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The Impact of Chatbot-Based Dialogue on Pragmatic Competence Development: 11th-Grade Iranian EFL Learners in Focus

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ABSTRACT

Objective: Technology-based instruction is gaining momentum in the field of language learning. The purpose of this study was to investigate the effect of Chatbot-Based Dialogue on learners' pragmatic competence development in an EFL context which is frequently overlooked in conventional classrooms.

Methods: To this end, sixty female Azerbaijani students were chosen randomly from two public high schools in Ardabil, Iran. The participants were selected based on their scores on a pre-test designed to determine the homogeneity of their performance levels. They were assigned randomly to a control group (who practiced speech acts including making requests, making refusals, making apologies and making compliments through textbook based role playing) and an experimental group (who practiced similar speech acts with an AI chatbot for a total of ten weeks; 2 sessions per week). Pre and post-test data were collected for each individual to assess their ability to produce and recognize correct forms of language used in the context of the test.

Results: The statistical analysis of the data indicated that the experimental group experienced statistically more significant increases in their pragmatic competence than did the control group. Participants also offered positive feedback in brief individual interviews regarding their level of interest and their perceived ability to communicate.

Conclusion: The results of this study boosted the use of AI chatbots as an effective tool to supplement EFL instruction by providing learners with an interactive and low pressure environment to practice linguistic accuracy and awareness of how to use appropriate forms of speech pragmatically.

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1. Introduction

Technology is becoming a crucial part of English as a Foreign Language (EFL) today. One of the newest technological breakthroughs in EFL is the development of artificial intelligence (AI) based chatbots. Chatbots give learners unique and interactive ways to practice their language skills in realistic situations (Gu & Liu, 2025). As teachers, we are interested in chatbots because they use the natural back and forth flow of real conversations instead of just drilling the students on grammar rules (Wang et al, 2024). Since students do not often get a chance to practice real conversations in class, this gives them a great opportunity to practice how to hold a back and forth conversation with a partner (the chatbot).

Pragmatic competence is the ability to use language correctly and in the right situation (Róg, 2025). Pragmatic competence is an essential part of becoming a competent communicator (Róg, 2025; Youn,2018). However, the traditional methods of teaching EFL place a greater emphasis on teaching grammatical rules and vocabulary than on teaching pragmatic competence (Pourhosein Gilakjani & Rafiee, 2024). The lack of pragmatic instruction is particularly serious in EFL contexts like Iran, where English is taught as a foreign language and there are limited opportunities for learners to use the language in real situations (Gholami at al., 2024).

Iranian EFL learners face significant challenges in developing pragmatic competence due to traditional instruction that prioritizes grammar over communicative appropriateness (Gholami et al., 2024). Internationally, studies confirm that EFL learners often struggle with pragmatic performance even when grammatically proficient (Bardovi-Harlig et al., 2019; Taguchi, 2015). This gap between linguistic knowledge and pragmatic ability, coupled with limited authentic interaction opportunities in Iran, results in learner hesitancy and reduced communicative confidence, necessitating innovative instructional interventions.

This study is significant as it addresses a critical gap in the literature by focusing on adolescent EFL learners in Iran, a population largely overlooked in chatbot research. The findings may offer practical insights for educators and curriculum developers on leveraging AI technology to enhance pragmatic skills and learner confidence, ultimately contributing to more effective communicative language teaching in EFL contexts.

Specifically, this study aims to investigate the impacts of chatbot-based interaction on the development of pragmatic communication skills among 11th-grade EFL students in Iran. By comparing learners who engage in dialogue through an AI-based chatbot with those who participate in traditional classroom communication, the study examines how different modes of interaction influence learners' pragmatic competence, communicative performance, and affective responses. In particular, it seeks to determine whether technology-mediated dialogue can reduce learners' hesitance, lower affective barriers, and encourage more confident use of English in real-time communication. This research addresses a notable gap in the existing literature, which has largely focused on adult learners in university or professional settings. By concentrating exclusively on high school EFL learners, the study provides new insights into how chatbot-mediated interaction is integrated into secondary-school curricula to support pragmatic development and communicative fluency. The findings are expected to offer practical guidance for teachers and curriculum designers seeking to incorporate AI-based tools into classroom practice to enhance students' confidence and real-world communicative ability. As such, the current study attempts to answer the following research questions:

1. Does chatbot-based dialogue practice yield different outcomes in pragmatic competence compared to traditional classroom practice among 11th-grade Iranian EFL learners?
2. How do learners perceive their experiences interacting with AI chatbots?

2. Literature Review

The incorporation of AI-based chatbots into EFL education has drawn much attention due to their potential to develop learners' pragmatic competence (Cai & Ren, 2026; Yeshanov, 2025). Pragmatic competence, using language

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appropriately and effectively in social contexts, is one of the essential components of communicative competence and is necessary for successful interaction in real-world contexts (Duong, 2025). However, traditional EFL instruction often emphasizes accuracy**,** grammar, and comprehension, and offering limited opportunities for learners to practice context-sensitive language use (Almehaidly, 2024). This imbalance is even more noticeable in EFL contexts like Iran, where students learn English in settings that offer very limited access to authentic communication and few opportunities to participate in natural, socially meaningful interactions. In such settings, AI-driven chatbots seem to provide low-pressure opportunities for interaction, may facilitate the development of pragmatic skills and help bridge the gap between classroom learning and authentic language use by providing interactive practice.

2.1 Theoretical Framework

This study draws on two complementary theoretical foundations: (1) theory of pragmatic competence, which refers to the knowledge of pragmalinguistics (i.e., production of appropriate language) and sociopragmatics (i.e., understanding how people communicate), and (2) sociocultural theory of second language acquisition, which explains that individuals learn through their social interactions with others. Both theories play a crucial role when it comes to determining how well learners can use language in complex social situations.

