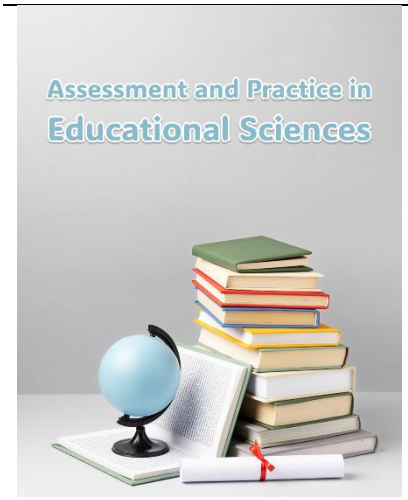
Assessment and Practice in Educational Sciences



The Comparative Effects of Input Enhancement and Input Flooding on the Learning of Apology and Request Speech Acts among EFL Learners: The Case of Computer-mediated vs. Traditional Methods

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Article type:
Original Research

Article history:
Received 10 June 2024
Revised 13 August 2024
Accepted 20 August 2024
Published online 01 September 2024

How to cite this article:
Bakhshi Jahromi, I., Ahmadi Shirazi, M., & Khomijani Farahani, A.A. (2024). The Comparative Effects of Input Enhancement and Input Flooding on the Learning of Apology and Request Speech Acts among EFL Learners: The Case of Computer-mediated vs. Traditional Methods. *Assessment and Practice in Educational Sciences*, *2*(3), 1-15. https://doi.org/10.61838/japes.2.3.4

ABSTRACT

This study examines how input enhancement and input flooding, delivered via traditional vs. computer-mediated instruction, affect EFL learners' mastery of the speech acts apology and request. One hundred twenty intermediate learners (both male and female) were selected by convenience sampling. Using a quasi-experimental design, four experimental groups each received one of the treatment combination. Data analysis involved one-way ANOVA, and independent-samples t-tests. Results show that the computer-mediated input flooding group achieved the highest mean score in pragmatic knowledge (≈ 17.67), whereas the traditional input enhancement group performed lowest (≈ 12.90). The other two groups (computer-mediated enhancement; traditional flooding) were between these extremes, with no statistically significant difference between them. All groups showed improvement in performing apology and request speech acts, with greater gains in the computer-mediated conditions. There was no significant gender difference. Flooding, especially when delivered through computer mediation, is particularly effective for enhancing pragmatic competence.

Keywords: Pragmatics, Speech acts, Computer-mediated, Input Enhancement, Input Flooding.

Introduction

Pragmatics has become a defining area of applied linguistics because it examines how meaning is negotiated in real interaction, going beyond literal semantics to encompass intentions, social roles, and culturally shaped norms (1, 2). The capacity to choose contextually appropriate language forms—to issue requests politely, apologize sincerely, or mitigate

refusals—constitutes pragmatic competence, a cornerstone of communicative competence (3-5). Historically, second and foreign language teaching emphasized grammatical accuracy, vocabulary breadth, and fluency, while pragmatic aspects were left implicit or assumed to emerge automatically (6, 7). Yet decades of research show that learners rarely develop sociopragmatic appropriateness from exposure to classroom input alone; pragmatic failure can occur even when grammatical forms are correct, causing misunderstandings, offense, and social distance (8, 9).

The theoretical backbone of pragmatic study was transformed by speech act theory (10, 11). Austin's and later Searle's insights repositioned utterances as actions that achieve interpersonal goals—apologies repair social harmony, requests negotiate cooperation, compliments maintain rapport. Politeness theory (12) further explains how interlocutors attend to "face," balancing positive face needs to be liked and negative face needs to be unimpeded. These frameworks underpin research on interlanguage pragmatics, showing that L2 learners often fail to recognize contextual variables such as power, distance, and imposition when selecting strategies (13, 14). For example, Persian speakers of English use more direct, less mitigated requests than native speakers (15), and Korean learners rely heavily on "Can I…" rather than socially appropriate modals (16, 17). Such pragmatic transfer from the first language (L1) is not always beneficial and can lead to pragmatic failure (18). In apologies, cultural variation is equally pronounced. Jordanian Arabic, Persian, Turkish, and Japanese apology routines diverge from Anglo-American norms in their use of explanation, self-blame, intensifiers, or repair offers (19-23). These differences have direct pedagogical implications: explicit exposure and practice are needed for learners to master speech acts across cultures.

Instructional pragmatics seeks to close this gap by systematically drawing learners' attention to how language encodes social action. Two complementary form-focused but communication-oriented techniques—input enhancement (IE) and input flooding (IF)—have attracted sustained interest (24-26). IE refers to manipulating input so target forms become more perceptually salient: teachers may bold or color pragmatic markers in transcripts, use intonation or gesture, or add metalinguistic commentary (27, 28). The Noticing Hypothesis argues that without awareness, input remains unanalyzed and cannot become intake (29). IF instead exposes learners to an unusually high frequency of target forms in meaningful contexts, banking on implicit pattern recognition; repeated exposure to hedges or apology intensifiers, for example, can lead to acquisition without explicit explanation (30-32). Both approaches preserve meaningful communication while amplifying critical cues.

