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The Relationship between Tolerance of Ambiguity, Speaking Anxiety, and Acceptance of AI-Generated Corrective Feedback among Iraqi EFL Undergraduates

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العلاقة بين تحمل الغموض وقلق الكلام وتقبل التغذية الراجعة التصحيحية المولدة بالذكاء الاصطناعي

لدى الطلاب العراقيين الدارسين للغة الإنكليزية كلفة اجنبية في المرحلة الجامعية

حسين غانم الشمري

قسم اللغة الإنكليزية كلية التربية جامعة الكوفة

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Abstract

This study investigated the relationships among tolerance of ambiguity, speaking anxiety, and acceptance of AI-generated corrective feedback among Iraqi EFL undergraduates. A correlational design was employed with 110 second-year students (60 males, 50 females) at the University of Kufa. Three instruments were used: the Tolerance of Ambiguity Scale (Ely, 1995; 12 items, $\alpha = .84$), the Speaking Anxiety Questionnaire (adapted from Horwitz et al., 1986; 10 items, $\alpha = .89$), and the Acceptance of AI-Generated Corrective Feedback Questionnaire (based on Davis, 1989; Xue, 2024; 14 items, $\alpha = .93$). Data were analyzed using Pearson correlation. Results revealed a significant negative correlation between tolerance of ambiguity and speaking anxiety ($r = -.61, p < .01$), a significant positive correlation between tolerance of ambiguity and acceptance of AI feedback ($r = .48, p < .01$), and a significant negative correlation between speaking anxiety and acceptance of AI feedback ($r = -.39, p < .01$). These findings highlight the role of individual differences in learners' engagement with AI-powered tools and offer implications for EFL instruction in Iraq.

Keywords: Tolerance of ambiguity, speaking anxiety, AI-generated corrective feedback, Iraqi EFL learners

المستخلص:

بحثت هذه الدراسة في العلاقات بين تقبل الغموض وقلق التحدث وتقبل التغذية الراجعة التصحيحية المولدة بالذكاء الاصطناعي لدى الطلاب العراقيين درسي اللغة الإنجليزية. تم استخدام تصميم ارتباطي على عينة قوامها 110 طلاب من السنة الثانية في جامعة الكوفة. استخدمت ثلاث استبيانات: مقياس غموض التسامح (Ely, 1995; 12 فقرة، $\alpha = .84$ ، واستبيان قلق التحدث) مقتبس من Horwitz et al., 1986; 10 فقرات، $\alpha = .89$ ، واستبيان تقبل التغذية الراجعة بالذكاء الاصطناعي) استناداً إلى Davis, 1989; Xue, 2024; 14 فقرة، $\alpha = .93$). أظهرت النتائج ارتباطاً سلبياً بين غموض التسامح وقلق التحدث ($r = -.61$)، وارتباطاً إيجابياً بين غموض التسامح وتقبل التغذية الراجعة بالذكاء الاصطناعي ($r = .48$)، وارتباطاً سلبياً بين قلق التحدث وتقبل التغذية الراجعة بالذكاء الاصطناعي ($r = -.39$). تشير النتائج إلى أهمية الفروق

الفردية في تفاعل المتعلمين مع أدوات الذكاء الاصطناعي الكلمات المفتاحية: تحمل الغموض، قلق التحدث، التغذية الراجعة التصحيحية بالذكاء الاصطناعي، المتعلمون الواقيون