2.1.1 Pragmatic Competence

Pragmatic competence is a subdimension of communicative competence that exists between linguistic competence (i.e., being linguistically accurate) and social appropriateness (Mahmoudi-Dehaki & Nasr-Esfahani, 2025). Pragmatic knowledge is knowledge about how language is used, and, therefore, how to use the correct words for each situation. In other words, Pragmatic competence is a multidimensional construct comprising numerous skills that enable learners to use a language appropriately in social contexts. There are many different theoretical frameworks addressing communication, including speech Act Theory (Austin, 1962; Searle, 1969), which recognizes a speech act as an action, so there is an emphasis placed on performing acts such as: requesting, apologizing, making promises and refusing; 2) Grice's (1975) Maxims (i.e., quantity, quality, relation and manner), and, therefore, according to Grice, pragmatic competence refers to the recognition that these maxims have been followed; and 3) Canale and Swain (1980) and Bachman and Palmer (1996), describe pragmatic competence as a key component of communicative competence, where a learner can use language appropriately according to their context (e.g., subject matter, relationship, etc.) and according to social norms; it represents one level of communicative competence along with grammatical and sociolinguistic competence.

Pragmatic competence underscores the need for learners to develop linguistic proficiency, yet proficiency alone is not sufficient. Learners must also understand how to use language appropriately in different contexts. Pragmatics is essential for effective communication because it combines linguistic accuracy with social appropriateness. In EFL contexts with limited authentic interaction, such as Iran, this dimension of learning often remains underdeveloped since instruction relies solely on textbooks

2.1.2 Sociocultural Theory

Vygotsky's (1978) sociocultural theory states that language learning is a social process in which the development of pragmatic competence occurs within a social context and is facilitated by scaffolding, social interaction, and cultural tools. Thus, pragmatic competence develops through social support and guided practice within the learner's Zone of Proximal Development (ZPD) offered by more competent individuals (teachers, peers, or computer agents). This framework underscores the reciprocal relationship between linguistic knowledge and social mediation and also the significance of pragmatic competence in effective language learning. In essence, Vygotsky's theory illustrates that learners can develop strong pragmatic competence if they are provided with support within their ZPD and take advantage of scaffolding and realistic social contexts when acquiring language.

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2.2 Empirical Studies

A growing body of recent studies has examined the effectiveness of AI-driven chatbots for language learners. A systematic review by Wu and Li (2024) revealed that chatbots can help EFL learners develop their language skills, including their pragmatic language abilities, in many different ways. Another example is a meta-synthesis study performed by Koç and Savaş (2024), which synthesized 57 studies that show chatbots are effective at developing language skills and improving affective factors that are considered to be necessary for developing pragmatic language ability.

The use of chatbots to promote pragmatic language competence is an issue that has been evaluated by other researchers. Belda-Medina and Kokoskova (2023) found that chatbots provide learners with a simulated experience of conversational interactions that represent real life. One example of this would be using the same functions that take place in real life so learners can practice their language skills as they relate to making requests, apologizing, or declining an invitation in a controlled but dynamic environment in addition to developing greater awareness of pragmatics in EFL contexts where learners have little opportunity to gain experience using language in an authentic way. More recent empirical studies also reinforce these findings: Lin and Mubarok (2025) report significant gains in learners' sociopragmatic awareness, while Zhang and Chen (2024) show improvements in speech act performance, including requests, apologies, and refusals. Research by Alharbi (2024) reveals how AI-mediated interaction strengthens affective variables linked to pragmatic growth, and Park and Lee (2023) demonstrate that chatbots enhance interactional competence through improved turn-taking and repair strategies. Santos and Ribeiro (2024) argue that real-time chatbot feedback increases learners' ability to produce contextually appropriate responses, outperforming delayed teacher feedback in pragmatic tasks.

Islamov (2021) discusses artificial intelligence's impact on social norm negotiation and suggests that using chatbots could promote a better understanding of how to use language according to the context. Furthermore, Rahman et al. (2025) provide data from a study of Pakistani undergraduate ESL learners, showing that the use of AI chatbots improves learners' ability to produce speech acts (e.g., requests, apologies, refusals) through regular interaction with chatbots over time. The study also found that interacting with chatbots increased learners' capacity to provide contextually appropriate responses in various communicative contexts. A similar pattern is shown in a study performed by Tahir (2025), who examined the role of ChatGPT as a virtual peer partner to EFL learners. This research supports the idea that consistent engagement with the chatbot leads to pragmatic fluency and awareness (particularly in informal and semi-formal contexts).

In the context of Iran, Gholami et al. (2024), studied the effectiveness of communication-based chatbots on improving speaking ability among EFL learners. The researchers included digital literacy as a factor in their analysis of the study, which found that learners with high levels of digital literacy gained more from using chatbots than other learners. This outcome suggests that learners' technological competence affects their ability to successfully learn languages using artificial intelligence. Further study on this topic indicated the need for educators to seriously consider their students' level of technology proficiency before implementing AI-based language learning strategies in the classroom. Rahimi and Dastjerdi (2025) highlight that chatbots provide accessible, socially meaningful practice that enhances sociopragmatic judgment and reduces communication anxiety, making them particularly valuable in EFL settings where opportunities for real-world communication are scarce.

