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TASK-BASED LEARNING REIMAGINED: HOW GEMINI AI ENHANCES EFL STUDENTS' SPEAKING FLUENCY IN SELF-DIRECTED LEARNING

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Abstract

In self-directed learning, EFL learners face persistent fluency challenges, particularly when access to native speakers or teachers is limited. Recent advancements in generative AI, such as Gemini AI, offer transformative potential by simulating human-like interactions and adapting to individual learner needs. This study investigates how Gemini AI uniquely facilitates speaking fluency through Task-Based Learning in self-directed learning and its impact on students' speaking performance. This study involved 19 participants enrolled in an English Discussion class at the Universitas Teknologi Yogyakarta who engaged in a four-week intervention program. Utilizing a mixed-methods design, the study combined quantitative analysis of speaking fluency metrics with qualitative examination of student reflection reports. Participants completed weekly speaking tasks using Gemini AI as a conversational partner, documenting their experiences in a structured report. Quantitative results showed a 13% average improvement in speaking fluency, particularly in lexical diversity and reduced hesitation. Qualitative analysis revealed five key themes: increased confidence in spontaneous speech, appreciation for 24/7 accessible practice, effective feedback to improve students' speaking skills, enhancing vocabulary, and fostering a non-judgmental learning environment. The findings suggest that Gemini AI can effectively supplement classroom instruction for speaking skill development. However, the generalizability of findings is constrained by the small number of participants and the short intervention period. Future research should employ longitudinal designs with larger cohorts to substantiate the long-term efficacy of AI-assisted task-based language teaching. Subsequent studies should also systematically investigate strategies to mitigate Gemini shortcomings, including optimizing feedback relevance and turn-taking mechanics for educational dialogue.

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INTRODUCTION

Teaching English speaking skills for university students remains difficult and offers a lot of challenges. Many students find that speaking English is challenging. An analysis of various studies has been conducted, and it reveals that consistent difficulties are faced by university students when speaking English, highlighting common underlying issues across different contexts. Lack of vocabulary consistently appears to be a primary impediment (Islam et al., 2022;

Winnie et al., 2023), revealing a fundamental lexical gap. Closely related are grammatical challenges, indicating issues with accurate language production (Jaya et al., 2022; Sayuri, 2016).

Furthermore, the lack of confidence and associated anxiety, hesitation, shyness, as well as fear of making mistakes are other common problems faced by university students when speaking English (Chand, 2021; Jaya et al., 2022; Sayuri, 2016). This psychological barrier significantly inhibits students' willingness to engage in spoken English. In addition, the absence of a suitable environment to practice speaking English is another concern (Chand, 2021; Islam et al., 2022). Finally, insufficient practice speaking English in general, whether due to environmental constraints or personal reluctance, is frequently considered a main problem of speaking difficulties (Islam et al., 2022; Jaya et al., 2022; Sayuri, 2016). These shared challenges underscore the complexity of English-speaking issues.

Many students face difficulty in applying the most appropriate strategy to learn English, conducting self-assessment, and self-reflection. Consequently, they still need the assistance of the teachers to guide them in managing their time and learn independently outside the classroom (Humaira' & Hurriyah, 2018). However, promoting self-directed learning can be one of the solutions to address the aforementioned challenges. With teachers' guidance and monitoring, self-directed learning can help students improve their speaking skills, particularly their pronunciation and vocabulary (Alaon et al., 2023). In teaching speaking, implementing technology to assist students in practicing their speaking allows students to express themselves in a skillful and competent way of communication (Sosas, 2021). By implementing self-directed learning in an English-speaking class, Pishkar and Majedi found that students' speaking accuracy improved (Pishkar & Majedi, 2016).

Implementing technology and AI for teaching media is getting popular. Consequently, the rapid technological and AI advancement in education encourages teachers to adapt well and be more creative in conducting the learning process. It encourages them to find the most appropriate teaching media and AI that fits well with their students and can accommodate the learning process. Numerous studies have been conducted on implementing AI to teach English speaking skills, and all of them find that using AI for teaching media significantly gives more advantages and boosts learners' confidence to speak English. Many of them improve their speaking performance distinctly (Efendi Hidayatullah, 2024; El Shazly, 2021; Karim et al., 2023; Sha, 2009). Lai and Lee confirm that Google Assistant is the most widely used AI chatbot due to its effectiveness as a conversational partner (Lai & Lee, 2024).

In the Indonesian context, in 2024, the Directorate of Learning and Student Affairs, Directorate General of Higher Education, Research, and Technology, Ministry of Education, Culture, Research, and Technology, published A User Guide for Generative Artificial Intelligence (GenAI) in Higher Education Learning. It indicates that the massive usage of AI should be used prudently and responsibly. AI should remain a medium that helps both teachers and students in the teaching and learning process. In recent research conducted by Habibi et al., involving 1.117 respondents, it is suggested that teachers should continually highlight the role of AI integration in their teaching and learning process. It proves that ChatGPT can create chances to support personalized learning, provide learners with rapid feedback for effective learning, and offer limitless access to information (Habibi et al., 2023). Instant feedback given by AI significantly improves the mean score of speaking skills in pre- and posttests (Zou et al., 2023). Meanwhile, with 72.5% of students rating personalization highly, AI-driven tools greatly improved individualized learning experiences. 80% of students found that instant feedback from AI tools was very helpful, which improved their language acquisition progress. Finally, 80% of students recommended AI-driven tools, citing increased engagement and enjoyment (Oladele Jegede, 2024).

