

**THE ROLE OF AI PRACTICE IN ENHANCING VOCATIONAL  
HIGH SCHOOL EFL LEARNERS' SPEAKING SELF-EFFICACY  
IN YOGYAKARTA**

*A Publication*

**Presented to the Department of English Language Education as Fulfilment of the  
Requirements to Obtain the *Sarjana Pendidikan* Degree in English Language  
Education**



**Conveyed by:**

**ANGGIE ZAHRATUL ARAFAH**

**22322051**

**DEPARTMENT OF ENGLISH LANGUAGE EDUCATION**

**FACULTY OF SOCIO AND CULTURAL SCIENCES**

**UNIVERSITAS ISLAM INDONESIA**

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## APPROVAL SHEET

### THE ROLE OF AI PRACTICE IN ENHANCING VOCATIONAL HIGH SCHOOL EFL LEARNERS' SPEAKING SELF-EFFICACY IN YOGYAKARTA

By

ANGGIE ZAH RATUL ARAFAH

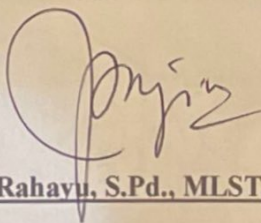
22322051



Approved on July 16<sup>th</sup>, 2026

By

Supervisor



Puji Rahayu, S.Pd., MLST., Ph.D

NIP.053310402

## RATIFICATION SHEET

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By

ANGGIE ZAH RATUL ARAFAH

22322051

Defended before the Board of Examiners on July 24<sup>th</sup> 2026 and Declared

Acceptable

Boards of Examiners

Chairperson: : Puji Rahayu, S.Pd., MLST., Ph.D.

First Examiner: : Anggara Jatu Kusumawati, S.S., M.A., Ph.D.

Second Examiner: : Banatul Murtafi'ah, S.Pd., M.Pd.

Yogyakarta, July 27<sup>th</sup> 2026, Departement of English Education Faculty of Socio

And Cultural Sciences Universitas Islam Indonesia

Head of Departement,

Anandaya Surri Ardini, S.S., M.A.

NIP. 053003880

## STATEMENT OF WORK'S ORIGINALITY

I honestly declare that this thesis, which I have written, does not contain the work of parts of the work of other people, except those cited in the quotations and references, as a scientific paper should.

Yogyakarta, July 27<sup>th</sup> 2026



The Writer,

Anggie Zahratul Arafah

22322051

## MOTTO

*"Allah does not burden a person beyond their capacity." (QS. Al-Baqarah: 286)*

*"Whoever strives, strives only for their own benefit." (QS. Al-Ankabut: 6)*

*"Indeed, with hardship comes ease." (QS. Al-Insyirah: 6)*

*"Education is the most powerful weapon to change the world." – Nelson Mandela*

## DEDICATION

This thesis is dedicated to my beloved father, the late Amrin Karya, the one I miss the most. Thank you for all the sacrifices, love, advice, and motivation, as well as every form of responsibility for providing a decent life during your time with us. Thank you for being the reason I kept fighting to earn the Bachelor of Education degree you once dreamed of for me. With the completion of this thesis, I hope I have made you proud and happy in Allah's paradise, aamiin.

To my gateway to heaven, my mother, Linda Mailani Siregar, A.Md.Kep. Thank you for fighting for my life. You are an amazing woman who has always given love, encouragement, and motivation, enabling me to face every obstacle and ultimately complete this thesis well. May you always be blessed with good health and a long life, aamiin.

My only brother, Tondy Ukasha, S.Pd., M.Sc., who has always tried his best and given his all for me, and who has continuously kept me moving forward even when I stumbled. Thank you for the great love and concern you have always shown.

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The writer realizes that the completion of this thesis would not have been possible without the support, guidance, and encouragement of various individuals. Therefore, the writer would like to express the deepest gratitude to:

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7. All participants who involved in this research and everyone whose name cannot be mentioned one by one who has helped directly or indirectly.

Finally, the writer hopes that this thesis will be beneficial for the readers and the development of English language education.

Yogyakarta, 2026

Anggie Zahratul Arafah

22322051

## TABLE OF CONTENT

|                                                           |    |
|-----------------------------------------------------------|----|
| RATIFICATION SHEET .....                                  | 3  |
| STATEMENT OF WORK'S ORIGINALITY .....                     | 4  |
| MOTTO.....                                                | 5  |
| DEDICATION.....                                           | 6  |
| ACKNOWLEDGEMENT .....                                     | 7  |
| TABLE OF CONTENT .....                                    | 9  |
| INTRODUCTION.....                                         | 11 |
| METHOD.....                                               | 13 |
| Design.....                                               | 13 |
| Participant.....                                          | 15 |
| Instrument.....                                           | 15 |
| Data Collection Technique .....                           | 17 |
| Data Analysis Technique .....                             | 17 |
| RESULTS AND DISCUSSION .....                              | 18 |
| Table 1. Paired Samples T-Test Results By Dimension. .... | 18 |
| Table 2. Performance Self-Efficacy Dimension.....         | 19 |
| Table 3. Delivery Self-Efficacy Dimension .....           | 19 |
| Table 4. Self-Regulatory Efficacy Dimension .....         | 20 |
| Table 5. Linguistic Self-Efficacy Dimension .....         | 20 |
| DISCUSSION .....                                          | 21 |
| CONCLUSION .....                                          | 24 |
| LIMITATION .....                                          | 25 |
| IMPLICATION .....                                         | 25 |
| ACKNOWLEDGEMENT .....                                     | 25 |
| REFERENCES.....                                           | 27 |