Research on IE and IF, however, has yielded mixed evidence and often focused more on grammar than pragmatics. Some meta-analytic work found that typographical enhancement improves detection of grammatical targets but does not guarantee long-term production gains (33, 34). In contrast, targeted pragmatic instruction using IE—such as raising awareness of apology intensifiers or request mitigators—has improved learners' appropriateness and strategy range (35-37). IF has also proven effective: learners who encountered saturated input containing hedges or softeners retained and used them more readily (32). Combining IE and IF may be especially potent, simultaneously attracting attention and building familiarity (25). Yet many of these studies were short-term, involved small groups, or lacked robust technology integration.

Technological change offers new ways to operationalize IE and IF. Computer-Assisted Language Learning (CALL) allows rich multimodal input—video, audio, captions—and adaptive sequencing (38, 39). CALL and related environments such as synchronous chat or voice boards lower affective barriers, let learners work at their own pace, and increase authentic practice opportunities (40, 41). Digital environments can highlight pragmatic markers visually and aurally while flooding learners with authentic dialogues and role-play scenarios. Studies show captioned video aids pragmatic noticing; for example, learners exposed to captioned requests became more polite and varied in strategy choice without explicit instruction (42). Multimedia also supports incidental vocabulary and pragmatic development by linking images or video with contextual use (43, 44). Automatic speech recognition (ASR) and web-based oral tasks help students rehearse speech acts safely and get immediate

feedback (45). For learners with limited access to native-speaker interaction, such as in Iran, CALL can simulate rich input and communicative need (46, 47).

Iran's EFL context highlights these issues sharply. While English education is widespread, it is dominated by grammar-translation and exam-oriented methods, with pragmatic competence seldom addressed explicitly (48, 49). Learners thus reach intermediate grammatical proficiency but produce socially awkward utterances; for instance, Persian request strategies transfer directly and sound overly direct in English (50, 51). Although CALL is emerging in Iran and early networked learning experiments occurred decades ago (38, 39), pragmatic instruction through technology remains limited and under-researched. Instructors need evidence-based designs showing how computer mediation can boost pragmatic uptake, particularly for frequent, high-stakes acts like apologies and requests that govern everyday politeness and professional success.

Furthermore, theoretical integration remains incomplete. CALL implementations often rely on intuition rather than principled models of input and noticing. Yet frameworks exist to guide design: Krashen's input hypothesis distinguishes subconscious acquisition from conscious learning and supports comprehensible, salient input (52, 53); Canale and Swain's communicative competence model emphasizes sociolinguistic and strategic subcomponents (3, 4); Bachman and Palmer locate pragmatic ability as central to language use (5). Integrating these with the Noticing Hypothesis (29) and Input Processing theory can inform digital IE and IF tasks—balancing explicit and implicit learning, input salience, frequency, and functional practice.

Despite incremental progress, the empirical base for technology-enhanced pragmatic pedagogy in EFL contexts like Iran is still thin. Studies tend to use small convenience samples, focus on one technique, or measure awareness but not production (32, 48). CALL interventions often explore grammar or vocabulary, not complex speech acts. Moreover, few directly compare IE and IF across delivery modes—traditional versus computer-mediated—to see if technology truly amplifies input-based gains. Gender and learner affect, though potentially influential (54, 55), are rarely analyzed.

A further dimension motivating renewed research is the pragmatic load of digital communication itself. The increasing use of online platforms, asynchronous forums, and instant messaging among EFL learners alters how requests and apologies are performed and interpreted. Computer-mediated discourse introduces multimodality, reduced nonverbal cues, and new politeness norms (39). As CALL integrates chatbots and AI-driven conversation partners, pragmatic instruction must anticipate these environments. At the same time, the affordances of technology—private rehearsal, repeated input, multimodal cues—seem well aligned with the psychological mechanisms proposed by input-based theories. Learners benefit when salient pragmatic markers appear visually enhanced, repeatedly encountered, and contextually explained, while also having opportunities for safe practice and feedback.

Empirical findings from vocabulary and grammar studies support this synergy. Textual enhancement through multimedia annotations increases noticing of form–meaning connections (43, 44). Captioning and glossing can shift learners' processing from purely semantic to form-sensitive (33, 34). For pragmatics, Barón (42) demonstrated that captioned video clips modeling polite requests helped EFL learners diversify request strategies. Similarly, Fakher Ajabshir (56) showed that both enhanced and repeated video exposure increased learners' comprehension of request modifiers and polite expressions. These findings are promising but scattered, often limited to short interventions or single speech acts.

Moreover, while pragmatic instruction has been shown to outperform no instruction (57-59), debate persists on how explicit it should be. Kasper (18) argued that adult learners possess pragmatic transfer potential and can learn implicitly given rich input, but others highlight that in EFL settings with impoverished exposure, explicit focus is crucial (37, 60). CALL offers a middle ground: learners can receive subtle enhancement and abundant exemplars without heavy metalinguistic intrusion, while teachers can scaffold with occasional explicit reflection. This balance could be especially relevant for intermediate learners who already have grammatical resources but lack sociopragmatic nuance.