While the implementation of AI offers new avenues for teaching and learning, the choice of an appropriate and engaging methodology is crucial for developing students' speaking proficiency. In this context, Task-Based Learning (TBL) has become a widely adopted model,

often cited as an alternative to more conventional teaching frameworks. Implementing TBL is an effective strategy that offers a learning environment and motivates students to use target-language forms that they feel have the best chance of achieving communicative goals (Ellis, 2003; Willis, 1996). In addition, Willis highlights that TBL learners can come across situations that enable them to reflect on their language development, evaluate and practice different types, experience their natural exposure (input), and use language to express what they mean (output) (Willis, 1996). Task-based learning, therefore, is a useful strategy that enables pupils to communicate using language from everyday situations.

The phases of TBLT framewor consist of: 1) pre-task, where teachers introduce the topic to students, brainstorm ideas, and give instructions, 2) task cycle, divided into three parts: task, planning, and report. In this phase, student-centered learning is implemented, and the last is 3) language focus, divided into two parts: analysis and practice. In this phase, students are required to analyze the specific feature of the text used, then the teacher asks them to practice the new words, phrases, or patterns (Willis, 1996).

Implementing TBL in a speaking class creates an effective classroom environment and gains positive perception from students and teachers (Prianty et al., 2022). It has successfully helped students improve their speaking fluency with grammatical accuracy and elaborate utterances with reduced pauses (Hasnain, 2023). Students are more motivated to speak English. They find that they expand their vocabularies and increase their grammar accuracy (Albino, 2017). TBL is an effective way to enhance oral communication skills, and students are more motivated to learn through this approach (Azizifard, 2024). Nurhadi et al. prove that implementing TBL in a speaking class for a secondary EFL classroom in Bekasi, Indonesia can improve speaking proficiency, escalate student participation, and boost classroom effectiveness by engaging learners in real-world communicative tasks (Nurhadi et al., 2024). In addition, TBL brings a positive contribution to EFL learners' speaking development and improvement, such as English learning motivation, language exposure, and practice. However, not all language tasks and activities can be implemented effectively. Ulla suggests that to make the most out of the task-based language lessons effectively, it is important for the teachers to design the lesson thoughtfully (Ulla, 2020).

Integrating Task-Based Learning and AI in ELT has been conducted in many countries and has gained numerous responses and feedback from both students and teachers. In China, Limei et al., found that integrating CFLingo, a Generative AI-integrated Chinese language learning platform, and TBLT successfully optimizes task adaptability for individual learners, as well as enhances task authenticity and learner performance (Limei, 2024). Huang et al. found that AI-driven applications within the TBLT framework can enhance English proficiency and student engagement (Huang et al., 2024).In Pakistan, by incorporating Generative Artificial Intelligence (GenAI) tools into Technology-Mediated Task-Based Language Teaching (TMTBLT) for English Language Teaching (ELT), learners' professional communication skills and speaking confidence significantly improved, and effectively bridged the gap between pedagogical instruction and real-world application (Ejaz & Jamil, 2024). Meanwhile, in Indonesia, the implementation of TBLT-based English program, which included role-playing and AI-driven resources (Fully Fluent®, an AI-powered language learning app that provides real-time feedback and pronunciation support) for hotel staff, has successfully proven to increase confidence in professional communication and enhance readiness for guest interactions in structured service encounters, but has ongoing difficulties in spontaneous guest interactions and accent comprehension (Simatupang, 2025). Furthermore, research by Nissa et al. corroborates that the integration of AI-enhanced Task-Based Language Teaching (TBLT) effectively improves EFL learners' speaking proficiency and communicative competence, as well as increasing learner motivation (Nissa et al., 2025).

The collective of previous research on AI-integrated Task-Based Language Teaching (TBLT) consistently demonstrates its efficacy in enhancing EFL students' speaking proficiency,

communicative competence, and motivation. These improvements are largely facilitated by key AI affordances, such as personalized feedback and adaptive learning pathways, which increase students' confidence and bridge classroom practice with real-world application. Successful implementation is shown to depend not only on technology, but on careful pedagogical design of the Task-Based Learning framework and the sustained guiding role of the instructor. However, this present study introduces several distinct modifications to integrating Generative AI (GenAI) with Task-Based Language Teaching. Primarily, it shifts the technological focus from widely examined tools like ChatGPT or bespoke platforms (e.g., CFLingo) to Google Gemini, exploring its unique affordances and constraints within a pedagogical framework. Methodologically, it innovates by implementing a modified final stage in the TBL cycle. Instead of providing students with pre-selected texts or transcripts, the teacher now instructs students to engage with Gemini AI using a specific prompt. Students then proceed to conduct their analysis based on the AI-generated information.

The selection of Gemini AI for integration within the TBLT framework in this study is based on specific preceding research that has substantiated its efficacy in enhancing speaking proficiency in language learning contexts. Gemini AI is one of the AI tools used as teaching media to assist students in speaking English. The ease and instant feedback provide insightful yet understandable information for its users. It enhances their speaking proficiency in subsequent practice. Google Gemini equips personalized learning experiences for its users. Its multimodal capabilities, reasoning, and generation skills offer unprecedented opportunities for personalized learning, engaging instruction, and dynamic assessment (Imran & Almusharraf, 2024). By using this AI, students can practice their speaking skills individually and get instant feedback based on their performance. They will not rely on the partner and native speakers to communicate in English, and they can choose the most comfortable topic they understand. By giving clear prompts, Gemini AI will be one of the best partners in speaking practice.

This study, therefore, undertakes a dual-pronged investigation within the self-directed learning environment of Universitas Teknologi Yogyakarta. First, how does Gemini AI facilitate speaking fluency through Task-Based Learning in a self-directed learning environment at Universitas Teknologi Yogyakarta? It examines the process-oriented mechanisms by which Gemini AI, integrated within a Task-Based Learning framework, facilitates the development of speaking fluency, specifically analyzing its role in scaffolding conversational practice, providing corrective feedback, and supporting lexical retrieval. Second, what are the impacts of implementing Gemini AI and TBL on students' speaking performances? It conducts an outcome-based evaluation to assess the holistic impact of this intervention on students' speaking performance, measuring gains not only in fluency but also in linguistic accuracy and communicative effectiveness.