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## THE ROLE OF AI PRACTICE IN ENHANCING VOCATIONAL HIGH SCHOOL EFL LEARNERS' SPEAKING SELF-EFFICACY IN YOGYAKARTA

by

Anggie Zahratul Arafah\*  
 English Department, Universitas Islam Indonesia, Indonesia  
[22322051@students.uii.ac.id](mailto:22322051@students.uii.ac.id)

Puji Rahayu  
 English Department, Universitas Islam Indonesia, Indonesia  
[053310402@uii.ac.id](mailto:053310402@uii.ac.id)

• **Corresponding author**

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**Abstract:**

Research on the use of artificial intelligence (AI) in language learning has grown rapidly in recent years. Most existing studies focus on higher education and involve multiple intervention sessions. However, empirical evidence regarding the impact of a single-session AI-based intervention on students' speaking self-efficacy remains very limited. This study examines how AI-assisted speaking practice affects the speaking self-efficacy of EFL students at a vocational high school in Yogyakarta. Using a one-group pretest-posttest pre-experimental design, the study involved 63 students selected through convenience sampling. Data were collected via a speaking self-efficacy questionnaire administered before and after structured speaking practice sessions using ChatGPT, then analyzed using a paired-sample t-test. The results indicate that students demonstrated high levels of speaking self-efficacy across all four dimensions: linguistic self-efficacy, self-regulatory, delivery, and performance. The most significant improvement occurred in the performance self-efficacy dimension, while the smallest improvement was found in the linguistic dimension. These findings indicate that AI has the potential to boost students' self-efficacy in speaking English and can serve as a valuable tool to support the psychological well-being of EFL learners.

**Keywords:** Speaking self-efficacy, artificial intelligence, ChatGPT, EFL.

**Abstrak:**

*Penelitian tentang penggunaan kecerdasan buatan (AI) dalam pembelajaran bahasa telah berkembang pesat dalam beberapa tahun terakhir. Sebagian besar studi yang ada berfokus pada pendidikan tinggi dan melibatkan beberapa sesi intervensi. Namun, bukti empiris mengenai dampak intervensi berbasis AI sesi tunggal pada kepercayaan diri berbicara siswa masih sangat terbatas. Studi ini mengkaji bagaimana praktik berbicara dengan bantuan AI memengaruhi efikasi diri berbicara siswa EFL di sekolah menengah kejuruan di Yogyakarta. Menggunakan desain pra-eksperimental pretest-posttest satu kelompok, penelitian ini melibatkan 63 siswa yang dipilih melalui pengambilan sampel kenyamanan. Data dikumpulkan melalui kuesioner efikasi diri berbicara yang diberikan sebelum dan sesudah sesi latihan berbicara terstruktur menggunakan ChatGPT, kemudian dianalisis menggunakan uji-t sampel berpasangan. Hasilnya menunjukkan bahwa siswa menunjukkan tingkat efikasi diri berbicara yang tinggi di keempat dimensi: efikasi diri linguistik, pengaturan diri, penyampaian, dan kinerja. Peningkatan yang*

Arafah and Rahayu (2026)

*paling signifikan terjadi pada dimensi efikasi diri kinerja, sedangkan peningkatan terkecil ditemukan pada dimensi linguistik. Temuan ini menunjukkan bahwa AI memiliki potensi untuk meningkatkan*

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*kepercayaan diri siswa dalam berbicara bahasa Inggris dan dapat berfungsi sebagai alat yang berharga untuk mendukung kesejahteraan psikologis pelajar EFL.*

**Kata kunci:** Berbicara efikasi diri, kecerdasan buatan, ChatGPT, EFL.

## INTRODUCTION

The accelerated progress of Artificial Intelligence (AI) technology in recent years has unloaded new outlook to support language learning while enhancing students' psychological readiness to communicate. By leveraging AI tools such as ChatGPT, students can engage in repeated speaking practice, receive prompt feedback, and learn in a low-stress environment (Wang & Wen, 2025). Furthermore, AI can serve as a learning partner by providing personalized feedback, encouraging independent learning, and supporting the development of students' confidence (Mollick, 2024). Several studies have reported that AI-assisted speaking practice can boost students' confidence, reduce fear of negative evaluation, improve speaking fluency through automated feedback, and lower speaking anxiety (Celik et al., 2025; Wang & Wen, 2025; Wibowo et al., 2026). These findings suggest that AI holds potential not only as a technological tool but also as a psychological support mechanism for language learners.

This potential is particularly relevant in the Indonesian context, where psychological barriers remain one of the key factors hindering students' speaking skill development. Anxiety related to grammatical errors, fear of negative feedback, and low self-esteem often dissuade students from engaging in speaking activities (Misdi et al., 2022; Mulyono, 2019). At the same time, self-efficacy plays a crucial role in influencing students' motivation, learning engagement, and academic achievement (Alemayehu & Chen, 2023) Therefore, identifying strategies that can strengthen students' speaking self-efficacy has become an urgent matter to address.

