

## **CORRECTIVE FEEDBACK IN A COMPUTER-MEDIATED COMMUNICATIVE CONTEXT AND THE DEVELOPMENT OF SECOND LANGUAGE GRAMMAR**

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### **Abstract**

This study investigated the impact of two types of corrective feedback in computer-mediated communicative context on the development of learners' second language (L2) knowledge: (1) implicit feedback in the form of recast, and (2) explicit feedback in the form of metalinguistic feedback. The participants of this study, 45 low intermediate learners of English, were randomly divided into two experimental groups and one control group. The experimental groups completed two computer-mediated focused tasks activities about the target structure in the study. During task-based interaction via text-chat, the learners received focused corrective feedback when an error was made with the target form. Acquisition was measured by means of the two tests: computerized fill-in-the-blank test and oral imitation test. The results showed that the experimental groups who received computer-mediated corrective feedback outperformed the control group who did not receive any feedback. The findings also indicated metalinguistic feedback is more effective than recast feedback in computer-mediate communicative context.

### **Introduction**

Computer-Mediated Communication (CMC) has recently emerged and rapidly attracted much attention in the field of language learning. It is increasingly acknowledged that creating opportunities for students to interact has important consequences for second language acquisition. With the development of the Internet this new medium, CMC, offers a new channel for learners to interact with each other. According to Abrams (2003), CMC is more interactive than face to face interaction. CMC is, conventionally, divided up into two broad categories: (1) asynchronous CMC (ACMC e.g., email and bulletin boards) and (2) synchronous CMC (SCMC e.g., real-time, live discussion via online channels such as chat systems - Abrams, 2003).

Synchronous CMC helps learners to expand the exposure to the target language through real-time interaction (Lee, 2008). When learners engage in interaction, they can receive feedback, and have opportunities to produce modified output, all of which facilitate

the development of learners' interlanguage (Long & Robinson, 1998). The visual salience of written discourse and the self-paced setting in a text-based medium increase learner' opportunities to take notice of errors and make output modifications including self-repairs (Lee, 2004).

To date, the CMC studies, grounded in Long's Interaction Hypothesis (1996), have focused on how negotiation of meaning elicits corrective feedback using various types of negotiation moves (e.g., clarification requests, recasts) to attain mutual comprehension (Lee, 2001, 2002, 2006; Smith, 2003; Tudini, 2003). Despite the fact that a limited number of studies showed that CMC enhanced the development of grammatical competence through noticing errors in certain syntactical features (e.g., Fiori, 2005; Salaberry, 2000), other reports revealed that lexical errors were the main triggers for negotiation of meaning, whereas syntactical errors were largely ignored (e.g., Sotillo, 2000; Smith, 2003). From a pedagogical point of view, grammatical accuracy and lexical growth should be equally important for the development of L2 language competence.

Accordingly, this study was designed to investigate the impact of two types of corrective feedback treatments (metalinguistic and recast feedback) on development of L2 grammar knowledge of learners. To fulfill the purpose of the study, low intermediate learners of English carried out two computer-mediated focused tasks activities in a chat room. Along with these activities, they received either recasts (implicit feedback) or metalinguistic information (explicit feedback) in response to any utterance that contained an error in the target structure. The extent to which corrective feedback treatments (metalinguistic and recast feedback) in CMC context helped the learners' development of L2 grammatical accuracy was explored in this study.

### **Literature Review on Corrective Feedback in CMC**

The interactionist perspective on SLA argues that conversational interaction in the target language (TL) forms the basis for language development (Smith, 2004). In his most recent version of the Interaction Hypothesis, Long (1996) claims that interactive tasks that promote learners' negotiation of meaning facilitate the development of a second language. Pica (1994) claims that meaning negotiation, as a particular way of modifying interaction, can accomplish

a great deal of SLA by helping learners make input comprehensible and modify their own output and by providing opportunities for them to access L2 form and meaning.