RESEARCH METHOD

The study employs a mixed-method research design to collect both quantitative and qualitative data from respondents. All students from an English Discussion class at the English Literature Department, University of Technology Yogyakarta, were involved as respondents in this study. There were 19 students, consisting of 11 females and 8 males. This class was chosen as the subject of the research because all students in the class were required to communicate in English during the learning process. The students' initial speaking proficiency, as measured by a pretest, was distributed as follows: 58% of students scored at a fair level, 26% at a good level, and 16% at a less satisfactory level, indicating a baseline composition skewed toward moderate proficiency. All respondents were familiar with AI for assisting them in a learning process. ChatGPT was the most GenAI used. However, most students were not familiar with Gemini and never used it as a speaking partner.

Qualitative data were obtained by applying open-ended questions administered for approximately 30 minutes after task completion. Qualitative data instruments were modified

from the Technology Acceptance Model (TAM) (Davis, 1989) which focus on perceived usefulness, perceived ease of use, and behavioral intention on using Gemini in speaking practice. These data are required to facilitate the reflection and evaluation of Gemini AI's classroom integration. Here is a six-item instrument for qualitative data: What are the benefits of using Gemini for speaking performance? Do you think Gemini AI is easy to implement in practicing English? What are the strengths and weaknesses of using Gemini AI to assist in speaking English? Are you going to recommend Gemini AI to other people? What is your opinion after using Gemini AI to help you practice speaking English? And on a scale of 1 to 10, how would you rate the utility of Gemini AI for improving speaking skills?

Aligned with the study's exploratory aim to extend the Technology Acceptance Model (TAM), the qualitative responses were analyzed using the interactive model of qualitative data analysis (Miles, 2020). This involved reducing data into codes, displaying emerging patterns in conceptual matrices, and drawing verified conclusions regarding users' perceptions of Gemini AI's utility and ease of use.

Quantitative data were collected through pre- and post-tests to compare learning outcomes. In the pretest, students shared their opinions about the topic relating to tourism and technology in two minutes. The lecturer posed the following questions. Meanwhile, during the posttest, students individually reported their group's findings and shared their personal insights on the topic. The lecturer then assessed individual comprehension through a series of follow-up questions. To ensure a comprehensive evaluation of skills, this study employed Brown's Speaking Rubric, which provides discrete scores for grammar, vocabulary, comprehension, fluency, pronunciation, and task (Brown, 2004) Then, the students' speaking scores were analyzed quantitatively using the scoring rubric adopted from (Nurgiyantoro, 2010), as presented in Table 1, as follows.

Table 1
The Scoring Rubric

Interval	Predicate	Level of Achievement
90-100	A	Very Good
80-89	B	Good
70-79	C	Fair
<70	D	Less

Since the subject is English Discussion, during the lesson, all students were required to use English only. This English environment encourages them to focus on their fluency and helps them get used to communicating in English. Furthermore, to create an effective learning atmosphere, TBL, proposed by Willis (1996), is administered. To collect the data, the researchers spent four weeks (four meetings) integrating Gemini AI and TBL in the English Discussion Class. In each meeting, students got a new task and topic to discuss with their group. The first week's use of TBL in an English discussion class is described in Table 2 below.

Table 2
The Implementation of TBL (Three Phases) in the First Week of Research

Phases	Main Activities	Learning Activities	Tasks
Pre-Task	**Introduction to the topic and task**	The teacher introduces the topic and explores it	Topic: How to promote hidden gems in Yogyakarta
		The teacher classifies words and phrases	Using mind maps
		Brainstorming	Class discussion
		The teacher gives the task Instruction	The teacher makes sure all students understand the task
		Students work on Gemini AI individually	Approximately 20 minutes

Phases	Main Activities	Learning Activities	Tasks
Task-Cycle	**Task**	Students do the task in a group for 30 minutes	Each group consists of 3-4 students
		The teacher monitors and encourages students	The teacher goes to each group and checks their progress
		The teacher stops the group discussion	Smartphone usage is permitted during the group discussion
	Planning	Students prepare to report to the teacher	The teacher invites each group to approach his table and report on their completed task.
		The teacher gives feedback	The teacher helps students to highlight the points of discussion
	Report	The teacher selects 2 groups to present their report	The chosen group delivers a presentation in 10 minutes
		The teacher sums up and gives feedback	The teacher gives feedback on the content and linguistics features.
Language Focus	**Analysis & Practice**	Using Gemini AI to practice and analyse the language features used	The teacher does not provide any text or other material to examine, but he focuses on a similar topic and asks students to write a prompt in Gemini AI as follows "Hi Gemini, please help me to practice my English speaking with the topic ...

RESEARCH FINDINGS AND DISCUSSION

Research Findings

All participants reported no history of utilizing Gemini for conversational English practice, suggesting minimal prior exposure to the application within the studied sample. During the four-week intervention of integrating Gemini AI and TBL, students were monitored and assessed for their speaking skills. To figure out their speaking performance, a pretest and a posttest were administered. This intervention clearly demonstrates the improvement in students' speaking skills. Most of them can perform well in the posttest by answering the questions comprehensively. They can share their insight about the topic discussed in good English. They can speak more confidently in the posttest. The following chart displays the improvement scores of the pretest and posttest.

