *Thematic analysis of students' reflections on Zoom-based TOEFL preparation*

Theme	Codes	Description
1. Affective Learning Experience	Enjoyable learning; Reduced anxiety; Comfortable atmosphere	Students described the Zoom-based TOEFL sessions as enjoyable and less intimidating, which supported emotional comfort during learning.
2. Confidence Development	Increased self-confidence; Reduced fear of mistakes; Willingness to participate	Participants reported greater confidence in answering TOEFL questions and using English after attending the sessions.
3. Strategic Awareness	Awareness of TOEFL question types; Understanding of test strategies; Time management skills	Students reflected on gaining structured knowledge about TOEFL formats and effective answering strategies.
4. Flexible Participation	Learning convenience; Accessibility from home; Time management flexibility	Reflections emphasized the practical advantage of remote participation.
5. Interactional Limitations	Reduced face-to-face engagement; Limited non-verbal cues	Some students felt that online interaction was less personal compared to traditional classroom settings.
6. Technical and Structural Barriers	Internet instability; Data limitations; Schedule conflicts	Students acknowledged infrastructural and logistical challenges affecting learning continuity.

Table 2 presents the thematic analysis of students' reflective responses regarding their learning experience in the Zoom-based TOEFL preparation program. Unlike Table 1, which focused on immediate feedback about platform effectiveness, Table 2 captures deeper reflections related to emotional, cognitive, and structural dimensions of learning.

Affective learning experience, the first theme highlights the emotional tone of students' learning experiences. Codes such as *enjoyable learning*, *reduced anxiety*, and *comfortable atmosphere* indicate that students experienced the Zoom-based sessions as less stressful compared to traditional classroom settings. Several participants noted that learning from home created a relaxed environment that allowed them to focus better. This suggests that affective comfort contributed positively to their engagement and participation.

Confidence development, the second theme reflects personal growth in confidence. Codes such as *increased self-confidence*, *reduced fear of mistakes*, and *willingness to participate* show that students perceived psychological benefits from the program. They reported feeling more confident when answering TOEFL questions and participating in discussions. This confidence appeared particularly relevant in grammar and reading sections, where students previously felt uncertain. This theme indicates that Zoom-mediated instruction did not merely transmit content but also supported learners' self-efficacy.

Strategic awareness, the third theme captures cognitive reflection on learning strategies. Codes such as *awareness of TOEFL question types*, *understanding of test strategies*, and *time management skills* suggest that students became more conscious of how to approach TOEFL tasks systematically. Rather than simply practicing questions, they reported understanding underlying patterns and techniques for answering efficiently. This theme demonstrates the development of metacognitive awareness, which is crucial in high-stakes test preparation contexts.

Flexible participation, the fourth theme relates to structural convenience. Codes such as *learning convenience*, *accessibility from home*, and *time management flexibility* emphasize students' appreciation of online participation. They valued the ability to join sessions without commuting, which reduced fatigue and logistical constraints. This flexibility contributed to their overall positive evaluation of the learning experience.

Interactional limitations, despite positive reflections, students also identified reduced social presence as a limitation. Codes such as *reduced face-to-face engagement* and *limited non-verbal cues* suggest that some participants felt online communication lacked the immediacy and personal warmth of physical classrooms. They expressed that direct interaction with peers and tutors felt less natural in virtual settings. This theme highlights the tension between convenience and social *presence in online learning environments.*

Technical and structural barriers, the final theme addresses infrastructural challenges. Codes such as *internet instability*, *data limitations*, and *schedule conflicts* reveal practical constraints affecting learning continuity. Although these challenges did not dominate students' reflections, they were acknowledged as recurring disruptions. Importantly, students framed these barriers as external constraints rather than pedagogical failures of the program. Overall, Table 2 demonstrates that students' reflections extend beyond simple satisfaction or dissatisfaction. Their experiences encompass affective comfort, increased confidence, strategic awareness, and practical flexibility, alongside recognition of technical and interactional constraints. The reflective data suggest that Zoom-based TOEFL instruction functions not only as a delivery platform but also as a space for emotional reassurance, strategic development, and gradual confidence building.

Discussion

The findings reveal that Zoom-based TOEFL preparation functions not only as a technological medium but also as a pedagogical environment that shapes students' cognitive, affective, and strategic learning experiences. Students' feedback and reflections indicate that the platform supports learning effectiveness, interaction, flexibility, and confidence development, while also presenting certain structural constraints. These results extend previous studies on online language instruction by situating Zoom within the specific context of high-stakes test preparation.

First, the theme of perceived learning effectiveness suggests that synchronous video conferencing can support structured TOEFL instruction when interactive features are pedagogically integrated. Students reported that real-time clarification and guided practice enhanced their understanding of grammar and reading strategies. This aligns with research emphasizing that Zoom's multimodal affordances—such as screen sharing and live discussion—enable dynamic instructional delivery (Hazairin, 2020; Alfadda & Mahdi, 2021). However, beyond technological functionality, the present findings highlight that clarity of explanation and structured strategy training are central to students' positive evaluation. In other words, the effectiveness of Zoom appears to depend not merely on its features but on how those features are used to scaffold test-oriented learning.