The key interest in CMC, from an interactionist perspective on L2 learning, involves the specific ways in which CMC is relevant to and facilitative of the processes believed to be beneficial to SLA. Among the most important issues is establishing the facility of CMC to supply rich input, promote pushed output, provide plentiful and dynamic feedback, focus learners' attention on aspects of the TL, and enhance noticing (Smith, 2004). Although the current research in no way suggests that CMC can or should supplant face-to-face communication in the L2 classroom, CMC research has suggested several potential benefits over face-to-face interaction.

These benefits include an increased participation equality among students (e.g., Beauvois, 1992; Sullivan & Pratt, 1996), an increased quantity of learner output (Chun, 1994; Kern, 1995), and an increased quality of learner output (e.g., Chun, 1994; Warschauer, 1996). There is also evidence that CMC is viewed by students as being less threatening than face-to-face interaction, which often results in an increased willingness to take risks and try out new hypotheses (Warschauer, 1997). Warschauer (1996), for example, found that students were more inclined to pursue idea-generating discourse and were less inhibited during written production than in oral discussion. There is also some indication that the text-based CMC medium can amplify students' attention to linguistic form (e.g., Kern & Warschauer, 2000; Shekari & Tahririan, 2006) by offering learners ample opportunity to notice lexical and grammatical features in the input. Finally, task types typically used during face-to-face instruction have proven successful in eliciting high amounts of learner interaction and negotiation in a CMC environment as well (Blake, 2000).

The modest-yet-growing body of CMC research grounded in an interactionist theoretical framework suggests that learners can and do negotiate for meaning during CMC and that computer-mediated negotiated interaction is quite similar in many ways to that observed in the face-to-face literature. However, today most of the researchers have pointed out that communicative activities which focus solely on meaning processing are not adequate for learning a second language and a certain amount of focus on form is needed (e.g., Ellis 2001; Long, 1996). A focus on form during interaction causes learners to notice certain input features, and compare them with their own output. The tasks that involve negotiation of

meaning and focus on form (also called focused tasks) may encourage noticing of forms and implicit learning (Ellis, 2003). The focused tasks provide a forum for students' mistakes to appear and therefore, there exist a need of corrective feedback on those mistakes.

The role of corrective feedback in second language acquisition (SLA) has received much attention in the literature and it is still a topical issue (e.g., Ammar & Spada, 2006; Ellis et al., 2006). Advocates of the nativist theory claim that SLA is driven by exposure to positive evidence and comprehensible input without any need for corrective feedback (Krashen, 1985). However, there are indications that exposure and input alone might not be sufficient for high quality L2 learning and corrective feedback plays a beneficial role in facilitating the acquisition of certain L2 forms which may be difficult to learn through input alone (Ammar & Spada, 2006).

All corrective feedback is classified either as explicit or implicit in form. In the case of implicit feedback, there is no overt indicator that an error has been committed, whereas in explicit feedback types, there is. Implicit feedback often takes the form of recasts, defined as corrective feedback technique that reformulates the learner's immediately preceding erroneous utterance while maintaining his or her intended meaning (e.g., in response to "The boy has three toy," a teacher might respond "The boy has three toys") (Ellis et al., 2006). Explicit feedback can take two forms: (a) explicit correction, in which the response clearly indicates that what the learner said was incorrect (e.g., "No, not goed—went") and thus affords both positive and negative evidence or (b) metalinguistic feedback, defined by Lyster and Ranta (1997) as "comments, information, or questions related to the well-formedness of the learner's utterance" - for example, "You need past tense," which affords only negative evidence.

Metalinguistic feedback can lead learners to self-repair, whereas recasts can lead only to repetition of correct forms by students. Lyster (2007) argued that self-repair following a metalinguistic feedback requires a deeper level of processing than repetition of a teacher's recast. Self-repair is thus more likely to destabilize interlanguage forms as learners are pushed to reanalyze interlanguage representations and to attend to the retrieval of alternative forms. In contrast to self-repair following a metalinguistic feedback, repetition of recast does not engage learners in a similarly deep level of processing nor necessitate any reanalysis.

The features of text-chat that may make text-chat SCMC an ideal context for investigating outcomes from corrective feedback include the visual saliency of forms, the greater processing and planning time, and the enduring as opposed to ephemeral nature of written turns that are recorded on the computer screen (Sauro, 2009).

