The Impact of Corrective Feedback on L2 Pragmatics Production in Face-to-face and Technology-mediated Settings[1]

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Abstract

This paper presents findings from a quasi-experimental study that examined the effect of corrective feedback (CF) on L2 pragmatics, specifically comparing Face-to-Face (FF) and Technology-Mediated (TM) modes. The study involved a total of forty-four ESL students from three parallel intact classes. The primary focus of this paper is to report the results obtained from data collected through production tasks employing Role-play scenarios. To analyze the data, a mixed-model Analysis of Variance was conducted, examining the main and interaction effects of CF, delivery mode (FF and TM), speech act type (request and refusal), and time (pre-test, post-test, and delayed post-test). The results demonstrated that CF had a substantial positive effect on L2 pragmatic production, resulting in significant overall improvement. Furthermore, the results showed that both FF and TM modes of CF were similarly effective for enhancing pragmatic production. Additionally, the study demonstrated that the effects of CF on pragmatic production were durable and long-lasting. Altogether, these findings support the utilization of corrective feedback in technology-mediated language instruction within L2 classrooms.

Keywords: *Corrective Feedback, L2 Pragmatics, Production, Face-to-Face, Technology-Mediated*

Introduction

Second language pragmatics (L2 pragmatics) studies how English as an additional language (EAL) speakers acquire the knowledge to use language in various contexts when performing various communicative functions. This pragmatic knowledge can include speech acts,

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[1] This paper is reporting on a study that was done in 2020 as a doctoral dissertation in Victoria, BC. Description of the research and findings are therefore similar to the main publication, available at https://dspace.library.uvic.ca/handle/1828/12045

discourse markers, and politeness strategies. According to Taguchi and Li, "Second language (L2) pragmatics is a subfield of second language acquisition (SLA) that investigates L2 learners' ability to perform communicative functions in a social context, how such ability develops over time, and what factors affect the process of development" (2020, p. 1). L2 pragmatics also investigates how pragmatic competence "may be affected by instruction or developed "in the wild" (e.g., study abroad, workplace, and immigration contexts)" (González-Lloret, 2019, p.114). Many studies have examined the role of instruction in L2 pragmatics and the findings have been summarized in a burgeoning number of meta-analyses and review papers (e.g., Rose, 2005; Jeon & Kaya, 2006; Takahashi, 2010; Taguchi, 2015; Yousefi & Nassaji, 2019; Derakhshan & Shakki, 2021; Ren et al., 2022). The results of these strongly suggest that most aspects of L2 pragmatics benefit instruction, and that for the most part, explicit instruction leads to more sizable gains than implicit.

Although the effects of instruction have largely been investigated, the impact of corrective feedback (CF) has not received much attention in L2 pragmatics research (Bardovi-Harlig, 2017). This can be due to the complex nature of pragmatic ability and the variety of alternatives that the speakers can choose based on contextual, social, and personal preferences. According to Bardovi-Harlig (2017, p. 230), like in other areas of SLA, feedback in L2 pragmatics is "postevent or reactive (in contrast to models that are pre-event), occurring after learners have engaged in a production or interpretation activity, and may assume a variety of formats". However, it is important to note that there are different types of CF. For instance, CF can vary in degree of explicitness and can be viewed as a continuum between explicit and implicit. (Lyster et al., 2013). CF can also be written or oral (e.g., Bitchener & Knoch, 2010). CF can be immediate or delayed, depending on whether the feedback is given immediately after the mistake or delayed to a later time (e.g., Lyster & Saito, 2010). Researchers differ in their opinions as to which type of CF is more effective and although current research shows positive effects in general, it is not clear which type of feedback is more effective on L2 pragmatics. The next section briefly reviews the studies which investigate CF effects on L2 pragmatics.

Review of Literature

With recent views in language learning that errors are a normal and even beneficial process of learning a new language (Larsen-Freeman & Anderson, 2011), there has been a growing scholarly focus on the role and mechanism of corrective feedback in the field of second language acquisition (SLA) (see Nassaji & Kartchava, 2017 and 2021a for a comprehensive review). By recognizing the value of corrective feedback and its role in language acquisition, scholars have been advancing our understanding of effective language instruction and facilitating more meaningful language learning experiences. One notable figure in this field is Diane Larsen-Freeman, to whom this special issue is dedicated. Larsen-Freeman has emphasized the significance of corrective feedback within the broader context of language teaching and learning. Her perspective underscores the complexity of language systems and the importance of meaningful communication (Larsen-Freeman, 2003, 2006, 2016; Larsen-Freeman & Cameron, 2008). According to Larsen-Freeman, language is a dynamic system that responds to feedback and as such, "providing feedback is an essential function of teaching". (Larsen-Freeman, 2003, p. 126).

Corrective feedback refers to the information that language learners receive regarding their errors, with the goal of helping them improve their language accuracy (Nassaji, 2016). It is a crucial aspect of language teaching and learning, as it assists learners with their linguistic errors. Corrective feedback can take various forms, including the following:

- Explicit Correction: The teacher or the interlocutor directly indicates the error and provides the correct form. For example, if a student says, "I go to school yesterday," the teacher may respond, "No, you should say, "I went to school" yesterday.""

- Recasts: The teacher or the interlocutor reformulates the learner's incorrect utterance into a correct form without explicitly indicating the error. For example, if a student says, "He no want to go." the teacher may provide feedback by say, "Oh, he doesn't want to go."

- Clarification Requests: The teacher or the interlocutor tries to seek clarification in order to help the learner to rephrase their language production. For example, if a student says, "I have 10 dollar," the teacher may ask, "What did you say?"

- Metalinguistic Feedback: The teacher or the interlocutor provides metalinguistic explanations or information about the error. For example, if a student says, "I falled down," the teacher may explain, "The past tense of 'fall' is 'fell.'

- Repetition: The teacher or the interlocutor repeats the erroneous utterance with a rising intonation in order to push the learner to correct the error. For example, if a student says, "I falled down," the teacher might say, "You fell down?."

The choice of corrective feedback depends on various factors such as the learner's proficiency level, the nature of the error, the teaching context, and the specific instructional goals (Nassaji, 2016; Nassaji & Kartchava, 2021b). As Larsen-Freeman (2000, 2015) highlighted, different approaches and methodologies in language teaching may also emphasize different types of instruction and corrective feedback. Research in second language teaching and learning has also shown that different learners may respond differently to various types of corrective feedback. For instance, in the context of language pragmatics, studies have highlighted that learners may exhibit diverse responses to various types of corrective feedback.