1. Introduction

The rapid integration of artificial intelligence into foreign language education has fundamentally transformed how learners engage with target languages and receive pedagogical support. Since the public release of ChatGPT in late 2022, interest in generative AI has risen exponentially, with OpenAI announcing that as of August 2024, ChatGPT had 200 million weekly active users worldwide (OpenAI, 2024). This technological revolution has prompted higher education institutions globally to reconsider their teaching methodologies and assessment practices, particularly in language learning contexts where immediate, personalized feedback is crucial for skill development (Wang, 2024). Within this transformative landscape, understanding how individual psychological differences influence learners' engagement with AI-powered tools has become increasingly critical for optimizing technology-enhanced language instruction. Among the most significant psychological factors affecting language learning are tolerance of ambiguity and language anxiety. Tolerance of ambiguity refers to an individual's tendency to perceive ambiguous situations or unfamiliar stimuli as desirable rather than threatening (Budner, 1962). In language learning, ambiguity arises constantly through unfamiliar vocabulary, grammatical structures, cultural references, and the inherent uncertainty of interpreting and producing meaning in a new linguistic system. Learners with high tolerance of ambiguity approach uncertain situations with openness and curiosity, viewing them as opportunities for growth, while those with low tolerance experience discomfort, frustration, and avoidance when confronted with ambiguity (Ebadi & Rahimi, 2022). Research has consistently demonstrated that tolerance of ambiguity functions as a significant predictor of success in various language skills, enabling learners to persist through uncertainty and maintain engagement with the target language (Xue, 2024). Foreign language anxiety, conversely, has been conceptualized as "a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process" (Horwitz, Horwitz, & Cope, 1986, p. 128). Speaking anxiety, a specific manifestation of foreign language anxiety, is particularly debilitating because speaking requires real-time processing and production in social contexts, exposing learners to potential embarrassment and judgment. Unlike reading or writing, which allow for reflection and revision, speaking demands immediate performance, making it the most anxiety-provoking skill for many language learners (MacIntyre & Gardner, 1994). Learners experiencing speaking anxiety may struggle to retrieve vocabulary, formulate grammatically correct utterances, or maintain fluent speech, creating a self-perpetuating cycle where poor performance reinforces anxiety (Choi, 2025). The emergence of artificial intelligence has created new possibilities for addressing these affective challenges through innovative feedback mechanisms. AI-generated corrective feedback refers to responses to learner errors provided by intelligent systems that aim to improve accuracy and promote interlanguage development. Unlike traditional teacher feedback, which may be influenced by classroom dynamics, time limitations, or social evaluative pressure, AI feedback is consistent, immediate, and infinitely patient (Wang & Zou, 2025). Recent research has demonstrated that AI-powered tools can provide personalized corrections without the social anxiety inherent in human interaction, potentially creating safer spaces for language practice (Azizah, Wijayanto, & Laila, 2025). In the domain of speaking skills, studies have shown that AI-driven diagnostic feedback significantly improves speaking outcomes by enhancing learners' awareness of weaknesses while maintaining their original communicative intentions (Koyama et al., 2025). In the Iraqi EFL context, research on artificial intelligence in language education is still emerging, though interest is growing rapidly. Recent reviews of AI-based intervention studies in Iraqi higher education reveal that various AI platforms have been employed to support grammar instruction, speaking fluency, writing feedback, and pragmatic competence, yielding improvements in learners' performance, motivation, and communicative confidence (Al-Abbasi & Al-Khafaji, 2024). However, these studies also highlight persistent challenges including insufficient infrastructure, limited digital training, and concerns over pedagogical alignment. The synthesis underscores both the promise and limitations of AI integration in the Iraqi context, advocating for contextually grounded research while emphasizing the need for investment in digital readiness and educator support (Jassim & Hameed, 2024). Despite growing research on AI in language learning and extensive literature on individual differences, no study to date has simultaneously examined the interrelationships among tolerance of ambiguity, speaking anxiety, and acceptance of AI-generated corrective feedback. Previous research has established that tolerance of ambiguity influences how learners handle uncertainty in language learning (Ebadi

& Rahimi, 2022), and that speaking anxiety negatively impacts language performance (Choi, 2025). Studies have also demonstrated the potential of AI feedback to support language development (Wang, 2024; Susoy, 2026). Xue (2024) found that ambiguity tolerance functions as an effective mediator in AI-empowered automated writing evaluation systems, playing a significant role in how users accept and engage with AI-generated feedback for writing tasks. However, whether similar dynamics operate in the domain of speaking skills remains unexplored. Furthermore, limited research has investigated these variables in the Iraqi EFL context, where learners face unique linguistic, cultural, and educational challenges that may influence their engagement with AI-powered learning tools (Abdulridha et al., 2025). The present study aims to address this gap by investigating the relationships among tolerance of ambiguity, speaking anxiety, and acceptance of AI-generated corrective feedback among Iraqi EFL undergraduates. Specifically, the study seeks to answer three research questions: (1) Is there a statistically significant relationship between tolerance of ambiguity and speaking anxiety? (2) Is there a statistically significant relationship between tolerance of ambiguity and acceptance of AI-generated corrective feedback? and (3) Is there a statistically significant relationship between speaking anxiety and acceptance of AI-generated corrective feedback? The findings of this study carry important implications for multiple stakeholders. For educators, understanding how individual differences influence learners' responses to AI feedback can inform pedagogical decisions about when and how to integrate AI tools into instruction. For curriculum designers, insights into the relationships among these variables can guide the development of language programs that address both cognitive and affective learner needs. For researchers, this study contributes to the theoretical understanding of how psychological traits interact with technology-mediated learning experiences in the under-researched Iraqi context. Finally, as artificial intelligence continues to transform language education worldwide (Susoy, 2026), understanding the learner characteristics that facilitate or hinder engagement with AI-generated feedback becomes increasingly crucial for creating effective, equitable, and inclusive learning environments that harness the potential of technology while respecting individual differences.

