On the Differential Effects of Computer-Mediated and Metalinguistic Corrective Feedback on Iranian EFL Learners’ Writing Accuracy

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Abstract
The present study investigated differential effect of two types of feedback namely, computer-mediated and metalinguistic, on Iranian EFL learners’ writing accuracy. To this end, based on Nelson Proficiency Test (300 A), 69 Iranian advanced EFL learners, including 45 males and 24 females, aged between 17 and 24, learning English in language institutes in Salmas, were selected randomly out of the total population of 121 EFL learners and then divided into three groups. The participants in the two experimental groups received metalinguistic and computer-mediated feedback separately while those in the control group received no feedback. The analyses of the results obtained through a pre-test and a post-test indicated that both feedback types significantly influenced learners’ writing accuracy. However, analysis of the participants’ performances on the post-test demonstrated that metalinguistic group outperformed computer-mediated one. Thus, the effect of metalinguistic feedback was more than that of computer-mediated feedback. In addition, both of them were more influential than no-feedback instruction. The findings of the present study can be fruitful for syllabus designers and EFL teachers.

Keywords: computer-mediated feedback, corrective feedback, EFL learners, metalinguistic feedback, writing accuracy
Introduction

Different scholars in the area of foreign language teaching and learning believe that writing accuracy requires more basic skills than perhaps any other skills (Ferris, 1999). According to Maleki and Eslami (2013), there is a straight relationship between the difficulty of writing tasks and the need for legible, logical, and organized writing skill. Based on these difficulties in EFL writing, it seems necessary to improve EFL learners' writing. Maleki and Eslami (2013) postulate that there are controversial beliefs on the use of corrective feedback. Advocators of using corrective feedback emphasize on contributing role of corrective feedback in improving EFL learners’ writing, whereas the opponents consider it as ineffective for this purpose. Nonetheless, issues surrounding how, and even whether, to give L2 students feedback on their written errors continue to be a controversial issue among researchers, instructors, and students (Ferris, 1999; Truscott, 2007). Truscott, (2007) further believes that providing learners with correct forms results in a motivation in learners to avoid correct forms in future. However, considering the related literature in the field of second language acquisition and writing, it can be perceived that there are still no clear answers regarding the impact of corrective feedback on students’ writing ability in terms of grammatical accuracy and the way it should be carried out (e.g., Hyland & Hyland, 2006; Guennete, 2007). The ways teachers correct second language students’ writing is an issue that has created a lot of interest among researchers and teachers in the last decades. Recent review of feedback on L2 students’ writing shows that despite all research, we do not have any clear answers to the questions researchers have posed (Hyland & Hyland, 2006). It may probably be due to failure in designing systematic Corrective Feedback (CF) studies that investigate different kinds of written CF (Guennete, 2007). One solution might be for teachers and researchers to identify various options available for correcting students’ writing (Ellis, 2008).

In addition, with the growth of technology, using modern computer-based methods in teaching second language classes has gained unprecedented momentum in recent years; however, little attention has been paid for scrutinizing the effect of electronic corrective feedback (Ellis, 2008). In other words, recent theoretical trends in second language writing research have emphasized the role of computer-based corrective feedback on learners’ writing ability, positing that EFL learners have been found to have responded
positively to the online mode of corrective feedback while there is a gap in literature in terms of empirical studies in this area. Ellis (2008) believes that electronic resources are conducive to advanced learners who seek the usage of more experienced writers. Also, electronic feedback provides a usage-based approach that fosters student independence by allowing students to locate the corrections best suited to their writings.

According to Tatawy (2002), corrective feedback is the reaction to an error which tries to inform the learner about the fact of error. This treatment may not be observed by the students, or some treatment may be made very explicit to elicit a revised response from the students. Tatawy (2002) postulates that if we effectively correct errors, it will help learners to modify their inter-language rules in a way that the errors does not occur again.

