

From Silence to Simulation: Exploring AI as a Safe Space for Negotiating Speaking Anxiety among ESP Students

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ABSTRACT

Speaking anxiety remains one of the most significant affective barriers in English for Specific Purposes (ESP), particularly for engineering students who are expected to communicate using both general English and discipline-specific terminology. Although artificial intelligence (AI) has increasingly been integrated into language learning, limited qualitative research has examined how AI-mediated speaking practice helps learners negotiate speaking anxiety within ESP settings. Therefore, this study explores how AI-based speaking practice, particularly through the use of Stimuler AI, functions as a safe space for negotiating speaking anxiety among civil engineering students. This study employed a qualitative case study design involving 32 second-semester students in the Road and Bridge Construction Study Program. Data were collected through semi-structured interviews, reflective journals, and AI interaction logs and analyzed using thematic analysis. The findings revealed that students initially experienced high levels of speaking anxiety characterized by fear of negative evaluation, avoidance of participation, and concerns about using technical English. Through repeated interaction with Stimuler AI, students gradually developed greater confidence, improved their technical communication skills, and became more willing to participate in classroom speaking activities. The study also identified a transformation from classroom silence to active engagement and emerging professional identity as future engineers. These findings suggest that Stimuler AI provides a psychologically safe environment that enables learners to negotiate speaking anxiety while supporting speaking development and identity construction in ESP classrooms.

Keywords: *AI-based practice, civil engineering students, english for specific purposes (ESP), qualitative study, speaking anxiety*

INTRODUCTION

Speaking anxiety has long been recognized as one of the most significant affective barriers in second and foreign language learning (Malik et al., 2021; Putri et al., 2025; Prabowo & Asmarani, 2025). Learners often experience fear, nervousness, and self-doubt when required to communicate orally, particularly in formal classroom settings. This phenomenon, commonly

referred to as Foreign Language Speaking Anxiety (FLSA) (Rahman & Tomy, 2024), can negatively influence students' performance, participation, and overall language development (Dewi & Wilany, 2022). Previous studies have shown that anxiety is closely related to fear of negative evaluation, fear of making mistakes, and low self-confidence in speaking situations (Aulia & Apoko, 2022; Gao et al., 2025; Liu et al., 2022).

In the context of English for Specific Purposes (ESP), speaking anxiety becomes more complex and multifaceted. Al-Jarf (2026) stated that unlike general English learning, ESP requires learners to use language within specific professional domains, such as engineering, medicine, or business. According to Nateghian (2024), for civil engineering students, speaking in English is not only about linguistic accuracy but also about demonstrating technical knowledge and professional competence. As a result, students may experience an additional layer of anxiety, particularly when they are unsure about technical vocabulary or afraid of appearing incompetent in their field.

This complexity often manifests in real classroom situations, where students tend to remain silent during speaking activities (Kajan et al., 2025; Le, 2024). Despite having adequate passive knowledge, many learners hesitate to participate actively due to anxiety and lack of confidence. This "silence" is not merely a lack of ability but reflects deeper psychological barriers that hinder students from expressing themselves. Consequently, speaking activities in ESP classrooms may not achieve their intended communicative goals, as students avoid engagement and risk-taking.

In recent years, the emergence of artificial intelligence (AI) technologies has introduced new possibilities in language learning. Saravana et al. (2025) & Sawalha et al. (2025) declared that AI-based tools, such as chatbots and voice-enabled applications, allow learners to practice speaking in a more flexible and less threatening environment. For instance, platforms such as *Stimuler AI* provide opportunities for learners to engage in simulated speaking interactions with immediate responses. These tools provide immediate feedback, personalized interaction, and unlimited opportunities for practice without the presence of human judgment (Denistiani, 2025). Studies have suggested that AI-mediated communication can help reduce speaking anxiety and increase learners' willingness to communicate.