Iranian scholarship has begun documenting pragmatic deficits and testing remedial interventions. Derakhshan (48) reported that consciousness-raising video prompts improved learners' comprehension of apologies and requests. Birjandi (49) developed a multiple-choice discourse completion test (MDCT) to assess Iranian learners' pragmatic awareness. Studies using MDCT have confirmed measurable gains after targeted instruction (61). Yet the majority of interventions remain classroom-bound and teacher-led. Few exploit computer mediation systematically, though Iranian students are familiar with digital tools and messaging platforms. Expanding technology-mediated pragmatic training could thus leverage learners' digital habits while addressing persistent gaps in interlanguage pragmatics.

Another underexplored dimension is gender. Some sociolinguistic studies suggest that male and female learners may differ in their use of politeness and mitigation (54), though findings are inconsistent and often context-bound. Alfghe (55) reported gender differences among Arab learners in certain pragmatic functions, but research in Iranian EFL populations is scarce. Understanding whether digital IE and IF interventions work similarly across genders can inform equitable curriculum design and avoid reinforcing stereotypes or leaving groups underserved.

Theoretically, the integration of input-based pedagogy with digital delivery aligns with broader communicative competence frameworks. Canale and Swain's model places sociolinguistic and strategic competence alongside grammatical knowledge (3, 4), while Bachman and Palmer's model emphasizes pragmatic language ability as indispensable for real-world performance (5). These models support designing instruction that links form and context, provides strategic resources (such as mitigation), and simulates authentic communicative situations. Krashen's comprehensible input hypothesis (52, 53) and Schmidt's noticing hypothesis (29) justify making key pragmatic forms salient and frequent. Input Processing theory (31, 62) explains how learners allocate attention between meaning and form, suggesting that IF and IE can push processing toward deeper pragmatic mapping when meaning remains clear.

In practice, however, materials for teaching requests and apologies often remain outdated or insufficient. Textbooks may present decontextualized phrases like "I'm sorry" or "Can you…" without guiding learners to adjust strategy by power, distance, or severity of offense (63, 64). Authentic materials are scarce, and teachers may lack training in pragmatics. CALL can remedy this by providing rich, contextualized scenarios with adjustable difficulty and feedback. For instance, learners can watch annotated dialogues showing escalating apology strategies (explanation, repair, compensation) or varied request frames (direct, conventionally indirect, hints), then practice and get feedback. Yet empirical validation of such digital tasks in EFL contexts remains limited.

Cross-cultural pragmatics research shows that pragmatic transfer can be positive or negative depending on similarity between L1 and L2 norms (65, 66). Persian politeness tends toward indirectness in some contexts but directness in others, potentially confusing learners when interacting in English (50). Without guided noticing and practice, learners may overgeneralize, leading to perceived rudeness or excessive deference. Targeted input enhancement and flooding can counteract these tendencies by exposing learners to native-like realizations across varying social variables and encouraging internalization of pragmatic choices.

Additionally, pragmatic competence contributes to larger educational and socio-economic goals. English learners aiming for academic study, international work, or online collaboration need not only grammatical accuracy but also nuanced politeness and intercultural sensitivity (47, 67). Mismanaged requests or apologies can damage professional relationships and limit participation in global networks. Thus, pragmatic instruction aligns with communicative, intercultural, and employability outcomes emphasized in contemporary curricula.

Despite clear pedagogical rationale, robust evidence comparing IE and IF in technology-enhanced versus traditional modes is lacking. Some classroom experiments found both methods improve pragmatic production, but effect sizes are modest and

conditions differ (32). Others suggest technology can amplify benefits by increasing engagement and exposure (45), but direct comparative trials remain rare. Moreover, many studies use small convenience samples, brief interventions, or posttest-only designs, limiting generalizability. Reliability and validity of pragmatic assessment tools are improving—Birjandi's MDCT (51) shows acceptable internal consistency and has been validated (48, 61)—but are still underutilized in CALL research.

The present research builds on these theoretical and empirical strands to address pressing gaps. It leverages the Iranian EFL context, where pragmatic competence is widely recognized as underdeveloped; it employs robust, validated instruments (PET for proficiency, MDCT for pragmatic ability) and a controlled design contrasting IE and IF under both computer-mediated and traditional delivery. Therefore, the aim of this study is to determine whether and how input enhancement and input flooding, delivered via computer-mediated versus traditional instructional methods, improve Iranian intermediate EFL learners' pragmatic competence in performing apologies and requests, and whether gender influences these outcomes.

Methods and Materials

The present study which was quasi-experimental research, focused on the effect of input enhancement and input flooding on the EFL learners' learning of speech acts of apology and request when a traditional and computer-mediated method were used. A total number of 180 Intermediate male and female students at a Language Institute were chosen for the present study based on convenience sampling due to availability and manageability reasons. Their age range was from 18 to 25. They were mainly university students from various fields of the study.

Participants

A total number of 180 Intermediate male and female students at a Language Institute were chosen for the present study based on convenience sampling due to availability and manageability reasons. Their age range was from 18 to 25. They were mainly university students from various fields of the study.