Different types of feedback have been proposed and used by different scholars in the area of language teaching and learning. One classification of corrective feedback, according to Lee (2004), is direct corrective feedback and indirect corrective feedback. Sheen (2007) differentiates direct and indirect corrective feedback, that is, in the former, teacher or instructor provides students with correct forms, whereas in the latter, teacher indicates that an error exists but does not provide explicit correction of form. Chastain (1988) and Robb et al. (1986) believe that indirect corrective feedback can be divided into two types namely indication and marking the location of errors in which the form of underlining is used to show omissions in the students’ text, and indication of errors in which the form of an indication in the margin that an error or errors have taken place in a line of the text. Another category of corrective feedback, according to Ferris (2004) and Sheen (2007), is metalinguistic corrective feedback in which teacher provides some kind of metalinguistic clue as to the nature of the error and can be done through two procedure, use of error code and grammatical descriptions. In the former, teacher writes codes in the margin (e.g., ww = wrong word; art), whereas in the latter, teacher numbers errors in the text and writes’ grammatical descriptions for each numbered error at the bottom of the text. For Ellis (2009, as cited in Azizi, Behjat & Sorahi, 2014), metalinguistic corrective feedback refers to explicit comments about the nature of the errors in Learners’ productions.
The third category of corrective feedback according to Ferris (2004) and Sheen (2007), is focused vs. unfocused corrective feedback. The former concerns whether the teacher attempts to correct one or two specific errors types in students’ production, while the latter concerns with selecting all types of errors to be corrected. In other words, while the former is intensive, the latter is extensive. The forth category is reformulation in which native speaker works on students’ entire text to make the language seem as native-like as possible while keeping the content of the original intact (Cohen, 1989). The last category is the electronic feedback in which teacher indicates an error and provides a hyperlink to a concordance file that provides examples of correct usage (Milton, 2006). In this type of error correction, the user may have access to different types of computer-based facilities that may help in providing corrective feedback for students regarding their errors and mistakes. According to Vahdani Sanavi and Nemati (2014), in electronic feedback the teacher indicates an error and provides a hyperlink to the concordance file that provides examples of correct usage. In fact, learners use electronic software. Use of an electronic corpus like concordance can give learners the feedback they need (Vahdani Sanavi & Nemati, 2014).

Sheen (2007) investigated the metalinguistic feedback and direct feedback. To this end, 91 adult ESL learners of various L1 backgrounds studying in the US were selected as the participants of the study. Sheen found that both the treatment groups outperformed the control group on the immediate posttests, and the direct metalinguistic feedback group performed better than the direct feedback group in the delayed posttest. Based on the findings, Sheen (2007) concluded that metalinguistic feedback is better than direct feedback.

Fahim and Montazeri (2013) investigated probable impacts of metalinguistic corrective feedback on learners’ levels of lexical resource and grammatical range and accuracy in their oral proficiency. The participants were 30 EFL learners studying the books ‘New Interchange 3’ and ‘Passages 1’. Two groups were prepared, i.e., the experimental group, received metalinguistic feedback as the treatment, while the control group received no feedback. Each group was instructed for approximately twenty hours. Then, after the treatment phase, the learners were given a post test. A sample t-test was applied so as to find out any statistical difference in the mean of each group after receiving corrective feedback. Based on the results of the post test, it was
revealed that the experimental group which received ‘metalinguistic’ feedback outperformed the control group.

Azizi, Behjat and Sorahi (2014) investigated the effect of metalinguistic corrective feedback on the EFL learners’ writing performance. They also compared the effectiveness of two types of metalinguistic feedback namely, error codes feedback and description feedback, on EFL learners’ writing. The participants were 69 female students at a high school in Iran. The participants were randomly assigned to the control, no-feedback, group and two experimental groups, one receiving error code feedback and one receiving description feedback. During the course, the teacher provided different forms of corrective feedback (explanation, error code, no feedback) on the students’ writings. The results showed that the metalinguistic corrective feedback, especially description mode, had a positive influence on the writing improvement of the Iranian EFL students.