As stated in Ahrweiler (2025) & Ria et al. (2025), one of the key advantages of AI-based practice lies in its potential to function as a "safe space" for learners. In such environments, students can experiment with language, make mistakes, and refine their speech without fear of embarrassment or negative evaluation. In this regard, the use of platforms such as *Stimuler AI* can support repeated speaking practice in a low-pressure environment (Nugraha et al., 2025). This aligns with Krashen's Affective Filter Hypothesis, which posits that lower anxiety levels facilitate language acquisition. When learners perceive AI as a non-judgmental interlocutor, their affective filter may decrease, allowing for more effective language practice.

Furthermore, from a sociocultural perspective, learning is seen as a socially mediated process where interaction plays a crucial role in development (Taber, 2025). AI-mediated interaction can serve as an alternative form of social engagement, enabling learners to negotiate meaning and construct knowledge in a supportive environment (Aslan et al., 2025; Wang et al., 2022). The integration of AI tools, including *Stimuler AI*, highlights how technology can act as an interactive partner rather than merely a tool. Additionally, Hedges (2021) indicated that identity theory suggests that learners continuously construct their identities through language use; thus, AI may provide a space where students begin to see themselves as competent English-speaking engineers.

Despite the growing body of research on AI in language learning, most existing studies tend to focus on measurable outcomes, such as improvements in speaking performance or proficiency scores. While these findings are valuable, they often overlook the learners' internal experiences, particularly how anxiety is perceived, managed, and transformed during AI-based

practice (Ding & Xue, 2025; Haetami, 2025; Pratama et al., 2025). Qualitative insights into learners' emotional and psychological processes remain limited, especially in ESP contexts.

Moreover, there is a lack of research that specifically examines the role of AI as a "safe space" in facilitating the negotiation of speaking anxiety. The concept of negotiation implies an active, dynamic process in which learners gradually manage and reshape their emotional responses through interaction. This perspective shifts the focus from simply reducing anxiety to understanding how learners engage with and transform it over time. Such an approach is particularly relevant for ESP learners, whose anxiety is closely tied to both linguistic and professional identity.

Therefore, this study aims to explore how AI-based speaking practice, particularly through the use of *Stimuler AI*, functions as a safe space for negotiating speaking anxiety among civil engineering students in an ESP classroom. By adopting a qualitative approach, this research seeks to provide an in-depth understanding of students' experiences, perceptions, and emotional trajectories as they move from silence in traditional classrooms to active engagement in AI-mediated environments. The findings are expected to contribute to both theoretical discussions on language anxiety and practical implications for integrating AI into ESP pedagogy.

METHODOLOGY

This study employed a qualitative research design by Denzin & Lincoln (2017) to explore how AI-based speaking practice functions as a safe space for negotiating speaking anxiety among students in an ESP context. A qualitative approach was considered appropriate as the study aimed to capture in-depth insights into students' lived experiences, perceptions, and emotional responses during speaking activities. Specifically, this research adopted a qualitative case study design, focusing on a particular group of learners within a defined educational setting.

The research was conducted in the Civil Engineering Department, specifically in the Road and Bridge Construction Study Program, during the second semester of the 2025/2026 academic year. The context of this study was an ESP classroom where English is taught to support students' future professional communication needs in the engineering field. The integration of AI-based speaking practice, particularly through the use of *Stimuler AI*, was implemented as part of classroom and independent learning activities.

The participants of this study consisted of 32 second-semester students drawn from two classes within the same study program. The participants were selected using purposive sampling, as they shared similar academic backgrounds and were enrolled in the same ESP course. As early-stage learners in higher education, these students had limited experience in using English for technical communication, which made them suitable subjects for investigating speaking anxiety in an ESP context.

Data for this study were collected through multiple qualitative instruments to ensure data richness and triangulation. The primary data collection method was semi-structured interviews, which allowed the researcher to explore students' feelings, experiences, and perceptions regarding speaking anxiety and their interaction with AI tools, including *Stimuler AI*. The interviews were conducted after students had experienced several sessions of AI-based speaking practice.