This study tries to answer the following questions

- 1:** Is there a statistically significant relationship tolerance of ambiguity and speaking anxiety among Iraqi EFL undergraduates?
- 2:** Is there a statistically significant relationship between tolerance of ambiguity and acceptance of AI-generated corrective feedback among Iraqi EFL undergraduates?
- 3:** Is there a statistically significant relationship between speaking anxiety and acceptance of AI-generated corrective feedback among Iraqi EFL undergraduates?

2. Literature review

2.1 Theoretical Framework

Krashen's Affective Filter Hypothesis (1982) proposes that anxiety acts as a mental filter that can impede language acquisition. When the affective filter is high, input is blocked from reaching the language acquisition device. This framework suggests that reducing anxiety through AI-mediated feedback may lower the affective filter and facilitate learning. MacIntyre and Gardner's Model (1994) distinguishes anxiety at three stages: input, processing, and output. Speaking anxiety affects all stages but is most visible at output. Their distinction between trait, state, and situation-specific anxiety helps explain why speaking anxiety may vary across human versus AI contexts. Budner's Conceptualization (1962) defines tolerance of ambiguity as perceiving ambiguous situations as desirable rather than threatening. In language learning, ambiguity arises from unfamiliar vocabulary, grammar, and cultural references. Learners with higher tolerance approach uncertainty with openness, while those with low tolerance experience discomfort and avoidance. Technology Acceptance Model (Davis, 1989) proposes that technology acceptance is determined by perceived usefulness and perceived ease of use. Xue (2024) extended this model to AI feedback, finding that individual characteristics like ambiguity tolerance influence acceptance.

2.2 Tolerance of Ambiguity in Language Learning

Ely (1995) developed the Second Language Tolerance of Ambiguity Scale, identifying ambiguity in pronunciation, grammar, vocabulary, and meaning. Research shows tolerance of ambiguity correlates with language proficiency (Chapelle & Roberts, 1986) and distinguishes successful from less successful learners (Ehrman, 1993). Sadeghi and Bakhshi (2025) investigated relationships among ambiguity tolerance, strategy use, and foreign language anxiety in integrated listening/speaking assessment with 60 homogenized EFL learners. Using TOEFL-iBT tests and questionnaires, they found that foreign language anxiety negatively

correlated with performance, while ambiguity tolerance and cognitive/metacognitive strategies positively correlated with performance. Abdulridha et al. (2025) examined writing anxiety and ambiguity tolerance among 75 Iraqi university freshmen. Findings revealed high writing apprehension driven by cognitive anxiety and fear of negative feedback. Although most students demonstrated low ambiguity tolerance, no significant correlation was found between ambiguity tolerance and writing anxiety, suggesting context-specific dynamics.

2.3 Speaking Anxiety

Horwitz, Horwitz, and Cope (1986) conceptualized foreign language anxiety as comprising communication apprehension, fear of negative evaluation, and test anxiety. Speaking is the most anxiety-provoking skill (Young, 1990), with anxious learners experiencing difficulty retrieving vocabulary and maintaining fluency (MacIntyre & Gardner, 1994). Kurita (2014) introduced "listening stress" as an alternative to listening anxiety, examining real-time effects on cognitive processing. Through experiments with Japanese EFL learners, findings showed that increased listening stress hinders coping strategies and debilitates comprehension, particularly in higher cognitive processing like inferencing. El Shazly (2021) investigated AI applications in managing foreign language anxiety among 48 Egyptian EFL learners using an eight-week quasi-experimental design. While AI chatbots significantly improved linguistic output, learners' speech-related anxieties were not reduced and were slightly intensified, suggesting anxiety may play an underexplored facilitative role. Susoy (2026) compared AI chatbot and human facilitation on speaking anxiety among 48 Turkish university students. Results showed significant negative correlation between anxiety and achievement in human-facilitated exams but no such correlation in AI-facilitated exams, indicating AI's potential to mitigate anxiety effects. Students with higher digital literacy performed better in AI conditions. Choi (2025) examined generative AI's impact on pronunciation ability and speaking anxiety through Cultural-Historical Activity Theory. Findings revealed improvements in pronunciation and reductions in speaking anxiety, coinciding with increased self-directed motivation and social interaction confidence. Real-time personalized feedback facilitated error correction while reducing anxiety. Wang and Zou (2025) compared AI, human teachers, and peers in enhancing speaking performance and reducing anxiety. AI was more effective than teachers and peers in enhancing speaking performance, willingness to communicate, and self-perceived competence. Qualitative data suggested learners felt more comfortable and secure in AI-mediated environments.

2.4 Corrective Feedback

Corrective feedback draws on Schmidt's (1990) Noticing Hypothesis and Swain's (2005) Output Hypothesis. Feedback can be explicit/implicit or direct/indirect (Lyster & Ranta, 1997; Ferris, 2006). Ebadi and Rahimi (2022) investigated written corrective feedback and ambiguity tolerance among 54 Iranian EFL learners. Using pretest-posttest design, they found both direct and indirect feedback improved writing accuracy, with direct feedback slightly more effective. However, ambiguity tolerance did not moderate feedback effectiveness.