One study conducted by Koike and Pearson (2005), for instance, examined the impact of corrective feedback on English-speaking learners of third-semester Spanish in terms of pragmatic instruction. The researchers examined the effectiveness of teaching pragmatic information through the use of explicit or implicit pre-instruction, and explicit or implicit feedback. Learners received feedback after they completed a series of exercises and activities. Results showed that the explicit group performed significantly better than the experimental and control groups on all measures.

Another study investigating CF as a main variable was conducted by Nipaspong and Chinokul in 2010. They examined the effect of explicit CF and prompts on learners' pragmatic awareness of the use of appropriate refusals. The three groups in the study included a control, explicit feedback, and a prompt group. The experimental groups received a 10-week treatment. The data were collected from the parallel pre-test and post-test and interview protocols. Results from a pragmatic awareness multiple-choice test and qualitative data revealed a significant increase in pragmatic awareness for the prompts group, especially with regard to unconventional refusal expressions. The researchers explained that the "advantages of prompts may result from its demand for learners to generate repairs and its provision of more opportunities for learners' uptake" (p. 101).

Nguyen et al. (2015) examined whether giving written corrective feedback on students' performance during pragmatics-focused activities leads to their subsequent improvement in producing and recognizing pragmatically appropriate email requests. The study involved one control group and two experimental groups of direct feedback and metapragmatic feedback groups. The results indicated that the treatment groups performed significantly better than the control group in the production task, but there was no significant difference between the two treatment groups. On the other hand, students who received metapragmatic feedback significantly outperformed those receiving direct feedback and the control group in the recognition task.

Beyond the above studies, other studies employed feedback as part of instruction but did not compare it to a non-feedback or other-feedback condition. For example, Fukuya et al. (1998) investigated the effects of focus on form (FonF) versus focus on formS (FonFS) instruction and feedback on ESL learners' ability to request. They employed four role-play scenarios for teaching appropriate requests for the given situation. Results from the written DCT pre-and post-test showed no statistically significant differences among the three groups. The researchers explain that the reason for the inconclusive findings could be "that exposure to a total of four role-play scenarios may have been insufficient input to achieve generalization of sociopragmatic competence to the wide range of scenarios represented on the DCTs" (p. 16).

In another study, Nguyen et al. (2012) evaluated the relative effectiveness of two types of form-focused instruction, i.e., explicit and implicit instruction on the acquisition of the speech act set of constructive criticisms by 69 Vietnamese learners of English. The explicit group (N = 28) participated in consciousness-raising activities, received explicit metapragmatic explanation and correction of errors in forms and meanings. The implicit group (N = 19), on the other hand, participated in pragmalinguistic input enhancement and recast activities. The two treatment groups were compared with a control group (N = 22) on the pre-test and post-test performance, consisting of a discourse completion task, a role-play, and an oral peer-feedback task. The results revealed that both experimental groups outperformed the control group, with the explicit group performing significantly better than the implicit group on all measures.

Moreover, in 2015, Eslami et al. investigated two types of form-focused instruction on the acquisition of requests by Iranian EFL learners to determine the effectiveness of pragmatic instruction through asynchronous computer-mediated communication. The study involved a control group, an explicit group that received explicit CF as a part of instruction, and an implicit CF group that received implicit CF. The results of the quantitative and qualitative analysis revealed that both treatment groups significantly improved and outperformed the control group. "However, the explicit group performed significantly better than the implicit group on both the DCT and email communication measures" (Eslami et al., 2015, p. 99).

In summary, although there are only a limited number of studies that investigate CF in L2 pragmatics, most studies that have examined the effect of corrective feedback either as a main variable (Koike & Pearson, 2005; Nipaspong & Chinokul, 2010; Nguyen et al., 2015) or as a part of instruction (e.g., Eslami et al., Fukuya et al., 1998; Nguyen et al., 2012), confirm the positive effects of CF on L2 pragmatics.

While many studies have examined the differential effects of different feedback types such as implicit vs explicit (e.g., Lyster et al., 2013) or delayed versus immediate feedback (e.g., Russell & Spada, 2006), much fewer studies have examined the effectiveness of *modes* of corrective feedback. The current study, therefore, aimed to fill the research gap by investigating the impact of face-to-face (FF) vs. technology-mediated (TM) feedback modes on the development of two pragmatic targets, i.e., speech acts of request and refusal by EAL learners. This study adopted a complex type of oral corrective feedback, i.e., "corrective recast" (Doughty & Valera, 1998) since it is explicit and immediate in nature and is more likely to impact learning. The research questions of the study are listed below:

RQ1: Does corrective feedback have any effect on the learning of L2 pragmatics?

RQ2: Does the delivery mode of corrective feedback (FF vs. TM) make any the learning of L2 pragmatics?

RQ3: Does the type of speech act (i.e., request and refusal) influence the effects of corrective feedback?

RQ4: Is the effect of feedback on L2 pragmatic production, if any, maintained over time?

The Study

To measure CF effects on L2, this study used a quasi-experimental approach to pragmatics through a pre-test, post-test, and delayed post-test design. Figure 1 illustrates the research design. The study consisted of three groups: A control group, a Face-to-Face (FF) treatment group, and a Technology-Mediated (TM) treatment group.