Li (2000), in another study, investigated the use of online task-based activities in a process oriented writing class. The results showed that students were able to produce more syntactically and lexically complex essays. The students were found to be receptive to receiving feedback via e-mail compared to the conventional corrective feedback method using pen and paper. Similarly, Razagifard and Razzaghifard (2011) reported that students who were given computer mediated corrective feedback outperformed those receiving no feedback in their writing exercises. However, in a study on the use of corrective feedback in a computer assisted practice exercise, it was found that corrective feedback was ineffective (Adams, Ruifang & Hope, 2012). Truscott (2007) also found that corrective feedback was ineffective and produced negative results on second language learners’ writing because students feel pressured and demotivated when their essays are filled with errors. In a study on the motivational levels of learning with or without the use of computers, it was found that there was no significant difference as to whether the use of computers increased motivational levels of learning as students were found in general, to fear any form of corrective feedback (Ali, 2011). This is in contrast to the study conducted by Hosseini (2012) which indicated that using computers and the internet had significant motivational effect on the students.
Nezami (2012) also found that online corrective feedback, mainly recasts and metalinguistic feedbacks, was beneficial to learners.

To fill the gap in the literature regarding the differential effects of feedback type and writing ability, the present study tries to investigate the effect of two different types of corrective feedback, namely metalinguistic corrective feedback and electronic corrective feedback, on the Iranian EFL learners’ writing accuracy, and to find out whether the type of corrective feedback significantly affects writing accuracy. To achieve the purposes of this study, the following research question was posed:

Is there any significant difference among a metacognitive corrective feedback group, a computer-mediated corrective feedback group, and a no-feedback group in writing performance?

Method

Participants
Sixty-nine EFL learners out of the total population of 83 advanced Iranian EFL learners were selected from Salmas, in west Azarbayjan, Iran, English language Moje Danesh institution, who comprised the participants of this study based on four criteria. The first criterion was the participants' age which ranged between 17 and 24. The second criterion was the learners' general proficiency level which was supposed to be advanced and was determined through the administration of Nelson proficiency test version 300 B prior to the study. The third criterion was the participants’ abilities to work with computers in general and Microsoft Word (2007) in particular. Finally, an attempt was made to select the participants whose mother language was Azari so that the effect of bilingual and monolingual EFL learners were excluded. Also, they were assured of the confidentiality of the information they provide and their free will to participate in the study.

Instrumentation

To accomplish the purpose of the research, three tests including a proficiency test and two writing tests were used.

The Proficiency Test. The proficiency test used in this study included the Nelson Test (advanced 300) comprising 50 items in total. This test consisted of reading, grammar, vocabulary, and pronunciation sections. All the test items were in multiple choice format. Each item valued 1 point. Those students
whose scores fell within the range of +1 SD above and -1 SD below the mean were considered as the mid-level ones. Those participants whose mean scores were below mid-level were at low proficiency level, while those participants’ whose mean scores were above mid-level were considered as advanced proficiency level. This test was used to estimate the proficiency level of the sample population, and select homogeneous participants.

Writing pretest and posttest. As the pretest and posttest, the participants in all three groups were asked to write on two topics selected by the researcher (around 200 words). In order to assess linguistic performance, several measures have been proposed in Second Language Acquisition (SLA) studies. Skehan (1998) believes that in writing practicing and internalizing a set of structures can promote a balanced development of learners’ fluency, accuracy, and complexity in the target language. Skehan distinguishes three aspects of linguistic performance: (a) fluency, (b) accuracy and (3) complexity. Since we only dealt with writing accuracy as one of the variables in the present research, just this scale for assessing writing was considered. For measuring accuracy, three measures come out as the best measures: the number of error-free minimal terminable units (T-units), error-free T-units per T-units, and the number of errors per T-unit. The writings were scored following Rahimpoor (2008) and Errasti (2003). In order to do this research, all the participants’ writings were coded for T-units, words, and clauses.