These studies suggest that chatbots create an interactive, personalized environment that can help develop pragmatic skills and use context-based communication. They also indicate that combining knowledge of theory with practice in natural situations might help bridge the gap between what you know about a language and how to use it. Even though studies have been done on how chatbots can help EFL learners develop these skills, most of these studies have been done with university students or adults and do not examine how high school EFL learners in Iran might

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benefit from using chatbots to help them develop their pragmatic skills. Therefore, there is still a notable lack of empirical research examining the effectiveness of chatbots for developing high school EFL students' pragmatic skills. Since high school students constitute a large number of EFL learners, it is important to understand how technology improves students' communication skills through the use of innovative methods.

The current study investigated the effects of using AI-driven chatbot for dialogue practice on the development of pragmatic competence among 11th grade Iranian EFL students. It sought to compare students' performance during AI-generated dialogues with traditional classroom interactions previously observed by teachers, in which students frequently showed hesitancy to speak English. By focusing on high school learners, the current study intends to contribute to the available literature and address a critical gap. The findings of the present study may have pedagogical implications for educators, curriculum developers, and other stakeholders and provide them with deeper insight into how AI-driven chatbots, if integrated into the instructional practice, might support learners to communicate confidently and appropriately in authentic social context.

3. Methodology

3.1 Research Design

To investigate the effectiveness of chatbot-assisted instruction in developing pragmatic competence among EFL learners, a quasi-experimental research design employing a mixed-methods approach was adopted. This design enables the comparison of learning outcomes between an experimental group receiving chatbot-mediated pragmatic instruction and a control group exposed to conventional teaching methods. Quantitative data were collected through pre- and post-tests using validated pragmatic assessment instruments, such as discourse completion tasks and rating scales, to measure gains in both pragmalinguistic and sociopragmatic knowledge. Complementing this, qualitative data were gathered via learner interviews, and classroom observations to explore participants' perceptions, engagement, and contextual experiences with the chatbot.

3.2 Participants

Due to institutional and cultural limitations, all of the subjects in this research study were young women (aged 16 or 17 years old) studying English in the 11th grade at two public secondary schools located in Ardabil, which is a majority Azerbaijani-speaking region in northwest Iran. The students were all both ethnic Azerbaijani and Shia Muslims, which reflects the dominant ethnic/religious composition of the province. Such cultural/religious homogeneity among the participants minimizes the amount of background variability and therefore allows for a more concentrated examination of the effects of the intervention on English instructional changes.

All students had received at least five consecutive years of EFL instruction according to the Iranian National Curriculum, which includes traditional EFL instruction (e.g., grammar-based; reading-based); however, their exposure to authentic communicative uses of language was very limited (especially for communicative uses of pragmatics). There were a number of criteria used to determine the eligibility of each participant prior to grouping them into their respective groups in the study, with a view to creating a high level of reliability in the experimental conditions for the study. First, students were required to complete a questionnaire on their language backgrounds so that researchers could verify that they have not had extensive contact with English outside of the classroom. Examples of this include international travel, having family members who speak English, or attending private English language institutions that focus on developing communicative skills. Participants who had received this kind of experience were eliminated from consideration in order to maintain a comparable level of English proficiency and exposure to English within each group and hence across all groups of participants.

Next, each of the student's proficiency level for English language was assessed by examining the students' scores on their most recent standardized school exams. The students must score in the intermediate range (B1 according to

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CEFR) to qualify for inclusion in the study. This way all students were competent enough to understand and complete the task/ activities being assessed but had not yet developed a high level of proficiency in the area of pragmatics in the English language.

Participants were randomly assigned into one of two different groups, which included (n = 30) as the treatment (i.e., chatbot instructional group) participants and (n = 30) as the comparison (i.e., traditional classroom instructional group) participants. Parents and school administrative permission to conduct the research was obtained prior to the research process. The purpose, process, and completion of the study was provided to all participants at the beginning of the study and the participants were informed that they would be participating on a voluntary basis. All students were provided anonymity throughout the research process and that their participation in the study would not affect their academic records. All responses were kept anonymous. `The methodology of randomly assigning participants, along with specific criteria for inclusion in each group, as well as the demographic similarity between the groups at the initial point of the study (baseline), contributed to an assurance of comparability between both groups at the beginning of the study. This design allowed for measurement of the effects of the intervention (chatbot) on use of pragmatics while controlling for outside variables.

3.3 Instruments

To determine how effective chatbot-assisted education is in helping students develop pragmatic competence, a quasi-experimental study design has used a mixed-methods methodology. This will allow for comparison between an experimental treatment group (those receiving chatbot-based instruction) and a control group (those receiving conventional instruction). Quantitative data were collected via pre- and post-tests using established assessment instruments to measure both pragmalinguistic and sociopragmatic knowledge. The Pragmatic Competence Test was used as the primary measurement tool in order to gauge the ability of learners to produce common English speech acts (i.e., to ask politely, reject offers, make pardon statements, and to compliment someone). The assessment tool was composed of 3 parts: (1) multiple choice questions regarding knowledge of pragmatically correct ways of responding; (2) written responses for situational prompts; and (3) short oral presentations evaluated with respect to appropriateness, tone, and politeness, using a fully developed rubric for consistent scorings.

The experimental group received an AI chat assistant (Open AI's ChatGPT) through mobile phones and classroom computers in order to implement the treatment. The AI chatbot created conversational scenarios similar to those found in everyday life; therefore, the students were able to practice speaking naturally using the English language. The students then used the English language to communicate with the chat assistant via the teacher's instructions/guidance (prompting them with topics) throughout the course of their study.