Figure 1

The Research Design of the Study
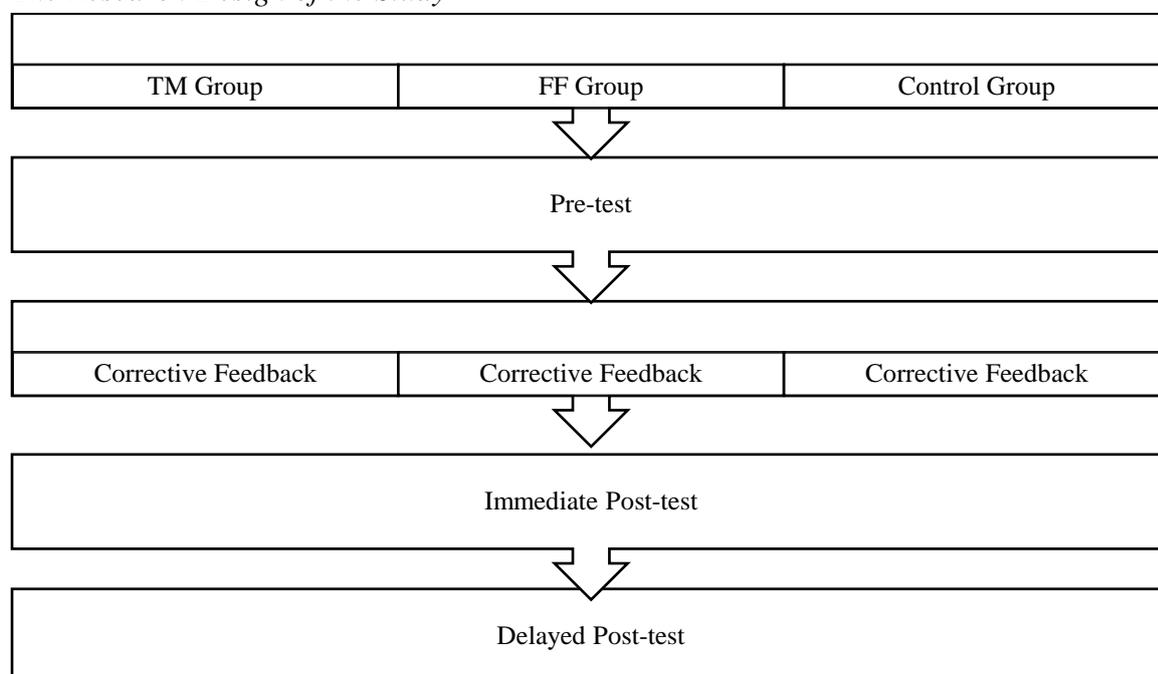
The independent variable of the study included the treatment as represented by the different feedback delivery modes: (a) the Face-to-Face group (FF) and (b) the Technology-Mediated

group (TM) as well as speech act type: (a) requests and (b) refusals. The dependent variable was the scores of a role-play test (production) test.

The participants of the study included sixty-six adult intermediate ESL learners in Victoria, BC. The study was a classroom-based research and entire already-formed classes were assigned to the specified treatments. Although the experiment started with 66 participants, only 44 participants managed to attend all sessions of the experiment. The incomplete data of other participants were not included in the study. L1 diversity was similar across the three groups, with the majority of the participants speaking Mandarin Chinese as their first language. The three classes were randomly assigned to one of these conditions: Control (N = 16), Face-to-Face feedback (FF; N = 14) and Technology-Mediated feedback (TM; N = 14). Table 1 summarizes the sample size in the three groups.

Table 1
Groups Sample Size

Group	Number of participants (included in the study)
Face-to-Face	14
Technology-Mediated	14
Control	16
Total	44

The instructional materials for the present study consisted of the materials used in one mini-lesson and the materials in the three feedback sessions. Mini-lesson materials consisted of two video clips, two handouts, and two worksheets on requests and refusals. The materials for the three feedback sessions included three role-play cards for each session. These nine scenarios were adopted from different textbooks and studies by the researcher (e.g., Martinez-Flor & Uso-Juan, 2011; Taguchi, 2012). Several factors were considered in choosing the scenarios such as the similarity of the situations to learners' real-life, and requester-refuser social distance and familiarity level. On the whole, there were three equal-distance scenarios, three higher-to-lower, and three lower-to-higher distance situations so that participants had the opportunity to receive feedback on different social contexts. The three teachers of the three groups (FF, TM, Control) met with the researcher a week before the experiment and were trained to deliver the provided materials to the participants of the three groups in the same way.

In order to assess participants' production of requests and refusals, an oral role-play (RP) test was administered. The RP test was adopted from Martinez Flor and Uso-Juan (2011) and comprised six situations of requesting and refusing (the request), which were classified as occurring within social locations in real life., each RP test included two instances of equal, two lower-to-higher, and two higher-to-lower social distances between interlocutors. Although situations in the three tests were similar for comparison purposes, the contexts, roles, and settings of the scenarios were modified in each test. All scenarios included an enhanced photograph on the test paper as well as a written descriptive caption for the requester and the refuser (Picture 3). Participants' conversations were recorded and transcribed by the researcher.

Picture 1

Enhanced Photo on RP Cards

In order to measure the reliability of the RP test, this study used inter-rater reliability statistical analyses. Participants' scores on the RP test by the two raters were submitted to a Pearson correlation coefficients test. The test was done on requests, refusals, and total scores of all three versions of the test (pre, post, and delayed post-tests) to ensure the reliability of the measures on both speech acts. The Pearson correlation coefficients for the scores of the pre-test, post-test, and delayed post-test by the two raters were: $r = .95$, $r = .98$, and $r = .99$ respectively (Correlation was significant at the 0.01 level, $p < .01$). The significant correlation between the two sets of scores shows that there was a high degree of agreement between the two raters and therefore there was high consistency in the implementation of the RP measure. Besides checking the inter-rater reliability, the RP test was adopted from Martinez-Flor and Uso-Juan (2011) who previously used this test to examine the effects of instruction on the appropriate use of refusals. The researcher also tested the research design and instruments through a pilot study proper to the study and modified some items, timings, and devices used in the study based on the results and participants' feedback. Table 2 illustrates the design of the main study.

Table 2

The Instructional Design of the Main Study

Session1	Session 2	Session 3	Session 4	Sesssion 5	Session 6
•A) Pre-test (45 min) •B) Mini-lesson (45 min) •in classroom for all groups	•Feedback 1 (60 min) •through mobile application for TM group and face-to-face in class for FF group	•Feedback 2 (60 min) •through mobile application for TM group and face-to-face in class for FF group	•Feedback 3 (60 min) •through mobile application for TM group and face-to-face in class for FF group	•Post-test (45 min) •in classroom for all groups	•Delayed Post-test (45 min) •in classroom for all groups

Teachers distributed consent forms and background questionnaires a week before the experiment started. The researcher collected this information on the first day of the experiment (Day 1). Based on the information gathered, the participants in the TM group were asked to install the mobile application "WeChat" on their smartphones for the next session. The decision to use this application was made after the researcher reviewed the responses of the TM group participants to a question in the background questionnaire which asked about participants' preferred online video call or conferencing application. Of the 22 participants in this group, 15 reported already using "WeChat". The rest of the research team including the 7 participants, the researcher, and the volunteer teacher installed the application after the class and practiced getting comfortable with it before the first feedback session the next day.