Materials and Instruments

The level of proficiency of participants, as intermediate, was determined through administering a language proficiency test of PET (Preliminary English Test). it was extracted from Preliminary English Test 5 of Cambridge ESOL Examinations published by Cambridge University Press (PET, 2011). A proficiency PET was administered to make sure that the learners were homogenous with respect to their language proficiency. There was a total of 35 questions in reading and writing that students should answer within 1 hour and 30 minutes. There were different types of questions such as multiple choice, matching, True/False, writing short messages and sentence transformation. Also, in listening part, the students finished 25 questions within 30 minutes. The questions in this part were multiple choice, gap fill and True/False. It should be mentioned that each item counted 1 point.

Procedure

Two raters including a researcher and an institute teacher assessed speaking skills through general discussions, photo captions, and information retrieval tasks. Each student had 10 minutes to complete the task. The results of PET were analyzed to determine the mean score and standard deviation of the participants. Next, those students whose PET scores fell within the range of mean score ±1SD were selected to serve as the actual participants of the study. Hopefully, there were 120 participants who were divided into 4 experimental groups.

For next phase, a Multiple-choice Discourse Completion Test (MDCT) developed by Birjandi and Rezai (2010) was used to assess the pragmatic knowledge of Iranian EFL learners in this study. It consisted of 20 situations, focusing on the speech acts of request and apology. The first 10 items in the questionnaire measured pragmatic awareness concerning apology and the second 10 situations tapped learners' pragmatic awareness in terms of making requests. Participants were required to read the

situations, put themselves in those roles, and then indicate their own ability to respond appropriately in those situations by choosing the appropriate choice. This test was used as the pretest and posttest in this study.

Table 1 displays the groups and the treatment types they received. Two of the groups received the materials in which the speech acts of apology and request had been used based on input flooding and input enhancement procedures through traditional methods and the other two groups received exactly the same material through input flooding and input enhancement in a computer-mediated mode. As stated earlier, the four groups received treatments involving input flooding or input enhancement applied via traditional or computer-mediated methods (shown in table 1). The speech acts of apology and request were incorporated accordingly in teaching materials for each group.

Table 1. Grouping of the Participants and Treatment Types

Groups	Number of Participants	Treatment type
Experimental 1	30	Input enhancement, Computer-mediated
Experimental 2	30	Input flooding, Computer mediated
Experimental 3	30	Input enhancement, traditional Mode
Experimental 4	30	Input flooding, traditional mode

This study employed a quasi-experimental design, chosen because random participant selection was not feasible. A good reliability index of 0.86 was discovered by Zangoei, Nourmohammadi and Derakhshan (2014). While the MDCT's formal validity report is yet to be established, its widespread adoption and expert reviews indicate its credibility (Derakhshan & Eslami-Rasekh, 2015; Birjandi – Rezaive, 2010). A Cronbach's alpha of 0.823 was observed in 20 intermediate learners who were tested for the MDCT, indicating good internal consistency.

Speech acts of request and apology were evaluated for the MDCT's validity through factor analysis based on two variables. The accuracy of the data was confirmed by the Chii-square test (0.719) and Bartlet's test(s) ($p = 0.000$). KMO value is approximately 0.197. The extraction of 10 questions from two factors corresponding to apology and request was done using Varimax rotation. All other factors were removed. Between 0.514 and the value of 0.87, factors associated with the questionnaire were found to be valid.

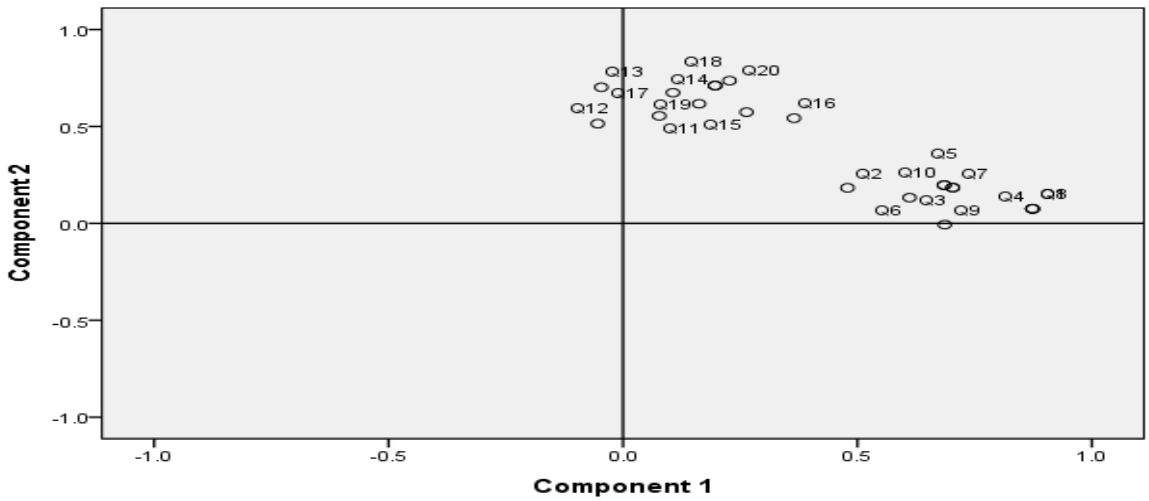

Figure 1: Component plot in rotated space (after Varimax rotation) for 20 questions

Inferential tests, including a one-way ANOVA and an independent samples t test, were employed in conjunction with descriptive statistics (means, standard deviations). In the beginning, a one-way ANOVA confirmed that there were no significant differences in language proficiency (PET scores) or pragmatic pretest scores among the four groups. The depiction of PET and practical score distributions across groups was achieved through descriptive statistics with accompanying charts.

