REDUCING ENGLISH SPEAKING ANXIETY IN CLASSROOM PRESENTATIONS: THE ROLE OF CHATBOT-ASSISTED PREPARATION

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ABSTRACT

Speaking anxiety is a common issue among students in an English learning context, particularly when engaging in oral presentations. This study investigates whether chatbot-assisted preparation can reduce speaking anxiety among non-English major students. Employing pre-test post-test control group design, 40 participants were randomly distributed to either an experimental group (preparation with chatbot assistance) or a control group (preparation without chatbot assistance). A modified, Indonesian-translated version of the Foreign Language Classroom Anxiety Scale (FLCAS) was used to measure anxiety levels. Independent pre-test comparisons showed no significant difference between groups (p = 0.635), indicating baseline equivalence. Paired-sample t-test results revealed a significant decrease in anxiety within the experimental group (p < 0.001), while the control group showed no significant change (p = 0.558). Finally, independent post-test comparisons indicated a significantly lower anxiety level in the experimental group compared to the control group (p = 0.002). These findings suggest that chatbots can be a valuable tool for reducing speaking anxiety and enhancing oral performance in foreign language education.

Keyword : *Artificial intelligence, chatbot, English language learning, speaking anxiety, technology-enhanced language learning*

INTRODUCTION

English is a compulsory course at the higher education level. Of the four basic language skills, students often consider speaking to be the most difficult skill (Hartshorn et al., 2023). Nevertheless, having strong English speaking skills is crucial for university students, including those from non-English majors, as it enhances both academic performance and career prospects. Therefore, developing proficiency in spoken English is crucial for students.

To improve students' English speaking skills, an approach that actively encourages them to speak English is essential. One such method is oral presentations (Al-khresheh, 2024; Ati & Parmawati, 2022). However, many students still lack the willingness to speak. A primary reason for this reluctance is low self-confidence (Pale & Wisrance, 2021), often

stemming from anxiety (AbuSahyon et al., 2023). Anxiety in speaking a foreign language arises from various causes, such as insufficient grammar knowledge, limited vocabulary, inadequate speaking practice, fear of making mistakes, and fear of negative evaluation (Horwitz et al., 1986; Octaberlina et al., 2022; Sadighi & Dastpak, 2017). This anxiety negatively impacts students' speaking performance (Alrasheedi, 2020; Amoah & Yeboah, 2021) and disrupts the effectiveness of the learning process. Consequently, strategies to mitigate students' English speaking anxiety are urgently needed.

The issue of anxiety when speaking a foreign language has been widely studied in academic research for many years. Various strategies have been proposed to address this issue. Conventional efforts to reduce anxiety have focused on creating a supportive classroom environment (Young, 1991). Recent studies influenced by positive psychology have highlighted the importance of enjoyment, self-efficacy, and emotional resilience in addressing anxiety problems (Dewaele et al., 2018; Dewaele & MacIntyre, 2016). Moreover, advancements in technology-enhanced language learning (TELL) offer new methods for reducing anxiety, such as the use of virtual reality (VR) and web-based automatic speech recognition (ASR) (Bashori et al., 2022; Ding, 2024).

The advent of artificial intelligence (AI) technology, particularly AI-powered chatbots, offers a technologically mediated alternative for addressing speaking anxiety. Chatbots can facilitate various anxiety mitigation strategies. For instance, they could provide a safe and supportive learning environment (Wang et al., 2024; Zarei et al., 2024), aligning with classical anxiety reduction methods. Additionally, chatbots may enhance learning enjoyment and improve self-efficacy (Hapsari & Wu, 2022; Kim & Su, 2024), factors linked to reduced anxiety in positive psychology. Empirical studies further support their effectiveness in reducing speaking anxiety (Çakmak, 2022; Wang et al., 2024; Ziwen & Hongwei, 2025), underscoring their potential in addressing this issue.

Although some studies highlight the potential of chatbots in addressing the issue of speaking anxiety, some scholars show a different view. El Shazly (2021), for example, found that while students reported improved speaking performance and reduced anxiety in general, their speaking-specific anxiety did not change significantly. This suggests that chatbot integration may not uniformly show positive results across all contexts or dimensions of anxiety. This perspective offers a more balanced view and underscores the need for further empirical validation.