Procedure

The following steps were pursued in order to accomplish the intended aims of the present study: First of all Nelson proficiency test (version 300 A) was administered to 83 EFL learners studying at Moje Danesh English language institute of Salmas, West Azerbaijan, Iran. Those learners whose scores were one standard deviation above and below the mean were selected as the main participants of the study. Then, the participants were randomly assigned into three groups in Moje Danesh English language institution (i.e., one computer mediated CF group, one metalinguistic CF group, and one control groups, each including 23 participants). The participants in all three groups were asked to write on a topic (“what are the effects of computer on people’s life?”). Thirty minutes were allocated to accomplish the pre-test. Their manuscripts were scored following
the studies of Rahimpoor (2008), Errasti (2003), which operationalized writing proficiency as the number of error-free T-units per T-units, that is, the percentage of T-units that do not contain errors. Errors in syntax, morphology, and lexical choice were considered, but spelling errors were ignored. Lexical errors were defined as errors in the lexical forms or collocations.

After the administration of the pre-test, 10 topics were selected from the learners’ course book (i.e., Top-Notch), and the participants in both groups were asked to write a text on a topic each session as the treatment which lasted for 10 sessions (one topic for each session, 30 minutes each). The first group received metalinguistic corrective feedback in which errors were labeled or coded and some sort of explicit comment(s) was given regarding that error. The second group received delayed explicit computer mediated Corrective Feedback. Microsoft Word Office (2007) was used to provide computer mediated delayed explicit feedback through e-mails while the control group received traditional writing instruction.

The participants were supposed to write on a topic selected by the researcher (around 200 words) as the post-test. Their writings were scored in such a way that errors in syntax, morphology, and lexical choice were considered while spelling errors were ignored. The post-test writings were corrected and scored by two raters and the estimated inter-rater reliability was reported to be 0.77. The collected data were analyzed through SPSS computer software.

**Results**

The collected data were analyzed to answer the aforementioned research question, and then, the results were discussed. First, descriptive statistics of the participants’ writing performance in metacognitive-, computer-mediated-, and no-feedback groups were provided.
Regarding the effect of feedback type on EFL learners’ writing performance in three groups, the descriptive statistics in Table 1 shows that means of participants’ scores of metacognitive and computer-mediated groups increased in post-test in comparison with pre-test. However, unlike these two groups, no-feedback group’s mean scores decreased in post-test in comparison with pre-test. In addition, metacognitive feedback group had the maximum improvement followed by computer-mediated group, which was in turn followed by control or no-feedback group.

To ensure that all participants in three groups were at the same level regarding writing skill, one-way ANOVA was run to measure the differences in mean scores of the pre-test. The results of this analysis are shown in the Table 2.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>STATISTIC</th>
<th>SUM OF SQUARES</th>
<th>DF</th>
<th>F</th>
<th>SIG.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-TEST</td>
<td>Between Groups</td>
<td>41.15</td>
<td>3</td>
<td>0.413</td>
<td>.070</td>
</tr>
<tr>
<td>SCORES</td>
<td>Within Groups</td>
<td>612.09</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>652.24</td>
<td>48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of groups (K) = 3  Total number of observations (N) = 60 (20 per group)
According to the results of one-way ANOVA which are shown in Table 2, p-value is 0.07 which is more than 0.05, F= 0.41 (i.e. P-value > 0.05). As a result, the mean scores of all three groups in pre-test are homogeneous. In the proceeding sections, the researcher will test each hypothesis according to the results of a paired sample t-test for pre-test and post-test for each group.

