On the Effects of Error Correction Strategies on the Grammatical Accuracy of the Iranian English Learners

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Writing, as a productive skill, requires an accurate in-depth knowledge of the grammar system, language form and sentence structure. The emphasis on accuracy is justified in the sense that it can lead to the production of structurally correct instances of second language, and to prevent inaccuracy that may result in the production of structurally erroneous sentences. The present research intended to investigate the extent to which different types of error correction and feedback to students' grammar would influence their grammatical accuracy. The study was conducted with 60 upper intermediate English students in an EFL context. In conducting a quasi-experimental design, the present study aimed at investigation of the effectiveness of three error correction strategies. The findings of the study indicated that the participants who received 'indirect coded correction' feedback showed better performance compared to those who received 'indirect uncoded error correction' or 'direct correction' feedback. Additionally, the results made it clear that there was no significant difference between the performance of the participants who were subject to indirect uncoded and direct error correction strategies.

Keywords: grammar, accuracy, error correction strategies, indirect feedback, coded correction, uncoded correction.

1 Introduction

To many people, learning another language is essentially a question of grammar (Rivers, 1981). However, there is no generally agreed upon definition for grammar. In Johnson & Johnson (1999) term, it is a protean term, meaning different things to different people, but often also used with varying references by the same speaker. From applied linguistics' point of view, as pointed out by Richards et al (1992), grammar is a basic description of the structure of a language and the way in which linguistic units such as words and phrases are combined to produce sentences in the language. Pollock (1997) maintains that "the grammatical rules of a language do not tell us what to do. Rather, they tell us how to respond correctly within the structural system of the language" (p. vii). The development of accuracy in grammar is a

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complex issue, so that becoming a proficient speaker or writer in a second language entails mastering elements of structure, form, as well as sentence organization.

The Longman Dictionary of Applied Linguistics (1992) defines accuracy as the ability to produce grammatically correct sentences. Therefore, the emphasis on accuracy deals with the production of structurally correct instances of second language. On the other hand, inaccuracy is a sign of erroneousness and results in the production of structurally wrong sentences which violates the goals of any language curriculum.

While surface errors are generally of secondary interest in acquiring the first language, they have been a focus of SLA research for some time (Truscott, 1996; Greenslade and Felix-Brasdefer, 2006). Thus, a comprehensive EFL program requires the systematic treatment of a large number of interrelated elements, one of which in the area of teaching L2 grammar is error/grammar correction strategies. In other words, error correction strategies can function as a teaching device that can play a fundamental role in the area of language teaching and learning. Selecting these strategies cautiously and knowingly can have great and positive effects on the improvement of the learners (Bowen et al, 1985; Dixon 1986; Xiaochun 1990; Broughton et al, 1994). Having these scholarly standpoints in mind, the present study is motivated to evaluate the efficacy of three error correction strategies in the Iranian EFL environment.

2 Conceptual Frameworks and Related Literature

There exist a number of techniques and strategies available in the literature toward error correction. Care and attention have to be given to the diversity of the suggested techniques, regarding the context in which the techniques are used, the level of the learners, their linguistic background and their needs.

Drawing on the big debate of whether or not errors of writing should be corrected, Truscott (2004) proposes what he calls *the Big Questions*: whether correcting is better for the development of accuracy than not correcting, and whether teachers should use corrections.

However, along with the two radical views of overall- and no-correction, a number of language teaching theoreticians (see Celce-Murcia, 1985; Cohen, 1975; Doff, 1996; Field, 1999; Ur, 1996 among others) advocate the use of selective correction techniques for responding to students' errors. They maintain that teachers should correct only the most important errors or those of a certain type. This view naturally raises the question of how the selection process should be carried out. The standard answer is that it should be based on the learners' need– teachers should correct those errors that are especially important and/or which learners may have special difficulty overcoming on their own (Truscott, 2001).

Adopting a relatively different approach, a good number of studies have distinguished between direct and indirect feedback strategies and investigated the extent to which they facilitate greater accuracy (Ferris, 1995; Ferris & Hedgcock, 1998). Direct, corrective, explicit or overt feedback occurs when the teacher identifies an error and provides the correct form. In this technique, the teacher first

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tries to identify the error which students have made and writes down the complete correct form afterward.