At the final stage of the study, each student in the experimental group completed a brief questionnaire designed by researchers to measure the willingness of the students to use an AI chat assistant for language learning. This was done through open ended and Likert scale type responses that evaluated the level of engagement, ease of use and perceived benefit of the chat assistant for use in learning the English language. Additionally, teachers used a behavioral observation checklist to document various behaviors related to levels of student engagement, confidence and language used by the students during each of their eight sessions (one session per week).

3.4 Procedure

The study included a ten-week time period. For week one, all participants completed a pre-test to explore their baseline pragmatic competency levels. In week one, students in the experimental group experienced an introduction to the chatbot system and were trained on how to engage with this technological resource, thereby ensuring their technological readiness and setting forth expectations for it's appropriate use. Weeks two-nine included both groups participating in (2) two 30-minute sessions weekly targeted around one key speech act per week. The experimental group was provided with scenario based-tasks such as: "Ask a friend to lend you his notes" or "Polite refusal to an

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invitation" which they practiced through interactive dialogue with the chatbot; where the chatbot AI interacted contextually with the students prompting the students to modify their language in respect to social appropriateness. Teachers monitored the student's dialogue and provided a brief follow-up discussion regarding any required clarification.

The chatbot experiment was conducted with controlled conditions to maintain regularity and replicability from one trial to another. On each occasion before starting the experimental trials, students in the experimental group were provided printed written prompts relevant to the specific pragmatics context of the Speech Act theme of that week (the pragmatic function of that speech act). For example, students were given as prompts either asking someone in class for their notes or asking their teacher for clarification. The experimental group were provided identical prompts by all members of the group. The prompt is also referred to as an interaction instruction, so that students received explicit instruction about how to communicate with the chatbot, either creating a full and complete elaborate each time there is an opportunity for saying something to the chatbot or just providing an isolated sentence response when that would have been appropriate. To elaborate further, students were instructed to initiate, continue, and respond to three exchange events with the chatbot.

At each instruction exchange, students should take into account the level of politeness, appropriateness, and clarity, but they were not told to use any specific pragmatics formulas or to specifically use the information from the interaction instructions as intended to strictly to let the presence and influence of the naturalness of the hubs emerge. Students were also not instructed to repeat the interaction until they received a "correct" response from the chatbot. Rather, students were encouraged to use their language naturally in interaction with the chatbot based on their own reflection of the chatbot's response to them.Throughout this study, OpenAI's ChatGPT (GPT-3.5) was the chosen chatbot; it was accessed through a standard web interface that was available when the data were collected. Each interaction session with the chatbot started with a fixed role instruction that kept the chatbot acting as "a friendly, English-speaking peer responding in a friendly and polite manner to everyday scenarios". No changes to any of the system level parameters of the chatbot (such as the "temperature" and response length) were made during the course of this research, thus giving all students the same opportunity to interact with the same default settings for the chatbot. These parameters created a minimal variance in the responses of the chatbot while at the same time having enough naturalness to promote a natural conversational flow.

The teacher only monitored student use to ensure that they were on-task and offered very brief clarification as needed when students were struggling with either the technology or understanding the information being shared with the chatbot. The teacher did not monitor or intervene regarding the content of responses generated by the chatbot nor did the teacher correct student grammar errors during the student interaction stage with the chatbot; thus the integrity of the chatbot-mediated instruction was preserved.

Conversely, students in the control group received instruction via traditional methods and maintained similar communication skills through the use of printed dialogues, role-playing scripts and through practicing speech act scenarios in pairs or small groups. Teacher attention to the students was about form and meaning but did not include real-time AI interaction nor did the students engage in real-time spontaneous dialogue beyond their peers.

After Week 10, the final assessment was administered to all participants using equivalent tasks to those found in the initial assessment, which measured pragmatic development. Scoring was done using the same rubric as in the pre-assessment. Following the post-assessment, students participating in the experimental group were asked to complete an engagement questionnaire to provide feedback on their experience with the chatbot. The study employed qualitative interviews and instructors recorded informal observations about student participation, behavior, and confidence during the sessions to enrich interpretation of the results.

3.5 Data Analysis

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The practical phase of this research project commenced with an evaluation of the homogeneity/like-mindedness amongst the subjects involved in the study; secondly, a pre-test was administered, and finally, the subjects received a post-test. The data collected from the subject selection and the post-treatment phases were subjected to various relevant statistical analyses and computations by the researchers. The results of these analyses and computations will be presented here, with additional information provided in subsequent sections, outlining detailed data and reports.

Paired-sample t-tests were conducted to compare pre- and post-test results within each subject grouping, also known as group comparison methodology (passive) while independent-sample t-tests were utilized for comparative improvement from one set to another (passive). The intent of these types of statistical analyses was to ascertain if utilizing chatbot-based dialogue practice improves student's pragmatic competence. For example, a paired-sample t-test was performed on both experimental group and control group to determine how much improvement occurred from pre- to post-test scores and an independent-samples t-test was utilized to draw comparisons between experimental and control group post-test scores.

The group participating in the experiment had a statistically significant increase in their ability to communicate effectively with others. Their average score before they began using the program was 13.2 (SD = 2.4), but after using it, it rose to 17.5 (SD = 1.9). Additionally, the paired sample t-test showed that the experimental ($t(29) = 8.21$; $p < .001$) was strong evidence of a large effect due to using the program.

The control group had an increase in their communication effectiveness, although to a smaller degree, than the experimental group. The control group's average score was 13.0 (SD = 2.6) before they started using the program and increased to 14.4 (SD = 2.3) after using it. Furthermore, when comparing the pre-test and post-test scores for the two groups, there was a statistically significant difference between them ($t(29) = 3.14$; $p = .004$), but the amount of overall change in the control group was lower than that of the experimental one.

