The Role Of Talkpal AI-Based Practice Tutors In Reducing Arabic-Speaking Anxiety Among Chinese Undergraduates

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Abstract

Artificial intelligence in foreign language education is gaining attention, but empirical research on its effectiveness in reducing speaking anxiety remains limited. This mixed-methods study investigates the role of Talkpal AI, an AI-based speaking tutor, in reducing Arabic-speaking anxiety among Chinese undergraduate students. A total of 32 students participated in a three-week online intervention. Quantitative data collected through pre- and post-intervention questionnaires revealed significant reductions in test anxiety and fear of negative evaluation. In contrast, no significant changes were found in communication apprehension and classroom-related anxiety. Qualitative interviews further explained undergraduates' experiences with Talkpal AI tutor, highlighting high perceived usefulness, ease of use, and motivation due to real-time feedback and a judgment-free learning environment. The findings suggest that while Talkpal AI cannot fully replace human interaction or address all anxiety dimensions, it can serve as an effective supplementary tool to support Arabic-speaking confidence, especially in exam preparation.

Keywords: Arabic Language; Artificial Intelligence; Speaking; Anxiety; Chinese Undergraduates

INTRODUCTION

In recent years, more than 40 universities in China have offered four-year Arabic undergraduate programs (Kouihi, 2019), accepting Chinese undergraduate students without prior knowledge of Arabic. Due to the complexity of the grammar of the Arabic language itself, Chinese undergraduate students reported Arabic language learning anxiety on the Chinese social media site Zhihu (Lian, 2021). Gu and Ismail's study (2024) found the most common problems with Arabic speaking skills for Chinese undergraduate students: limited Arabic vocabulary, lack of opportunities to meet native Arabic speakers, and fear of making mistakes. Arabic is taught as a foreign language in China; thus, students have less limited access to native Arabic speakers or immersive experiences. As China expands diplomatic and economic ties with Arab nations (Ministry of Foreign Affairs of China, 2022), the need for proficient Arabic speakers continues to grow. Therefore, innovative teaching methods are urgently needed to support Chinese undergraduate students of Arabic to improve their speaking skills.

In recent years, Artificial Intelligence (AI) has emerged as a powerful tool for supporting foreign language learning and teaching (Mustofa et al., 2024; Wu et al., 2025). Huang et al. (2023) noted that AI represents the next frontier in educational innovation.

Talkpal AI is an AI-based language-speaking learning platform that supports to simulation of Arabic dynamic conversations with AI, offering real-time feedback for grammar suggestions and pronunciation assistance (Hidayatullah, 2024). Besides that, Talkpal AI offers chat mode, dialogue mode, roleplay mode, call mode, and debate learning mode. Unlike tools such as ChatGPT, Talkpal AI does not require a virtual private network (VPN) to operate in mainland China. Thus, Talkpal AI could be a practice partner for undergraduate students to learn Arabic speaking in China.

While AI tools have demonstrated positive impacts on language learning performance (El Shazly, 2021; Hidayatullah, 2024), an emerging research interest lies in their potential to alleviate affective barriers—particularly speaking anxiety. Although a growing body of research has examined Foreign Language Anxiety (FLA) in English as a Second Language (ESL) contexts (Bensalem, 2017; Dikaprio & Diem, 2024; Kovalenko & Baranivska, 2024), few empirical studies have investigated FLA in less commonly taught languages such as Arabic, especially within the Chinese higher education context.

Therefore, this study aims to address this gap by investigating the role of AI-assisted speaking practice in reducing Arabic-speaking anxiety among Chinese university students. Specifically, it investigates how interactions with Talkpal AI influence undergraduates' speaking anxiety levels across four key dimensions of FLA: test anxiety, communication apprehension, fear of negative evaluation, and classroom-related anxiety. By focusing on Chinese Undergraduates of Arabic language learners in China, this study contributes to both the underexplored field of AI-mediated Arabic-speaking instruction and the broader discourse on emotional and psychological factors in foreign language acquisition.