In addition to interviews, reflective journals were used to capture students' ongoing emotional and cognitive experiences throughout the learning process. Students were asked to write short reflections after engaging in AI-based speaking activities using *Stimuler AI*, focusing on their feelings, challenges, and perceived progress. Furthermore, AI interaction logs

were collected to provide additional insights into how students engaged with the technology during their speaking practice.

The data collected were analyzed using thematic analysis following the framework proposed by Braun and Clarke. The analysis began with data familiarization, where interview transcripts and written reflections were read repeatedly. This was followed by initial coding, in which meaningful units of data related to speaking anxiety and AI interaction were identified. The codes were then grouped into categories, which were further developed into broader themes representing patterns across the dataset.

To ensure the trustworthiness of the findings, several strategies were employed. Data triangulation was achieved by comparing information from interviews, reflective journals, and AI interaction logs. Member checking was also conducted by sharing preliminary findings with selected participants to confirm the accuracy of interpretations. Additionally, the researcher maintained detailed documentation of the data analysis process to enhance transparency and reliability.

Finally, ethical considerations were carefully addressed throughout the study. Participants were informed about the purpose of the research and provided their consent prior to data collection. Their identities were kept confidential by using pseudonyms in all reports and publications. Participation was voluntary, and students were assured that their responses would not affect their academic evaluation in any way.

RESULT AND DISCUSSION

RESULTS

The findings of this study reveal a dynamic transformation of students' speaking anxiety as they engaged with AI-based speaking practice, particularly through the use of *Stimuler AI*. Through thematic analysis of interview data, reflective journals, and AI interaction logs, five major themes emerged: (1) fear of judgment in classroom settings, (2) AI as a non-judgmental space, (3) gradual confidence building, (4) technical language anxiety, and (5) identity shift as future engineers. These themes collectively illustrate how students moved from a state of silence to more active participation through AI-mediated practice.

The first theme, fear of judgment in classroom, highlights the strong anxiety experienced by students during traditional speaking activities. Many participants reported feeling nervous when speaking in front of peers and lecturers due to the fear of being evaluated negatively. This fear often led to avoidance behavior, where students chose to remain silent rather than risk making mistakes. One participant stated, "I know the answer, but I am afraid my friends will laugh if my English is wrong." Another student added, "When the lecturer asks me to speak, my mind goes blank because I feel everyone is judging me." These responses indicate that speaking anxiety is deeply rooted in social evaluation within the classroom.

This anxiety was further intensified by the ESP context, where students were expected to use technical vocabulary related to civil engineering. The pressure to demonstrate both linguistic and professional competence created an additional burden. As one student explained, "It is not only English, but I am also afraid if I say the wrong engineering term." This suggests that speaking anxiety in ESP is not merely linguistic but also tied to students' perceived professional identity.

In contrast, the second theme, AI as a non-judgmental space, shows a significant shift in students' emotional experiences. Participants consistently described AI-based speaking practice, particularly through *Stimuler AI*, as a safe and comfortable environment where they could practice without fear of embarrassment. Unlike human interaction, AI was perceived as

neutral and non-evaluative. One student noted, “When I speak with AI, I feel relaxed because it does not judge me.” Another participant mentioned, “I can repeat many times until I am confident, and no one is watching me.” This indicates that AI reduces the social pressure commonly associated with speaking activities.

The perception of AI as a safe space allowed students to experiment more freely with language. They were more willing to take risks, make mistakes, and try new expressions while interacting with *Stimuler AI*. This aligns with the idea that reduced anxiety can facilitate language practice. As one student reflected, “I am not afraid to make mistakes with AI, so I try more sentences than in class.” This increased willingness to communicate became a key factor in transforming their speaking behavior.

The third theme, gradual confidence building, reflects how repeated interaction with AI contributed to increased self-confidence over time. Students reported that consistent practice with *Stimuler AI* helped them become more familiar with sentence structures and pronunciation. This gradual improvement led to a noticeable change in their classroom participation. One participant stated, “At first I was shy, but after practicing with AI, I feel more ready to speak in class.” Another added, “AI helps me prepare before speaking in front of others.”