Picture 2

Screenshot of Teacher's Mobile Screen Giving Feedback to a Pair in TM Group

CF was provided when participants made errors including both linguistic forms and sociocultural errors which led to pragmatic failure. As trained previously, the teacher focused only on one error at a time, repeated the learner's erroneous utterance with a stress or a rising intonation (like a yes-no question), and finally provided the correct target form (recast) with a falling intonation. Example 1 illustrates one instance of CF on a linguistically inappropriate request and Example 2 shows a pragmatically inappropriate request. Both examples involve a scenario where one student is asking a classmate to borrow him/her some notes because he/she has missed the previous hypothetical class.

Example 1
Corrective recast on a linguistically inappropriate form

Student: Can I lend your notes? I was sick; I couldn't go to class yesterday.

Teacher: lend? ⇧ Can I borrow? ⇩
Student: Yes, Can I borrow your notes?
Teacher: yes!
Student: Can I borrow your notes?

Example 2
Corrective recast on a pragmatically inappropriate form

Student: I want you to lend me your notes.

Teacher: I want you? ⇧ This is not very polite! Can you lend me your notes? ⇩
Student: can you lend me your notes, please?
Teacher: yes.

The instructional procedure of the study is summarized in Table 3.

Data Collection

The RP was used in a pre-test, immediate post-test, and delayed post-test to measure participants' L2 pragmatic production ability. All versions of the tests were similar with only minor modifications such as names and locations of the scenarios and different order of the items to make the comparison of the results between the three versions of the tests more easily.

Following previous similar research designs (e.g., Felix-Brasdefer, 2008; Narita, 2012; Nguyen, 2013), the pre-test was administered to all three classes at the onset of the study which was the first day of the experiment. The post-test was given immediately after the treatment on the fifth day of the experiment. The delayed post-test was 2 weeks after the study.

Scoring the RP test involved several steps: transcribing audio files, rater training, scoring by the raters, checking for inter-rater reliability, and averaging the scores of the two raters for each participant. Recordings were saved on the researcher's personal computer and were transcribed for all the groups and all the tests. After the recordings were transcribed by the researcher, they were rated by two English native speakers. They were both graduate students in the linguistics department at the University of Victoria. Both declared to be native speakers of Canadian

English although one had lived in the United States in childhood for a few years. These two raters were trained on the rubrics and marking based on the rating instructions given.

Table 3

Instructional Procedures for FF and TM, and Control Group

Sessions	Face-to-Face (FF)	Technology-Mediated (TM)	Control
Session 1	*A) Pre-test (45 min)*	*A) Pre-test (45 min)*	*A) Pre-test (45 min)*
	B) Mini-lesson (45 min) :	*B) Mini-lesson (45 min) :*	*B) Mini-lesson (45 min) :*
	1) Awareness-raising task: Learners engaged in a general discussion on requests and refusals 2) Teacher explaining about the form, function, and use of refusal and request strategies (using the handouts) 3) Learners watching two video clips (one request and one refusal) 4) Learners answering the questions provided in worksheets in small groups	Same as FF, (inside class)	Same as FF and TM, (inside class)
Session 2-3-4	*Feedback 1-2-3* 1) Pairs prepare 3 role-play situations on requests and refusals. 2) Each pair acts out their role-plays 3) Corrective feedback: Teacher provides feedback on the use of target items while each pair acts out role-plays	*Feedback 1-2-3* 1) Online pairs prepare 3 role-play situations on requests and refusals with their partners through WeChat video call 2) Each pair presents their role-plays to the teacher online 3) Online Corrective feedback: teacher provides feedback on the use of target items to each pair while they act out role-plays	Normal Class running (no practice and feedback on speech acts provided)
Session 5	Post-test	Post-test	Post-test
Session 6	Delayed post-test	Delayed post-test	Delayed post-test

They discussed the criteria and showed their agreement on the criteria during a meeting with the researcher. Then, they marked independently without further discussion. The final total score of each student on the RP test was the mean score of the two raters. As mentioned earlier, the inter-rater reliability was checked with the Pearson correlation test and a high reliability (r = .97) was found. The rating criteria on the RP test were four aspects of appropriateness according to Hudson et al. (1992, 1995) and Hudson (2001) which included correct expressions, quality of information, strategy choices, and level of formality. While there are studies that report findings with regard to each separate aspect (especially when applying written discourse tests), this study followed Hudson (2001) and other researchers (e.g., Duan, 2008; Taguchi, 2006; Martinez-Flor & Uso-Juan, 2010) to report one holistic mean for oral production. Using one mean score on all four aspects of appropriateness helped to achieve a holistic picture of learners' pragmatic production which is a reflection of these multiple aspects combined. According to Taguchi, "pragmatic performance is more than just utilizing a series

of formulaic utterances. It also entails efficient discourse and grammatical management, as shown in the ratings of appropriateness" (2006, p. 26).

Results

Before analyzing the data to answer the research questions, it was necessary to investigate whether the three groups' level of pragmatic ability was comparable at the beginning of the study. In order to find out if the students in the three groups began the study with similar pragmatic levels, a one-way analysis of variance (ANOVA) was conducted on the production RP scores (which were normally distributed). There was no significant difference between the three groups in the production of speech acts, F (2, 41) = 1.1, *p* = .240. Therefore, all groups had similar accuracy in producing the speech acts when they started the study in the pre-test.

Research Question 1: The Overall Effect of Corrective Feedback
To address the question of "whether corrective feedback has any effect on L2 pragmatics production", mixed-model ANOVAs were employed on production (RP) scores to assess differences in scores among the Control group, the FF feedback group, and the TM feedback group through three testing times (from the pre-test to the immediate post-test to the delayed post-test). Group (Control, FF, TM) was set as the between-subject factor, and speech act type (request, refusal), and time (pre, post, delayed tests) were set as multi-level within subjects' factors. The results of the mixed-model ANOVA show that there was a significant main effect of time, F (1.14, 46.91) = 39.10, *p* = .000, *ηp2* =. 48. This effect tells us that performances were significantly different in the pre-test, immediate post-test, and delayed post-test. Moreover, there was a significant interaction effect between group and time, F (2.28, 46.91) = 5.04, *p* = .008, *ηp2* =. 19. The significant time-by-group interaction effect indicates that the three groups significantly differed from each other in the three time points but cannot tell us the source of the significance. Table 4 summarizes the descriptive statistics of the RP test.