Despite these promising findings, there remains a noticeable gap in the literature as few studies have investigated the use of chatbots specifically for oral presentation preparation, and even fewer have explored their effectiveness in reducing speaking anxiety in discipline-specific contexts such as non-English majors. Moreover, most existing studies have focused on general language classes or conversation practice, overlooking structured academic speaking tasks like presentations, which are often major sources of anxiety for students. This gap may stem from pedagogical factor in which presentation is often guided by teacher of peer feedback. Thus, teachers may not yet perceive chatbots as part of that process.

In response to this gap, the current study investigates the impacts of chatbot-assisted preparation on English speaking anxiety among midwifery students. In particular, the study explores whether using a chatbot to help organize presentation content, correct grammar, and support translation can reduce anxiety levels during English presentation tasks. This study addresses these key research questions:

RQ1. Is there a significant change in students' English speaking anxiety levels within the experimental group after preparing a presentation with chatbot assistance?

RQ2. Is there a significant change in students' English speaking anxiety levels within the control group after preparing a presentation without chatbot assistance?

RQ3. Does preparing a presentation with chatbot assistance significantly reduce students' English speaking anxiety compared to preparing without it?

This study enriches language learning research by demonstrating how chatbots can move beyond casual use to support students in structured speaking practice. Theoretically, it expands the scope of human-computer interaction in education, highlighting chatbots' role as pedagogical tools. Practically, it offers insights for language teachers, curriculum developers, and educational institutions seeking innovative strategies to mitigate speaking anxiety and boost students' confidence in professional communication contexts.

METHOD

The present study implemented a pre-test post-test control group design to investigate how chatbot-assisted preparation impacts English-speaking anxiety in midwifery students. The design included two groups. One group (experimental) received chatbot assistance during presentation preparation, while the other (control) did not.

This study included 40 midwifery students enrolled in an English course at Islam Mulia University of Yogyakarta, Indonesia. A convenience sampling technique was used, selecting

students who were accessible and willing to participate. To maintain ethical standards, the confidentiality and anonymity of all participants were ensured throughout the study. After providing informed consent, participants were randomly distributed to either the group with chatbot assistance or the group without chatbot assistance, with 20 students in each. Since this study sample size is relatively small, it limits the generalizability of the findings and may reduce the statistical power. These limitations are acknowledged and further discussed in the conclusion.

To assess English speaking anxiety, this study employed an 18-item adaptation of the Foreign Language Classroom Anxiety Scale (FLCAS), originally developed by Horwitz et al. (1986) and later modified by Öztürk & Gürbüz (2014). The adapted scale focused exclusively on speaking-related anxiety, reducing the original 33-item inventory for greater relevance. Responses were collected using a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). To enhance participant understanding, the instrument was translated into Indonesian. The accuracy of the translation was verified through cognitive interviewing in a pilot study with 8 midwifery students who were learning English. They were asked to read each item and explain what they thought it meant in their own words. Based on their feedback, some words and phrases were revised to make the items easier to understand while keeping the original meaning. Furthermore, prior to the main study, a pilot test confirmed the scale's reliability, resulting a Cronbach's alpha of 0.848.

The study spanned seven weeks. During the initial week, all participants completed the pre-test using the adapted FLCAS instrument. On the same day, students were also asked whether they had used chatbots. The majority reported having used Meta AI, while some had tried ChatGPT and Gemini. However, none of the students had used these tools for learning English. To ensure consistent understanding, the experimental group was given brief orientation session on how to use chatbot to prepare a presentation. Subsequently, they were randomly allocated to either the experimental or control group. During weeks two to four, students engaged in their respective preparation activities. Students in the experimental group used a chatbot (e.g., ChatGPT, Meta AI, Gemini) to assist them in organizing the content of their presentations, correcting grammatical errors, and helping with translation tasks from Indonesian to English. Meanwhile, the control group prepared their presentations using conventional resources such as google translate, notes, and peer discussion without any chatbot assistance. In weeks five and six, all students delivered their English presentations in

class. At the end of the seven-week period, participants in both groups took a post-test to determine changes in their speaking anxiety levels.