Indirect, implicit or covert strategies refer to situations where the teacher indicates that an error has been made but does not provide the correction, thereby leaving the student to diagnose and correct it (Bitchener et al, 2005). Following an indirect strategy, teachers do not correct students' papers; rather they mark where an error has occurred or supply the students with short cues so that they get informed about the kind and the location of their errors and get involved in the process of correcting their papers by themselves.

Moreover, studies examining the effect of indirect feedback strategies have tended to make a further distinction between coded and uncoded feedback. Coded feedback points to the exact location of an error, and the type of error involved is indicated with a code or a teacher's cue. For example, PSS means an error in the use or form of the past simple, or PRS indicates that an error has occurred in the use or form of the present simple tense. On the other hand, uncoded feedback refers to instances when the teacher underlines an error, circles an error, or writes down signs such as an exclamation point, but in each case leaves the student to diagnose and correct the error (Bitchener et al., 2005).

While there are a considerable number of studies that focus on the issue of error correction among ESL population, relatively few studies have been carried out among FL learners. In a comparison of seven studies by Ashwell (2000), Cardelle and Corno (1981), Frantzen (1995), Kepner (1991), Lalande (1982), Robb et al. (1986), and Semke (1984), shown in table 1, Ferris (2004) points out some of the challenges regarding the lack of comparability among studies on error correction strategies.

Table 1. Summary of Error Correction Studies (Adapted from Greenslade & Felix-Brasdefer, 2006)

	Participants/ Length of Study	Type of Writing Evaluated	Treatment Groups
Ashwell (2000)	60 EFL – Japan/ one 3-draft Essay	3-draft Essay	1) control – no feedback 2) content then form 3) form then content 4) content + form together
Cardelle and Corno (1981)	68 beginning & intermediate SFL/ 6 weeks	Pretest 11 homework assignments 3 post-tests	1) praise 2) criticism 3) criticism + praise 4) no feedback
Frantzen (1995)	44 intermediate SFL/ one semester	Grammar Pretest and post-test; essay pretest + posttest + essay	1) Grammar instruction + error correction 2) No grammar instruction + error indicated only
Kepner (1991)	60 intermediate SFL/ one semester	1 journal entry (<200 words)	1) surface-level error correction 2) message related

			comments only
Lalande (1982)	60 intermediate GFL/ one semester	Pretest (essay) 2-draft essays	1) control – errors corrected + rewrites 2) correction codes + rewrites + error awareness sheet
Robb et al. (1986)	134 EFL Japan/ one year	Pretest + 4 narrative compositions	1) correction of all errors with explanation 2) coded 3)uncoded (highlighted) 4) marginal: # of errors/line
Semke (1984)	141 beginning GFL/ 10 weeks	Pretest/Posttest Timed free writing sample + cloze test	1) comments only 2) correction of errors 3) corrections + comments 4) codes followed by learner corrections

These EFL studies differ with respect to the size and characteristics of learner populations (e.g., EFL vs. American college students), length of study, type of feedback given to learners, as well as on other elements. It is not surprising, therefore, that the findings of these studies also differ.

Having noticed the literature on techniques and strategies dealing with correcting errors and their contributions to language learners' proficiency, we observed that the previously conducted studies differed with regard to the results they have come up with. Additionally, it was noticed that so far no research has been carried out in the Iranian EFL context. Therefore, it seems reasonable to evaluate the effects of different error correction strategies on Iranian English learners' performance.

3 Statement of the Problem

Although many surveys and research studies have been conducted in the area of error feedback, it still seems as if a more constructive approach and a more interactive environment for error correction are needed. A number of issues concerning the value of error correction feedback on ESL students' grammar as well as writing has been investigated, but it is equally clear that further research needs to examine the effects of feedback (1) on new pieces of product, such as pure grammar tests; (2) on a specific range of linguistic error categories about which the learners have already been instructed; (3) with a different proficiency level group of learners; (4) in an EFL context, in which the amount of students' exposure to L2 is much less than that of ESL; and (5) in less formal and non-academic settings, such as language schools, in which the main goal of the curriculum is teaching language through a communicative paradigm. Therefore, the present research has attempted to evaluate two different indirect error correction strategies, called indirect coded and indirect uncoded error correction strategies on the one hand, and compare their efficiency with the commonly adopted direct teacher feedback on the other. In so

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doing, we are trying to figure out the one which can best suit our learners for fulfilling the needs they follow.