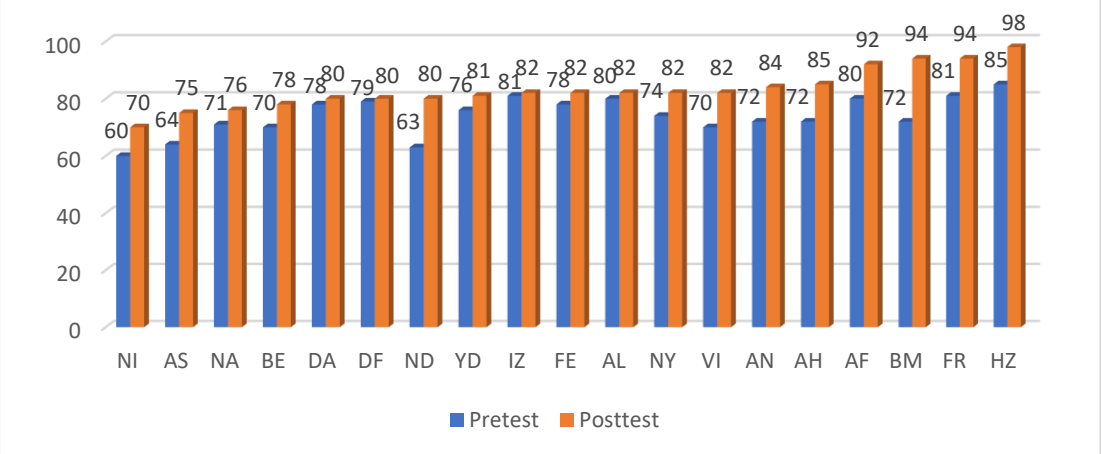

Figure 2: The Comparison of Pretest and Posttest Scores

In the posttest, HZ gained the highest score with a notable 13-point increase in his speaking score. His consistency in using English both inside and outside the classroom makes him confident and comfortable communicating in English. After using Gemini AI, he demonstrated better diction and provided more comprehensive answers. Besides, he could

structure his explanations more logically and thoroughly. Meanwhile, the highest score improvement is achieved by BM with 22 points in the posttest. During the intervention of Gemini AI and TBL in the learning process, he showed his enthusiasm to discuss the topic with his group and consistency in using this AI. His lively contributions made a significant impact, leading to a more enjoyable learning experience for the entire group. During the posttest, he was able to deliver well-structured sentences with good pronunciation and flawless grammar.

Of the 19 students involved in the study, 10 students gained 10 or more points in the posttest with only four weeks of intervention from Gemini AI and TBL. Most of them showed improvement in diction, grammar, and fluency. In Addition, VI, AN, AH, FR, HZ, ND, and BM demonstrate better, well-structured, logical, and comprehensive answers. They also displayed greater confidence when speaking English. During speaking practice with Gemini, these students positively engaged with the Gemini AI platform. This engagement was characterized by observable increases in both learner motivation and demonstrative enthusiasm throughout the speaking session. However, four students did not significantly enhance their speaking test scores. DF and IZ's scores improved by one point only, while DA and AL's scores improved slightly, with a two-point increase. Based on the attendance data, three participants (DF, DA, and AL) were absent for several sessions during the four-week Gemini AI and TBL intervention, which correlated with a more pronounced improvement in their posttest scores. Conversely, the participant (IZ) with the lowest score gain reported technical incompatibility with the Gemini platform, specifically concerning real-time conversational functionality. As a result, she interacted with Gemini via text input during the speaking practice sessions, as the tool did not support voice recording or provide real-time oral feedback.

Utilizing Gemini AI for a Task-Based Learning Approach is a good decision since it works well for the English Discussion class at this university. Most students find it helpful as a speaking partner to practice their English speaking. Moreover, this AI tool also provides instant feedback, which significantly helps them to speak English better. During the study, all students showed consistent progress in their speaking performance. In the posttest, the majority of the students achieved more than a 10% score from the pretest, as presented in the following chart.

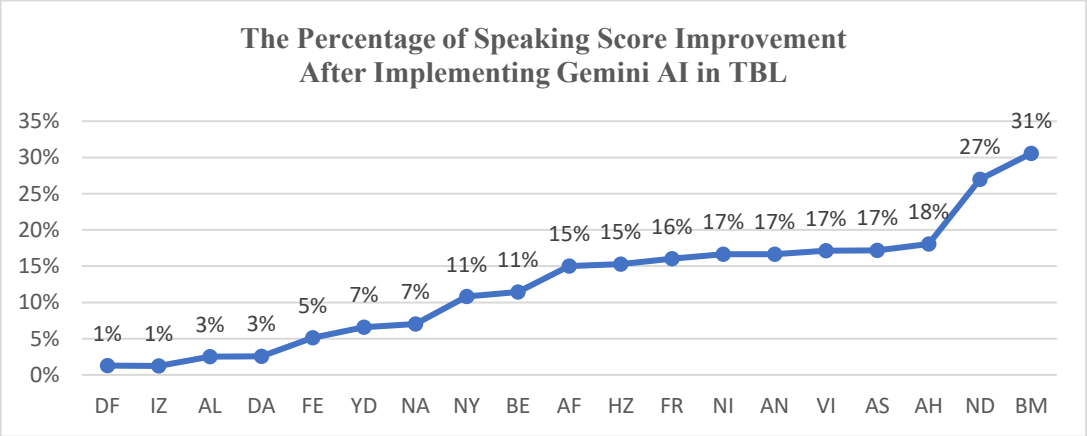

Figure 3: The Percentage of Speaking Score Improvement

63% students gained more than 10% score improvement in the posttest, with individual gains ranging from 11% to 31% as illustrated in the chart above. The most significant improvements were seen in BM and ND, who experienced increases of 31% and 27% points from the pretest within just four weeks. Unfortunately, DF, IZ, AL, and DA did not show a significant improvement, with their post-test scores increasing by less than 5%. As a result, following the intervention that integrated Gemini AI into a Task-Based Learning approach,

students in the English Discussion class showed an average improvement of 13% in their speaking scores.