2.5 AI-Generated Feedback

Wang (2024) compared teacher-generated and AI-generated feedback using the Poe application with 75 Chinese undergraduates. Both feedback types significantly impacted writing anxiety, accuracy, and fluency. The AI-feedback group demonstrated better performance in accuracy and fluency and experienced greater anxiety reduction than teacher-feedback and control groups. Azizah, et al. (2025) conducted qualitative study on learners' perspectives of AI-generated feedback for speaking skills. Through semi-structured interviews, they found learners were satisfied with AI feedback as they no longer feared classroom correction. However, prolonged use elicited longing for teacher feedback, with challenges including voice sensitivity and cost. Jahaya and Nor A'zam (2025) provided a conceptual framework illustrating how AI-assisted grammar correction builds confidence and enhances speaking proficiency. Through narrative review of Scopus-indexed articles, they found AI tools reduce language anxiety, provide immediate personalized feedback, and increase willingness to communicate.

2.6 Studies on Variable Relationships

Xue (2024) investigated how ambiguity tolerance interacts with technology characteristics in adopting GenAI-empowered automated writing evaluation systems. With 679 respondents, the study used TAM and TTF model questionnaires. Findings revealed ambiguity tolerance functions as an effective mediator in AI-powered writing evaluation, playing a significant role in how users accept and engage with AI-generated corrective feedback. Although valuable contributions, no study has simultaneously examined the interrelationships among tolerance of ambiguity, speaking anxiety, and acceptance of AI-generated corrective feedback. While Xue (2024) examined ambiguity tolerance and AI feedback acceptance for writing, and multiple studies examined speaking

anxiety and AI feedback (Choi, 2025; Susoy, 2026; Wang & Zou, 2025; El Shazly, 2021), the three variables have not been investigated together. Furthermore, limited research exists in the Iraqi EFL context, where learners face unique challenges. Abdulridha et al. (2025) provided insights into anxiety and ambiguity tolerance among Iraqis but focused on writing without AI feedback. The present study addresses this gap by investigating these relationships among Iraqi EFL undergraduates.

3. Methodology

3.1 Design

According to Farhadi (1995), there are three major research designs: descriptive, correlational, and experimental. The present study is correlational because it aims to find meaningful relationships among the variables under study.

3.2 participants

The participants of this study consisted of 110 Iraqi EFL learners (60 males and 50 females) enrolled in the Department of English, College of Education at the University of Kufa during the academic year 2024–2025. All participants were Second-year students (Sophomores) who had completed one years of university-level English language instruction, placing them at upper intermediate.

Table1 Demographic Characteristics of Participants (N = 110)

Characteristic	Category	Frequency
Gender	Male	60
	Female	50
University Year	Sophomores	110

3.3 Instruments

1.3.3 Second Language Tolerance of Ambiguity Questionnaire

The Second Language Tolerance of Ambiguity Scale, originally developed by Ely (1995), was used to measure participants' tolerance of ambiguity in language learning contexts. This scale consists of **12 items** designed to assess learners' reactions to ambiguous situations specifically related to second language learning, including uncertainty in pronunciation, grammar, vocabulary, and overall meaning. The scale employs a **4-point Likert scale** ranging from 1 (Strongly Disagree) to 4 (Strongly Agree), with higher scores indicating greater tolerance of ambiguity. Ely (1995) developed this scale specifically for second language research, and it has been widely used in subsequent studies examining individual differences in language learning the questionnaire was piloted with a cohort of 10 students and validated by three experts from Kufa University, College of Education, who hold PhDs in English Language Teaching and have over 15 years of teaching experience. Cronbach's Alpha was used to estimate the questionnaire's reliability.

Table .2

Variable	No. of Items	Cronbach's α
Tolerance of Ambiguity (TA)	12	.84

2.3.3 Speaking Anxiety Questionnaire

The Speaking Anxiety Questionnaire was adapted from the Foreign Language Classroom Anxiety Scale (FLCAS) developed by Horwitz, Horwitz, and Cope (1986). The FLCAS is one of the most widely used instruments for measuring foreign language anxiety and has been extensively validated in diverse contexts . For the purpose of this study, **10 items** specifically related to speaking anxiety were selected from the original 33-item scale. These items focus on communication apprehension and fear of negative evaluation in speaking situations, which are the most relevant components for investigating speaking anxiety. The questionnaire employs a **5-point Likert scale** ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores indicating greater speaking anxiety. The original FLCAS has demonstrated strong reliability and validity across numerous studies. In the present study, the adapted speaking anxiety questionnaire was piloted with 10 students and validated by three experts from the University of Kufa, College of Education, who hold PhDs in English Language Teaching with over 15 years of teaching experience. The questionnaire was piloted with a cohort of 10 students and validated by three experts from Kufa University, College of Education, who hold PhDs in English Language Teaching and have over 15 years of teaching experience. Cronbach's Alpha was used to estimate the questionnaire's reliability.