This transition from AI practice to classroom participation illustrates a bridge between private and public speaking contexts. AI, particularly *Stimuler AI*, functioned as a form of “backstage rehearsal,” enabling students to build confidence before performing in real situations. As one student described, “I practice with AI first, then I feel more confident when speaking in class.” This finding highlights the role of AI as a preparatory tool that supports students’ gradual exposure to real communication.

The fourth theme, technical language anxiety, reveals that students’ anxiety was not only related to general English but also to the use of specialized vocabulary. Many participants expressed concern about using incorrect technical terms in English, which could affect their credibility as future engineers. One student explained, “I am more afraid when I talk about engineering topics because I don’t know the exact terms in English.” This demonstrates that ESP learners face unique challenges that go beyond general language anxiety.

However, AI-based practice appeared to help reduce this specific type of anxiety by providing opportunities to rehearse technical expressions. Students reported that they could explore and practice engineering-related language through *Stimuler AI* in a low-pressure environment. As one participant noted, “With AI, I can practice technical words and check if my sentence is correct.” This suggests that AI supports not only linguistic development but also domain-specific communication skills.

The final theme, identity shift as future engineers, reflects a deeper transformation in how students perceive themselves. Through repeated interaction with *Stimuler AI*, students began to see themselves as more capable English users within their professional field. This shift in identity was evident in their increased confidence and willingness to engage in technical discussions. One student stated, “Now I feel like I can speak as an engineer, not just as a student learning English.” Another added, “AI makes me feel more prepared for real work situations.”

This identity development is particularly significant in ESP contexts, where language learning is closely linked to professional identity. AI, including *Stimuler AI*, provided a space where students could “try out” their future roles without fear of failure. Over time, this experience contributed to a more positive self-perception and reduced anxiety.

To summarize the findings, the transformation of speaking anxiety can be illustrated as follows:

TABLE 1. The transformation of students’ speaking anxiety through AI-based practice

Phase	Student Experience	Role of AI
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Silence in classroom	Fear of judgment, avoidance	Not present
Initial AI interaction	Feeling safe, less pressure	Non-judgmental partner
Repeated practice	Increased confidence	Practice space
Classroom participation	More willingness to speak	Preparation tool
Identity development	Seeing self as engineer	Simulation environment

Table 1 illustrates the progressive transformation of students' speaking anxiety as they engaged in AI-based speaking practice using *Stimuler AI* within the ESP classroom. The table presents three key dimensions: the phases of learning, students' experiences at each stage, and the corresponding role of AI in facilitating this transformation.

In the initial phase, labeled "Silence in classroom," students experienced high levels of anxiety characterized by fear of judgment and avoidance of participation. At this stage, AI was not yet involved, and students' speaking behavior was largely influenced by social pressure in the classroom environment. This finding aligns with previous studies indicating that fear of negative evaluation is a major source of speaking anxiety.

The second phase, "Initial AI interaction," marks the introduction of AI as a learning tool, particularly through *Stimuler AI*. Students began to perceive AI as a non-judgmental partner, which reduced their anxiety and created a sense of safety. This shift allowed them to engage more comfortably in speaking practice, as the absence of human evaluation minimized psychological pressure.

In the "Repeated practice" phase, students demonstrated increased confidence as they engaged in continuous interaction with AI. The role of AI, including *Stimuler AI*, evolved into a practice space where learners could experiment with language, repeat expressions, and refine their speaking skills. This stage highlights the importance of repetition and low-stakes practice in building confidence.

The fourth phase, "Classroom participation," shows a transfer of confidence from AI-mediated practice to real classroom settings. Students became more willing to speak and participate in discussions, indicating that AI served as an effective preparatory tool. This transition reflects the bridging function of AI between private and public speaking contexts.

Finally, in the "Identity development" phase, students began to perceive themselves as competent users of English within their professional field. AI, particularly *Stimuler AI*, functioned as a simulation environment where learners could rehearse their roles as future engineers. This phase demonstrates that the impact of AI extends beyond language proficiency to include identity formation and professional confidence.