The effectiveness of implementing Gemini AI and Task-based Language for the students' speaking performance can be seen clearly in the following chart, which illustrates the comparison of achievement level between pretest and posttest.

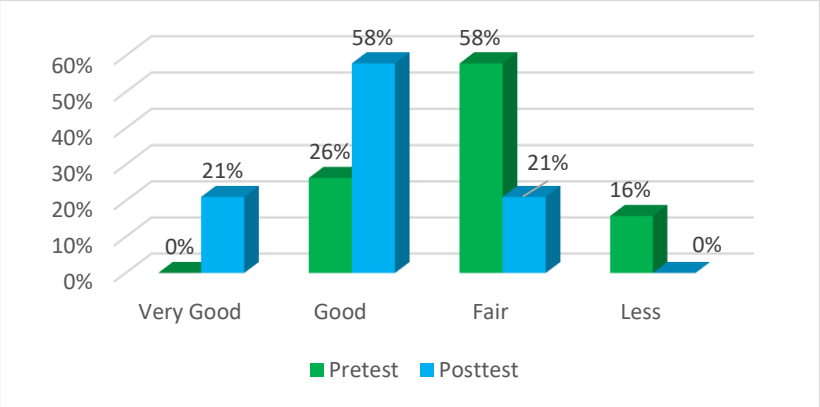

Figure 4: The Comparison of Achievement Level between Pretest and Posttest

The chart clearly visualizes the increasing number of students who achieved 'Very Good' level, rising from 0% in the pre-test to 21% in the post-test. Students who reached this level are HZ (98 points), FR (94 points), BM (94 points), and AF (92 points). Furthermore, a significant shift was observed in the students' achievement levels between the pre-test and post-test. In the pretest, most students' achievement levels (58%) are categorized as 'Fair'. However, in the posttest, the chart depicts that most students (58%) attain the 'Good' level for their speaking achievement. Finally, implementing Gemini AI and Task-based Language succeeds as no students remained at the "Less" level of speaking performance in the posttest.

Reflection on Utilizing Gemini AI for Speaking Practice

A reflective activity was implemented after four weeks of integrating Gemini AI and Task-Based Learning (TBL) within an English discussion class. Students were required to complete a six-item, open-ended questionnaire, which took approximately 30 minutes. This instrument was designed to elicit detailed qualitative feedback regarding their experiences and perceived benefits of using Gemini AI as a supplementary tool for English-speaking practice. The result will be presented in three distinct analytical dimensions: 1) the demonstrable benefits accrued from its utilization, 2) the identified limitations and areas requiring improvement, and 3) student ratings reflecting overall satisfaction and efficacy of Gemini AI on their speaking fluency.

The Benefits of Integrating Gemini AI and Task-Based Learning (TBL)

Improving Confidence

Most students agree that using Gemini AI helps them to be more confident in speaking English. It motivates them to practice speaking frequently, as expressed by two respondents namely NY and FE, in excerpt 1 as follows:

Now, I feel more confident when talking in English, so I practice speaking frequently. Using Gemini AI motivates me to practice speaking English. (NY)

I am not very confident in my English. After using Gemini AI, I think my English speaking is better. Now, I can speak more confidently. (FE)

The feedback in Gemini AI helps students to choose the most appropriate diction when speaking.

Practicing speaking English using Gemini AI improves my confidence. Now, I feel I can speak English fluently and I know a lot of vocabulary. (AN)

Students are not worried about making mistakes since Gemini AI can understand them when practicing speaking English. It, thus, makes them more comfortable and improves their confidence.

It improves my confidence. I do not need to worry about grammar, and Gemini AI can understand it. (NA)

Enhancing Vocabulary

AI, IZ, AN, AF, and YD reported an increase in vocabulary after using Gemini AI for English speaking practice.

It helps me to find daily vocabulary that I have never used before. (IZ)
Practicing speaking English using Gemini AI improves my confidence. Now, I feel I can speak English fluently and I know a lot of vocabulary. (AN)

Besides vocabulary, YD mentions that his pronunciation is getting better. He admits that pronunciation is one of the most difficult linguistic features to learn. Gemini AI helps him improve his pronunciation, as well as his vocabulary. *It improves my vocabulary and pronunciation. (YD)*

Never Judging

One of the reasons students enjoy practicing speaking English with Gemini AI is that it never judges them, but gives insightful feedback when students make mistakes.

I can just say whatever I want without the fear of being judged. (FR)
Gemini never judges. It never responds rudely. It always gives me thoughtful advice and kind responses. (AN)
It helps me feel more confident when speaking English because it never judges and explains things in detail. (AL)
I will recommend it to my friends, especially for those who have no friends to practice speaking English, because they should not be afraid of being judged. It is helpful and interesting to use. (NY)

Being Easy to Use and Enjoyable

Gemini AI provides users with easy and convenient access, enabling its use whenever and wherever needed.

I can use it whenever and wherever I want. (NY)
It is easy to use. I can talk about anything with Gemini AI wherever and whenever I want. (AN)

Thus, many students enjoy using Gemini AI as their speaking partner.

I enjoy using Gemini AI. It feels like chatting with someone. (DM)
I am an introverted person, so I find it difficult to talk with other people, especially in English. Using Gemini AI as a speaking partner is more enjoyable since I do not see the interlocutor's face. (AN)

Providing Insightful Feedback

The effectiveness of using Gemini AI lies in the feedback given. Formulating appropriate prompts is crucial for students to obtain insightful guidance for enhancing their speaking skills.