Table .3

Variable	No. of Items	Cronbach's α
Speaking Anxiety (SA)	10	.89

3.3.3 Corrective feedback by AI

The Acceptance of AI-Generated Corrective Feedback Questionnaire was developed based on the Technology Acceptance Model (TAM) originally proposed by **Davis (1989)**. TAM is a well-established framework for understanding users' acceptance of technology, with perceived usefulness and perceived ease of use as core constructs. The questionnaire was further informed by recent research on AI feedback acceptance, particularly the work of **Xue (2024)**, who investigated ambiguity tolerance in relation to GenAI-empowered automated writing evaluation systems. The questionnaire consists of **14 items** designed to measure learners' acceptance of corrective feedback provided by AI tools for speaking practice. Items assess perceived usefulness, perceived ease of use, and behavioral intention to use AI-generated feedback. The questionnaire employs a **5-point Likert scale** ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores indicating greater acceptance of AI-generated corrective feedback. In the present study, the scale demonstrated excellent reliability with a Cronbach's alpha coefficient of **.93**

Table .4

Variable	No. of Items	Cronbach's α
Acceptance of AI-CF (AI-CF)	14	.93

4. Procedure

The Tolerance of Ambiguity Scale, the Speaking Anxiety Questionnaire, and the Acceptance of AI-Generated Corrective Feedback Questionnaire were administered in this survey. Before formal data collection, a pilot test of the instruments' clarity and procedure feasibility was performed with a cohort of 10 students to ensure the items were clearly understood and the administration process was appropriate. A convenience sampling method was employed, and eligible participants were recruited to the study after learning about its aims. The participants were second-year students enrolled in a listening and speaking course taught by the researcher, who is an instructor in the Department of English, College of Education at the University of Kufa. Throughout an eight-week period, students were engaged in a structured intervention involving AI-generated feedback. The instructor regularly assigned conversation topics and speaking tasks related to the course curriculum. Students were required to practice these topics with AI tools outside the classroom, specifically when they returned home, and to request feedback from the AI on various aspects of their speaking performance, including pronunciation, grammar, vocabulary use, and fluency. The AI tools provided them with immediate corrective feedback and pronunciation corrections. During this eight-week period, students consistently used AI tools and received AI-generated feedback. Additionally, in some class sessions, students practiced speaking with AI tools in the classroom under the instructor's supervision, where they could receive real-time AI feedback while the instructor observed and provided guidance when needed. This integration allowed students to benefit from AI feedback in both independent practice at home and supervised practice in the classroom. After the eight-week period of engagement with AI-generated feedback, the marked questionnaire forms were shared electronically in Google Forms format via a specific Telegram group for the course during a 7-day gathering period. All answers were collected and anonymized for analysis, which were then processed with SPSS (Statistical Package for the Social Sciences), using descriptive statistics and inferential methods.

5. Results

Table 5: Tests of Normality for the Study Variables

Variable	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Tolerance of Ambiguity (TA)	.072	110	.200	.988	110	.420
Speaking Anxiety (SA)	.065	110	.200*	.990	110	.538

Acceptance of AI-CF (AI-CF)	.058	110	.200*	.993	110	.789
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Research Question One (RQ1)

Is there a statistically significant relationship between tolerance of ambiguity and speaking anxiety among Iraqi EFL undergraduates?

To answer this question, a Pearson product-moment correlation coefficient was computed between the overall scores of Tolerance of Ambiguity (TA) and Speaking Anxiety (SA).

Table 6: Pearson Correlation between Tolerance of Ambiguity and Speaking Anxiety

Variable		Tolerance of Ambiguity (TA)	Speaking Anxiety (SA)
Tolerance of Ambiguity (TA)	Pearson Correlation (r)	1	-.61**
	Sig. (2-tailed)		< .001
	N	110	110
Speaking Anxiety (SA)	Pearson Correlation (r)	-.61**	1
	Sig. (2-tailed)	< .001	
	N	110	110
**. Correlation is significant at the 0.01 level (2-tailed).			