Although the number of studies on AI in language learning continues to grow, previous research still reveals several limitations. First, most studies have been conducted at the higher education level, particularly among university students in East Asian and Middle Eastern countries. Second, many studies have examined the impact of AI through long-term interventions or multiple treatment sessions (Celik et al., 2025; Maharani et al., 2025). Third,

*Arafah and Rahayu (2026)*

existing research has largely focused on the technical effectiveness of AI in improving language skills, while its contribution to students' psychological well-being, particularly speaking self-efficacy, has received limited attention (Zhang & Liu, 2025). As a result, there is currently scarcity of empirical data on the effects of AI-assisted speaking practice for vocational high school students in Indonesia.

Consistent with these limitations, most previous studies involved university students as participants, employed multi-session intervention designs (Celik et al., 2025; Maharani et al., 2025b; Wang & Wen, 2025; Yildiz, 2024), and focused on improving speaking ability, speaking fluency, or reducing speaking anxiety (Ahmed Jameel Rahman & Asma Abas Brime, 2025; Yildiz, 2024). Although some studies have also reported improvements in students' confidence and self-efficacy, speaking self-efficacy has yet to become the primary focus of research (Guo & Zheng, 2026; Shinta Yuliantari et.al 2023; Tang et al., 2026). Moreover, the context of vocational high schools particularly in Indonesia remains relatively underexplored.

Three gaps emerge from the literature reviewed above. First, studies involving vocational high school students in Indonesia remain extremely rare. Second, speaking self-efficacy as a psychological construct has rarely been positioned as the primary variable in AI-assisted language learning research. Third, evidence regarding the impact of AI intervention in a single-session format has yet to be established. Due to this gap, a one-time study was carried out to investigate the impact of a single session of AI-assisted speaking practice on the self-efficacy of speaking among vocational high school students in Indonesia.

This study makes a valuable contribution from both theoretical and practical perspectives. From a theoretical standpoint, this research complements existing scholarly material and discussions on the psychological role of AI in language learning, particularly its impact on students' sense of competence and self-confidence when practicing speaking. Practically, it provides preliminary evidence for English language teachers regarding the potential of AI-based speaking practice as an accessible strategy for enhancing students' confidence in speaking English (Mollick, 2024,; Macinska & Vinkler, 2025). There are three aspects that distinguish this study from others. First, this study focuses on students' psychological aspects, particularly their self-confidence when speaking. Second, these AI-assisted speaking exercises were completed in a single session. Third, this study was conducted in a unique context among vocational high school students in Indonesia.

*Arafah and Rahayu (2026)*

Findings from previous studies further reinforce the demand for research. Specifically, there is a clear need to examine firsthand how AI-based speaking practice shapes the speaking self-efficacy of vocational high school students in Indonesia. Most prior studies involved university students with multi-session intervention designs (Celik et al., 2025; Wang & Wen, 2025; Yildiz, 2024), concentrated on variables such as speaking ability improvement, fluency, or speaking anxiety reduction (Ahmed Jameel Rahman & Asma Abas Brime, 2025; Yildiz, 2024) and had not specifically positioned speaking self-efficacy as the central construct under investigation (Guo & Zheng, 2026; Tang et al., 2026). These limitations collectively reinforce the urgency of a study that places speaking self-efficacy at the center of a single-session design within the Indonesian vocational high school context.

Speaking English requires not merely in their own linguistic competence, but also the students' belief in their capability to communicate effectively. In the EFL context, many students struggle with speaking not merely because of limited vocabulary or grammatical knowledge, but because of low speaking self-efficacy (Bandura, 1977). Students' belief that they can perform well on speaking tasks indicates that they have high self-efficacy. Students typically demonstrate greater motivation, higher perseverance, and greater self-confidence in communication, and better speaking performance (Leeming et al., 2024; Li & Zhang, 2023; Youvalari, 2021). According to (Bandura, 1977), self-efficacy develops by the way of four main sources: mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states.

Based on the research gaps identified above, this study investigates the effect of a single session of AI-based speaking practice on the speaking self-efficacy of vocational high school students in Indonesia by addressing the following research question ***"Does AI-based speaking practice enhance speaking self-efficacy among EFL learners?"*** Drawing on the review of previous studies, the following theoretical hypotheses is proposed: ***AI-based speaking practice significantly improves the speaking self-efficacy of EFL learners.***

## METHOD

### ***Design***

This was a pre-experimental study, specifically a one-group pretest-posttest design according to (Campbell et al., 1963). Unlike true experimental designs, this study had no control group. Consequently, only one group of participants engaged in the intervention. This design was implemented to compare students' levels self-efficacy in speaking before and after

*Arafah and Rahayu (2026)*

undergoing AI-assisted speaking practice in a specific class at the vocational school in Yogyakarta, Indonesia.

The independent variable (X) in this study is AI-supported speaking practice, specifically using ChatGPT. This variable refers to a single, structured speaking practice session in which students interact with ChatGPT to respond to speaking prompts, receive feedback, and refine their responses through follow-up questions. The dependent variable (Y) in this study is students' self-efficacy in speaking. This refers to students' belief in their ability to effectively perform speaking tasks in English. This variable is measured using a self-efficacy in speaking questionnaire, which is administered before and after the intervention.