Few studies, however, have examined the effectiveness of implicit and explicit corrective feedback in the CMC context on the development of L2 grammar knowledge of learners. One exception is the study conducted by Loewen and Erlam (2006); found no significant advantage for either feedback type over the control condition and no significant advantage for one corrective feedback type over the other. Similarly, Sauro (2009) found no difference between the effectiveness of recast and metalinguistic feedback on the development of L2 grammar among intermediate and advanced learners of English. Results showed no significant advantage for either feedback type on immediate or sustained gains in target form knowledge, although the metalinguistic group showed significant immediate gains relative to the control condition.

### **The Study**

Based on numerous studies carried out recently concerning error correction, it has been argued that providing feedback is necessary for coming up with optimal results. Synchronous CMC provides an ideal context for investigating outcomes from corrective feedback, due to the visual saliency of certain forms during written interaction, the amount of processing and planning time afforded by synchronous chat, and the enduring as opposed to ephemeral nature of the turns. Despite the potential advantages of synchronous CMC for facilitating the noticing and learning of the low salient and difficult forms, research on learning outcomes following computer-mediated corrective feedback is still limited (e.g., Loewen & Erlam, 2006; Sauro, 2009).

For that purpose, the present study investigates the impact of two types of computer-mediated corrective feedback (metalinguistic and recast feedback) delivered via written SCMC on the development of L2 grammar among low intermediate learners of English who possess prior knowledge of the target form.

The study reported in this article investigated the following research question:

**RQ:** Is there any significant difference between two types of computer-mediated corrective feedback, recast vs. metalinguistic, in the extent to which they contribute to L2 learners' grammar knowledge of past tense-ed?

### **Participants**

The participants were students enrolled in English classes at Kosar private language school in Meshkinshar, Iran. The teaching approach adopted by the school placed emphasis on developing communicative skills in English. The participants of the study were 45 low intermediate level learners of English who volunteered to participate in this study. The participants were classified as low intermediate level of learners according to scores on the Oxford Placement Test. The participants ranged in age from 14 to 17. The students were divided into three groups. These three groups were randomly divided into two experimental groups (experimental group 1 =15 students, experimental group 2 =15 students) and one control group (group 3 =15 students).

Based on a pre-treatment background questionnaire, learners were determined to have similar previous experience working with computers and reported using computers regularly for purposes including e-mail, word processing, Web surfing, and chatting.

Two teachers were asked to be the researcher's assistants. The participating teachers were two female English language teachers (ages: 27 and 33 years). They both held TESL certificates and had taught adult ESL or EFL learners at both beginner and intermediate levels. They were briefed about using chat programs and were interested in the role of computer-mediated corrective feedback in language learning.

### **Procedure**

During the preparation period, Yahoo! Instant Messenger (YIM) chat program was downloaded and set up on each computer. YIM chat program was chosen as the interface because it resembles various free chat software and Web-based programs available today. During the first meeting, the students participated in a training session where they received an introduction to the YIM chat program, which was to be used in the study. During this session, participants were given two practice tasks to complete, which were shortened versions of similar tasks used in the treatment. They constituted what Ellis (2003) called focused tasks; in

other words, they were designed to encourage the use of particular linguistic forms and, to this end, learners were provided with certain linguistic prompts (see Appendix A).

Participants in the experimental groups participated in four sessions that consisted of two computer-mediated form-focused tasks: a story completion task and a picture description task. Each learner was paired up randomly with one of the teachers or researcher for each activity; partners had 20 minutes to work together to complete the tasks. During task-based interaction via text-chat, the first experimental group received computer-mediated corrective feedback in the form of recast, the second experimental group received computer-mediated corrective feedback in the form of metalinguistic information when an error was made with the target form. The third group (control group) had no opportunity to participate in the online activities and practice the target structure.

For the study, a recast was defined as a correct reformulation of the error. An example of a recast from the interaction is shown below. The teacher provides the correct form of walk in response to Darya as in (1).

(1) Darya: yesterday, Max walk in the park

Teacher: walked

Darya: he walked in the park and....