METHOD

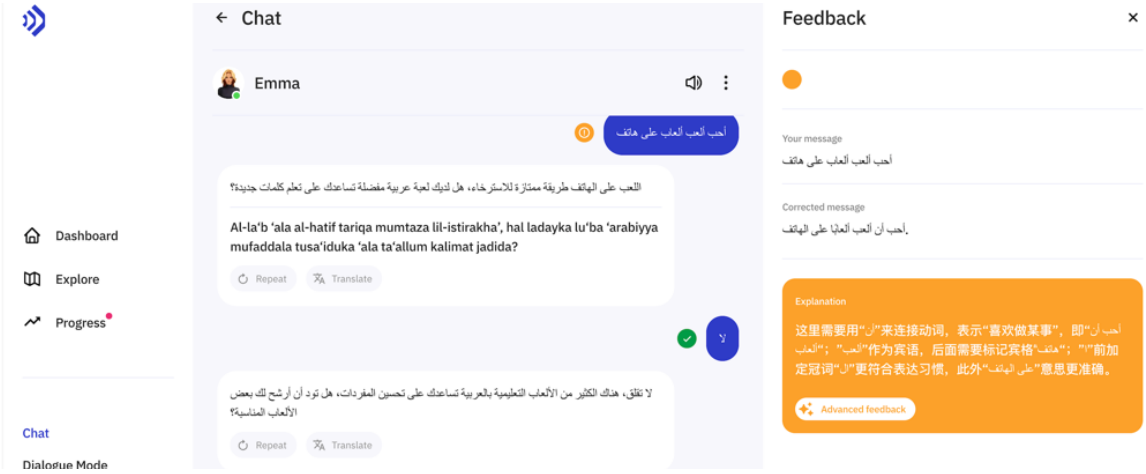
This study adopted a mixed-methods design to investigate the effectiveness of Talkpal AI in reducing Arabic-speaking anxiety among Chinese undergraduates and examine their perceptions of Talkpal AI-assisted speaking practice through follow-up interviews. Participants 32 second-year undergraduate students from three universities in Gansu, Yunnan, and Ningxia provinces in China participated in the study. All participants completed the pre-and post-intervention speaking anxiety questionnaires. In addition, 5 participants volunteered to take part in follow-up semi-structured interviews. The age of participants were from 18 to 21, and they had no prior experience using Talkpal AI for Arabic learning. Invitations were distributed in April 2024; this study was part of an online digital literacy-integrated speaking course project. All participants provided informed consent before the study.

Procedures: participants took part in three online Talkpal AI-assisted Arabic-speaking sessions over three weeks via Tencent meeting. In the first session only, an additional five minutes were allocated for a brief teacher-led introduction to the Talkpal AI platform. After this introduction, all sessions were conducted without teacher involvement. Each session lasted a total of 30 minutes, consisting of 20 minutes of AI-guided speaking practice in Talkpal's chat learning mode, followed by 10 minutes of automated feedback review. Figure 1 illustrates the chat learning mode of the interface in the Talkpal AI platform. A green check mark indicates correct pronunciation and grammar while clicking on the yellow exclamation mark reveals the corrected Arabic message along with error explanations in Chinese. The conversation topics for the three

sessions were: "Chatting with Arabs," "Studying on the Internet," and "Festivals and Holidays in Egypt." These topics were selected to simulate real-life Arabic-speaking scenarios and encourage everyday conversational skills. Before the intervention, all participants completed a pre-test using the Arabic-speaking anxiety self-assessment scale. Upon completing all three sessions, they took the same scale as a post-test.

After the intervention, 5 participants who had volunteered for follow-up interviews were randomly selected. Individual semi-structured interviews were conducted to explore their experiences with Talkpal AI-based speaking practice and to gain insights into its perceived impact on their Arabic learning and speaking anxiety.

Figure 1: Practice with the Talkpal AI platform



Instruments; to measure Arabic-speaking anxiety, a questionnaire adapted from the 33-item Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz et al., 1986) was used. The FLCAS has been widely validated in studies assessing speaking anxiety (Almufarreh, 2024; Annida & Nuha, 2023; Mokhtar, 2020). According to Mokhtar (2020), the FLCAS items can be organized into four domains relevant to Arabic-speaking anxiety: test anxiety, fear of negative feedback, communication apprehension, and classroom-related anxiety (Table 1). All FLCAS subscales exhibited satisfactory reliability (Cronbach's alpha > .70), which exceeds the commonly accepted threshold for internal consistency (Santos, 1997). The questionnaire was translated into Chinese, and reviewed by 2 Chinese experts in English translation. Additionally, the term "foreign language" was replaced with "Arabic language" to suit the study context. All the items in the questionnaire were scaled using a 5-point Likert rating scale. Items 2, 5, 11, 14, 18, 22, 28, and 32 were negatively worded and thus reverse-coded to ensure that higher scores indicated lower anxiety.