To test the difference in preposition errors in post-treatment among the three groups, ANCOVA was utilized. The main justification for using ANCOVA was the homogeneity of regression slope which required that the relationship between the covariate and the dependent variable for each of the groups was the same. Based on Table 3, there was statistical difference, that is, F= 6.62, (P<.05), with partial eta squared = .13. Furthermore, as shown in Table 3, there was a strong relationship between the pre-test and post-test means of writing performance category as indicated by a partial eta squared value of .48.

Table 3
\textit{ANCOVA on writing performance in metacognitive, computer-mediated, and no-feedback groups}

<table>
<thead>
<tr>
<th>source</th>
<th>Sum of square</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>.685</td>
<td>1</td>
<td>.685</td>
<td>.83</td>
<td>.36</td>
<td>.01</td>
</tr>
<tr>
<td>Pre-test. writing</td>
<td>99.902</td>
<td>1</td>
<td>99.902</td>
<td>122.21</td>
<td>.00</td>
<td>.48</td>
</tr>
<tr>
<td>Group</td>
<td>10.829</td>
<td>2</td>
<td>5.414</td>
<td>6.62</td>
<td>.00</td>
<td>.13</td>
</tr>
<tr>
<td>Error</td>
<td>70.298</td>
<td>86</td>
<td>64.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>181.714</td>
<td>90</td>
<td>130.332</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on Table 3, there was statistical difference, that is, F= 6.62, (P<.05), with partial eta squared = .13. Furthermore, according to Table 3, there was a strong relationship between the pre-test and post-test means of writing performance category as indicated by a partial eta squared value of .48.
Discussion

Based on the results of the present study, it was found that the metalinguistic corrective feedback had positive influence on the writing accuracy of the Iranian EFL students. This finding is in line with the findings of the other studies such as Ellis (2008) and Sheen (2007). According to the findings of Ellis (2008) and Sheen (2007), participants receiving teacher written corrective feedback outperformed non-feedback control groups. The students were also found to benefit more from having coded feedback over non-coded feedback. Carroll and Swain (1993) found that feedback in the form of metalinguistic comment resulted in significantly better learning of structures than implicit correction strategies. Bitchener and Knoch (2010) reported that all treatment groups receiving different strategies of direct feedback with explicit metalinguistic comments outperformed the control group on all post-tests in terms of grammatical accuracy in using the target structures. The findings also corresponded to the study that carried out by Lightbown and Spada (1990) who suggested an overall improvement in the participants’ writing skill as a result of the incorporation of form focused activities in instruction. The significant improvement in the learners’ scores witness to this view. It can thus be claimed that error correction can lead to more accurate written forms and eventually better writing scores (Shintani & Ellis, 2013).

As it is seen from the previous paragraphs, research on the issue produced conflicting results. The main causes of this lack of convergence could be found in design-related and analytical problems. Sheppard (1992), for example, reported a negative effect of CF on the structural complexity of learners’ writing, but in fact his finding was insignificant. Also, Chandler’s (2003) study, which concluded that CF did not affect the complexity of students’ writing as measured by holistic ratings did not include a control group who did not receive CF. One big difference between this study and those of Ellis, Sheen, Murakami, and Takashima, (2008) which had contradictory results is that they focused on one aspect of grammar like articles. However, this study focused on a global change to grammatical accuracy.

This study’s unique contribution is to look at computer-mediated corrective feedback and represents a bridge between computer-assisted language learning (CALL) or computer-mediated teaching methods and work being carried out on
corrective feedback in language writing. It yielded that students who received computer-mediated corrective feedback while writing achieved better results in their overall test scores than the control subjects who did not receive corrective feedback. There are, however, some concerns about Computer Mediated Corrective Feedback (CMC) as a substitute for more traditional forms of feedback. Lindblom-Ylanne & Pihlajamaki (2003) observed that their Finnish students felt threatened by sharing their drafts in this way and Braine (1997, 2001) discovered that students in a face-to-face class produced better quality essays by the end of the semester. He attributes this to the fact that students seemed to have difficulties in following the rush of multiple discussion threads of online writing. This is a finding echoed by Liu & Sadler (2003) who found that students using CMC, especially those using real-time communication in online chat rooms, made a greater number of comments, but these were more superficial and less helpful for revisions, perhaps due to the pressure to respond immediately.