Second, students' reflections on confidence development and strategic awareness indicate that Zoom-mediated instruction may foster learner self-efficacy in TOEFL preparation contexts. Participants described increased confidence in answering questions and improved awareness of test formats and time management. This suggests that the platform supports metacognitive development, particularly when instruction explicitly addresses test-taking strategies. These

findings resonate with prior research demonstrating that digital learning environments can enhance learner autonomy and engagement (Rostiani et al., 2023). However, the present study contributes a more nuanced insight by showing that confidence emerges not solely from flexibility, but from repeated structured exposure to strategy-based instruction.

Third, the affective dimension of learning emerged as a significant factor. Students frequently described the Zoom-based sessions as enjoyable and less intimidating. This reflects the importance of psychological comfort in language learning, particularly in test preparation settings that often generate anxiety. Technology-enhanced environments can reduce performance pressure by allowing students to participate from familiar spaces. Similar observations have been made by Risma (2021), who noted that online platforms may increase motivation and reduce anxiety. Nevertheless, it is important to recognize that affective comfort alone does not guarantee deep learning; rather, it creates conditions that enable engagement.

Despite these benefits, the discussion must also acknowledge the identified constraints. Interactional limitations, such as reduced non-verbal cues and diminished face-to-face presence—indicate that social presence remains an issue in synchronous online learning. While Zoom facilitates communication, it does not fully replicate the immediacy of physical classroom interaction. This finding corresponds with broader research noting that online platforms can both enable and restrict communicative dynamics (Mu'awanah et al., 2021). Furthermore, technical barriers, particularly unstable internet connectivity and data costs, highlight the structural dependency of digital pedagogy on infrastructural access. These challenges underscore that the pedagogical success of Zoom is inseparable from technological equity.

Importantly, the findings extend existing literature by focusing specifically on TOEFL preparation rather than general English instruction. While previous studies have demonstrated positive perceptions of Zoom in language learning contexts (Kim, 2020; Rojabi & Femilia, 2023), few have examined its role in structured, test-oriented programs. The present study shows that Zoom can effectively support strategic instruction for high-stakes assessments when integrated with interactive and structured learning design. This suggests that synchronous video conferencing platforms are adaptable not only for communicative language teaching but also for exam-focused preparation.

From a theoretical perspective, the results can be interpreted through the lens of digital pedagogy and student voice. Students' reflective accounts reveal that their feedback provides valuable insight into how digital platforms shape learning experiences. The emphasis on flexibility, confidence, and strategic clarity demonstrates that learners evaluate digital instruction not only in terms of convenience but also in terms of pedagogical value. Therefore, incorporating student perspectives into digital course design may strengthen instructional responsiveness and improve learning quality.

Overall, the discussion indicates that Zoom-based TOEFL preparation offers meaningful pedagogical potential, provided that instructional design, technological support, and student engagement are carefully aligned. The platform's effectiveness lies not in replacing traditional instruction, but in reconfiguring it within a digitally mediated environment that balances flexibility, interaction, and structured guidance.

Conclusion and Recommendations/Implications

This study examined students' feedback and reflections on the use of Zoom in an online TOEFL preparation program for non-English department students. The findings demonstrate that Zoom functions not merely as a communication tool but as a structured instructional environment capable of supporting test-oriented language learning. Students perceived the platform as effective in enhancing their understanding of TOEFL materials, developing strategic awareness, and strengthening confidence in answering test questions.

The analysis also revealed that flexibility and accessibility significantly contributed to students' positive evaluation of the program. At the same time, interactional and technical limitations—particularly internet instability and reduced face-to-face engagement—remain persistent challenges.

Overall, the study confirms that Zoom-based TOEFL preparation can be pedagogically meaningful when supported by structured instructional design and interactive facilitation. The effectiveness of the platform depends less on its technological features and more on how those features are integrated into purposeful, strategy-based learning activities.

The findings carry several practical implications for TOEFL instructors and educational institutions. First, instructors should intentionally design Zoom sessions that integrate interactive features such as breakout rooms, screen sharing, and live Q&A to support active participation and real-time clarification. Structured strategy instruction—especially related to time management and question analysis—should remain central to online TOEFL programs.

Second, institutions should ensure adequate technological infrastructure to minimize connectivity barriers. Providing stable internet access, digital literacy support, and possible data subsidies may enhance equitable participation in online programs. Without such structural support, the pedagogical potential of digital platforms may not be fully realized.

Future research should extend this inquiry by comparing different instructional modes, fully online, hybrid, and face-to-face TOEFL preparation to examine their relative effectiveness in developing language proficiency and test performance. Longitudinal studies may also explore whether sustained exposure to Zoom-based instruction leads to measurable improvement in TOEFL scores rather than relying solely on perceptual data.

In addition, future studies could adopt mixed-method or experimental designs to investigate causal relationships between digital platform use and learning outcomes. Expanding the participant pool across different universities or academic disciplines would also enhance generalizability.

Disclosure statement

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