The negative correlation indicates that as students' tolerance of ambiguity increases, their speaking anxiety significantly decreases. In other words, students who are more comfortable with unclear situations, unfamiliar words, and making guesses while learning English tend to experience less nervousness, worry, and fear when speaking English. The coefficient of determination ($r^2 = .37$) reveals that tolerance of ambiguity explains approximately **37% of the variance** in speaking anxiety among Iraqi EFL undergraduates

Research Question Two (RQ2)

Is there a statistically significant relationship between tolerance of ambiguity and acceptance of AI-generated corrective feedback among Iraqi EFL undergraduates?

To answer this question, a Pearson product-moment correlation coefficient was computed between the overall scores of Tolerance of Ambiguity (TA) and Acceptance of AI-Generated Corrective Feedback (AI-CF).

Table 7: Pearson Correlation between Tolerance of Ambiguity and Acceptance of AI-CF

Variable		Tolerance of Ambiguity (TA)	Acceptance of AI-CF (AI-CF)
Tolerance of Ambiguity (TA)	Pearson Correlation (r)	1	.48**
	Sig. (2-tailed)		< .001
	N	110	110
Acceptance of AI-CF (AI-CF)	Pearson Correlation (r)	.48**	1
	Sig. (2-tailed)	< .001	
	N	110	110
**. Correlation is significant at the 0.01 level (2-tailed).			

The positive correlation indicates that students with higher levels of tolerance of ambiguity are more likely to accept and welcome corrective feedback provided by AI tools. These students are more open to receiving corrections from a non-human source, viewing it as a helpful resource for navigating the uncertainties of language learning rather than as a source of stress or embarrassment. The coefficient of determination ($r^2 = .23$) reveals that tolerance of ambiguity explains approximately **23% of the variance** in students' acceptance of AI-generated corrective feedback.

Research Question Three (RQ3)

Is there a statistically significant relationship between speaking anxiety and acceptance of AI-generated corrective feedback among Iraqi EFL undergraduates? To answer this question, a Pearson product-moment correlation coefficient was computed between the overall scores of Speaking Anxiety (SA) and Acceptance of AI-Generated Corrective Feedback (AI-CF) **Table 8: Pearson Correlation between Speaking Anxiety and Acceptance of AI-CF**

Variable		Speaking Anxiety (SA)	Acceptance of AI-CF (AI-CF)
Speaking Anxiety (SA)	Pearson Correlation (r)	1	-.39**
	Sig. (2-tailed)		< .001
	N	110	110
Acceptance of AI-CF (AI-CF)	Pearson Correlation (r)	-.39**	1
	Sig. (2-tailed)	< .001	
	N	110	110
**. Correlation is significant at the 0.01 level (2-tailed).			

The negative correlation indicates that students who experience higher levels of speaking anxiety tend to be less accepting of corrective feedback from AI tools. Although AI provides a potentially less intimidating environment than human interaction, students with high anxiety may still perceive any form of correction—even from a machine—as a threat or a reminder of their mistakes, which can trigger their anxiety. The coefficient of determination ($r^2 = .15$) reveals that speaking anxiety explains approximately **15% of the variance** in students' acceptance of AI-generated corrective feedback.

6-Discussion

1.6 Discussion of Research Question One

The first research question examined the relationship between tolerance of ambiguity and speaking anxiety. The findings revealed a significant negative correlation ($r = -.61$, $p < .01$), indicating that students with higher tolerance of ambiguity experience lower speaking anxiety. This finding agrees with Sadeghi and Bakhshi (2025), who found that ambiguity tolerance positively correlated with speaking performance while anxiety negatively correlated with performance. It also agrees with Ghobadi and Fathi (2017), who found a significant negative correlation between tolerance of ambiguity and language anxiety among Iranian EFL learners. Budner's (1962) theoretical conceptualization supports this finding, as intolerance of ambiguity involves perceiving ambiguous situations as threatening. However, this finding disagrees with Abdulridha et al. (2025), who found no significant correlation between ambiguity tolerance and writing anxiety among Iraqi students. This discrepancy may be attributed to skill differences, as speaking involves real-time pressure and public performance while writing allows for reflection and revision. Ebadi and Rahimi (2022) also found that ambiguity tolerance did not moderate written corrective feedback effectiveness, though their study focused on feedback rather than anxiety.

2.6 Discussion of Research Question Two

The second research question examined the relationship between tolerance of ambiguity and acceptance of AI-generated corrective feedback. The findings revealed a significant positive correlation ($r = .48$, $p < .01$), indicating that students with higher tolerance of ambiguity are more accepting of AI feedback. This finding strongly agrees with Xue (2024), who found that ambiguity tolerance functions as an effective mediator in AI-powered writing evaluation, playing a significant role in how users accept AI-generated feedback. Davis's (1989) Technology Acceptance Model provides theoretical support, suggesting that learners with higher ambiguity tolerance may perceive AI feedback as more useful and easier to use. Jahaya and Nor A'zam (2025) also found that AI tools reduce language anxiety and increase willingness to communicate, supporting the role of individual differences in AI engagement. No study directly disagrees with this finding, though Ebadi and Rahimi (2022) found that ambiguity tolerance did not moderate feedback effectiveness, suggesting that acceptance and effectiveness are distinct constructs.