Table 4
Group Means of the Production (RP) Scores through Three Times

Group (Treatment)	Speech act	Pre-test		Immediate Post-test		Delayed Post-test	
		M	SD	M	SD	M	SD
Control	Request	3.89	.60	4.06	.47	4.04	.37
(N = 16)	Refusal	3.34	.61	3.43	.48	3.60	.37
	Total	7.24	1.15	7.50	.91	7.64	.73
FF	Request	4.35	.66	4.71	.57	4.57	.49
(N = 14)	Refusal	3.47	.74	4.20	.64	4.16	.55
	Total	7.83	1.39	8.91	1.20	8.74	1.03
TM	Request	4.34	.50	5.0	.30	4.83	.27
(N = 14)	Refusal	3.60	.64	4.38	.41	4.49	.33
	Total	7.95	1.11	9.38	.69	9.32	.59

Bearing in mind that no group differed significantly from others in the pre-test, the scores of the immediate post-test and delayed post-test were compared between the three groups. As illustrated in Table 5, the one-way ANOVA shows a significant difference between groups in the production of speech acts after the CF treatment. The results were statistically significant

at the p <.05 level, both in the immediate post-test F (2, 41) = 15.96, p = .000 and in the delayed post-test F (2, 41) = 16.90, p = .000.

Table 5

One-Way Analysis of Variance of Production Scores in Immediate and Delayed Post-test

Source		SS	df	MS	F	p	η_p^2
Immediate Post-test	Between Groups	29.34	2	14.67			
	Within Groups	37.68	41	.91	15.96	.000	.43
	Total	67.03	43				
Delayed Post-test	Between Groups	21.99	2	10.99			
	Within Groups	26.68	41	.65	16.90	.000	.45
	Total	48.68	43				

These results show that CF was effective in improving the pragmatic production of the participants. Scheffe post-hoc tests revealed that there was a significant difference in production means between the Control group and the FF group in the immediate post-test (MD (mean difference) = 1.41, p = .001). The difference between FF and Control group was statistically significant in the delayed post-test too (MD = 1.10, p = .002). Likewise, there was a significant difference in means between the Control group and TM group both in the immediate post-test (MD = 1.88, p = .000) and delayed post-test (MD = 1.67, p = .000). This indicates that both treatment groups benefited from the feedback treatment in the production of speech acts as compared to the Control group which received no feedback.

Research Question 2: Delivery Mode of Corrective Feedback: The Comparison Between Face-to-Face (FF) and Technology-Mediated (TM) Groups

To answer the other research question of "whether delivery Mode of Corrective Feedback (FF vs. TM) makes any difference in the production of L2 pragmatics", pairwise comparisons were made between groups in RP scores. However, the results showed no significant differences between the two treatment groups (FF and TM) either in the immediate post-test (M = .47, p = .436) or in the delayed post-test (M = .57, p = .182). This shows that both ways of Face-to-Face and Technology-Mediated delivery of CF had been equally effective in improving the pragmatic production of the participants. In other words, delivery mode did not make a significant difference in the production of speech acts since both FF and TM groups did similarly well on the production measure.

Research Question 3: The Type of Speech Acts: Comparison between Requests and Refusals

In order to answer the third research question of the study, "Does the type of speech act (i.e., request and refusal) influence the effect of CF?" the results of the initial mixed-model ANOVA, i.e., the interaction effect between speech act type and group were used. These results were not

significant (F (2, 41) = .45, p = .641, $\eta p2$ =.02). This shows that there were no differences between the groups in the production of the two speech acts. In other words, different CF treatments have influenced the two speech acts similarly. However, the three-way interaction between time by speech act by group was significant (F (4, 82) = 5.78, p = .000, $\eta p2$ = .22). This interaction effect shows that the three groups had significant differences in the production of requests and refusals at the three-time points. Since the treatment (group) did not have significant interaction with speech act, the groups were merged and the two speech acts were compared in post-test. The results showed slightly larger effect sizes for requests ($\eta p2$ = .44 in RP) than refusals ($\eta p2$ = .41 in RP). Figure 2 illustrates learners' performance in requests and refusals in the production measure regardless of the group in time 1, 2, and 3.

Figure 2
Speech Acts of Request and Refusal in RP Test
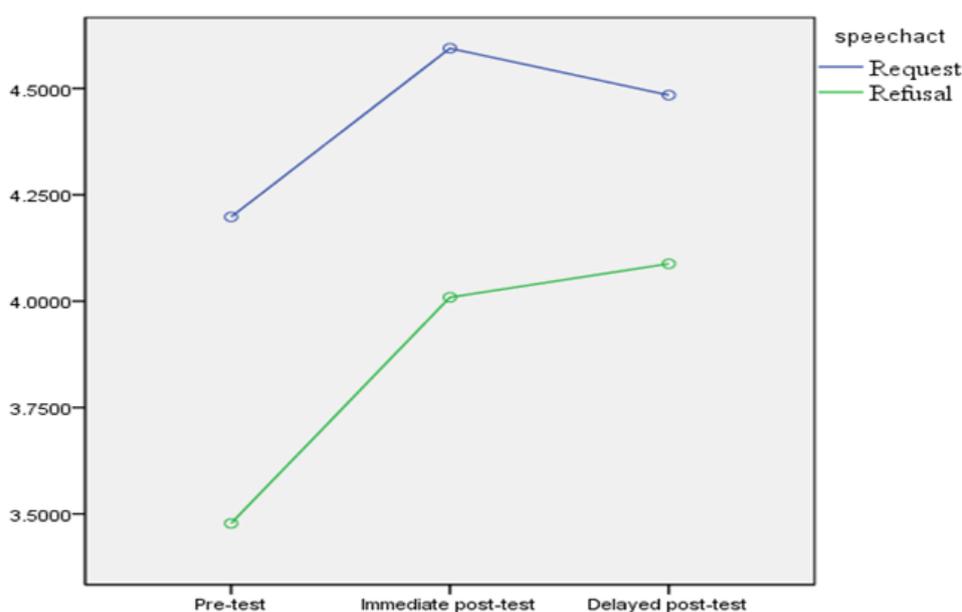
Similar improvements in the two speech act types after receiving CF treatment indicate that speech act type does not influence CF effects. Between-group multiple comparisons on requests indicated that both FF and TM treatment groups were significantly better than the Control group. More specifically, there were significant differences between FF group and Control group (MD = .50, p = .001) and between TM group and Control group (MD = .93, p = .000). However, there was no significant difference between the FF and TM groups (MD = .28, p = .273). In the production of refusals both FF and TM treatment groups were also significantly better than the Control group. Again, there was a significant difference between FF group and Control group (M = .76, p = .001) as well as between TM group and Control group (M = .95, p = .000). However, similar to requests, there was no significant difference between the FF and TM groups (M = .18, p = .64). These results indicate that although CF is effective on the production of requests and refusals, the delivery mode (FF and TM) makes no significant difference. In other words, both FF and TM modes were equally effective in the production of both requests and refusals.