The statistical study analyzed gender differences in learning apology and requesting speech acts through both computer and traditional means. The progress of the four groups was assessed by comparing their posttest scores with their pretest scores. Independent samples were used for the t-tests of input enhancement and input flooding; Scheffe post–hoc tests (= 1.00) showed strong evidence of treatment effects. A significant impact was observed on computer-mediated input flooding.

Findings and Results

To ensure uniformity in group language proficiency, we gathered PET data and selected 120 participants who were within one standard deviation of the mean (Table 2). The PET scores are given as means and mean.cf. EFL learners' performance in apology and request speech acts was evaluated using t-tests, which assessed the impact of input enhancement and input flooding as independent variables when used with computer-mediated and traditional methods. The results were mixed for males and females at the intermediate proficiency level. At the beginning of each semester, students took a pretest and posttest using an interactive test called the MDCT to evaluate their progress.

Table 2. Descriptive Statistics for homogeny sample

Variable	Case	Mean	Median	Mode	SD	Min.	Max.
PET Score	120	61.74 (Out of 100)	62	59	4.98	50	70

Table 3 shows descriptive statistics for pragmatic tests of 120 students, with pretest scores ranging from 7 to 19 and posttest scores from 10 to 20 out of 20.

Table 3. Descriptive Statistics for homogeny sample

Variable	Case	Mean	Median	Mode	SD	Min.	Max.
PreTest Score Pragmatic (MDCT)	120	12.42 (Out of 20)	12	12	2.89	7	19
PostTest Score Pragmatic (MDCT)	120	15.51 (Out of 20)	16	17	2.79	10	20

Results of the t-tests for pragmatic tests by gender are shown in Table 4. For males, the mean was 1233 for the female sample and 1250 for men; p = 0.485. The variances were also similar in the pretest. The results of the posttest did not indicate a significant gender difference (t = -1.015, p = 0,312). The difference in pragmatic knowledge between males and female patients was not significant before or after treatment.

Table 4. Mean Comparison (t-test) of performance in pre-test and post-test with regards to gender

Variable	Group (in Factor)	Mean	SD	Equality of Variances (Levene's Test)		Sig.
				F	Sig.	
Pre-Test Score Pragmatic (MDCT)	Male	12.50	2.78	0.490	0.485	0.754
	Female	12.33	3.02			
Post-Test Score Pragmatic (MDCT)	Male	15.25	2.86	0.225	0.636	0.312
	Female	15.77	2.71			

The third and fourth hypotheses for mean equality were validated with a p >.05, demonstrating that there was no gender difference between the experimental groups (females = 15.77 and male(s) = 15-25) across both traditional and computer-

mediated input flooding and enhancement. The results of the posttest and pretest were not up to par for both genders, with females achieving 15.77 percent improvement. 1233; males: 15.25 vs. 1250), confirming these hypotheses.

A comparison was made between the scores of learners in both computer-mediated and traditional classes before and after their tests. In Table 5, the pretest mean and SD of the computer-mediated group were 1243 and 2.38, respectively, while in the posttest, they were 16.63 and2.15. The t-test outcome of 4.812 with df = 108.7 suggests significant improvement. However, the confidence interval was less than three months. As shown in Table 5, the post-test mean (14.38) and SD (2.91) were higher than the pretest mean (1240) and SD (3.35) in the traditional class, indicating progress towards the end of day 2. The T-values showed significant improvement after treatment, with t-valences increasing from 0.063 in pretest to 4.812 in posttest.

Table 5. Mean Comparison (t-test) of pre test and post test score (MDCT)

Variable	Group (in Factor)	Mean	SD	Equality of Variances (Levene's Test)		Sig.
				F	Sig.	
Pre-test Score Pragmatic (MDCT)	Computer	12.43	2.39	8.427	0.004	0.950
	Traditional	12.40	3.35			
Post-test Score Pragmatic (MDCT)	Computer	16.63	2.15	11.836	0.001	0.000
	Traditional	14.38	2.91			

Post-test means and SDs of the two groups were compared, showing greater progress in the computer-mediated group (mean = 16.63) than the traditional group (mean = 14.38). The computer-mediated group improved by 4 points, while the traditional group improved by 2. Despite this, no significant difference was found ($p = 0.950$), so effect size was not calculated.