3.6 Discussion of Research Question Three

The third research question examined the relationship between speaking anxiety and acceptance of AI-generated corrective feedback. The findings revealed a significant negative correlation ($r = -.39$, $p < .01$), indicating that students with higher speaking anxiety are less accepting of AI feedback. This finding agrees with Susoy (2026),

who found that speaking anxiety negatively correlated with achievement in human-facilitated exams. It also agrees with Wang and Zou (2025), who found that learners felt more comfortable in AI-mediated environments, though the present study shows highly anxious learners may still resist AI feedback. Azizah, Wijayanto, and Laila (2025) found that learners appreciated AI feedback because they no longer feared classroom correction, supporting AI's potential. Krashen's (1982) Affective Filter Hypothesis provides theoretical support, as high anxiety creates a mental filter that may block acceptance of feedback. This finding appears to contrast with Choi (2025), who found that AI use reduced speaking anxiety over time. This suggests that while anxious learners may initially resist AI feedback, sustained use could potentially reduce anxiety. El Shazly (2021) found that AI chatbots did not reduce anxiety and slightly intensified it, which contrasts with studies showing anxiety reduction and may reflect differences in AI tool design or implementation.

Conclusion

This study investigated the relationships among tolerance of ambiguity, speaking anxiety, and acceptance of AI-generated corrective feedback among 110 Iraqi EFL undergraduates at the University of Kufa. Using a correlational design with three validated instruments, the study revealed three significant findings: a strong negative correlation between tolerance of ambiguity and speaking anxiety ($r = -.61$), indicating that students comfortable with ambiguity experience less speaking anxiety; a moderate positive correlation between tolerance of ambiguity and acceptance of AI feedback ($r = .48$), suggesting that ambiguity-tolerant learners are more open to AI corrections; and a moderate negative correlation between speaking anxiety and acceptance of AI feedback ($r = -.39$), demonstrating that anxious learners tend to resist AI feedback despite its non-judgmental nature. These findings align with previous research by Xue (2024), Sadeghi and Bakhshi (2025), Susoy (2026), and Choi (2025), extending the understanding of how individual differences influence technology-mediated language learning. The study contributes to the literature by examining these variables together for the first time in the Iraqi EFL context. The findings have practical implications for educators, curriculum designers, and researchers. Educators should consider learners' psychological readiness when integrating AI tools, while curriculum designers should develop strategies to support students with low ambiguity tolerance and high anxiety. For Iraqi EFL learners, developing ambiguity tolerance and managing speaking anxiety are essential for maximizing benefits from AI-powered learning tools. Study limitations include the single-university sample and correlational design, which limit generalizability and causal inferences. Future research should employ longitudinal and experimental designs and include qualitative methods to deepen understanding of how learners experience AI feedback.

References

1. Abdulridha, H. J., Dastjerdi, Z. S., & Dehghanpour, B. (2025). The relationship between writing anxiety and ambiguity tolerance among Iraqi university students. *Applications of Language Studies*, 3(2), 178-200.
2. Azizah, R., Wijayanto, A., & Laila, M. (2025). The use of AI-generated feedback in fostering learners' speaking skills. *AIP Conference Proceedings*, 3333(1), 020053. <https://doi.org/10.1063/5.0291141>
3. Budner, S. (1962). Intolerance of ambiguity as a personality variable. *Journal of Personality*, 30(1), 29-50. <https://doi.org/10.1111/j.1467-6494.1962.tb02303.x>
4. Chapelle, C., & Roberts, C. (1986). Ambiguity tolerance and field independence as predictors of proficiency in English as a second language. *Language Learning*, 36(1), 27-45. <https://doi.org/10.1111/j.1467-1770.1986.tb00367.x>
5. Choi, W. (2025). The role of changes in pronunciation ability and anxiety through Gen-AI on EFL learners' self-directed speaking motivation and social interaction confidence: A CHAT perspective. *System*, 133, 103788. <https://doi.org/10.1016/j.system.2025.103788>
6. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
7. Ebadi, S., & Rahimi, M. (2022). The effects of two forms of written corrective feedback and ambiguity tolerance on EFL learners' writing accuracy. *English Teaching and Learning*, 46, 19-38. <https://doi.org/10.1007/s42321-021-00082-6>
8. Ehrman, M. E. (1993). Ego boundaries revisited: Toward a model of personality and learning. In J. E. Alatis (Ed.), *Georgetown University Round Table on Languages and Linguistics 1993* (pp. 331-362). Georgetown University Press.
9. El Shazly, R. (2021). Effects of artificial intelligence on English speaking anxiety and speaking performance: A case study. *Expert Systems*, 38(3), e12667. <https://doi.org/10.1111/exsy.12667>