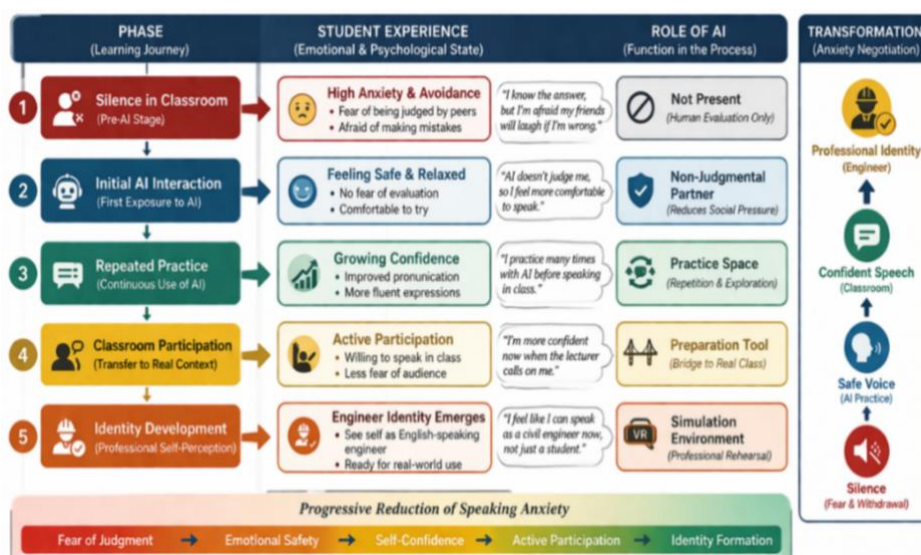


FIGURE 1. The transformation of students' speaking anxiety through AI-based practice in ESP contexts

Figure 1 illustrates the progressive transformation of students' speaking anxiety through five interconnected phases, highlighting the dynamic role of AI-based practice, including the use of *Stimuler AI*, in an ESP classroom context. The diagram presents a structured learning journey, beginning from a state of high anxiety and culminating in the development of professional identity as confident English-speaking civil engineering students.

In the first phase, *Silence in Classroom*, students experience high levels of anxiety characterized by fear of negative evaluation, reluctance to speak, and avoidance of participation. At this stage, speaking anxiety is strongly influenced by social pressure, particularly the presence of peers and lecturers. AI is not yet involved, and students' engagement remains minimal due to psychological barriers.

The second phase, *Initial AI Interaction*, marks a turning point where AI, particularly *Stimuler AI*, is introduced as a non-judgmental conversational partner. Students begin to feel safer and more relaxed, as AI eliminates the fear of embarrassment and criticism. This phase reflects a reduction in affective barriers, allowing learners to engage in speaking practice without the pressure of social evaluation.

In the third phase, *Repeated Practice*, AI functions as a practice space that enables continuous, low-stakes interaction. Students develop greater confidence through repetition, experimentation, and error-making. This stage is crucial in building familiarity with both general and technical language, as learners actively construct their speaking ability in a supportive environment.

The fourth phase, *Classroom Participation*, demonstrates the transfer of confidence from AI-mediated practice to real classroom settings. Students become more willing to speak, participate in discussions, and express their ideas. AI acts as a preparatory tool that bridges the gap between private practice and public performance, reducing anxiety in real communicative situations.

Finally, in the fifth phase, *Identity Development*, students begin to perceive themselves as competent English users within their professional domain. AI, including *Stimuler AI*, serves as a simulation environment where learners can rehearse their roles as future engineers. This phase highlights a deeper transformation beyond language skills, emphasizing identity formation and increased professional confidence.

Thus, the data illustrates how AI, particularly *Stimuler AI*, helps students deal with their speaking anxiety in a gradual and multifaceted manner. Instead of completely eradicating fear,

AI helps students transition from uneasiness to a more self-assured professional identity and from quiet to active engagement. The findings also show that students' speaking anxiety is significantly reduced by AI-based speaking practice. Instead of completely eradicating fear, AI helps students negotiate and control it through a helpful and gradual process. This shift from passivity to active engagement demonstrates how AI might be a useful teaching tool in ESP classrooms, especially for students studying technical subjects like civil engineering.