To compare how well the experimental and control groups performed, an independent sample t-test was used on their post-test scores. The experimental group's average post-test score ($M=17.5$) was significantly higher than the control group's average post-test score ($M = 14.4$; $t(58) = 5.49$; $p < .001$), providing statistically significant evidence that the participants who had used the program had a higher degree of effective communication as compared to those who had not.

According to the literature review, more investigation regarding the nature of language learning and the practice of teaching; learning a second language requires conducting both qualitative and quantitative studies. For this reason, this current research study was completed in two different sequential phases: the data collected in this research study was mainly quantitative by first collecting quantitative data; then, qualitative data was collected.

The researchers conducted a brief follow-up interview with a random sample of students from the experimental group to gain qualitative insight into their experience of using the chatbot as well as to validate the findings from the original research study. The researchers used semi-structured interviews, which provided the participants with an opportunity to elaborate on or clarify any discrepancies between the statistical findings from phase one of the study and their own personal experiences. This allowed for a deeper understanding of how the use of the chatbot in the experimental group affected the students' perceptions and behaviors toward developing pragmatic competence; data were collected using closed-ended questions and open-ended questions.

Qualitatively, 86 percent of participants stated that their experience was very engaging and 74 percent of participants believed it would help them use English naturally in real-life situations. Participants' open-ended feedback indicated that the use of the AI (artificial intelligence) to do the above helped them to pay more attention to the proper tone, level of politeness, and timing of when to respond — all of which are crucial components of pragmatic competence. The following section presents further details of all quantitative data analyses conducted for this study.

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4. Results

4.1 Results for the First Research Question

The first question of our research was addressed through analysis using both descriptive and inferential statistics, which can be found in the tables and figures below. The means of the sample scores were calculated for before and after treatment for the two sample groups (experimental using chatbots for interaction and control using traditional role-plays). The evidence indicates that the experimental group demonstrated much greater improvement than did the control group on all performance measures.

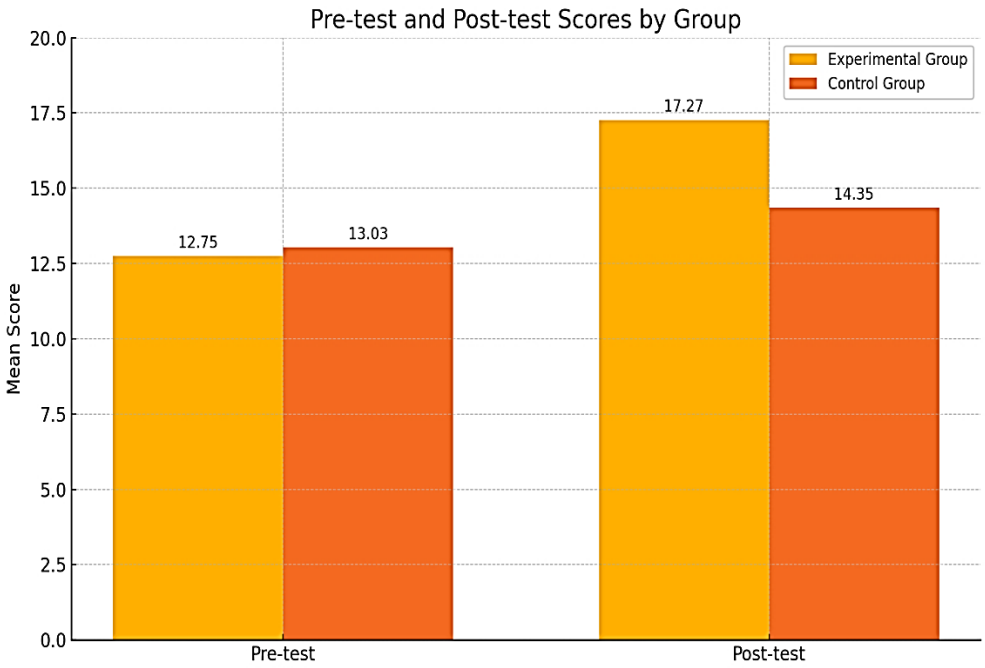

Figure 1. Mean pre-test and post-test scores for experimental and control groups

The line graph illustrates the improvement in pragmatic competence over time for both groups. While both groups showed gains, the experimental group's progression was steeper.

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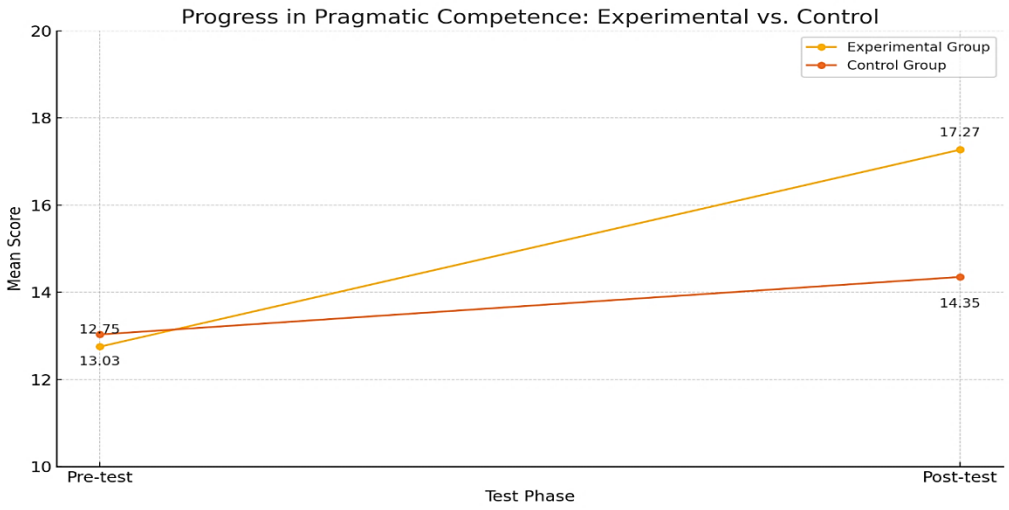