Drawing upon such a purpose, this research intends to seek answers to the following question:

-Do indirect coded and/or uncoded grammar correction strategies leave any significant impact on learners' grammatical accuracy in contrast to direct correction?

According to the above question, the study particularly aims at testing the following null hypothesis:

-Indirect coded and/or uncoded grammar correction make no significant contribution to learners' grammatical accuracy in comparison with direct grammar correction.

It was hoped that a systematic analysis of the study would indicate if indirect coded and/or indirect uncoded feedback to subjects' grammatical errors was benefiting the two experimental groups more than that of the control group which received a direct feedback.

4 Method

4.1 Participants

This study was conducted with 60 upper intermediate English students. The subjects were passing *Cambridge Passages 2,* and had the same level of grammar knowledge. The students were in the same age group whose age ranged from 21 to 25. The intended subjects who were both male and female learners in coeducational classes were divided into three homogeneous groups according to their scores on pretest. The sample, thus, comprised two experimental groups and one control group.

4.2 The instrument

The study implemented a pre-test and a post-test to obtain the necessary data on subjects' pre- and post-treatment knowledge of grammar. The pre-test and the post-test were specifically designed based on the subjects' course of study, adapted from *Passages Placement and Evaluation Package* by Cambridge University Press (2005). Both the pre-test and the post-test included 40 items. The tests were comprised of different type items, such as multiple choice, gapped sentences and transformational sentences. The purpose of these tests was primarily tapping into the learners' grammar competence, as well as grammar proficiency before and after they received grammar correction feedbacks as treatment.

4.3 Design

The study was conducted using the quasi-experimental method of research. Based on pretest performance, three groups were determined, i.e. two experimental groups
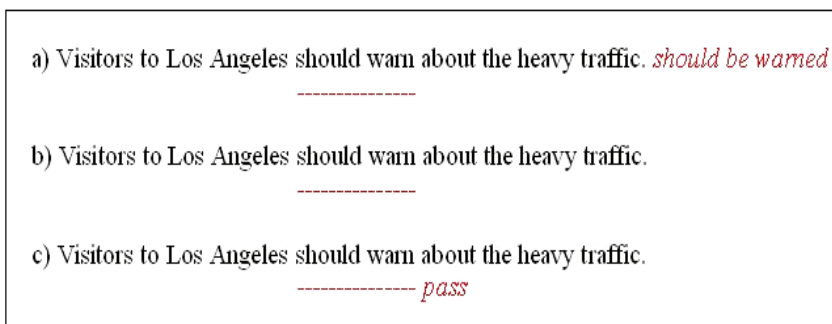
and one control group. The subjects in the first experimental group received an indirect coded error correction by the instructor. For the second experimental group, the error correction strategy was indirect uncoded feedback. And the participants of the control group received a direct correction of grammatical errors simply because this is the most commonly adopted strategy in Iranian ELT practices. For this group the instructor provided the complete correct form of errors.

4.4 Procedure

The pre-test was run among all the students in the first week of the term. The intended subjects were then divided into three homogenous groups according to their scores in order to pass a supplementary grammar course based on *Cambridge Passages 2*, and to receive different treatments. In so doing, the instructor provided three different techniques of error correction on students' in-class compositions. The procedure for the first group, i.e. controlled group, was a direct correction of grammatical errors. For this group the teacher wrote down the complete correct answer over the errors and returned the papers to the students.

The strategy of error correction was different for the experimental groups. The participants in experimental group *A* received an indirect coded error-correction. That is, the instructor wrote down cues for the questions of which answers were incorrect. In the experimental group *B*, the instructor followed an indirect uncoded approach to correcting grammatical errors. For this group, by putting a red mark next to the question of which the answer was wrong, the instructor only indicated that an error had been made and then gave the papers back to the subjects. A sample of different treatment strategies is provided in Figure 1.