*Figure 1. One Group Pretest-Posttest Research Design*

| Class | Pre-Test | Treatment | Post-Test |
|-------|----------|-----------|-----------|
| E     | O1       | X         | O2        |

Explanation:

E= Group experiment

O1 = The pretest administered before the treatment measures students' initial level of speaking self-efficacy.

X = The treatment consists of AI-assisted speaking practice using ChatGPT.

O2 = The posttest administered after the treatment to measure students' speaking self-efficacy following the intervention.

The intervention in this study was conducted in a single meeting lasting approximately two hours on a Tuesday, involving one class of students at the vocational school. The session began with the researcher explaining the procedure and purpose of the study to the students, including an overview of the activity they would undergo and how ChatGPT would be used as a speaking practice partner. Following this explanation, students completed the pre-test questionnaire to measure their initial level of speaking self-efficacy.

After the pre-test, the treatment was administered. Students were introduced to a structured prompt that instructed ChatGPT to act as a conversation partner and English teacher, posing one question at a time on a given topic, allowing students to respond, and providing corrective feedback on grammar, phrasing, pronunciation, and vocabulary throughout the interaction. The prompt used was as follows:

*Arafah and Rahayu (2026)*

*"Serve as my conversation partner and English teacher by posing interesting questions about (the topic of the week). Please only ask one question at a time, then give me time to respond. After I respond, ask different questions related to the subject. Do not limit yourself to just one line of questioning. Make sure the discussion is lively and engaging. Please correct my English grammar, phrasing, pronunciation, and vocabulary as we go along. If you understand, respond with "I understand" and move on to the next question."*

During the treatment, the researcher guided students individually, ensuring each student understood how to input the prompt, initiate the conversation with ChatGPT, and respond to the follow-up questions generated by the AI. This one-on-one guidance was intended to ensure that every student was able to engage meaningfully with the AI-based speaking activity despite variations in their familiarity with the technology. Once all students had completed their individual sessions with ChatGPT, the same questionnaire used in the pre-test was administered again as the post-test to assess any changes in students' speaking self-efficacy following the intervention. The data collected from both administrations were then analyzed using a paired-sample t-test to determine the significance of the difference between students' pre-test and post-test scores, thereby evaluating the effectiveness of the AI-based speaking exercise implemented in this study.

### ***Participant***

Sixty-three male vocational high school (SMK) students in Yogyakarta from two intact classes participated in the research. However, only 57 students were included in the final analysis because six participants submitted incomplete responses. They were all beginner level students who were in grade 10 students majoring in automotive. Convenience sampling was used to select participants to ensure accessibility and the students' availability to join the study. Prior to data collection, the researchers obtained approval for the study from the school administration. Participants were given a brief explanation of the study's objectives and methods, with an emphasis on the voluntary nature of their participation and the confidentiality of their involvement. Given that the participants were high school students, consent was secured from both the school and the appropriate teachers.

### ***Instrument***

This study relied on a questionnaire as its primary data collection instrument designed to measure students' self-efficacy in speaking English. The selection of this instrument was based on the research focus, which was directed more toward examining changes in students'

*Arafah and Rahayu (2026)*

levels of self-efficacy in speaking English, rather than directly assessing their speaking skills. Thus, this study did not use tests, interviews, or observations, but relied entirely on the questionnaire as the sole data collection tool. This questionnaire was adapted from (Yildiz, 2024) and developed based on the speaking self-efficacy framework proposed by (Bandura, 1977). This instrument was selected because it specifically measures students' Self efficacy in their ability to perform English speaking tasks.

To ensure its suitability for the context of vocational high school (SMK) students in Indonesia, the instrument underwent an adaptation process consisting of three stages. First, the instrument was translated from English into Indonesian to make sure the meaning was clear and the participants could easily understand it. This translation process involved more than just translating word by word, but it also ensured that the meaning of each item remained the same as in the original language, despite any linguistic differences. For example, the statement "When speaking English in the classroom, I can speak fluently" was translated into "Ketika berbicara bahasa Inggris di kelas, saya dapat berbicara dengan lancar." Similarly, the statement "I am not stressed out when speaking English in the classroom" was translated as "Saya tidak merasa tertekan saat berbicara bahasa Inggris di kelas." Vocabulary adjustments were made carefully to remain natural for students without changing the construct being measured.

Second, several items were modified to align with the learning context in Indonesian high schools. For example, the original statement "I actively participate in my speaking course" was adjusted to "Saya aktif berpartisipasi dalam pembelajaran berbicara di kelas" to reflect the formal learning situation in schools. Furthermore, the term "course" was consistently adjusted to "kelas" to better suit the context of secondary education in Indonesia.

Third, the instrument was validated by a PhD holder in the field of English language education to ensure content validity, language clarity, and the significance of each item in relation to the concept of self-efficacy in speaking. This validation process was also aimed at ensuring that each statement was understood by the students according to their developmental level.