Figure 2. Progress in pragmatic competence

Table 1 presents descriptive statistics (mean and standard deviation), t-values, p-values, and Cohen's d for baseline and final scores for both groups of participants. The experimental group who received support from the chatbots in their English learning had a significant increase in scores between the baseline and the final tests (t (29) =8.21, p<.001) and a large effect (Cohen's d=1.50). However, the control group also increased their test scores but to a lesser degree (t (29) =3.14, p=.004; Cohen's d=0.57), showing a small to medium effect. Cohen's d was calculated for both the between-group post-test comparisons and the within-group pretest to post-test comparisons according to the standard procedures for independent samples and paired samples designs. The analysis of between-group post-test scores resulted in a significant difference between the two groups, with the experimental group having significantly higher post-test scores than the control group (t (58) =5.49, p<.001, Cohen's d=1.41). This result demonstrates that the use of a chatbot positively impacted learning outcomes.

Experimental Group:

- t(29) = 8.21, p < .001
- Cohen's d = 1.50 → large effect size: Statistically significant and substantial improvement in pragmatic competence after chatbot-based instruction.

Control Group:

- t(29) = 3.14, p = .004
- Cohen's d = 0.57 → small to medium effect size: Statistically significant improvement from traditional instruction.

Between-Group Comparison:

- $t(58) = 5.49$, $p < .001$
- Cohen's d = 1.41 → large effect size: Significant difference favoring the experimental group.

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The sample size and test design may both affect the results of this study, so use caution when interpreting the findings based on these parameters. Although there was a large effect size in this study, it will also need to be re-evaluated due to small sample sizes and tests' design. Because the students received frequent individual feedback on their performance, the CHAT's intensive and interactive feature may have contributed to the large effect sizes observed by the students in this study. Without this aspect of teaching, most traditional environments would not provide the same level of individualized teaching and support.

Table 1. Descriptive and inferential statistics for experimental and control groups

Group	Test	Mean (M)	SD	t-value	p-value	Effect Size (Cohen's d)
Experimental (n=30)	Pre-test	13.23	2.42	–		
	Post-test	17.50	1.88	8.21	< .001	1.50
Control (n=30)	Pre-test	13.00	2.62	–	–	–
Between Groups	Pre-test	14.43	2.31	3.14	.004	0.57
	Post-test	–	–	5.49	< .001	1.41

4.2 Results for the Second Research Question

To answer the second research question, the researcher analyzed the results obtained from the qualitative phase of this research study. Additionally, for the purpose of fully understanding the perceived impact of chatbot-based learning on a participant's pragmatic competency, the researcher utilized semi-structured interviews with some of the participants in the experimental group to examine the effect chatbots had on their learning of the English language.

Figure 3 indicates how the respondents felt about their use of chatbots for English language learning. Most of the respondents either agreed or strongly agreed that their experiences using chatbots were more engaging than using traditional textbook dialogues, helped them to use English more spontaneously, and have increased their confidence in speaking. There was also strong interest on behalf of the participants in continuing to use chatbots for English language learning in the future.

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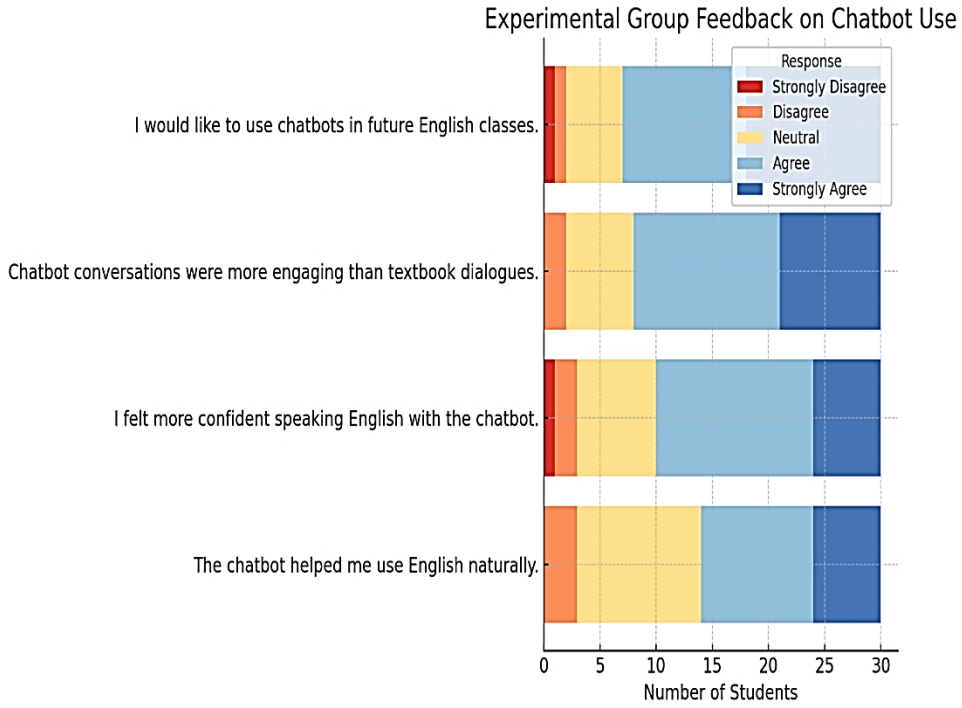

Figure 3. Experimental group feedback on chatbot use

5. Discussion and Conclusion

The objective of this study was to evaluate how incorporating chatbots into EFL classrooms affects students' pragmatic growth. The data collected in this research indicate the efficacy of using AI chatbots to develop a student's ability to implement strategies from other cultures into their everyday lives.