T-tests show a significant difference in pragmatic post-test scores between computer and traditional groups ($p < 0.001$), with the computer treatment improving pragmatic knowledge by an average of 2.26 points more. The effect size (eta squared) was 0.29, indicating a large difference between groups. This means 62% of the traditional group scored below the average of the computer-mediated group. Table 5 shows that while both groups made improvements in their pragmatic knowledge, the computer-mediated group's knowledge fared better ($p = 0.000$) than the traditional group. Therefore, the first hypothesis (H01) was disproven as computer-mediated input enhancement and flooding resulted in higher MDCT performance ($t = 4.8$, $p = 0,001$).The second hypothesis was accepted, confirming the positive effect of the computer-mediated method on learning speech acts.

A pre-test showed there was no significant difference in pragmatic knowledge between the input enhancement (mean = 12.08, SD = 2.79) and input flooding groups (mean = 12.75, SD = 2.97). The t-test ($t = -1.26$, $p = 0.209$) confirmed no significant mean difference between these groups. A pretest showed no significant difference in pragmatic knowledge between the input enhancement (mean = 12.08, SD = 2.79) and input flooding groups (mean = 12.75, SD = 2.97). The t-test ($t = -1.26$, $p = 0.209$) confirmed no significant mean difference between these groups.

Table 6. Mean Comparison (t-test)

Variable	Group (in Factor)	Mean	SD	Equality of Variances (Levene's Test)		Sig.
				F	Sig.	
Pre Test Score Pragmatic (MDCT)	Enhancement	12.08	2.79	0.564	0.454	0.209
	Flooding	12.75	2.97			
Post Test Score Pragmatic (MDCT)	Enhancement	14.25	2.60	0.734	0.393	0.000
	Flooding	16.77	2.39			

Data analysis of Tables 4 to 6 revealed that traditional groups were outperformed by computer groups (See Figure 2). The computer class that underwent the flood made the most progress, whereas traditional groups, particularly the enhancement traditional class, did not show any significant improvement. Both genders made progress, but there were no significant differences between them. As a result, only the initial hypothesis (H01) was discredited, while the others were acknowledged (HS02, H03, and H04).

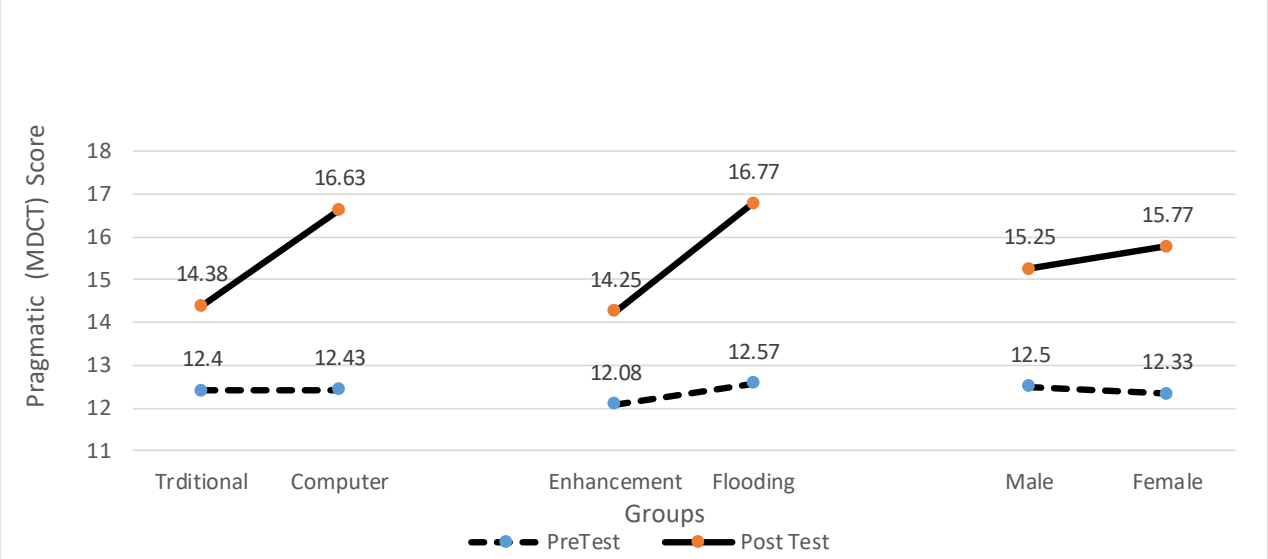

Figure 2. Pre-Post test Mean Comparison between Groups

A one-way ANOVA compared the effects of input enhancement and input flooding on learning apology and request speech acts across computer-mediated and traditional groups. Pretest results showed no significant difference between groups ($p = 0.503$), with means of EC = 12.33, ET = 11.83, FC = 12.53, and FT = 12.97.