In terms of reliability, this questionnaire was adapted from the instrument developed by (Yildiz, 2024), which had previously demonstrated strong internal consistency, with Cronbach's alpha values of .74 for the pre-test and .95 for the post-test. Given that the adapted version in this study retained the original structure, sub-dimensions, and item content of (Yildiz, 2024) instrument with adjustments limited to translation and contextual wording, the reliability

*Arafah and Rahayu (2026)*

evidence reported in the original study was considered a reasonable basis for the instrument's internal consistency. However, it is acknowledged that reliability testing was not reconducted on the specific sample of this study, which is addressed as a limitation in the discussion section.

The final questionnaire consisted of 15 statements that measured students' self-efficacy in speaking English. This scale included four sub-dimensions: linguistic self-efficacy (five items), self-regulatory efficacy (three items), delivery self-efficacy (three items), and performance self-efficacy (four items). These four sub-dimensions reflected key aspects of speaking ability, such as fluency, pronunciation accuracy, grammar usage, the ability to organize ideas, and self-efficacy in speaking in class. Furthermore, this instrument also covered self-regulation aspects, such as the ability to set goals and evaluate speaking performance, as well as academic aspects related to students' beliefs regarding success in speaking tasks and assessments. Every statement in this tool is evaluated on a scale from 1 to 10, with lower scores indicating low self-efficacy and higher scores signifying high self-efficacy. This 10-point scale was intentionally selected to enhance the instrument's ability to identify even minor variations in students' self-efficacy levels.

### ***Data Collection Technique***

The data was gathered by administering questionnaires to students both prior to and following the intervention. The survey tool was made available as a [Google Form](#) to facilitate easy access. Students filled out the questionnaires in the classroom, with the researcher's presence to ensure they comprehended the instructions and answered the questions on their own. This approach was intended to uphold uniformity in data collection and reduce possible response bias.

### ***Data analysis technique***

The questionnaire used generated quantitative data in the form of numerical scores reflecting students' levels of self-efficacy in speaking. These scores were treated as interval data and served as the basis for statistical analysis. All statistical calculations in this study were performed using Jamovi software version 2.6.

Data analysis included two approaches, descriptive and a paired sample t-test. The initial stage began with descriptive statistics to summarize students' self-efficacy scores in speaking, including the mean, standard deviation, and minimum and maximum values. The next step was

*Arafah and Rahayu (2026)*

a normality test to ensure that the data were suitable for analysis using parametric statistics. The test yielded a significant value of 0.106 ( $p > 0.05$ ), indicating that the data were normally distributed.

Once the assumptions of normality were met, a paired t-test was conducted to comparing students' speaking self-efficacy scores between the pretest and posttest, with the following hypothesis. The statements AI-based speaking practice significantly improves EFL learners' self-efficacy. The analysis results indicate the presence of statistically significant improvement from pre-test ( $M = 4.83$ ) to post-test ( $M = 7.50$ ), with a mean difference of 2.67 and t-value of -10.3 ( $df = 57, p < .001$ ).

## RESULTS AND DISCUSSION

### Results

To answer the first research question “Does AI-based speaking practice enhance speaking Self-Efficacy among EFL learners?”, the analysis began by calculating descriptive statistics for each dimension of self-efficacy at the pre-test and post-test stages. The mean scores for the performance, delivery, self-regulation, and linguistic dimensions before and after the intervention are summarized in Table 1. In the performance self-efficacy dimension, scores increased from ( $M = 4.66$ ) to ( $M = 7.51$ ), ( $t(57) = -9.85, p < .001, d = -1.29$ ). The delivery self efficacy dimension increased from ( $M = 5.02$ ) to ( $M = 7.68$ ), ( $t(57) = -9.20, p < .001, d = -1.21$ ). A similar trend was observed in the self-efficacy for self-regulatory dimension recorded an average increase from ( $M = 4.85$ ) to ( $M = 7.49$ ), ( $t(57) = -9.53, p < .001, d = -1.25$ ). Meanwhile, the linguistic self-efficacy dimension, the mean score increased from ( $M=4.79$ ) to ( $M=7.33$ ), ( $t(57) = -10.50, p < .001, d = -1.38$ ). Of all these aspects, the performance dimension showed the highest increase, with an average difference of 2.85, while the linguistic dimension recorded the lowest growth, with an average difference of 2.54.

**Table 1. Paired Samples T-test results by dimension.**

| <i>Dimension</i>            |             | <i>Pre test Mean</i> | <i>Post test Mean</i> | <i>Mean difference</i> | <i>t</i> | <i>df</i> | <i>pvalue</i> | <i>Effect size (cohen's d)</i> |
|-----------------------------|-------------|----------------------|-----------------------|------------------------|----------|-----------|---------------|--------------------------------|
| <i>Performance Efficacy</i> | <i>Self</i> | 4.66                 | 7.51                  | 2.85                   | -9.85    | 57        | <.001         | -1.29                          |

| <i>Arafah and Rahayu (2026)</i> |      |      |      |       |    |       |       |
|---------------------------------|------|------|------|-------|----|-------|-------|
| <i>Delivery Self-Efficacy</i>   | 5.02 | 7.68 | 2.66 | -9.20 | 57 | <.001 | -1.21 |
|                                 | 4.85 | 7.49 | 2.64 | -9.53 | 57 | <.001 | -1.25 |
| <i>Efficacy</i>                 |      |      |      |       |    |       |       |
| <i>Linguistic Self-Efficacy</i> | 4.79 | 7.33 | 2.54 | -10.5 | 57 | <.001 | -1.38 |
| <b>Total</b>                    | 4.83 | 7.50 | 2.67 | -10.3 | 57 | <.001 | -1.35 |
| <i>Self- Regulatory</i>         |      |      |      |       |    |       |       |

Statistically, a paired-samples t-test showed that the total post-test score is higher than the pre-test score  $t(57) = -10.3$   $p < .001$ . The alternative hypothesis ( $H_a$ ), which states that artificial intelligence (AI)-based speaking exercises significantly improve EFL learners' self-efficacy in speaking, was therefore accepted.