DISCUSSION

The present study aimed to explore how AI-based speaking practice, particularly through the use of *Stimuler AI*, functions as a safe space for negotiating speaking anxiety among civil engineering students in an ESP context. The findings revealed a clear transformation process, beginning from students' initial silence in the classroom and gradually progressing toward increased confidence, active participation, and identity development. This transformation highlights that speaking anxiety is not a static phenomenon but a dynamic experience that can be reshaped through appropriate pedagogical interventions, particularly those supported by AI.

One of the most significant findings of this study is the strong presence of fear of judgment in traditional classroom settings. Students reported that their anxiety was largely driven by the fear of negative evaluation from peers and lecturers, which often resulted in avoidance behavior. This aligns with the foundational concept of Foreign Language Anxiety proposed by Horwitz et al. (1986), where communication apprehension and fear of evaluation are identified as key components. In the ESP context, this anxiety is further intensified by the expectation to use domain-specific knowledge, as observed in this study.

The findings also demonstrate that AI-based speaking practice creates a non-judgmental environment that reduces students' anxiety. Participants consistently perceived AI, particularly *Stimuler AI*, as a safe interlocutor that allowed them to practice without fear of embarrassment. This supports previous research by Ding et al., (2025), who found that AI-powered conversational tools significantly reduce learners' speaking anxiety by eliminating social pressure and enabling repeated practice. The current study extends this finding by emphasizing the role of AI not only as a tool but as a psychologically safe space.

Moreover, the concept of AI as a "safe space" can be interpreted through Krashen's Affective Filter Hypothesis. The reduction of anxiety observed in this study, particularly through interaction with *Stimuler AI*, suggests that AI lowers learners' affective filter, thereby facilitating language acquisition. When students feel emotionally secure, they are more willing to take risks and engage in meaningful communication. This was evident in the participants' increased willingness to experiment with language during AI interactions.

Another important finding is the role of repeated AI interaction in building students' confidence over time. The study shows that confidence does not emerge instantly but develops gradually through continuous exposure and practice. This is consistent with the findings of Tai (2025), who reported that AI-assisted speaking tools enhance learners' fluency and confidence through repeated interaction and immediate feedback. In this study, *Stimuler AI* facilitated such repeated practice, allowing students to gradually build confidence in a low-pressure environment.

The transition from AI-based practice to classroom participation is particularly noteworthy. The findings indicate that AI serves as a bridge between private practice and public performance. Students who initially felt anxious in classroom settings became more willing to participate after engaging with AI, especially through *Stimuler AI*. This supports the findings of Ngoc (2025), who observed that AI-based speaking applications help learners transfer confidence to real-life communication contexts. In this study, such transfer is clearly reflected in students' movement from silence to active engagement.

In addition to general speaking anxiety, this study highlights the presence of technical language anxiety in ESP contexts. Students expressed concerns about using incorrect engineering terminology, which affected their confidence in speaking. This finding suggests that anxiety in ESP is multidimensional, involving both linguistic and professional aspects. While previous studies have focused primarily on general language anxiety, this study contributes by emphasizing the importance of domain-specific anxiety in technical fields.

AI-based practice was found to play a significant role in reducing technical language anxiety by providing opportunities for rehearsal and experimentation with specialized vocabulary. Through platforms such as *Stimuler AI*, students were able to practice engineering-related expressions in a low-pressure environment, which enhanced their confidence in using technical language. This finding expands the current understanding of AI in language learning by demonstrating its relevance in supporting ESP-specific communication needs.

Furthermore, the study reveals a deeper level of transformation in terms of students' identity development. Through repeated interaction with AI, particularly *Stimuler AI*, students began to perceive themselves as capable English-speaking engineers. This aligns with Norton (2013) concept of identity in language learning, where learners construct their identities through participation in meaningful communication practices. AI, in this case, serves as a space where students can "rehearse" their future professional identities.