10. Ely, C. M. (1995). Tolerance of ambiguity and the teaching of ESL. In J. M. Reid (Ed.), *Learning styles in the ESL/EFL classroom* (pp. 87-95). Heinle and Heinle.
11. Ferris, D. R. (2006). Does error feedback help student writers? New evidence on the short- and long-term effects of written error correction. In K. Hyland & F. Hyland (Eds.), *Feedback in second language writing: Contexts and issues* (pp. 81-104). Cambridge University Press.
12. Ghobadi, M., & Fathi, J. (2017). The relationship between EFL learners' tolerance of ambiguity and their language learning anxiety. *Journal of Language Teaching and Research*, 8(5), 992-999. <https://doi.org/10.17507/jltr.0805.21>
13. Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70(2), 125-132. <https://doi.org/10.2307/327317>
14. Jahaya, N. M., & Nor A'zam, M. K. Z. (2025). Enhancing speaking proficiency in language learning: How AI-assisted grammar correction mediates learner confidence and fluency. *International Journal of Modern Education*, 7(24), 45-62. <https://doi.org/10.35631/IJMOE.724095>
15. Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Pergamon Press.
16. Kurita, T. (2014). Listening stress and its effects on Japanese EFL learners' listening comprehension. *Journal of Pan-Pacific Association of Applied Linguistics*, 18*(1), 1-22.
17. Li, S. (2010). The effectiveness of corrective feedback in SLA: A meta-analysis. *Language Learning*, 60(2), 309-365. <https://doi.org/10.1111/j.1467-9922.2010.00561.x>
18. Lyster, R., & Ranta, L. (1997). Corrective feedback and learner uptake: Negotiation of form in communicative classrooms. *Studies in Second Language Acquisition*, 19(1), 37-66. <https://doi.org/10.1017/S0272263197001034>
19. MacIntyre, P. D. (2017). An overview of language anxiety research and trends in its development. In C. Gkonou, M. Daubney, & J. M. Dewaele (Eds.), *New insights into language anxiety: Theory, research and educational implications* (pp. 11-30). Multilingual Matters.
20. MacIntyre, P. D., & Gardner, R. C. (1994). The subtle effects of language anxiety on cognitive processing in the second language. *Language Learning*, 44(2), 283-305. <https://doi.org/10.1111/j.1467-1770.1994.tb01103.x>
21. Norton, R. W. (1975). Measurement of ambiguity tolerance. *Journal of Personality Assessment*, 39(6), 607-619. https://doi.org/10.1207/s15327752jpa3906_11
22. Sadeghi, K., & Bakhshi, A. (2025). The role of ambiguity tolerance, strategy use, and anxiety in integrated listening/speaking assessment. *Language Testing in Asia*, 15(1), 1-18. <https://doi.org/10.1186/s40468-025-00345-8>
23. Schmidt, R. W. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11(2), 129-158. <https://doi.org/10.1093/applin/11.2.129>
24. Susoy, Z. (2026). Reducing anxiety and enhancing performance: The impact of AI chatbots versus human facilitation on EFL speaking assessment outcomes. [Manuscript submitted for publication].
25. Swain, M. (2005). The output hypothesis: Theory and research. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 471-483). Lawrence Erlbaum Associates.
26. Wang, C., & Zou, B. (2025). AI versus teachers and peers: A comparative study on speaking performance, willingness to communicate, self-perceived communicative competence and foreign language anxiety. *IRAL - International Review of Applied Linguistics in Language Teaching*. Advance online publication. <https://doi.org/10.1515/iral-2024-0243>
27. Wang, D. (2024). Teacher- versus AI-generated (Poe application) corrective feedback and language learners' writing anxiety, complexity, fluency, and accuracy. *International Review of Research in Open and Distributed Learning*, 25(3), 45-68. <https://doi.org/10.19173/irrodl.v25i3.7456>
28. Xue, Y. (2024). The role of ambiguity tolerance in GenAI-empowered automated writing evaluation systems: A technology acceptance perspective. *Computers and Education: Artificial Intelligence*, 6, 100245. <https://doi.org/10.1016/j.caeai.2024.100245>
29. Young, D. J. (1990). An investigation of students' perspectives on anxiety and speaking. *Foreign Language Annals*, 23(6), 539-553. <https://doi.org/10.1111/j.1944-9720.1990.tb00424.x>
30. Young, D. J. (1991). Creating a low-anxiety classroom environment: What does language anxiety research suggest? *The Modern Language Journal*, 75(4), 426-439. <https://doi.org/10.2307/329492>