For performance self-efficacy dimension, the highest increase was on the item “*I can understand the most difficult material presented in speaking course*” with a mean difference of 3.20, while the lowest increase was found in the items “*I can do an excellent job on the assignments and tests in the speaking course*” and “*I can receive an excellent grade in speaking course*” with the same mean difference of 2.67.

**Table 2. Performance self-efficacy dimension**

| <i>Questionnaire Items</i>                                                                                                | <i>Pre-test</i> | <i>Post-test</i> | <i>Mean Difference</i> |
|---------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|------------------------|
| <i>I can understand the most difficult material presented in speaking course.</i>                                         | 4.47            | 7.67             | 3.2                    |
| <i>I can do an excellent job on the assignments and tests in the speaking course.</i>                                     | 4.75            | 7.42             | 2.67                   |
| <i>Considering the difficulty of the speaking course, the teacher, and my skill, I think I can do well in this class.</i> | 4.76            | 7.52             | 2.76                   |
| <i>I can receive an excellent grade in speaking course.</i>                                                               | 4.73            | 7.40             | 2.67                   |

The increase on delivery self-efficacy dimension, the highest increase was found in the item “*I enjoy speaking English outside the classroom*” with a mean difference of 2.96, while the lowest increase was found in the item “*When speaking English in the classroom, I can speak with confidence*” with a mean difference of 2.42.

**Table 3. Delivery self-efficacy dimension**

| <i>Questionnaire Items</i>                                                  | <i>Pre-test</i> | <i>Post-test</i> | <i>Mean Difference</i> |
|-----------------------------------------------------------------------------|-----------------|------------------|------------------------|
| <i>When speaking English in the classroom, I can speak with confidence.</i> | 5.25            | 7.67             | 2.42                   |

*Arafah and Rahayu (2026)*

|                                                                      |      |      |      |
|----------------------------------------------------------------------|------|------|------|
| <i>I am not stressed out when speaking English in the classroom.</i> | 5.30 | 7.79 | 2.49 |
| <i>I enjoy speaking English outside the classroom.</i>               | 4.63 | 7.59 | 2.96 |

In Self-regulatory efficacy dimension, the highest increase was found in the item “*I actively participate in my speaking course to improve my speaking*” with a mean difference of 2.69, while the lowest increase was found in the item “*When speaking English in the classroom, I can think of my goals before speaking*” with a mean difference of 2.55.

**Table 4. Self-regulatory efficacy dimension**

| <b>Questionnaire Items</b>                                                                           | <b>Pre-test</b> | <b>Post-test</b> | <b>Mean Difference</b> |
|------------------------------------------------------------------------------------------------------|-----------------|------------------|------------------------|
| <i>I actively participate in my speaking course to improve my speaking</i>                           | 4.68            | 7.37             | 2.69                   |
| <i>When speaking English in the classroom, I can think of my goals before speaking.</i>              | 5.02            | 7.57             | 2.55                   |
| <i>When speaking English in the classroom, I can evaluate whether I achieve my goal in speaking.</i> | 4.89            | 7.50             | 2.61                   |

Within the linguistic self-efficacy dimension, the greatest increase was observed in the item “*When speaking English in the classroom, I can speak with grammatical accuracy*” with a mean difference of 2.76, while the lowest increase was found in the item “*When speaking English in the classroom, I can speak fluently*” resulting in mean difference of 2.35.

**Table 5. linguistic self-efficacy dimension**

| <b>Questionnaire Items</b>                                                                                             | <b>Pre-test</b> | <b>Post-test</b> | <b>Mean Difference</b> |
|------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|------------------------|
| <i>When speaking English in the classroom, I can speak fluently.</i>                                                   | 4.93            | 7.28             | 2,35                   |
| <i>When speaking English in the classroom, I can logically organize my words</i>                                       | 4.67            | 7.24             | 2,57                   |
| <i>When speaking English in the classroom, I can speak with few pause or filler (i.e., “Um,” “Ah,” or “You Know”).</i> | 4.81            | 7.17             | 2,36                   |
| <i>When speaking English in the classroom, I can speak with grammatical accuracy.</i>                                  | 4.71            | 7.47             | 2,76                   |
| <i>When speaking English in the classroom, I can speak with correct pronunciation, intonation, and liaison.</i>        | 4.77            | 7.47             | 2,7                    |

**Discussion**

This study was designed to investigate whether AI-based speaking practice could improve speaking self-efficacy among English as a Foreign Language (EFL) learners. The analysis divulged a significant difference between pretest and posttest scores following the AI-assisted speaking session. Based on these findings, (H<sub>a</sub>) was accepted indicating that AI-based speaking practice contributed significantly to the improvement of speaking self-efficacy among vocational high school (SMK) students. Overall, improvements were observed across four dimensions: performance self-efficacy, delivery self-efficacy, self-regulatory efficacy, linguistic self-efficacy.