The pre-test and post-test data were processed in JASP, followed by statistical analysis. Key descriptive measures, such as means and standard deviations, were computed for the experimental and control groups. To verify that the groups were comparable at the outset, an independent-samples t-test was conducted on their pre-test anxiety scores. Subsequent analyses included a paired-samples t-test to assess changes in speaking anxiety within each group between the pre-test and post-test phases. Additionally, an independent-samples t-test was employed to examine differences in post-test anxiety scores between the two groups. Prior to conducting the analyses, the assumptions of normality and homogeneity of variance were tested using the Shapiro-Wilk test and Levene's test, respectively.

FINDINGS AND DISCUSSION

Findings

This study examined how using chatbots to assist in presentation preparation affects the reduction of English-speaking anxiety in students. The analysis systematically addressed three key research questions, with findings presented according to this organizational framework.

Baseline equivalence in English speaking anxiety

Before examining the effects of the intervention, an independent-samples t-test was conducted on the pre-test speaking anxiety scores to ensure that the experimental and control groups were statistically equivalent at baseline. Ensuring baseline equivalence is crucial to verify that post-test differences stem from the treatment rather than initial differences between groups.

Descriptive statistics for the pre-test scores are presented in Table 1. The experimental group, which later received chatbot-assisted preparation, had a mean score of 59.95 (10.47), while the control group, which later prepared without chatbot assistance, had a mean score of 58.50 (SD = 8.63).

Table 1: Descriptive Statistics for Pre-test

	Group	N	Mean	SD	SE	Coefficient of variation
Pre-test	EG	20	59.950	10.470	2.341	0.175
	CG	20	58.500	8.630	1.930	0.148

Prior to conducting the independent-samples t-test, the requisite assumptions were evaluated. Normality was verified by the Shapiro-Wilk test, with the results displayed in Table 2. As can be seen in the table, the analysis indicated no significant difference from

normality in either group's score distribution. For the experimental group, the test resulted in W = 0.965 (p = 0.652), while the control group showed W = 0.966 (p = 0.664). Since both p-values were non-significant, the normality assumption was satisfied.

Table 2: Normality Test with Shapiro-Wilk for Pre-test

	Group	W	p
Pre-test	EG	0.965	0.652
	CG	0.966	0.664

In addition, to assess homogeneity of variances, Levene's test was performed. The result, as shown in Table 3, was non-significant, F(1, 38) = 0.901, p = 0.349, confirming that the variance between groups did not differ significantly. This satisfied the assumption of equal variances, justifying the use of independent-samples t-test.

Table 3: Homogeneity of Variance Test with Levene's for Pre-test

	f	df1	df2	p
Pre-test	0.901	1	38	0.349

The baseline equivalence analysis revealed no significant difference in pre-test scores between groups, as confirmed by an independent-samples t-test: t(38) = -0.478, p = 0.635. This outcome establishes that both groups began the study with comparable levels of English speaking anxiety, thereby validating the experimental design for subsequent between-group comparisons.

Table 4: Independent-samples t-test for Pre-test

	t	df	p
Pre-test	-0.478	38	0.635

Analysis of English speaking anxiety changes in the experimental group (RQ1)

To assess the influence of chatbot-assisted preparation on English speaking anxiety, a paired-samples t-test was performed comparing pre-test and post-test scores within the experimental group. This analysis evaluated whether integrating chatbot technology during presentation preparation resulted in statistically significant changes in students' anxiety levels.

As presented in Table 5, the descriptive statistics reveal notable changes in English speaking anxiety scores following the intervention. The experimental group demonstrated a substantial reduction in mean anxiety levels, from 59.95 (SD = 10.47) in the pre-test to 48.50 (SD = 12.31) in the post-test assessment.