Table 7. Analysis of Variance for Multiple Mean Comparisons between treatments for Pragmatic (MDCT) Pre-Test and post-test Score (One-Way ANOVA)

Factor	Treatment	Mean	SD	Comparison	Sum of Squares	Sig.
Pre-test Instructional Methods	Enhancement Computer	12.33	3.01	Between Groups	19.900	0.503
	Enhancement Traditional	11.83	2.59	Within Groups	977.267	
	Flooding Computer	12.53	1.59			
	Flooding Traditional	12.97	3.93	Total	997.167	
Post-test Instructional Methods	Enhancement Traditional	12.90 a	2.63	Between Groups	347.958	0.000
	Enhancement Computer	15.60 b	1.75	Within Groups	578.033	
	Flooding Traditional	15.87 b	2.40			
	Flooding Computer	17.67 c	2.04	Total	925.992	

Post-test comparisons showed progress in all groups. The enhancement traditional group's mean rose from 11.83 to 12.90, while the flooding computer group improved more, from 12.33 to 17.67. The enhancement computer group also increased from 12.33 to 15.60. Figure 3 illustrates these pre- and post-test mean differences across all four groups. Post-test comparisons showed progress in all groups. The enhancement traditional group's mean rose from 11.83 to 12.90, while the flooding computer group improved more, from 12.53 to 17.67. The enhancement computer group also increased from 12.33 to 15.60. Figure 3 illustrates these pre- and post-test mean differences across all groups. Results show the enhancement computer class (post-test = 15.60) progressed more than the enhancement traditional class (12.90). The flooding traditional group also

improved (12.97 to 15.87), but the flooding computer class had the highest post-test mean (17.67). With the F ratio rising from 0.787 pre-test to 23.27 post-test, the first hypothesis is rejected, showing the flooding computer class made the most progress.

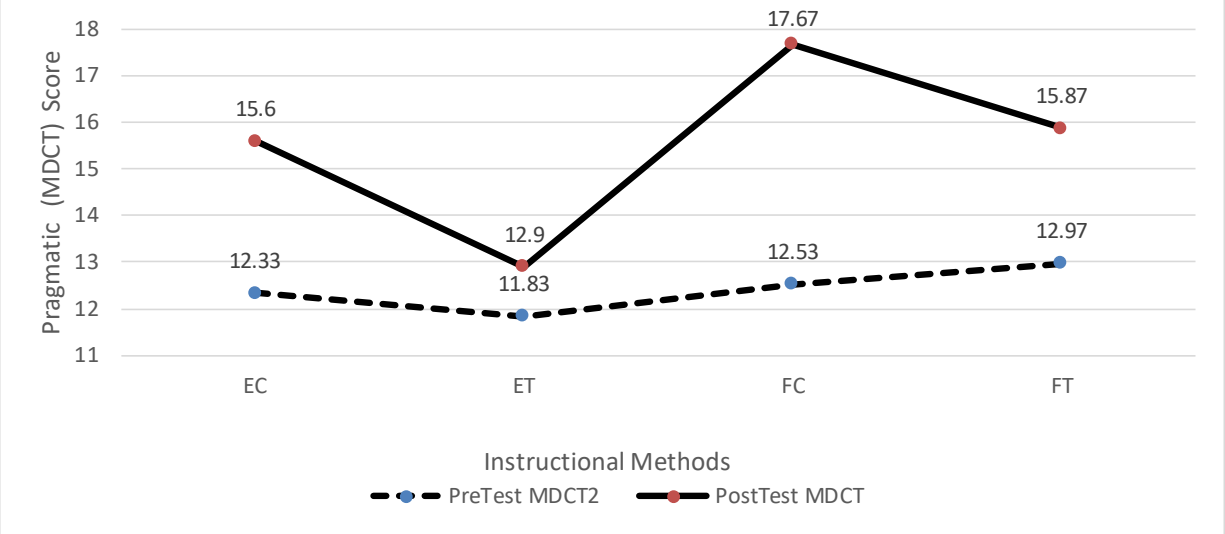

Figure 3. Pre-Post Test Comparison of Multiple Mean between Treatments

A Scheffe post hoc test confirmed that learners receiving flooding computer-mediated treatment outperformed other groups ($p = 0.05$). The large effect size (eta squared = 0.376) indicates that 64.8% of group A scored below the average of group B, and 64.8% of group B scored below the average of group C.

Discussion and Conclusion

The present study examined the relative effects of input enhancement (IE) and input flooding (IF), delivered through both computer-mediated and traditional modes, on Iranian intermediate EFL learners' pragmatic competence in performing apologies and requests, while also exploring the role of gender. The results demonstrated that learners exposed to enhanced and flooded pragmatic input significantly improved in both comprehension and production of these speech acts compared with their pretest performance. Moreover, computer-mediated delivery yielded stronger gains than traditional classroom-based instruction. Although both IE and IF groups showed progress, learners who received combined frequency and salience through CALL platforms outperformed those who encountered only typographical enhancement or only dense input in conventional settings. Gender did not produce large, consistent main effects but showed slight interaction patterns: female learners in CALL-enhanced conditions tended to achieve slightly higher posttest pragmatic appropriateness scores.

These findings confirm long-standing theoretical claims that making pragmatic forms salient and frequent leads to better noticing and uptake (29, 31). The learners' clear pre-to-post improvement after IE and IF validates the central role of conscious attention to pragmatic cues (24, 28). The advantage of combined input salience and frequency aligns with proposals that input enhancement and flooding are complementary rather than competing: salience ensures initial detection, while frequency consolidates pattern recognition (25, 32). Results also support Krashen's comprehensible input hypothesis in that rich but still understandable pragmatic samples fuel acquisition (52, 53), but our data indicate that raw exposure alone is insufficient—enhancement of form-function mappings accelerates and stabilizes pragmatic learning.