Metalinguistic feedback consisted of a reminder to use past tense after an error occurred. An example is shown below:

(2) Maryam : . . . and he watch television

Teacher: watch, be sure to use past tense.

Maryam: he watched television.

Regular past tense –ed was chosen as the target structure. After treatment sessions, the post-tests were completed by participants. During testing session, two tests were administered in the following order: oral imitation test and computerized fill-in-the-blank test.

The computerized fill-in-the-blank test consisted of 20 items. The participants were required to read the sentences and fill the gaps with the correct forms of given verbs. In the

oral imitation test, on the other hand, the learners were presented with 20 belief statements. Statements were grammatically correct (n =10) or incorrect (n =10). They consisted of 10 statements that targeted simple past tense –ed, and 10 distracter items. Each statement was presented orally, one at a time, on an audiotape. The test takers were asked to repeat the statement orally in correct English, and learners' responses to all items were audio-recorded. Each imitated statement was allocated a score of either 1 (the grammatically correct target structure was correctly imitated or the grammatically incorrect target structure was corrected) or 0 (the target structure was avoided, the grammatically correct target structure was attempted but incorrectly imitated, or the grammatically incorrect target structure was imitated but not corrected). Errors in structures other than the target structure were not considered (Ellis et al., 2006).

These tests were designed to measure the effect of both types of feedback on development of L2 grammar knowledge of the participants.

### **Post-tests Results**

Two separate means and ANOVAs were calculated for the groups on two tests (oral imitation test and computerized fill-in-the-blank test). Group differences were considered significant when  $p < .05$ . The analysis of data is presented below.

### **Analysis of Results in the Oral Imitation Test (OIT)**

The descriptive statistics of OIT for each group, including group means and standard deviations, appear in Table 1 below.



Table 1. Results of Descriptive Statistics for OIT

	Mean	Std. Deviation	Minimum	Maximum
<b>Experimental group 1 (recast)</b>	6.40	1.88	4	10
<b>Experimental group 2 (metalinguistic)</b>	7.60	1.59	5	10
<b>Control group (placebo)</b>	5.33	1.23	3	8

As the above table shows, three groups' performances on OIT are different. The results indicated that the two experimental groups who received computer mediated corrective feedback in the form of metalinguistic feedback and recast feedback (metalinguistic group and recast group) obtained higher mean scores ( $\bar{X}$ =7.60 and  $\bar{X}$ =6.40, respectively) in comparison with the control group ( $\bar{X}$ =5.33) that did not receive any feedback. Also, the metalinguistic group's mean ( $\bar{X}$ =7.60) was higher than that of the recast group ( $\bar{X}$ =6.40). Figure 1. displays means for three participating groups on OIT.

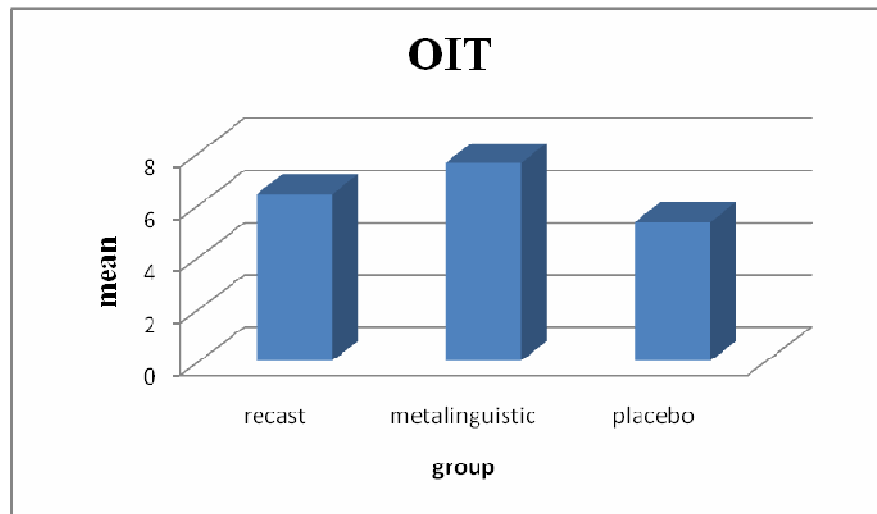


Figure 1. Group means for OIT

The result of one way ANOVA revealed that the difference between groups was significant in OIT. Technically speaking ( $F= 7.605, p = .002$ ) proved to be significant at the .05 level in terms of the dependent variable. A post-hoc comparison results showed that metalinguistic group differed significantly from the recast group and the control group. There was also a tendency toward a significant difference between recast group and the control group.