Table 5: Descriptive Statistics for Experimental Group (Pre-test and Post-test)

	N	Mean	SD	SE	Coefficient of variation
Pre-test	20	59.950	10.470	2.341	0.175

Post-test	20	48.500	12.310	2.753	0.254

Prior to conducting the paired-samples t-tests, the normality assumption was verified using the Shapiro-Wilk test. As presented in Table 6, the analysis resulted a non-significant result (W = 0.945, p = 0.296), indicating that the distribution of difference scores followed a normal pattern. This finding justified the application of parametric tests and enhanced the reliability of the subsequent statistical analyses.

Table 6: Normality Test with Shapiro-Wilk for Experimental Group

	W	p
Pre-test - Post-test	0.945	0.296

The paired-samples t-test demonstrated a statistically significant reduction in English speaking anxiety following the chatbot-assisted intervention (t(19) = 6.179, p < 0.001). As shown in Table 7, this substantial reduction in anxiety scores indicates that the chatbot integration effectively reduced students' presentation-related anxiety.

Table 7: Paired-samples t-test for Experimental Group

	t	df	p
Pre-test - Post-test	6.179	19	< 0.001

Analysis of English speaking anxiety changes in the control group (RQ2)

To evaluate the effectiveness of conventional presentation preparation methods (without chatbot assistance), a paired-samples t-test was conducted comparing pre-test and post-test anxiety scores within the control group. This analysis determined whether conventional instruction alone produced statistically significant changes in students' English speaking anxiety levels.

As shown in Table 8, the control group's mean English speaking score showed a marginal increase from the pre-test (M = 58.50, SD = 8.63) to the post-test (M = 59.25, SD = 7.27). The small rise in the mean score suggests a slight shift in anxiety levels following conventional instruction.

Table 8: Descriptive Statistics for Control Group (Pre-test and Post-test)

	N	Mean	SD	SE	Coefficient of variation
Pre-test	20	58.500	8.630	1.930	0.148
Post-test	20	59.250	7.268	1.625	0.123

Prior to conducting the paired-samples t-test, the Shapiro-Wilk test was employed to verify the normality assumption for the difference scores. The results (W = 0.907, p = 0.055), presented in Table 9, confirmed that the data distribution showed no significant departure from normality, thus meeting the parametric test requirements.

Table 9: Normality Test for Control Group

	W	p
Pre-test - Post-test	0.907	0.055

The paired-samples t-test results (Table 10) revealed no significant difference in English speaking anxiety levels between the pre-test and post-test assessments for the control group, $t(19) = -0.551$, $p = 0.588$. This finding suggests that conventional preparation methods alone were not sufficient to produce a meaningful reduction in students' anxiety when speaking English.

Table 10: Paired Samples t-test for Control Group

	t	df	p
Pre-test - Post-test	-0.551	19	0.588

Comparison of English speaking anxiety between experimental and control groups (RQ3)

To examine whether chatbot-assisted preparation differentially affected English speaking anxiety compared to conventional methods, an independent-samples t-test was conducted on post-test scores. This analysis specifically evaluated whether incorporating chatbot technology during preparation led to statistically significant differences in anxiety levels between the two instructional approaches.

The post-test English speaking anxiety scores for both groups are presented in Table 11. The experimental group that used chatbot-assisted preparation demonstrated lower English speaking anxiety levels (M = 48.50, SD = 12.31) compared to the control group that prepared presentations without chatbot assistance (M = 59.25, SD = 7.27).

Table 11: Descriptive Statistics for Post-test

	Group	N	Mean	SD	SE	Coefficient of variation
Post-test	EG	20	48.500	12.310	2.753	0.254
	CG	20	59.250	7.268	1.625	0.123

Prior to conducting the independent-samples t-test, the necessary assumptions were evaluated. The normality of the data was verified using the Shapiro-Wilk test, as detailed in Table 12. The results indicated no significant departure from normality for either group. For the experimental group, the test resulted W = 0.978 (p = 0.910), while the control group showed W = 0.917 (p = 0.088). Both p-values were non-significant, confirming that the normality assumption was met for the analysis.