Table 1. Cronbach's Alpha for the Reliability of FLCAS

No.	Domains	Number of the item	Cronbach's alpha
1	Test anxiety	2, 8, 10, 19, 21	.775
2	Communication apprehension	1, 9, 14, 18, 24, 27, 29, 32	.928
3	Fear of negative feedback	3, 7, 13, 15, 20, 23, 25, 31, 33	.889
4	Classroom-related anxiety	4, 5, 6, 11, 12, 16, 17, 22, 26, 28, 30	.884
	Total	33	.968

The semi-structured interview questions were guided by the Technology Acceptance Model (TAM) proposed by Davis (1989). The interview focused on three key areas: (1) the perceived usefulness of Talkpal AI, (2) the perceived ease of use of Talkpal AI, and (3) perceived changes in Arabic-speaking anxiety. The interview protocol was reviewed by two language education experts to ensure alignment with the study's objectives. All interviews were conducted in Chinese to ensure participants' comfort and to allow for more expressive and accurate responses.

For quantitative data, a paired sample t-test was performed through the Statistical Package of Social Sciences (SPSS) to compare pre-test and post-test results of Arabic-speaking anxiety levels. For qualitative data, This study followed Braun and Clarke's (2006) six-phase thematic analysis. To enhance the credibility of the findings, participants reviewed and confirmed the researchers' interpretations of the interview data. This process of member checking helped minimize the risk of misinterpretation and mitigated potential researcher bias (Maxwell, 2005).

RESULTS AND DISCUSSION

Quantitative Findings

A Shapiro-Wilk test was conducted to assess the normality of the data, which is appropriate for small sample sizes ($N \leq 50$) (Mooi & Sarstedt, 2011). The results (Table 2) indicated that all pre-test and post-test scores were normally distributed ($p > .05$). A paired sample t-test was conducted to examine changes across four dimensions of FLCAS (Table 3). Test Anxiety: a statistically significant reduction was observed from the pre-test ($M = 3.275$, $SD = 0.515$) to the post-test ($M = 3.001$, $SD = 0.461$), $t(31) = 3.273$, $p < .05$. The findings suggest the Talkpal AI tutor speaking practice was effective in lowering learners' test anxiety.

Communication Apprehension: no significant difference was found between the pre-test ($M = 3.309$, $SD = 0.356$) and post-test ($M = 3.250$, $SD = 0.565$), $t(31) = 0.618$, $p > .05$. The findings indicate that the intervention had limited impact on this dimension. Fear of Negative Evaluation: A significant reduction was found from the pre-test ($M = 4.004$, $SD = 0.356$) to the post-test ($M = 2.684$, $SD = 0.565$), $t(31) = 12.014$, $p < .05$, suggesting Talkpal AI helped reduce learners' concerns about being judged negatively. Classroom-Related Anxiety: no significant change was observed between pre-and post-test scores, $t(31) = 1.325$, $p > .05$.

Table 2. Results of Normality Test in Arabic-speaking Anxiety

Anxiety	Test	Shapiro-Wilk		
		Statistic	df	Sig.
Test anxiety	Pre-test	.964	32	.350
	Post-test	.934	32	.052
Communication apprehension	Pre-test	.959	32	.264
	Post-test	.961	32	.294
Fear of negative evaluation	Pre-test	.959	32	.264
	Post-test	.961	32	.294
Classroom-related anxiety	Pre-test	.936	32	.057
	Post-test	.938	32	.064

Table 3 Results of T-test OF Arabic-speaking Anxiety

Speaking Anxiety	Test	Paired Differences					
		Mean	N	Std. Deviation	t	*df*	Sig. (2-tailed)
Test anxiety	Pre-test	3.275	32	.515	3.273	31	.003*
	Post-test	3.006	32	.461			
Communication apprehension	Pre-test	3.309	32	.356	.618	31	.541
	Post-test	3.250	32	.565			
Fear of negative feedback	Pre-test	4.004	32	.316	12.014	31	.000*
	Post-test	2.684	32	.565			
Classroom-related anxiety	Pre-test	3.357	32	.235	1.325	31	.195
	Post-test	3.292	32	.220			

Note. *. $p < .05$

Qualitative Findings

Thematic analysis of semi-structured interviews with five participants revealed five key themes:

1. Perceived Usefulness of Talkpal AI

   Five participants all reported that Talkpal AI helped improve their Arabic fluency and build their confidence in speaking. Interviewee 1 noted that the Talkpal AI's ability to simulate realistic, turn-based conversations enhanced her motivation to engage in speaking activities. Interviewee 2 emphasized that the reverse questioning feature of Talkpal AI challenged him to formulate responses, which he found especially beneficial for oral exam preparation. Interviewee 5 expressed that the replies from Talkpal AI are not short, but rather long, which I think can enrich my Arabic vocabulary and syntax. Similarly, Interviewee 3 believed that frequent interaction with Talkpal AI could enhance fluency, particularly in preparation for classroom speaking assessments.