### Analysis of Results in the Computerized Fill-in-the-blank Test (CFBT)

Group means and standard deviations for the three participating groups on CFBT appear in Table 2.

Table 2. Results of Descriptive Statistics for CFBT

	Mean	Std. Deviation	Minimum	Maximum
<b>Experimental group 1 (recast)</b>	17.20	1.37	15	20
<b>Experimental group 2 (metalinguistic)</b>	18	1.30	16	20
<b>Control group (placebo)</b>	16.20	1.01	14	18

As the above table shows, both metalinguistic and recast groups obtained higher mean scores ( $\bar{X}$ = 18 and  $\bar{X}$ = 17.20, respectively) in comparison with the control group ( $\bar{X}$ =16.20). Also, the metalinguistic group's mean ( $\bar{X}$ =18) was higher than that of recast group ( $\bar{X}$ =17.20). Figure 2. displays the means for three participating groups on CFBT.

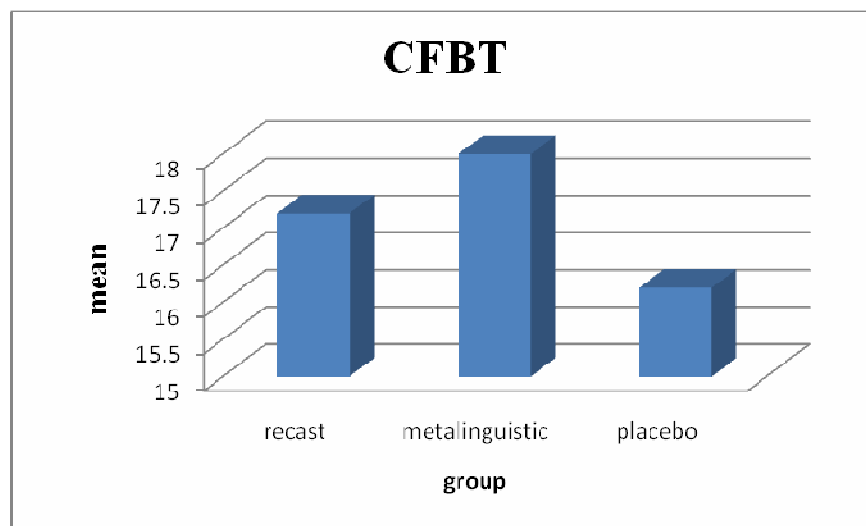


Figure 3. Group means for the CFBT

The results of the one way ANOVA revealed that the difference between groups was statistically significant ( $F= 7.907$ ,  $p= .001$ ) at the .05 level in terms of dependent variable. The post hoc contrasts show that the both experimental groups (metalinguistic and recast group) significantly outperformed the control group. However, the results did not show such a significant difference between the recast group and metalinguistic group.

### Discussion

The findings of the present study suggest that, in a chat environment, recasts and metalinguistic feedback were effective. Learners in the two experimental groups

(metalinguistic and recast groups) benefited more than those who were in the control group (i.e., with no corrective feedback). Furthermore, comparisons of the results indicated the experimental group that received computer-mediated corrective feedback in the form of metalinguistic information outperformed the group that received computer-mediated corrective feedback that reformulates the error in the form of recasts.

Students' inability to benefit from recast feedback to the same extent as metalinguistic feedback may be due to the differential noticeability of both corrective feedback techniques. Although no direct measure of noticing was used in the present study, it may be argued that learners were unable to notice recasts. In other words, learners in the recast group might have been able to detect the reformulations but could not store them in long-term memory for subsequent retrieval and accurate use. Despite the protracted processing time the written synchronous computer-mediated communication environment afforded participants, reformulations that occurred during the interaction may still have been less likely to be noticed. Metalinguistic feedback, on the opposite, by explicitly signalling the presence of an error and pushing the learners to modify their own output, might have been more noticeable and hence more effective.