Table 12: Normality Test with Shapiro-Wilk for Post-test

	Group	W	p
Post-test	EG	0.978	0.910
	CG	0.917	0.088

Additionally, To validate the assumption of equal variances required for the independent-samples t-test, Levene's test was performed. The results (Table 13) indicated no significant violation of homogeneity, $F(1, 38) = 4.072$, $p = 0.051$, confirming that both groups exhibited comparable variance levels. This finding satisfied the necessary assumptions for proceeding with parametric between-group comparisons.

Table 13: Homogeneity of Variance Test with Levene's for Post-test

	f	df1	df2	p
Post-test	4.072	1	38	0.051

The independent-samples t-test (Table 14) revealed a statistically significant difference between groups ($t(38) = 3.363$, $p = 0.002$). This finding indicates that students receiving chatbot assistance for preparation exhibited significantly lower English speaking anxiety than those who did not receive chatbot assistance.

Table 14: Independent-samples t-test for Post-test

	t	df	p
Post-test	3.363	38	0.002

To summarize, the experimental group experienced a significant reduction in speaking anxiety following chatbot-assisted preparation, whereas the control group showed a slight, non-significant increase. These contrasting trends are visually represented in Figure 1 below, which highlights the pre-test and post-test mean scores for both groups. The figure provides a clearer picture of the intervention's effect and reinforces the statistical findings presented earlier.
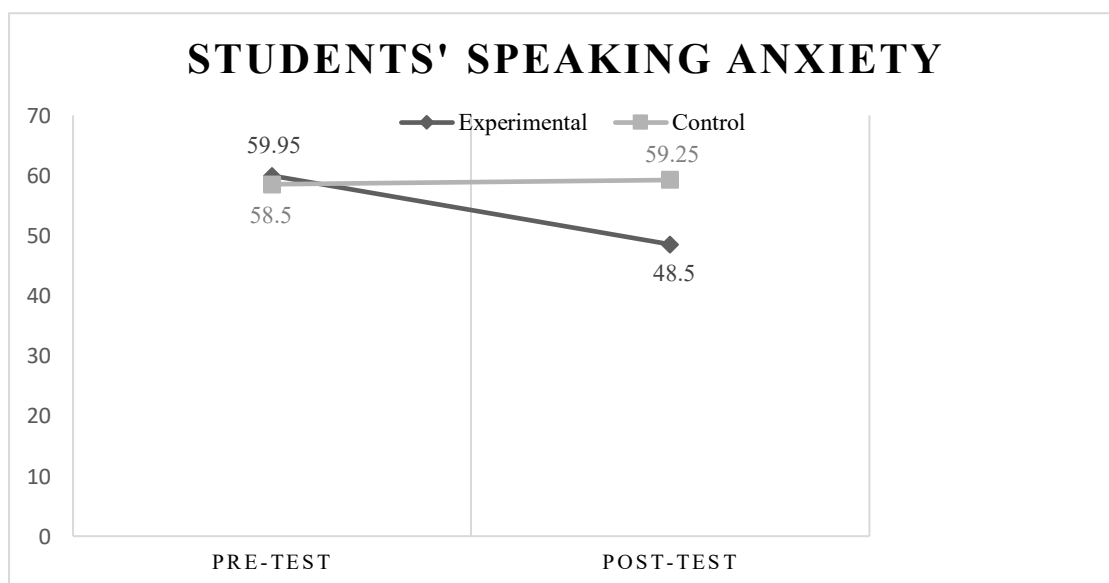

Figure 1: Comparison of Pre-test and Post-test Speaking Anxiety Scores in the Experimental and Control Groups

Discussion

These results suggest that employing chatbots for preparation can reduce English speaking anxiety in students. While the experimental group demonstrated a significant reduction, the control group exhibited no statistically meaningful change, underscoring the chatbot's potential as an effective learning support. These results align with several studies that also found that students who utilized chatbots in English language learning experienced a significant decrease in speaking anxiety levels compared to those who did not use chatbots (Çakmak, 2022; Wang et al., 2024; Ziwen & Hongwei, 2025).