Finally, the present study discovered the more significant effect metalinguistic feedback had on EFL learners’ writing accuracy compared with computer-mediated feedback and no-feedback groups. The finding is in contrast with Yoke et al. (2013) who found out that students preferred receiving feedbacks via email (online) rather than written comments (through pen and paper) by their instructors. First, the findings showed that the students who received online corrective feedback outperformed those who did not. The findings also showed that they improved in their sentence structure, grammar and vocabulary significantly better than those who received conventional corrective feedback. The students were also found to be more motivated to do the corrections to the errors committed as the use of electronic devices appealed to them. This contradicts previous studies (Hosseini, 2012; Li, 2000; Razagigard & Razzaghifard, 2011) which showed that using computers had significant motivational effect on students. Most of the students agreed that they preferred receiving online corrective feedback because of the user-friendly facilities available in computers. For example, they can access their assignments in their emails and can be assured that their assignments will not be lost. They also need not rewrite the whole essay when doing corrections. Instead, they only need to rectify the portions that needed amendments. This indicates the feasibility and potentiality of using online corrective feedback for
both instructors and students alike. Similarly, AbuSeileek and Abualsha’r (2013) had compared computer-mediated, recast, and metalinguistic feedback. The results suggested that students who received computer-mediated corrective feedback while writing achieved better results in their overall test scores than the control subjects who did not receive corrective feedback. Second, there was a significant effect for the electronic feedback type when compared with the recast feedback and metalinguistic feedback types. Third, students in the electronic group significantly outperformed those in the recast and metalinguistic group in most writing aspects.

The findings indicated the improvement in metalinguistic group’s writing accuracy and it contrasted some of the findings (Krashen, 1982; Truscott, 1996). However, these studies may not be comparable because the design and methodology were not constant. The variables to consider include the following: proficiency level, design (longitudinal versus cross-sectional), type of feedback provided and how it was provided, and procedures. Therefore, the answer to the first question is that differences in research design and methodology are indeed at the root of the different results obtained. Also, the overview of the various dimensions of feedback has shown that conflicting results might be attributed to some or all of the extraneous variables. As Russell and Spada (2006) remind us, researchers must investigate similar variables in a consistent manner.

This study’s unique contribution is to look at computer-mediated corrective feedback and represents a bridge between computer-assisted language learning (CALL) or computer-mediated teaching methods and work being carried out on corrective feedback in language writing. It yielded the finding that students who received computer-mediated corrective feedback while writing achieved better results in their writing accuracy than the control subjects who did not receive corrective feedback.

It is possible, of course, that the improvement evident in the experimental groups is the product of an avoidance strategy. Truscott (2004) made the important point that correction may cause learners to avoid constructions on which they expect to be corrected, thereby reducing the number of errors they make in these constructions.
Although using computer and electronic feedback seem to be more encouraging to the learners especially for the young learners in today's technological era, the present study demonstrated better performance for the metalinguistic group in their writing accuracy which was not expected by the researcher. As this may be the first study which has investigated the comparative effect of metalinguistic and electronic feedbacks while teaching writing, it is still early to claim that metalinguistic feedback is the better than electronic corrective-feedback, as the issue of how the different types of corrective feedback contribute to language learning has been and still remains one of the most controversial issues in language pedagogy (Ellis, 2008). Therefore, future research may be conducted using metalinguistic and electronic feedbacks to verify or refute the findings of this study.

Even though providing feedback is still a controversial issue, corrective feedback is commonly used in the classroom. Therefore, it is essential to continue investigating whether or not technology has further implications for the creation of more efficient feedback because the increased use of technology for feedback purposes has been less explored.

References


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