The first finding revealed that, based on the mean difference, the greatest improvement occurred in the dimension of performance self-efficacy, reflecting students' growing self-efficacy in understanding the most challenging material in speaking instruction, as well as in completing speaking tasks. These results support the findings of (Ahmed Jameel Rahman & Asma Abas Brime, 2025; Celik et al., 2025; Yildiz, 2024), who reported that AI-assisted speaking environments can increase student participation and self-efficacy in communication activities. (Mollick, 2024) similarly asserts that AI can function as a learning partner that supports independent learning while simultaneously building learner confidence.

What distinguishes this study, however, is its context. It was conducted in Indonesian vocational high school students using a single-session intervention, while most prior studies involved university students with interventions spanning several weeks or multiple sessions (Celik et al., 2025; Maharani et al., 2025; Wang & Wen, 2025; Yildiz, 2024). This contextual difference suggests that improvements in speaking self-efficacy do not necessarily require longterm intervention, and that even a single AI-based session can produce measurable gains in students' speaking self-efficacy (Pendidikan & Mataram, 2026).

From the perspective of Bandura (1977) self-efficacy theory, these improvements can be attributed to the combination of mastery experiences and verbal persuasion that students received through the AI responses, corrections, and feedback during the practice session. In this regard, AI may pose as not just simply a instrument of technology, but also as a source of psychological support that reinforces students' belief in their capacity to complete speaking tasks (Guo & Zheng, 2026). Nevertheless, since this study did not incorporate a control group,

*Arafah and Rahayu (2026)*

it cannot be fully established whether the gains in performance self-efficacy were solely attributable to the AI intervention or were also influenced by other factors, such as the novelty effect of using new technology in the classroom (Campbell et al., 1963). Chiefly, these findings reveal that a single session of AI-based speaking practice is sufficient to produce meaningful improvements in performance self-efficacy, demonstrating that AI-based interventions can have a significant psychological impact even within a limited timeframe.

The second finding indicated improvements in delivery self-efficacy and self-regulatory efficacy, ranking as the second and third highest increases among all dimensions. The increase in self-regulatory efficacy reflects students' strengthened belief in their ability to manage and plan their own speaking learning process independently. In line with this, the increase in delivery self-efficacy reflects students' growing self-efficacy in conveying messages orally, as such, these two aspects mutually reinforce one another in fostering both learning autonomy and students' self-efficacy in oral communication. This finding is consistent with (Alemayehu & Chen, 2023), who underscores the imperativeness of self-efficacy in enhancing students' motivation and learning engagement. It also aligns with (Macinska & Vinkler, 2025), who demonstrated that AI can support independent learning through personalized feedback and realtime evaluation, and with (Mollick, 2024), who argues that AI has the potential to encourage students to take greater ownership of their learning process. The comparison of effect sizes shows that the improvements in self-regulatory efficacy and delivery self-efficacy were relatively higher in effect than that of linguistic self-efficacy.

From (Bandura, 1977) theoretical perspective, self-regulatory efficacy is closely tied to accumulated mastery experiences built consistently over time, meaning that a single intervention session may not be sufficient to establish strong self-regulatory beliefs. This limitation is compounded by the absence of a follow-up phase in research design, leaving open the question of whether the observed gains in self-regulatory efficacy could be sustained or further developed through a more extended intervention (Campbell et al., 1963). It can therefore be concluded that while a single session of AI-based speaking practice produced initial gains in students' self-regulatory efficacy, the development of these dimensions likely requires a longer and more structured intervention to yield more substantial and lasting change.

The third finding shows an increase in the dimensions of linguistic self-efficacy, referring to students' belief in terms of their abilities to use grammar, vocabulary, and pronunciation in English communication. A comparison of mean differences shows that the

*Arafah and Rahayu (2026)*

increase in linguistic self-efficacy was less pronounced than in performance, delivery and self-regulatory efficacy. This suggests that while students quickly improved their overall performance and willingness to speak, changes in linguistic beliefs, such as grammar mastery, develop more slowly and require consistent reinforcement. This is supported by (Zhang, 2024) who noted that developing linguistic strategies in an EFL context requires ongoing exposure. Although the increase was the smallest compared to other dimensions, this finding broadly aligns with (Ahmed Jameel Rahman & Asma Abas Brime, 2025; Celik et al., 2025; Wibowo et al., 2026; Yildiz, 2024) all of whom reported that AI-assisted speaking practice can enhance students' self-efficacy in communicating in English. However, those studies did not specifically differentiate improvements in self-efficacy by linguistic dimension, whereas the present study demonstrates that the changes occurred particularly in students' beliefs regarding their grammatical, lexical, and phonological abilities. This finding also differs from (Li & Zhang, 2023; Wang & Wen, 2025) whose primary outcomes were speaking fluency and accuracy rather than the psychological dimensions underlying language use, further highlighting AI capacity to strengthen not only linguistic performance, but also the psychological beliefs that support it. Theoretically, this finding can be explained through two complementary mechanisms. First, (Bandura, 1977) argues that mastery experiences are the primary source of self-efficacy development and this is precisely what occurred as students practiced speaking repeatedly and received immediate feedback from the AI, gradually building their linguistic self-efficacy. It should be noted, however, that the improvement in linguistic self-efficacy in this study was measured solely through a self-perception questionnaire rather than a direct speaking performance test, meaning that whether the observed gains in linguistic self-efficacy are reflected in students' actual speaking ability remains uncertain (Campbell et al., 1963). Nevertheless, a single session of AI-based speaking practice proved capable of triggering initial gains in EFL students' linguistic self-efficacy, primarily through the simultaneous operation of mastery experiences and physiological emotional states reduction during the practice process.