Concern with correction of mistakes is the second principal factor that might have contributed to the superior results of metalinguistic feedback over recast feedback. Learners in the metalinguistic feedback group were pushed to correct their ungrammatical utterances, which had the potential to take up to 100% of the time. More importantly, all of the repairs were student-generated.

In the recast group, however, the teacher was the one who always provided the correct form. Students had neither an obligation nor an opportunity to draw on their own resources in order to try to come up with the correct grammatical form. In contrast, metalinguistic feedback, in part due to its overtly corrective nature, tended not to go unnoticed by the participants, as the examples in (4) and (5) suggest. In both episodes, the teacher's feedback move overlaps with the learner's preceding move but, because the metalinguistic feedback is longer, it might have been better attended to and perceived as overtly corrective. In both episodes, however, the learner successfully repairs the error following the feedback move, but, again, there is evidence of greater awareness that repair is needed in the metalinguistic episode. It is also important to recognize that the metalinguistic feedback, as illustrated in (5),

does not intrude unduly in the communicative flow of the activity. It constitutes a brief time-out from communicating, which allows the learner to focus explicitly but briefly on form. The effectiveness of the metalinguistic feedback, therefore, might derive in part from the high level of awareness it generates and in part from the fact that it is embedded in a communicative context.

(4) Yalda: they play in the park (Oct 11, 2009 10:12:36AM)

Teacher: played (Oct 11, 2009 10:12: 40AM)

Yalda: played in the park (Oct 11, 2009 10:12:47AM)

(5) Nasim: ...and Jack follow him (Oct 11, 2009 11:17:15 AM)

Teacher: follow, you need past tense (Oct 11, 2009 11:17:21 AM)

Nasim: Jack followed him and attacked him (Oct 10, 2009 11:17:35 AM)

What is also revealed in these excerpts is that there is slower turn taking in text-chat. According to Sauro (2009) the increased time that is afforded in text-chat may also be particularly beneficial for promoting noticing and production of TL forms that typically require greater control. Williams (2005) points out that one factor affecting what elements of input learners notice is time pressure. Thus, the reduced time pressure to process incoming messages during text-chat may allow learners the opportunity to notice a broader range of linguistic forms in the input than they might notice in real-time spoken input.

Furthermore, the reduced speed of text-chat (compared to face-to-face oral conversation) also affords language learners increased planning time to compose their own messages. Thus, the increased online planning time afforded by text-chat may be particularly beneficial for promoting not only attention to target language forms in the input but also for promoting closer attention to and monitoring of target language output. Both increased processing time (Payne & Whitney, 2002) and increased online planning time. Thus, these features of the text-chat medium together with higher rates of uptake following metalinguistic feedback in comparison with recast feedback may have given the participants in the metalinguistic group the time and opportunity to notice, analyze and internalize the corrective feedback.

## Conclusion

This study has examined the relative effectiveness of two different types of computer-mediated corrective feedback on the development of L2 target form knowledge. Despite the fairly limited amount of feedback generated, the results demonstrated higher gains in development of grammar knowledge for groups who received computer-mediated corrective feedback in comparison to the control group. Furthermore, comparisons of the results indicated explicit computer-mediated corrective feedback in the form of metalinguistic feedback was more effective than implicit kind in the form of recast.

Results suggest potential directions for further studies of computer-mediated corrective feedback. It is suggested that similar studies be conducted with other types of computer-mediated feedback. Moreover, more comprehensive studies could be done to investigate the effect of more than two techniques at a time on language acquisition. Since the present study focused on only one structure in English, similar studies could examine the accuracy gains in terms of other structures in English or any other languages. Finally, this study could be replicated with learners at higher levels of language proficiency.

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## Appendix A

### Picture Description Task

Carol did different activities last weekend.

Write sentences about her weekend.



### Story Completion Task