2. Perceived Ease Use and Customizability of Talkpal AI

   Participants found the Talkpal AI platform to be intuitive and easy to navigate. Interviewee 2 likened the interface to familiar applications such as WeChat, which facilitated ease of adoption. 3 of 5 Interviewees appreciated the system's ability to match conversation difficulty to their proficiency levels and highlighted features such as the ability to delete and re-record audio responses, which provided them with more control over their Arabic-speaking learning.

3. Anxiety Reduction Compared to Traditional Teacher-led Settings

   A notable theme was the reduction of Arabic-speaking test anxiety and fear of making mistakes when using Talkpal AI compared to traditional teacher settings. The reduction was especially in test-related stress, fear of negative judgment, and classroom-related performance anxiety. Interviewee 4 explicitly stated that he no longer feared negative evaluations from teachers or peers, as mistakes could be corrected privately. Respondent 3 explained that she often experienced pressure during classroom speaking tasks, particularly when making grammatical errors, as she was afraid of the teacher's involuntary frown. Interviewee 2 reported, "Anyway, the person on the other side is a robot, so it doesn't matter if I'm wrong". However, not all dimensions of speaking anxiety showed improvement. However, not all dimensions of speaking anxiety showed improvement. Interviewee 2 reported that

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classroom-related anxiety remained high due to his negative perception of his teacher's style, fast speaking pace, and frequent surprise oral tests. Additionally, he shared that his limited vocabulary and listening skills sometimes made it difficult to respond to AI-generated prompts in time. These findings could help explain why quantitative data showed no significant reduction in classroom-related anxiety and communication apprehension.

4. Feedback of Talkpal AI and Learning Motivation

   The Talkpal AI's pronunciation and grammar feedback mechanism, especially its support for explanations in Chinese, was frequently cited as helpful and motivating. All five interviewees indicated that the immediate and understandable feedback enhanced their engagement and made it easier to correct errors. Interviewee 3 indicated, "If I pronounce Arabic incorrectly or use incorrect grammar, the dialog box will immediately show a yellow exclamation mark and provide correct suggestions."

5. Continued Use of Talkpal AI and Limitation

   While 4 of 5 participants expressed positive attitudes toward continued use of Talkpal AI, the high cost of subscription was a limiting factor. Interviewee 2 indicated "I would not continue using the tool due to the monthly subscription fee of $14.99 (more than RMB 100), which is too expensive." Interviewees 4 and 5 said that they would continue to use Talkpal AI if the teacher continued to sponsor it. In contrast, Interviewee 1 expressed a strong willingness to continue using Talkpal AI for daily practice, because it was a convenient and effective tool to outside classroom learning not only for Arabic-speaking but also for English-speaking.

This mixed-methods study explored the impact of Talkpal AI-assisted speaking practice on Arabic-speaking anxiety among Chinese university students. Quantitative results revealed significant reductions in test anxiety and fear of negative evaluation, while qualitative data explained how Talkpal AI's user-friendly design, customizable interaction, and immediate feedback in Chinese contributed to reduced anxiety and increased learners of Arabic confidence.

The significant reduction in test anxiety may be attributed to the supportive and low-pressure environment created by Talkpal AI. Talkpal AI tool provides a more controlled and supportive environment in which undergraduates can practice speaking skills. The findings are in accord with recent research suggesting that technology-enhanced learning environments can help reduce test anxiety in foreign language learning (Elov et al., 2025; Gao, 2024; Ntumi, 2024). Test anxiety often causes learners' anxiety (Bailey et al., 2003), but repeated practice talking with the AI as a practice partner, receiving feedback, and self-monitoring the pronunciation likely contributed to the confidence when facing formal speaking tests. Qualitative data of the study showed the high perceived usefulness of Talkpal AI, especially in improving Arabic vocabulary, grammar, and fluency through rich, contextual AI-generated responses. Thus, Talkpal AI can be implemented as a supplementary tool in Arabic language courses to help students build confidence and fluency outside of class as it is particularly suitable for self-paced speaking practice.