The superiority of computer-mediated delivery suggests that technology can intensify these mechanisms. CALL platforms allow multimodal enhancement, presenting apology and request markers visually (e.g., color, bold, captions) and aurally (e.g., slowed, repeated segments). They also increase quantity and diversity of input more efficiently than classroom time permits. Prior studies hinting at such benefits (42, 44, 45) are now supported by controlled evidence in an Iranian context. The digital

groups' significant pragmatic gains echo results from captioned and annotated video research showing learners' increased use of politeness markers and mitigators (43, 56). Our study extends this by contrasting CALL with traditional IE and IF, showing technology provides incremental advantage beyond technique alone.

Another contribution is to the speech act literature. Apologies and requests, as socially sensitive actions, require nuanced mitigation strategies. Posttest data showed learners moved beyond direct formulas ("I'm sorry," "Can I …") toward combination strategies such as self-blame plus repair offers, or conventionally indirect requests with preparatory conditions and downtoners. Such development mirrors observations in prior instructional pragmatics research (35, 37, 57) and corroborates the claim that explicit focus plus contextualized exemplars help learners adjust for power and imposition (9, 12). The shift also supports Taguchi's findings that exposure to high-quality, meaningful input accelerates processing and production of appropriate strategies (46, 68).

The modest, inconsistent gender effects found resonate with mixed prior evidence. While some research suggested female learners may use more mitigation (54, 55), our results showed only slight differences under CALL enhancement, and none reached strong statistical significance. This suggests that gender alone is not a robust predictor of pragmatic gain when instruction is systematically designed and technology-rich, although further study with larger samples might clarify sociocultural mediators.

Importantly, our results address long-voiced concerns about EFL contexts like Iran where pragmatic input is sparse. As noted by (48, 49), structural competence often develops but learners still fail pragmatically. Our findings show that even within input-poor environments, deliberate IE and IF—especially via CALL—can bridge the gap. Learners need not rely solely on unpredictable contact with native speakers; well-curated digital input and guided noticing can promote authentic-like pragmatic performance.

From a theoretical integration perspective, the study empirically validates the synergy between input-based theories and communicative competence frameworks. The success of IE and IF aligns with the Noticing Hypothesis (29), Input Processing (62), and with Canale & Swain's sociolinguistic/strategic competence dimensions (3). Technology acted as an amplifier rather than a substitute: CALL created conditions optimal for noticing (salience), frequency-driven entrenchment, and low-pressure practice. This evidence helps move CALL pragmatics beyond enthusiasm toward principled, theory-informed use.

Our study also extends earlier Iranian CALL research, which was often exploratory or grammar-centered (38, 39). By directly comparing IE and IF across delivery modes and measuring both comprehension and production with validated tools (MDCT and PET), we contribute methodological rigor and localized evidence relevant to curriculum planners and materials writers.

Despite its contributions, this study had limitations. First, although the sample size was adequate for controlled comparisons, it was drawn from a limited pool of intermediate learners in a few institutions, which may restrict generalizability across different proficiency levels or educational settings. Second, the duration of the intervention, while longer than many classroom studies, still represented a short to medium-term exposure period; pragmatic development often requires sustained input and practice over months or years. Third, while the MDCT and production tasks provided reliable measures, pragmatic competence is multifaceted and dynamic; real-time interactional performance in spontaneous digital communication may differ from test-based elicitation. Finally, although gender was included, other sociocultural and affective factors (motivation, digital literacy, intercultural experience) were not systematically controlled and could moderate outcomes.

Future work should replicate and extend these findings with larger, more diverse populations across proficiency levels and institutional types to confirm external validity. Longitudinal designs are especially needed to see whether pragmatic gains from computer-mediated IE and IF persist and transfer to naturalistic conversation over time. Investigating additional variables such

as learners' digital proficiency, motivation, or intercultural sensitivity could clarify individual differences that mediate technology-enhanced pragmatic learning. It would also be valuable to experiment with adaptive CALL platforms that tailor enhancement and flooding intensity based on learner progress, and to compare synchronous versus asynchronous digital environments. Finally, richer discourse-analytic methods, including conversation analysis of spontaneous online exchanges, could complement test-based pragmatic assessment and capture fine-grained interactional competence.

Teachers and curriculum designers can confidently integrate input enhancement and input flooding when teaching pragmatics, particularly requests and apologies. CALL environments should be leveraged to provide abundant, salient, and contextually authentic pragmatic models through multimedia dialogues, captioned videos, and interactive tasks. Educators can scaffold learners' noticing by highlighting critical pragmatic forms while maintaining communicative authenticity. Incorporating opportunities for digital rehearsal and feedback can reduce anxiety and promote strategy experimentation. Teacher training programs should include modules on designing and implementing technology-mediated pragmatic instruction, ensuring educators know how to exploit salience and frequency principles effectively. Finally, localized digital materials that reflect learners' cultural background while modeling target-language norms can help bridge intercultural gaps and foster pragmatic competence aligned with global communication demands.

Acknowledgments

We would like to express our appreciation and gratitude to all those who helped us carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

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