Moreover, the data from this study indicate that practice with chatbot dialogue can facilitate greater development of students' pragmatic skills than role-playing, especially among Iranian high school students. Therefore, it is plausible to conclude that AI chatbots would provide learners with more contextualized and engaging forms of interaction than those provided by role-playing. This is largely due to the incidental nature of chatbot interactions, which encourage learners to think on their feet during negotiations. Chatbots also provide learners with real-world experiences using real-time, unstructured dialogue rather than the structured script that is present in textbooks; thus, motivating learners to adjust and modify their language as they negotiate during actual conversations. This finding supports Vygotsky's (1978) sociocultural theory, which proposes that social activity, scaffolding, and other forms of mediation are essential for developing higher-order thinking skills and developing communication competencies. In this light, AI chatbots serve as mediators of communication, providing learners with opportunities for structured and dynamic language experiences through contextualized interactions.

The chatbots' capacity for providing feedback and abundant support while being only slightly challenging for the learner fits well within the framework of Vygotsky's Zone of Proximal Development (ZPD) as they not only offer help just above the current levels of competence of language acquisition by learners but also assist learners in reaching a higher level of competence through their structured responsiveness and contextualized assistance. Therefore, even

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though chatbots do not have human-like qualities, they may be an efficient scaffold within the learner's ZPD via their ability to provide structured, responsive and context-appropriate assistance. Scaffolding may be described as a procedure that allows learners to receive temporary assistance to complete tasks that they could not have completed on their own until they are then able to complete these same tasks independently with increasing levels of competence as provisional support is removed.

While human instructors will continue to rely on adapting their support of learners based on how the learners enact adaptive interactions with them, chatbots will have the capacity to mimic those interactions through programmed prompts and adaptive content. Chatbots have a capacity for assisting learners in completing difficult or complex tasks through problem-solving. When assisting a learner in solving a problem, for example, a chatbot can break a large or difficult task into smaller, easier to manage components of the task, provide hints to assist the learner with solving a problem, and give the learner immediate feedback. Chatbot assistance will allow learners to continue their participation through cognitive engagement as well as provide learners an opportunity for metacognitive reflection. Although chatbots possess no human understanding or human social awareness, their responsiveness to algorithms provide assistance similar to that of the type of contingent support that is found in good quality scaffolding. As a result, chatbots can act as mediators for learners and provide assistance to help learners continue to develop their skills within the ZPD in a digital or self-directed learning environment when designed with a pedagogical intent.

Additionally, AI-driven chatbots can serve as scaffolding devices in the Zone of Proximal Development (ZPD) which supports the rationale of using chatbot interactions to build pragmatic skills because learners require contextualized practice and social negotiation in order to learn how to use language properly in ways that are acceptable within a culture.

The findings of this study align closely with the existing literature demonstrating the effectiveness of AI-mediated interaction in developing pragmatic competence. Consistent with Lin and Mubarok (2025), learners in the present study revealed notable gains in sociopragmatic awareness, while improvements in speech act performance mirror those reported by Zhang and Chen (2024). The affective benefits highlighted by Alharbi (2024**)** help explain learners' increased willingness to engage in chatbot-based interaction, and the enhanced turn-taking and repair strategies observed here echo the interactional gains documented by Park and Lee (2023). Furthermore, the role of real-time feedback identified by Santos and Ribeiro (2024) provides a compelling rationale for the pragmatic improvements found in this study.

The results are also in line with broader findings in the literature, which highlight the significance of context-sensitive, personalized language use in enhancing pragmatic development \\(Wu & Li, 2024; Koç and Savaş, 2024). Similar to the works of Belda-Medina and Kokoskova (2023), Islamov (2021), and Rahman et al. (2025), the present study indicates that AI chatbots can simulate authentic conversational environments, heighten learners' awareness of sociocultural norms, and support the development of pragmatic competence , particularly in producing speech acts such as requests, apologies, and refusals. Additionally, the findings suggest that chatbots facilitate learners' ability to generate contextually appropriate responses across diverse communicative tasks, reinforcing their value as pedagogical tools for pragmatic instruction.

According to participant feedback, the chatbot provided students with non-judgmental and ongoing practice; many participants felt that this helped to motivate them to try out new expressions, negotiate for the meaning of their words, and notice the strength of indirect and polite expressions, three important components of pragmatics. These improvements reflect the socio-cultural theory of learning which emphasizes "scaffolded interaction" between two or more people (the teacher and student) when working within the zone of proximal development (ZPD). The chatbot provided ongoing (or what is referred to as "just in time") feedback to learners which resulted in their ability to work slightly beyond their present level of skill. For instance, in more traditional Iranian classrooms, where learners are

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often reluctant to speak because of fears of making a mistake, social interaction in this low stress and easily controlled environment provides an advantage in terms of pedagogy.

The participants in control group also made some gains which was relatively modest compared with the improvements made by the treatment group; therefore, the difference between them demonstrates that traditional methods (such as textbook dialogue or teacher-led role-play) are far less effective than AI-driven conversational tools.