The notion of "negotiating anxiety" is also a key contribution of this study. Rather than viewing anxiety as something to be eliminated, the findings suggest that students actively manage and reshape their anxiety through interaction with AI. In this study, *Stimuler AI* played a crucial role in facilitating this negotiation process by providing a safe and flexible environment for repeated practice. This perspective offers a more nuanced understanding of anxiety as a dynamic and negotiable process. It also highlights the importance of providing supportive learning environments that enable learners to engage with, rather than avoid, their anxiety.

Overall, this study contributes to the growing body of research on AI in language learning by offering a qualitative perspective on the relationship between AI and speaking anxiety in ESP contexts. By illustrating the transformation from silence to simulation, particularly through the use of *Stimuler AI*, the study provides both theoretical and pedagogical insights. It suggests that AI can play a crucial role in creating safe, supportive, and effective learning environments that not only improve speaking skills but also foster confidence and professional identity among ESP students.

CONCLUSION AND RECOMMENDATION

This study set out to explore how AI-based speaking practice, especially by the use of *Stimuler AI*, functions as a safe space for negotiating speaking anxiety among civil engineering students in an ESP classroom. The findings revealed that students' speaking anxiety is a dynamic and evolving experience shaped by both psychological and contextual factors. Initially, students experienced high levels of anxiety characterized by fear of judgment, avoidance of participation, and low confidence, particularly when required to use technical language. However, through engagement with AI-based practice, especially via *Stimuler AI*, students gradually transitioned from silence to more active and confident participation in speaking activities.

One of the key findings of this study is that AI serves as a non-judgmental and supportive environment that allows students to practice speaking without the pressure of social evaluation. This "safe space," as facilitated by platforms such as *Stimuler AI*, enables learners to experiment with language, make mistakes, and repeat their practice freely, which significantly

reduces their anxiety. Rather than eliminating anxiety entirely, AI facilitates a process of negotiation in which students actively manage and reshape their emotional responses toward speaking. This highlights the importance of creating low-stakes learning environments in language education, particularly in ESP contexts.

Furthermore, this study contributes to the understanding of speaking anxiety in ESP by highlighting the role of technical language anxiety. Unlike general English learners, students in civil engineering programs face additional challenges related to the use of domain-specific vocabulary and the fear of appearing professionally incompetent. AI-based practice, including the use of *Stimuler AI*, was found to help address this issue by providing opportunities for rehearsal and familiarization with technical expressions, thereby enhancing both linguistic and professional confidence.

From a theoretical perspective, this study contributes to the growing body of research on language anxiety by introducing the concept of AI as a “safe space” for emotional and identity negotiation. The findings support and extend existing theories such as the Affective Filter Hypothesis and sociocultural perspectives on learning, demonstrating that emotional factors and social interaction play a crucial role in language development. Additionally, the study highlights the importance of identity construction, as students begin to perceive themselves as capable English-speaking professionals through AI-mediated interaction, particularly through platforms such as *Stimuler AI*.

From a practical standpoint, the findings offer important implications for ESP teaching practices. AI-based tools, such as *Stimuler AI*, can be effectively integrated as pre-speaking activities to help students prepare before engaging in classroom discussions. By using AI as a rehearsal space, lecturers can reduce students’ anxiety and increase their willingness to participate. Moreover, a hybrid learning approach that combines AI-mediated practice with face-to-face interaction can create a more supportive and inclusive learning environment, particularly for students who are initially reluctant to speak.

Despite its contributions, this study is limited to a specific context involving civil engineering students in one study program, which may affect the generalizability of the findings. Future research is recommended to explore similar phenomena in different ESP fields or educational settings, as well as to investigate the long-term impact of AI-based practice, including platforms such as *Stimuler AI*, on speaking anxiety and professional communication skills. Overall, this study underscores the potential of AI as a transformative tool in language learning, not only in improving speaking performance but also in fostering confidence, reducing anxiety, and supporting the development of learners’ professional identities.

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