The delayed post-test results in production were very similar to the immediate post-test results. In the delayed post-test, the treatment effect was significant on requests, $F (2, 41) = 16.08$, $p = .000$ as well as on refusals $F (2, 41) = 14.63$, $p = .000$. This indicates that CF effects were similarly maintained overtime and speech act type did not influence the durability of CF effects either. Between-group differences were also the same as the immediate post-test results. In requests, there were significant differences between FF group and Control group (MD = .53, $p = .002$) and between TM group and Control group (MD = .78, $p = .000$). However, again there was no significant difference between the FF and TM groups MD = .25, p = .243). In refusals, there were also significant differences between FF group and Control group (M = .56, $p = .003$) as well as between TM group and Control group (M = .88, $p = .000$). However, similar to previous results in the production, there was no significant difference between the FF and TM groups (M = .32, $p = .153$).

In summary, the production results indicate that both treatment groups gained a significant improvement from feedback treatment both in requests and refusals as demonstrated in both immediate and delayed post-test results. Moreover, similar trends of improvement in requests and refusals show that the type of speech act did not influence CF results. Therefore, the answer to this question of the study is negative in production because the type of speech act did not influence CF effects.

Research Question 4: The Retention of Corrective Feedback Effects

This section addresses the last research question, "Is the effect of feedback on L2 pragmatics production, if any, maintained over time?" The purpose of this analysis is to examine if the students can retain the learning targets three weeks after the CF treatment. As the results of the initial mixed-model ANOVA showed, there was a significant effect of time in production, $F (1.14, 46.91) = 39.10$, $p = .000$, $\eta p2 = .50$ as well as a significant interaction of time by group $F (2.28, 46.91) = 5.04$, $p = .008$, $\eta p2 = .19$. This shows there was a significant difference between time 1 (pre-test), time 2 (immediate post-test), and time 3 (delayed post-test) between groups. However, mixed-model does not reveal the source of the differences. Therefore, separate one-way ANOVAs with Scheffe post-hoc multiple comparisons were performed.

Results of the one-way ANOVA showed no significant difference between the groups in the pre-test which means that the three groups started the experiment with similar levels of pragmatic ability. As mentioned in section 4.3, there was a significant difference in the immediate post-test (F (2, 41) =15.96, $p = .000$, $\eta p2 = .43$) which means that there was an improvement after the CF treatment. There was also a significant effect in the delayed post-test (F (2, 41) =16.90, $p = .000$, $\eta p2 = .45$) which means that the effects of CF were maintained until the delayed post-test. Table 6 summarizes multiple comparisons between groups in the three time points in production.

Table 6

Multiple Comparisons in Production Scores in the Three Time Points

Group		Time 1 (Pre-test)		Time 2 (Immediate Post-test)		Time 3 (Delayed Post-test)	
(I)	*(J)*	Mean Difference (I-J)	*p*	Mean Difference (I-J)	*p*	Mean Difference (I-J)	*p*
Control	*FF*	-.59	*.421*	-1.41*	*.001*	-1.10*	*.002*
	TM	-.70	*.296*	-1.88*	*.000*	-1.67*	*.000*
FF	*Control*	.59	*.421*	1.41*	*.001*	1.10*	*.002*
	TM	-.11	*.970*	-.47	*.436*	-.57	*.182*
TM	*Control*	.70	*.296*	1.88*	*.000*	1.67*	*.000*
	FF	.11	*.970*	.47	*.436*	.57	*.182*

The results show that at time 1(pre-test), there were no significant differences between the three groups. At time 2 (immediate post-test) and time 3 (delayed post-test) both FF and TM groups outperformed the Control group significantly while there was no significant difference between the two (FF vs. TM). Similar findings in time 2 and time 3 as well as significant time effects in mixed-model ANOVA show that the effects of both CF delivery modes were equally durable.

Discussion

Descriptive statistics in both tests showed that both the FF and TM groups had improved from the pre-test to the post-test. The significant interaction of time by group in the mixed-model ANOVA results as well as significant one-way ANOVA results on post-test performance on the production test supported the first research hypothesis and revealed an overall significant effect of CF. The reason for the effectiveness of CF can be explained by the special type of feedback that was used. In this study, corrective feedback was operationalized as corrective recasts (Doughty & Valera, 1998) which was a combination of a repetition followed by a recast. This type of recasting is slightly more explicit than simple recasting. More specifically, immediately after a non-target-like form was produced by a learner, the teachers of the treatment groups repeated the error with rising intonation and then provided the correct form in a recast. Carroll (2001) pointed out that CF works only if learners notice the corrective intentions and are able to locate the error. From the noticing hypothesis perspective (Schmidt, 1993), the role of CF in learning L2 pragmatics is to help learners notice the pragmatic errors they make. The combination of recast with a more explicit form of feedback, such as repetition or clarification request might have increased the chances for the learners to notice the errors. Since recasts do not overtly indicate the existence of an error and may or may not help with locating the error, the inclusion of more explicit CF types could have helped not only make the corrective intentions clear to the learners but also assist in locating the erroneous part. According to Guo (2013), "It has been argued that the corrective purpose of most explicit CF is generally more salient, and as a result, the corrective function is easier for learners to notice, especially in classroom settings" (p. 79). Employing repetition and a recast helped to draw learners' attention to problematic linguistic and pragmatic features and subsequently provided a specific exemplar so that learners could make a comparison between their interlanguage utterances and the teacher's recast.

The effectiveness of this particular type of CF was also found in previous research (e.g., Doughty & Varela, 1998; Long, Inagaki, & Ortega, 1998). For example, Doughty and Valera

(1998) used corrective recast on English past tense and found that learners in the treatment group had a statistically significant improvement in their oral performance ($p = .01$, $\eta2 = .79$). The positive effects of CF found in the present study are in line with previous research on the effectiveness of CF in general. The most convincing evidence comes from the meta-analyses of CF research (e.g., Li, 2010; Lyster & Saito, 2010; Mackey & Goo, 2007), which all showed that CF has significant effects on L2 learning, with the magnitude of the effects ranging from medium to large.

The second research question was whether or not the delivery mode of feedback (FF vs. TM) makes any difference in the learning of L2 pragmatics productions. The results of this study demonstrate that the communication mode through which CF was provided did not make a difference to learners' production scores. In fact, CF provided during Face-to-Face classroom communication and during video-chat equally benefited L2 pragmatic production. It was predicted in Hypothesis 3 that the CF effects are similar in FF and TM delivery modes. This Hypothesis was confirmed as both ways of delivering feedback equally facilitated pragmatic production.