Gemini helps me to distinguish how to use 'Have' and 'Has' in a sentence. (NA)
It helps me a lot since it gives me objective opinions and suggestions. At first, I did not realize that I used a lot of filler words during speaking, and Gemini AI noticed it, so it gave me suggestions on how to reduce the use of filler words when talking. (FR)

The Identified Limitations and Areas Requiring Improvement

As with all technological media, Gemini AI possesses inherent strengths and weaknesses. After using Gemini AI to assist students in speaking practice, they found some deficiencies of this AI tool as follows.

Interruption

FE and BE agree that sometimes Gemini AI interrupted them before they finished speaking. *Sometimes Gemini AI interrupts me when speaking. (FE)*

Irrelevant and Long Response

Most students report that they were upset when Gemini gave irrelevant responses.

Besides improving my speaking skills, I think Gemini AI is also raising my blood temperature. Responses can occasionally be out of context. In my opinion, Gemini AI is rather deaf, sir. (NA)
Sometimes, it is annoying. I was talking for a whole 2 minutes, and when I was done, the text just disappeared out of

nowhere. The conversation suddenly ends. (FR)
It did not give the response that I expected. It is out of context. (IZ)

In addition, due to the long responses, it is easy for students to get bored, and it feels like practicing listening, not speaking. *I should listen more than speak more since Gemini talk too much. (YD); It is rather boring because the response given is too long. (HZ)*

Device Incompatibility

IZ was unable to fully utilize Gemini AI's features on her mobile phone, specifically the speech-to-text and voice interaction functionalities. Consequently, this technical constraint restricted her engagement to text-based communication only, precluding the practice of spoken language skills within the AI environment.

My device did not support using Gemini AI, so I cannot have a real conversation with it. I use it like texting messages. (IZ)

Student Ratings Reflecting on The Satisfaction and Efficacy of Gemini AI on Their Speaking Fluency

By the conclusion of the reflective period, students assessed the efficacy of Gemini AI in enhancing their speaking proficiencies. Most of the students are satisfied and consider Gemini AI a valuable partner to practice speaking and provide insightful feedback. The average score provided by the students is 8,1 out of 10.

Discussion

The present study reveals that integrating Gemini AI and task-based language teaching succeeds in improving speaking performance. All students' gains scores ranged from 1% to 31%. Moreover, the initial objective to create an effective English atmosphere during the teaching learning process can be achieved. This integration is highly effective for enhancing students' speaking performance. The findings of the present study are in line with recent research that consistently highlights the significant positive impact of AI on language learning, particularly in enhancing student performance and engagement. Wu-Yuin Hwang et al. found that the implementation of AI-driven tools, specifically VTR-generated vocabulary, GPT-generated sentences, and a pronunciation correction mechanism, was strongly associated with a significant improvement in student performance (Wu-Yuin Hwang et al., 2024). The study conducted by Yongliang Wang & Lina Xue also demonstrates that AI-driven chatbots positively influenced the academic engagement of students within Chinese English as a Foreign Language (EFL) classrooms. In addition, the study outcomes revealed that AI-driven chatbots served an important role in fostering Chinese EFL students' behavioral, cognitive, and emotional engagement. (Yongliang Wang & Lina Xue, 2024). The final study shows that AI chatbots significantly enhance learners' academic performance, positively influencing their language skills as well as their psychological and emotional well-being (Zhaoyang Liu et al., 2025). The collective evidence, therefore, suggests a strong consensus that AI's effectiveness in EFL instruction stems from its ability to directly improve language skills while simultaneously boosting student motivation and creating a more engaging learning experience.

Integrating the right teaching strategy and AI can improve students' motivation, confidence, and learning engagement during the teaching and learning process. Activity-based learning significantly boosts student engagement, motivation, and critical thinking skills. Students who participated in these active learning approaches showed improved academic achievement, which is attributed to their active involvement and practical application of knowledge (Al Shloul et al., 2024). A study conducted by Wang and Wen found that after implementing AI in speaking classes, participants significantly improved their speaking skills and decreased speaking anxiety. Furthermore, they had greater motivation to communicate in English (Wang & Wen, 2025). These results are in line with the present study, which successfully integrated Gemini AI and Task-Based Language Teaching in an English Discussion Class. This integration positively influences students' motivation, willingness to learn and practice speaking English, and improves their confidence.

Multiple studies have consistently shown that AI has a significant and positive impact on student outcomes. First, the implementation of AI in EFL significantly enhances students' engagement, foreign language enjoyment (FLE), and motivation. AI tools possess the capability to captivate the attention of students and consequently increase their motivation to actively participate in the educational experience (Lingjie Yuan & Xiaojuan Liu, 2025). Second, the AI chatbot in think–pair–share activities notably reduced the students' foreign language speaking anxiety (FLSA), enhanced their foreign language enjoyment (FLE), and improved their speaking performance (Ting-Ting Wu et al., 2025). Third, the study conducted by Weijun Liang & Jian-E Peng reveals that the learners mostly held positive perceptions of ChatGPT. Change point analysis revealed that some learners experienced significant changes in their Willingness to communicate, perceived usefulness, and attitude toward using (Weijun Liang & Jian-E Peng, 2025). Fourth, the structural equation modelling suggested that most EFL EAP Talk users (88%) have a positive perception of AI affordances. Their willingness to communicate with AI significantly influenced perceived usefulness and satisfaction, which further impacted their intentions to continue using it (Fang Huang, 2024). Lastly, Gen AI generally enhances students' motivation and reduces anxiety, but challenges related to cultural context and technical issues persist. Therefore, they suggest that by adopting a balanced approach, language educators can create supportive, engaging, and effective learning environments for their students (Kohnke & Moorhouse, 2025). As a result, implementing Gemini AI in the present study supports the previous studies that AI is a solution to create effective and supportive learning environments for ELT students and has successfully enhanced students' confidence, motivation, and willingness to speak English.