Taken together, this study provides preliminary evidence that AI can be leveraged not only to support language skill development but also to strengthen the psychological dimensions of students' speaking learning (Celik et al., 2025; Wibowo et al., 2026). The improvements in speaking self-efficacy observed in this study are primarily explained through the mechanisms of mastery experiences, verbal persuasion, and physiological-emotional states (Bandura, 1977). Repeated speaking practice provided students with experiences of success, AI generated

*Arafah and Rahayu (2026)*

feedback reinforced their beliefs in their own abilities, and the low-pressure learning environment helped reduce speaking anxiety (Tang et al., 2026). Vicarious experiences, by contrast, appeared to play a less prominent role, as students interacted individually with AI without observing the performance of their peers (Bandura, 1977).

### **Conclusion**

This research aims to find out whether speaking practice facilitated by artificial intelligence (AI) can have a positive impact on the speaking self-efficacy of EFL learners. The results of the analysis show a statistically significant difference between students' speaking self-efficacy scores on the pretest and posttest after participating in AI-assisted speaking practice. Based on these findings ( $H_a$ ) which states the opposite is accepted. These results suggest that AI-assisted speaking practice is closely associated with an increase in students' speaking self-efficacy.

This improvement occurred evenly across all dimensions of speaking self-efficacy, namely linguistic self-efficacy, self-regulation, delivery, and performance. The highest increase occurred in the performance self-efficacy dimension, while the lowest increase was recorded in the linguistic self-efficacy. These findings indicate that practicing speaking through AI can strengthen students' confidence, readiness, and motivation in using English as a communication tool.

From a theoretical perspective, this study's outcomes align with Bandura's self-efficacy theory, especially concerning how mastery experiences and physiological-emotional states shape students' perceptions of their own abilities. The opportunities to have repeated speaking practice, direct feedback, and to have a low-pressure environment appear to foster positive speaking experiences, which ultimately contribute to increased self-efficacy in speaking. Furthermore, these findings also underscore that AI goes beyond a technological apparatus, but as a learning partner that supports students' language acquisition and emotional development.

This study offers initial evidence suggesting that incorporating artificial intelligence (AI) into speaking practice may serve as an effective instructional approach for building students' confidence in using English at the vocational high school level. Therefore, English teachers may consider integrating AI-based speaking activities into the learning process to create more speaking opportunities for their students in a comfortable and supportive environment.

***Limitation***

Several limitations of this study should be noted. To begin with, since a pre experimental design lacking a control group was used, a definitive cause-and-effect relationship cannot be confirmed, which limits the strength of conclusions drawn about the intervention's impact Campbell et al. (1963). Second, the single-session intervention limits this study's ability to determine whether the observed improvements in speaking self-efficacy can be sustained over the long term. Third, data were collected exclusively through a questionnaire, meaning that actual changes in students' speaking ability were not directly measured Leeming et al. (2024). It is therefore recommended that future studies apply experimental designs incorporating control groups, lengthen the intervention period, and pair self-efficacy measures with direct evaluations of speaking performance, so that the influence of AI-assisted speaking practice on EFL learners may be examined with greater depth and thoroughness.

***Implication***

The results of this study show that AI can be a useful tool for practicing English speaking skills and boosting students' self-confidence. Nevertheless, these results should be viewed while keeping in mind several limitations of the study, as it was carried out without a control group, involved just one practice session, and focused on vocational high school students in Yogyakarta. Consequently, future studies are encouraged to adopt a true experimental design that incorporates a control group for comparison, extends the duration of treatment, and utilizes various data collection methods to generate stronger evidence concerning AI's effects on students' self-efficacy and speaking competence.

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**BIO-PROFILE:**

**Anggie Zahratul Arafah** is a student in the English Language Education program at Universitas Islam Indonesia. Her research interests include English language teaching (ELT), speaking skills, and technology-enhanced language learning. Her corresponding email:

[22322051@students.uii.ac.id](mailto:22322051@students.uii.ac.id)

*Arafah and Rahayu (2026)*

Puji Rahayu, Ph.D., is an English teacher at Universitas Islam Indonesia with a strong focus on technology-enhanced language teaching. Her work focuses on incorporating digital resources to foster engaging and effective learning opportunities. Currently, her research shows how artificial intelligence can assist in enhancing students' speaking abilities, with the goal of building confidence, fluency, and practical communication skills. Puji is dedicated to merging pedagogy with innovation to help learners succeed in a global and digital world. Through her teaching and research, she continues to make significant contributions to progressive and impactful language education. Corresponding email: [053310402@uii.ac.id](mailto:053310402@uii.ac.id)

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