The reason might be that synchronous technology-mediated feedback in this study and Face-to-Face feedback had many similarities. Features of FF, such as short turns, real-time communication, and informality of discourse were also present in the TM environment. Ziegler and Mackey (2017) discuss feedback in FF versus CMC environments and note many similarities in the amount, type, and patterns of interaction in the two contexts.

The results of this study are in line with the findings of previous studies that indicated positive effects of CF in Face-to-Face instructional modes (e.g., Fukuya & Zhang, 2002; Koike & Pearson, 2005) as well as computer-mediated contexts (e.g., Nguyen et al., 2015). The lack of difference between the two treatment modes in production scores is consistent with previous findings that compared FF and TM delivery. For instance, Eslami and Liu (2013) did not find a statistically significant difference between their Teacher Instruction group and those in the CMC group on the post-test. However, they concluded that CMC is a "potentially beneficial channel for helping learners recognize the pragmatic features of the target language and "noticing" the appropriate linguistic forms" (p. 66). Similarly, in another L2 pragmatics study, Sykes (2005) examined to what extent FF and different modes of CMC (written and oral chat) mediated the acquisition of the Spanish refusal speech act. She found no statistically significant difference for pragmatic development across modalities, although qualitative analysis revealed that learners used more complex strategies in the written chat.

The similarity between FF and CMC modes for delivering CF was confirmed in other areas of second language acquisition as well. For example, Li's (2010) meta-analysis showed that computer-delivered feedback (which is provided by an interlocutor through online communication programs or is embedded in the computer) and Face-to-Face feedback did not differ substantially in affecting L2 development (Fixed effect: Q (1) = 0.1, $p = .77$).

One explanation for the positive effects of TM mode in production might be that communicating through the medium of mobile devices (rather than direct Face-to-Face) could reduce anxiety (e.g., Kelm, 1992; Kern, 1995), and enhance motivation (Warschauer, 1996). According to Sykes (2005), CMC offers a powerful tool to overcome some of the difficulties involved in L2 pragmatic development by "lessening the pragmatic pressure of the interaction and allowing more individualized control of the learning environment" (p. 404). For instance,

in a study comparing the effect of pragmatic instruction in written chat, oral chat, and face-to-face communication, Sykes (2005) found that "the traditional FF communication was by far the highest-pressure interactive situation of the three" (p. 418). This was particularly evident in the present study since creating the WeChat online group encouraged engagement in participants in the TM group. Participants in TM group continued to use different modalities of the app (video, audio, text, emojis) to connect with classmates, the teacher, and the researcher even after the experiment. Although there was no survey in this research to collect participants' attitudes on the experiment, participants in the TM group (who are still connected to the researcher through the WeChat group) report that they continue to use this app as it helps them to ask their questions and receive feedback with less stress.

It is worth mentioning that the effects of different modes of CF may vary depending on learners' individual differences. These include motivation, aptitude, learning styles, willingness to communicate, learning strategies, and personality (Tomita, 2018). Although some learners might feel less discomfort being corrected online, there might be other learners who do not feel comfortable with technology. Thus, it is important for teachers to be sensitive to individual differences and learning contexts in order to provide more effective feedback on L2 pragmatics.

As with the type of speech act, the findings showed no difference in the improvement of the two speech acts of requests and refusals since both improved significantly under CF. This finding also is in line with some previous research. For instance, in a meta-analysis of the relationship between the type of linguistics structure and instruction, Spada and Tomita (2010) found no relationship between rule complexity and the effectiveness of feedback. The target features in the 41 studies contributing to their meta-analysis were categorized as simple or complex based on the number of criteria applied to arrive at the correct target form (Hulstijn & de Graaff, 1994). The instructional treatments were classified as explicit or implicit. The results showed larger effect sizes for explicit over implicit instruction for both simple and complex features. However, the findings did not show any interaction between the type of language feature and the type of instruction. According to Spada and Tomita (2010), the important caveat was the way in which complex and simple features were defined in the primary studies. They found at least eight different categories in defining complex/simple features in the 41 primary studies. In these categories, complexity was defined based on "developmental stage, L1/L2 differences, form-meaning relationships, learnability, teachers' perceptions of learner difficulty, the lexical preference principle, structure complexity, and typological markedness" (Spada & Tomita, 2010, p. 289).

Consequently, the first factor to be considered while discussing request and refusal results should be the notion of complexity of speech acts as defined in this study. Given the lack of consensus on the operational definition of complexity in L2 pragmatic research, the present study defined complexity in terms of the number of moves needed to perform a speech act appropriately and assumed that refusals are more complex than requests. However, different definitions and criteria of complexity might lead to different assumptions and results. For instance, a learner may respond to treatment with respect to speech acts that are typically produced in response to an interlocutor's proposal or prompt (e.g., refusal) better than to speech acts that a speaker typically must produce without an interlocutor's initial cue (e.g., request). Moreover, the role of individual differences between learners should not be neglected.

According to DeKeyser (2003) "what is a rule of moderate difficulty for one student may be easy for a student with more language learning aptitude or language learning experience" (p. 331). It should be acknowledged here that if a different set of criteria were chosen to distinguish the two types of speech acts, the conclusions may have been different.

Furthermore, while it is commonly believed that learners should learn easy rules first and only move on to more difficult rules later, if a rule is simple, it is not necessarily easy to learn. For instance, English articles might be linguistically simple, but difficult to explain and learn (Nassaji, 2015). According to Tomita (2018), "it has also been recommended that students learn more difficult rules before learning easier rules. This is based on the assumption that when students acquire more difficult rules, they can generalize the rules, making them easier to utilize" (p. 5). Therefore, one possibility is that since the learners in this study acquired the more complex speech act of refusal, they could easily use the simple speech act of request as well.

Another possibility is that both types of simple and complex speech acts benefited from the explicit nature of feedback used in this study. As mentioned earlier, the combination of recast with repetition made the CF more explicit in this study. It is argued that explicit feedback types can be equally effective for both simple and complex rules (Housen et al., 2005; Robinson, 1996; Tomita, 2018). Nassaji (2015) argues that "more explicit correction might be needed for more difficult forms or those that require more attention and explanation" (p. 211). The explicitness in corrective recasts applied in this study has helped learners process the corrections in refusals as effectively as requests.