AI chatbots as learning companions are more effective, and AI chatbots with mechanical appearances have a greater impact on learning (Zhaoyang Liu et al., 2025). In teaching speaking English, implementing AI has many benefits for its users. Jinming Du et al., highlight that the AI chatbot learning approach for English-speaking proficiency has 3 main benefits: 1) to speed up the English learning process and assist students in meeting the goals or results of the courses, 2) to alleviate speaking anxiety and improve speaking pronunciation, and 3) enhance students' English-speaking learning outcomes, confidence, engagement and motivation (Jinming Du & Ben Kei Daniel, 2024). In addition, the results of the present study also reveal that AI's utility in providing speaking practice, alongside its support for enhancing students' vocabulary, pronunciation, and grammar. Therefore, they are more confident when speaking English in the English Discussion class. The posttest results revealed that a majority of students demonstrated significant improvements in their performance, with notable gains observed in their pronunciation, grammar, and vocabulary. The study conducted by Safaa M et al. also shows significant improvements in segmental pronunciation (phoneme accuracy at both word and sentence levels), with limited gains in suprasegmental stress patterns. Motivation increased significantly in Current L2 Self and Learning Effort (Safaa M. Abdelhalim & Raniya Abdullah Alsehibany, 2025).

One of the benefits of using AI as teaching media in a speaking class is its capacity to foster a positive and non-threatening learning environment. Students, therefore, feel more comfortable using AI as a speaking partner, as it mitigates the fear and anxiety of judgment often associated with human interaction, which is a key factor in eliciting positive feedback from learners. The study conducted by Ericsson & Johansson highlights that conversational artificial intelligence enables opportunities for practicing speaking the target language while giving individualized feedback in a low-anxiety environment offered in spoken dialogue systems with conversational agents. The students sustained practicing, socially and emotionally engaged, with a slightly positive trend in their educational experience (Ericsson & Johansson, 2023). The easy access to 24/7 enables students to choose the most convenient time for them to practice speaking English. It, therefore, leads to their willingness to practice speaking English outside the classroom. The other benefits of implementing AI in the EFL classroom are presented in the

study by Lingjie Yuan & Xiaojuan Liu. In this study, they found that leveraging AI in EFL classes can bring numerous benefits for EFL students, including individualized learning, timely and immediate feedback, rich educational resources, and an interactive learning atmosphere (Lingjie Yuan & Xiaojuan Liu, 2025). In conclusion, in the present study, integrating Gemini AI into speaking practice has a lot of advantages because it fosters a positive, low-anxiety learning atmosphere in an English Discussion class. Gemini AI is available 24/7, and students are motivated to practice frequently and conveniently both within and outside of the classroom. In the end, Gemini AI improves the educational process by offering personalized instruction, real-time feedback, and abundant resources—all of which increase student motivation, engagement, and their speaking performance.

Yu-Fen Yang et al. suggested that teachers increase their self-efficacy beliefs in AI-based technology integration into English-speaking teaching regarding classroom management, student engagement, and instructional strategies. These findings suggest that the professional development program should incorporate lesson planning, enactment, and reflection to facilitate the enhancement of teachers' self-efficacy beliefs (Yu-Fen Yang et al., 2024). It indicates that the AI tool needs to be integrated with the most appropriate teaching strategy and lesson plan. Hence, this present study integrates Gemini AI and TBL in an English Discussion class for English Literature students at the University of Technology Yogyakarta. This integration positively influences the learning atmosphere and significantly improves students' speaking performance. Task-based language teaching is considered one of the best teaching methods to use in a speaking class since it can motivate students to learn independently. The study conducted by Albino demonstrates a significant improvement in learners' speaking fluency, evidenced by an increase in speech production speed, higher grammatical accuracy, more elaborate utterances, and enhanced interactional language skills. Furthermore, findings indicated that the learners felt encouraged to speak, believed in their potential to use the target language, expanded their vocabulary, and recognized the relevance of the TBLT approach (Albino, 2017).Additionally, Li et al. underscore the positive impacts of implementing GenAI-based TBLT (Task-Based Language Teaching), which demonstrates significant effectiveness in enhancing student linguistic performance (Li et al., 2025).

In the present study, students were enabled to establish self-directed learning by utilizing Gemini AI. This AI tool significantly enhances their motivation and confidence to speak English. The feedback provided by Gemini AI is highly effective in increasing students' grammatical accuracy, pronunciation, vocabulary, and the overall quality of their thoughtful answers. The results align with a study conducted by Xin Liu et al., which showed that the AI tool (ChatGPT4o) provided more detailed feedback than human assessors across all domains. By adopting ChatGPT4o, with participants recognizing its comprehensive feedback capabilities but expressing concerns about its accessibility, cost, and limited contextual understanding (Xin Liu et al., 2025). In the present study, most students gave positive responses relating to the use of Gemini AI to assist them during practice speaking English. They cited numerous advantages of the tool for enhancing their speaking fluency, a sentiment that was quantitatively reflected in a high mean satisfaction score of 8.1. This finding validates the study conducted by Safaa & Raniya, which reveals that students report positive perceptions of AI tools, citing real-time feedback, personalized practice, and increased engagement (Safaa & Raniya, 2025)