In addition, there was a significant decrease in the fear of negative feedback anxiety levels among Arabic language learners in China after the intervention of AI-interactive speaking practice activity. This is consistent with interview data, where participants expressed relief at not having to worry about peer ridicule or teacher criticism

when making mistakes. According to Watson and Friend (1969), the causes of anxiety of language learners as a fear of negative evaluation from others, and frustration and worry about negative evaluations. Learners are concerned about how others will see them, and they worry about being stupid when they make mistakes in front of others (Al Nakhalah, 2016). However, speaking with an AI tutor such as the Talkpal AI platform used in the study creates a comfortable and judgment-free environment for Arabic language learners to practice. Also, the AI tool is a robot and the feedback is neutral, which might reduce learners' stress and fear of receiving negative evaluations. This finding aligns with Wardhani's (2019) and Wu et al.'s (2025) study that creating a low-stress learning environment helps reduce foreign language learners' fear of making mistakes. Therefore, AI-interactive speaking practice activity fosters a relaxed and supported setting for learning and self-expression for foreign language learners to practice Arabic-speaking skills without the pressure of negative feedback. This can be especially beneficial for learners who are shy, fear peer judgment, or are hesitant to speak in front of others.

However, there were no significant changes in communication apprehension anxiety following the Talkpal AI intervention. These findings reflect the limitations of AI in reducing speaking anxiety when practicing a foreign language and the complexity of language learning anxiety. One possible explanation is that while Talkpal AI supports individual speaking practice, it does not fully replicate the interactive and unpredictable nature of real-time human conversation or classroom dynamics. Research by Horwitz (2001) similarly indicates that communication anxiety often requires more interpersonal practice to overcome. In addition, a cause of speaking anxiety is learners feel difficulty in understanding the content of the input (Gregersen & Horwitz, 2002). Gu and Ismail's study (2024) found that lack of Arabic vocabulary was the most common speaking skills problem encountered by undergraduates at universities in China. Thus, individual learner limitations, such as low Arabic listening comprehension or vocabulary range, could hinder the full benefits of AI-based speaking interaction.

Classroom-related anxiety did not show a statistically significant reduction, indicating that learners may continue to experience anxiety in real classroom speaking situations, despite improvements during controlled AI practice. This aligns with Marzec-Stawiarska's (2015) finding that public speaking remains a major source of stress in foreign language classrooms. Classroom-related anxiety may persist due to external stressors such as teacher demeanor, fast-paced speech, and surprise oral tests (Rafli & Muslim, 2023; Marzec-Stawiarska, 2015). These findings suggest that while AI tools like Talkpal can supplement language learning, reducing classroom-related anxiety and communication apprehension may require effective instructional strategies that promote both comprehension and interpersonal interaction beyond technology use.

Qualitative results demonstrated the high perceived usefulness of Talkpal AI from participants, especially in timely corrective feedback. This supports the Technology Acceptance Model (TAM) framework (Davis, 1989), where perceived usefulness contributes to continued use and satisfaction with technological tools in learning. Participants also reported high perceived ease of use, facilitated by Talkpal's user-friendly design, customizable difficulty levels, and supportive features (e.g., deleting and resending audio). These affordances increased learner autonomy and reduced the risk of embarrassment, which may help explain the observed decline in Arabic-speaking anxiety. Prior studies have emphasized that scaffolded feedback in a familiar language enhances comprehension and motivation (Zarei & Rezadoust, 2020), and this study reinforces that

claim. However, monthly subscription fee was a recurring concern for Talkpal AI for Chinese university students. This finding underscores the importance of Chinese higher institutional support if such AI tools are to be sustained in formal language education contexts in China.

This study had certain limitations, including no control group and a short intervention period. The study did not include a control group, making it difficult to attribute changes in Arabic-speaking anxiety solely to the Talkpal AI intervention. This study was integrated into a three-week online session, each session lasted 30 minutes. The intervention period was relatively short, which may limit the ability to observe the long-term effects of AI-assisted speaking practice on language anxiety. Future research could explore the long-term effects of AI-interactive speaking practice on different types of foreign language speaking anxiety, with a particular focus on communication apprehension and classroom-related anxiety.

CONCLUSION

In conclusion, the study found that using Talkpal AI helped reduce Arabic-speaking anxiety among Chinese university students, particularly in test anxiety and fear of negative evaluation. Students valued its ease of use, real-time feedback, and the lower pressure it provided compared to traditional teacher-led settings. Thus, teachers can use Talkpal AI as an extended practice option outside the classroom, especially when classroom practice time is limited. However, the subscription cost per month of Talkpal AI was a noted limitation. While Talkpal AI supports Arabic-speaking practice, it may not fully replace human interaction or address all types of anxiety, such as classroom-related anxiety and communication apprehension. For broader and lasting impact, integration with classroom teaching and institutional support, such as financial subsidies and curriculum alignment for access is essential.

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