Chatbots can contribute to reducing students' English-speaking anxiety due to their ability to create a supportive learning atmosphere. Chatbots can provide a non-judgmental learning environment (Bao, 2019), giving students a sense of security in their learning activities. A non-judgmental learning setting allows students to express themselves without fear of embarrassment or negative evaluation from the chatbot. This aligns with Horwitz et al. (1986) who identified such evaluative pressures as a major contributor to anxiety. Additionally, the 24/7 availability of chatbots gives students the freedom to prepare anytime and as often as they want without time constraints. This enables students to better prepare for presentations, thereby increasing their confidence and reducing anxiety, given that study indicates insufficient preparation is a key contributor to public speaking anxiety (Coker, 2022). This is consistent with a study by Askari & Rahim (2024), which reported that students felt more prepared for presentations when using chatbots for preparation, leading to improvements in their presentation quality and self-confidence.

However, the results of the current study contradict those of El Shazly (2021), who revealed that although students perceived an overall reduction in anxiety levels and improved speaking performance after chatbot-based intervention, their speaking anxiety, specifically, did not show a significant change. One possible explanation for these differing results lies in the nature of the tasks and the chatbot's role. In this study, the chatbot was specifically integrated for presentation preparation, a context that typically triggers anxiety. This focused preparation may have enhanced the chatbot's effectiveness in reducing anxiety. Meanwhile, in Shazly's study, the chatbot was used for general practice and role-play activities, which may have involved less pressure, thereby diminishing its impact on anxiety levels. Additionally, the structured use of the chatbot as a targeted preparation tool in this study may have provided more immediate and tangible benefits compared to the open-ended practice tasks in Shazly's research. These contrasting findings highlight that while chatbot can be beneficial for many

students, its effectiveness could vary based on multiple factors such as the purpose of use, the form of the task, the instructional model and user characteristics.

Notably, the control group showed a slight, though non-significant, increase in anxiety. This trend may reflect a sense of disadvantage due to the absence of AI support. In today's technoology-rich learning environment, students increasingly expect digital tools to support their learning. The lack of such support may cause stress and reduce confidence, indicating that digital expectations now play a crucial role in students' emotional responses.

These findings hold significant implications for English language learning, especially in public speaking contexts. Incorporating chatbots into presentation preparation can provide students with low-pressure assistance, allowing them to manage anxiety. Teachers should utilize chatbots not as substitutes for human engagement but as supplementary resources to enhance learning experiences and foster independence learning.

Despite these implications, the present study has some constraints that must be considered. The reliance on convenience sampling restricts the generalizability of the results to broader populations. Moreover, the limited number of participants could affect the statistical power and the robustness of the results. The intervention's short duration also leaves the longitudinal impact of chatbot integration unexamined. Finally, the dependence on self-reported anxiety measures may introduce response bias, as participants might underreport or overstate their anxiety levels due to social desirability effects.

Future research is recommended to address these limitations. Studies employing random sampling methods across multiple institutions and larger sample sizes would enhance external validity. Longitudinal study examining the sustained impact of chatbot use on speaking anxiety is also warranted. Additionally, future studies should consider triangulating data through qualitative interviews or behavioral observations to obtain a more comprehensive understanding of students' anxiety experiences.

The study's outcomes clearly indicate that incorporating chatbot technology into learning preparation effectively reduces students' speaking anxiety. This evidence strongly advocates for adopting AI-powered educational tools in English language instruction, as they can create more adaptive learning experiences and enhance students' oral communication self-assurance.

CONCLUSION AND SUGGESTION

This study provides empirical evidence that chatbot-assisted preparation can significantly reduce speaking anxiety among non-English major university students. The results demonstrate that while both experimental and control groups began with comparable anxiety levels, only the experimental group experienced a significant reduction following the intervention. These findings highlight the potential of chatbots as effective supplementary tools in English language learning, particularly in oral presentation contexts. By offering low-pressure, accessible support, chatbot technology can help students better manage anxiety and build speaking confidence. To support practical implementation, teachers can scaffold chatbot use in various ways, for example, utilizing chatbots in language focus activity (grammar checking and translation) or integrating chatbots in draft-and-revise presentation script. More broadly, these findings underscore the importance of equipping teachers and students with digital literacy skills to ensure appropriate use of AI tools. Higher education institutions should consider updating teaching strategies to align with AI-enhanced learning environments.

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