This study provides additional support for an increasing amount of research recommending the use of AI and conversational technologies in EFL education, as they enhance not only linguistic accuracy but also increase the use of language in socially and culturally appropriate ways. One student stated, "I learned how to apologize in a more formal way..." This finding provides further evidence to support the positive outcomes of improved politeness and appropriate speech acts when using chatbots in EFL. Nevertheless, studies such as (Üstünbaş, 2024) indicate that the improvement of learning via chatbot use does not always occur as successfully when learners converse with someone face to face, especially in spontaneous conversation.

Based on positive results and student feedback, it seems reasonable to consider including tasks mediated by chatbots as an additional resource for students in Iranian high schools who take EFL classes and wish to enhance their practice of performing speech acts and using language in socially and culturally appropriate ways.

6. Conclusion and Implications

Based upon the results of this study, it can be concluded that chatbots constitute an effective method for enhancing EFL learners' pragmatic competence, outperforming traditional instructional approaches that rely primarily on decontextualized practice and delayed feedback. The research indicates that the success of the chatbot may be attributed in part to the novelty of the product and the comfortable learning environment that the chatbot provided for students to practice their language skills. Students who interacted with the chatbot experienced improvement in their ability to produce both socially and contextually appropriate English. The research also recommends that the integration of "AI-powered" chatbots into EFL curriculum be considered a valuable resource for practicing speech acts, alleviating learner anxiety related to communicating, and developing learner autonomy. Also, the use of chatbot technology provides an entertaining way for decreasing the gap between linguistic accuracy and social appropriateness in language learning for EFL students through providing them with opportunities to practice their speaking skills in a supportive, responsive, and repeatable environment. In addition, feedback of EFL learners revealed that the chatbot was engaging and increased student confidence while participating in the chatbot, thus providing further motivation to use the chatbot in the learning process.

Overall, the findings presented in this study support the idea that AI-powered chatbots serve more than a purely functional purpose (e.g. providing a digital resource for teachers) by providing a practical method for fostering a pragmatic awareness of how to effectively communicate using language. This can potentially aid in bridging a gap that many students face in terms of how well they understand a language, compared to how well they can actually use the language to communicate effectively with others. Furthermore, it would be beneficial to incorporate the use of chatbots into the daily curriculum in an EFL class in conjunction with traditional methods of instruction (textbooks) because this allows students to have additional opportunities to practice verbally communicating (i.e. engaged dialogue) in ways that they would not have been able to do in the classroom by simply relying on learning from textbooks.

Findings of the present study demonstrate that practicing dialogue using a chatbot may positively impact the development of pragmatic competence among Iranian 11th-graders learning English as a foreign language; however, a few factors should be taken into account while attempting to generalize them: The intervention lasted ten weeks. which might not have been long enough for participants to fully develop or stabilize their long-term pragmatic competence. Longitudinal studies will provide information on whether pragmatic gains are sustainable and retained over time. The sample size was also limited to 60 girls who attend two public high schools in Ardabil, all of whom are

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of the same ethnicity (Azerbaijani), religion (Shia Muslim), and gender (female). This consistency in demographics resulted in limited variability and supported internal validity; however, it restricts the extent to which findings can be generalized to other, more diverse, EFL populations within Iran or around the world.

The investigation was limited to only four main types of speech acts: requesting, politely refusing, apologizing, and complimenting/giving a compliment. While pragmatic competence includes a much broader range of communicative behaviors, including turn-taking, hedging, negotiating disagreement, and sarcasm, there was no exploration of these behaviors in the current study. While chatbots gave participants the opportunity to receive contextual and spontaneous feedback, feedback was limited to text-based interactions. This type of interaction excluded critical nonverbal components of communication such as intonation and gestures, as well as the expression of feelings via facial expressions, which are all an integral part of pragmatics.

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Appendices

Appendix 1

Student Feedback Questionnaire

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Instructions: Please indicate your level of agreement with the following statements about your experience using the chatbot in English class.

(1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree)

1.The chatbot helped me use English more naturally.

2.I felt more confident speaking English with the chatbot.

3.Chatbot conversations were more engaging than textbook dialogues.

4.I was able to notice my mistakes and correct them during chatbot use.

5.The chatbot was easy to use and understand.

6.I enjoyed learning English through the chatbot.

7.I would like to use chatbots in future English classes.

Appendix 2

Pre- and Post-Test (Pragmatic Competence)

Part A – Multiple Choice (Speech Act Recognition)

Choose the most appropriate response.

1.You bump into someone accidentally. What do you say?

a) What are you doing?

b) Sorry about that.

c) It's your fault.

d) Just go.

2.Your teacher is busy. You need to ask for help politely.

a) Help me now.

b) Can I ask you something when you have time?

c) You must help me.

d) I wait here.

Part B – Open-Ended Written Responses

Write appropriate responses to the following situations:

3.A friend invites you to a party, but you are busy. Politely refuse.

4.You forgot to return your classmate's book. Write a short apology.

5.A friend says, "You look great today!" Write a suitable response.

Part C – Short Role-Play (Oral Assessment)

Teacher plays one role, student responds.

6.Teacher: "Could you help me carry these books to the office?"

7.Teacher: "Sorry, you can't use your phone in class."

→ Student: [Politely apologize]

-Scoring criteria of pre- and post-test

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•Appropriateness of response

•Use of politeness strategies

•Tone/formality

•Fluency (oral task)

-Rubric:

0 = Inappropriate

1 = Minimal

2 = Acceptable

3 = Appropriate

4 = Very Appropriate

Appendix 3

Teacher Observation Checklist

(Never | Rarely | Sometimes | Often | Always)

1.Student stayed on task during chatbot interaction.

2.Student showed engagement or interest.

3.Student used polite language appropriately.

4.Student asked for clarification or self-corrected.

5.Students participated actively in post-task review.

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