The last research question investigated if the effects of CF on production are maintained over time and the results showed that feedback treatment in general has helped participants retain learning effects from immediate post-test to delayed post-test in a period of three weeks.

The durability of CF effects found in this study is in line with previous research on CF in different areas where the effects of CF were maintained over time as observed in several meta-analysis studies. For instance, Lyster and Saito (2010) conducted a meta-analysis of 15 classroom-based studies with a focus on CF. They found that CF had durable effects on target language development with no statistical difference between learners' scores on immediate and delayed post-tests. In another meta-analysis, Li (2010) examined the effectiveness of CF in 33 feedback studies. He also showed that the effect of CF in general was maintained over time. Furthermore, explicit feedback was more beneficial in the short term, while implicit feedback (e.g., recast) was more effective in the long term. In fact, Li's meta-analysis showed that the effects of implicit feedback did not fade and even increased over a long term. He suggests that this difference might be because implicit feedback contributes to implicit knowledge, which takes longer to develop but is more durable. In another meta-analysis of 28 studies by Mackey and Goo (2007), it was found that CF effects were durable, and larger effect sizes were found on the delayed post-test (1.09) than on the immediate post-test (.71). These findings suggest that feedback effects can still be beneficial in the long run.

In L2 pragmatics, very limited studies have investigated CF effects over time but there are a few meta-analyses that examine the durability of L2 pragmatic instruction in general. For instance, in a recent meta-analysis, Plonsky and Zhuang (2019) reported the retention of pragmatic instruction effects over time. From the 50 studies included in their meta-analysis, 18 had delayed post-tests, and treatment groups on average outperformed their control/comparison

group counterparts in delayed tests (d = 0.64). There are also very few studies that report durable effects of CF in L2 pragmatics. For instance, Morrow (1995) reported no significant differences between the post-test and the delayed post-test in the use of politeness strategies after six months. However, because no control group was used, it is impossible to know whether the retention of the targeted pragmatic features reflected the information acquired as a result of the treatment, or whether the learning context of these learners influenced their pragmatic development. Furthermore, in a study on the effect of CF on email requests, Nguyen et al. (2015) found that overall, students in both direct-feedback group and meta-pragmatic feedback treatment groups significantly increased their DCT (production) scores after the treatment sessions and this increase was retained when measured again four weeks later. They also found that both of the treatment groups fared significantly better than the control group regarding their post-test results; and that there was no difference between the two treatment groups in this respect. The researchers explained the lack of difference between the two treatment groups regarding their production scores by the benefit of the multiple revision rounds that both of the treatment groups were engaged in.

According to Felix-Bradsefer (2008), the issue of whether pragmatic development is maintained or changes over time is still controversial in the limited literature on ILP that has employed a delayed post-test. The importance of delayed post-tests in pedagogical interventional research has been highlighted by Kasper and Rose (2002): "[D]elayed post-tests should be a standard design feature in interventional research because without their use it is not possible to determine whether the gains that students made through instruction are durable" (p.73).

Conclusion

The findings of the present study suggest that CF on L2 request and refusal speech acts provided FF or TM led to improved performance in L2 pragmatics in production and that these effects were durable. In summary, the findings of the study generally support the application of CF to the acquisition of a second language pragmatic ability.

Corrective feedback provides opportunities for learners to correct their original output and make them aware of the potential difficulties they have in expressing their meaning. The corrective recast followed by the repetition can provide the learners with positive evidence about what can be said in the L2. Recasts are one of the least intrusive of the many possible procedures in delivering CF, and thus one with great potential for allowing teachers and students to focus on the content (tasks, curricular subject matter, etc.) uninterrupted while still dealing with the language problems, but doing so incidentally.

The finding that Technology-Mediated CF resulted in improved performance in L2 pragmatics provides support for how technological advances can be used to enhance pragmatic development in ESL learners. According to Kartchava and Nassaji (2019), "the effects of technology when conjoined with feedback practices in facilitating instruction cannot be overlooked as this combination may play a pivotal role in enhancing language learning" (p. 180). As the findings of this study and a previous body of research examining technology and interaction suggest, CF has positive benefits within technology-supported environments (e.g., Lai & Li, 2011; Sauro, 2011; Sauro & Smith, 2010). Such findings of the positive effects of technology-mediated education were later confirmed by the widespread use of technology not

only in language learning but all aspects of education during the COVID-19 pandemic. When the crisis led to the closure of regular learning spaces, most educational institutions turned to the use of technology for creating virtual classrooms in applications like Zoom, Teams, and WeChat for providing instruction and feedback both synchronously and asynchronously. Technology enables real-time formative assessment and feedback, providing immediate insights into student progress. Online quizzes, automated grading systems, and data analytics tools help teachers monitor student performance and tailor instruction accordingly (Bao, 2020).

This study showed that the implementation of role-play activities and providing CF through WeChat mobile application is possible and not a very complex endeavor. Other forms of technology that can be applied with relative ease to pragmatic-focused instruction include audio/video materials. In such a technologically driven era, language educators also need to recognize the potential that new technologies offer for language learning. It is highly anticipated that technology will continue to play a key role in educating future generations including second language learners. However, with the rise of Internet-based technologies that involve digitally mediated spaces for communication, it seems inevitable that the way people from different linguistic and cultural backgrounds interact with one another in online environments will change quickly. These changes may in turn lead to changes in the current notion of pragmatic competence since such technologies may increase access to a wider range of discourses, providing both opportunities and potential pitfalls for developing L2 pragmatic knowledge. Cunningham (2019) raises a host of questions regarding the future research agenda for developmental pragmatics:

Most broadly, how does the idea of pragmatic competence need to be refined when applied to a computer-mediated environment? What knowledge, skills, and abilities must L2 learners develop to participate effectively in CMC and perform necessary pragmatic functions in such contexts? How does this knowledge differ from traditional notions of pragmatic competence? (p. 383)

He further argues that with "the rapid pace of technological development and the new communication possibilities that will no doubt arise in the coming decades, empirical findings related to the above questions will be central to expanding current models of pragmatic competence" (p. 383)

This study provided some empirical support to the effective role of CF in L2 pragmatic development and opened a new venue in L2 pragmatics research for examining CF effects in different modalities including online video-based technologies. CF in teaching pragmatics is important both in directing learners' attention to areas that may cause potential communication breakdown and in providing modified output. As the importance of CF is recognized in L2 pragmatics, its use in pragmatic instruction will become more common in classroom instruction.

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