Despite its advantages as a conversational agent for autonomous speaking practice, the implementation of Gemini AI in self-directed learning is not without significant pedagogical and technical limitations. The analysis of learner feedback highlights a critical impediment to naturalistic interaction: Gemini's conversational management often fails to emulate human-like dialogue. When given a detailed response or explanation, Gemini tends to provide irrelevant and long-winded responses, alongside a disruptive behavior of interrupting extended learner turns. This finding converges with the study conducted by Alnasib & Alharibi, which reported that Gemini in EFL contexts is challenged by several functional limitations. Empirical data point to

high incidences of repetitive words, limited vocabulary (62%), lengthy and non-concise answers (57.3%), uncertainty about information accuracy (49.3%), unclear question format comprehension (42%), and an abundance of similar information sources (39.3%) (Alnasib & Alharbi, 2024). Additionally, Baskara also found that beyond its affordances of implementing Gemini for speaking, the investigation highlights significant limitations: first, the inappropriate calibration of linguistic difficulty; second, the rigidity of conversational exchange; and third, the fundamental necessity of reliable internet access (Baskara, 2025). Furthermore, besides the need for stable internet access, using Gemini in self-directed learning also needs a compatible device to be able to practice real-time conversation and get feedback from Gemini. The minimum technical requirements include the Android 8.0 (Oreo) operating system, 4 GB of RAM, 2–3 GB of free storage for installation and cache, and a processor with integrated AI capabilities, such as a Snapdragon 600/700 series, Google Tensor, or MediaTek Dimensity chipset, for optimal responsiveness. In the present study, one participant's device was incompatible with Gemini's technical specifications during the TBL intervention, precluding her from engaging in real-time conversational practice. Consequently, this lack of experiential engagement was associated with a minimal learning outcome, evidenced by 1% increase in the post-test score.

The integration of Gemini AI within a Task-Based Learning (TBL) framework demonstrably enhanced EFL students' speaking fluency, yielding an average improvement of 13%. This AI tool functioned as an accessible, self-directed speaking partner and mentor, providing real-time conversational practice and formative feedback on grammar, pronunciation, and other linguistic features. However, the notable variance in individual outcomes, with several participants showing gains below 10%, underscores the need for deeper qualitative investigation. Future research should therefore employ mixed methods designs, incorporating in-depth interviews to elucidate the factors underlying differential learner progress. To generalize these preliminary findings, longitudinal studies with larger, more heterogeneous cohorts across diverse proficiency levels are recommended. Such research, conducted in expanded classroom settings, would critically examine the scalability of this integrated model. It would assess how TBL pedagogies can be orchestrated to address varied learner needs and investigate the long-term dynamics of skill retention, motivational sustainability, and the interaction between proficiency levels and AI-mediated conversational affordances over time.

CONCLUSION

The study's findings collectively demonstrate that integrating Gemini AI with a Task-Based Learning (TBL) in an English Discussion class at the University of Technology Yogyakarta is a highly effective strategy for enhancing students' English-speaking skills. The quantitative data reveal a significant improvement in students' speaking performance, with a majority of participants achieving a score increase from 1% to 31% on the post-test, with an average improvement score is 13%. Moreover, the results show a substantial shift from "Fair" to "Good" achievement levels after the intervention of Gemini AI and TBL. This improvement is attributed to specific linguistic gains, including grammatical accuracy, pronunciation, and vocabulary, as well as an increased ability to provide more comprehensive and well-structured answers. Furthermore, the qualitative data show a key psychological benefit, with students reporting a significant boost in their confidence and motivation to speak English. The non-judgmental response of the AI tool and its ability to provide instant, individualized, and insightful feedback are consistently cited as the primary drivers of this positive psychological shift. By creating a supportive and low-anxiety environment, the intervention of Gemini AI and TBL successfully addressed long-standing issues such as fear of making mistakes and hesitation when speaking English. Ultimately, this study provides evidence that AI tools, like Gemini AI, are great at helping people with their speaking skills. By making learning more positive and engaging, these tools can improve linguistic abilities while tackling common speaking challenges at the same time.

To optimize the pedagogical integration of Gemini AI within a TBL framework for

speaking instruction, teachers are advised to implement several strategic measures. First, lessons must be thoughtfully designed to align AI interaction with discussion topics, including the provision of model prompts to scaffold effective real-time conversational practice using Gemini. Second, teachers should provide in-class facilitation and ongoing motivation for sustained at-home practice using Gemini and writing a personal report. Third, regular monitoring of students' personal reports and provision of personalized feedback is essential. Fourth, ensuring reliable internet infrastructure is a prerequisite. Finally, teachers should develop alternative activities for students with technically incompatible devices.

Beyond its pedagogical advantages, Gemini AI comes with its limitations. These include the generation of contextually irrelevant feedback, a tendency to interrupt extended learner turns when students gave a detailed information or explanations, and technical incompatibility that precludes equitable access to real-time conversational practice. To ensure a successful integration of Gemini AI and Task-Based Learning (TBL) in a speaking class, it is crucial to evaluate the students' specific needs, the classroom's technological capabilities, and the overall learning environment. The effectiveness of this approach hinges on a well-thought-out strategy that aligns with these conditions. However, the limited number of students involved in the study and the short period of the intervention of Gemini AI and TBL in a speaking class are the shortcomings of the present study. It is, therefore, recommended that future researchers address these shortcomings by involving more students over a longer period of intervention, besides considering integrating other teaching approaches with Gemini AI to teach English skills.

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INFORMED CONSENT STATEMENT

Participation in this study was entirely voluntary. Before involvement, participants were informed about the study's purpose, procedures, potential risks, and benefits. They were assured of confidentiality and their right to withdraw at any time without penalty, thereby providing informed consent.

DATA AVAILABILITY STATEMENT

The data supporting this study are not publicly available because of privacy concerns and ethical obligations protecting participant confidentiality. However, reasonable requests for access may be considered for verification or further analysis, subject to institutional ethical approval and compliance with consent provisions.

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