Figure 1. Sample of (a) direct, (b) indirect uncoded and (c) indirect coded correction strategies

a) Visitors to Los Angeles should warn about the heavy traffic. *should be warned*
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b) Visitors to Los Angeles should warn about the heavy traffic.
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c) Visitors to Los Angeles should warn about the heavy traffic.
---------------- *pass*

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4.5 Scoring scheme

After eight weeks and eight sessions that the treatments had been done to the groups and that the students had received feedback on the grammatical errors of their compositions, a post-test was run to figure out the extent of subjects' post-treatment accuracy in grammar. As already mentioned, the pre-test and the post-test were comprised of different type items, such as multiple choice, gapped sentences and transformational sentences. Since the correct answers to the test items had already been available, that is the tests were in discrete point objective test format, only one rater sufficed to score the papers. For more details on characteristics of a discrete point objective test see Baker (1989, p.34).

Neither of the tests carried negative marks and the subjects were free to express answers to the questions. Subjects' scores were their number of correct answers. Therefore, the maximum grade for each participant would be 40 out of 40 on each test.

5 Results and Discussion

To ensure the homogeneity of the groups, before the subjects were exposed to research treatment, a pre-test was conducted to all the participants of the study in order to figure out their pre-test knowledge of grammar. Table 2 presents the obtained results.

Table 2. Pre-Test Results for All Groups

Groups	Number of Students	Mean Score	Variance
Indirect Coded	20	22.7	19.4842
Indirect Uncoded	20	23.05	19.8394
Direct	20	22.15	21.3973

In Table 2, the pre-test results show little diversity among different treatment conditions, so that the first group, i.e. experimental group *A* which was going to receive indirect coded correction, showed an obtained mean score of 22.7. The calculated variance for this group was 19.4842. The observed mean score for the second group, i.e. experimental group *B* which was provided with indirect uncoded correction, was 23.05 with a variance of 19.8394. The mean score of the third group members who were to receive a direct correction on their papers was 22.15 with a variance of 21.39.

In order to check whether the observed difference between the groups performance was significant or not, the data were further processed through t-test computation.

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Table 3. T-Value of the Difference in the Pretest Mean Scores Between Each Two Treatment Group

	Groups	N	Mean	Variance	T-value	T (critical)
1	Indirect Coded	20	22.7	19.4842	0.3846	2.7115
	Direct	20	22.15	21.3973		
2	Indirect Uncoded	20	23.05	19.8394	0.6267	2.7115
	Direct	20	22.15	21.3973		
3	Indirect Coded	20	22.7	19.4842	0.2496	2.7115
	Indirect Uncoded	20	23.05	19.8394		

As shown in Table 3, the results for the t-test indicate that the three groups of the study did not differ significantly in their pre-treatment grammatical accuracy ($t_{crit}=$ 2.7115, p < 0.01). This finding may be due to the fact that subjects, in these groups, had received the same level of grammar input prior to participating in the study and had a relatively similar level of grammar knowledge.

After the treatments were done, the subjects were given a post-test in order to observe the effects of different correction strategies on their grammar errors. The following table presents the results of this test.

Table 4. Post-Tst Results for All Groups

Groups	Number of Students	Mean Score	Variance
Indirect Coded	20	29.7	20.4315
Indirect Uncoded	20	24.5	17.8421
Direct	20	24.75	17.7763

As can be seen in Table 4, the treatments altered the groups' conditions. The post-test reveals progress in the mean score of all the groups. Moreover, the variance between the post-test scores, which has a direct influence on the interpretation of the results, has also shown a considerable difference in comparison with the pre-test. However, these changes are interpreted differently, unless they are analyzed and compared by precise statistical procedures.

Similar to what had been done for the pretest results, and to check for the significant difference between the means obtained from the experimental and the control groups performance another t-test was administered. The results for the t-test on the post-test mean scores indicate that there were significant differences in groups' post-treatment grammatical accuracy ($t_{crit}=$ 2.7115, p < 0.01).

As shown in Table 5, the results of the t-test indicate that there was a significant difference in the mean scores of post-test grammatical accuracy. It reveals that the mean scores of indirect coded correction group and the control group which received a direct correction as the treatment are significantly different (t = 3.5813, p < 0.01).

The results of the t-tests further indicate that there was no significant difference in the mean scores between the indirect uncoded correction group and the direct correction group (t = 0.1873, p < 0.01). Results obtained from the t-tests additionally maintains that there is a significant difference between the mean scores
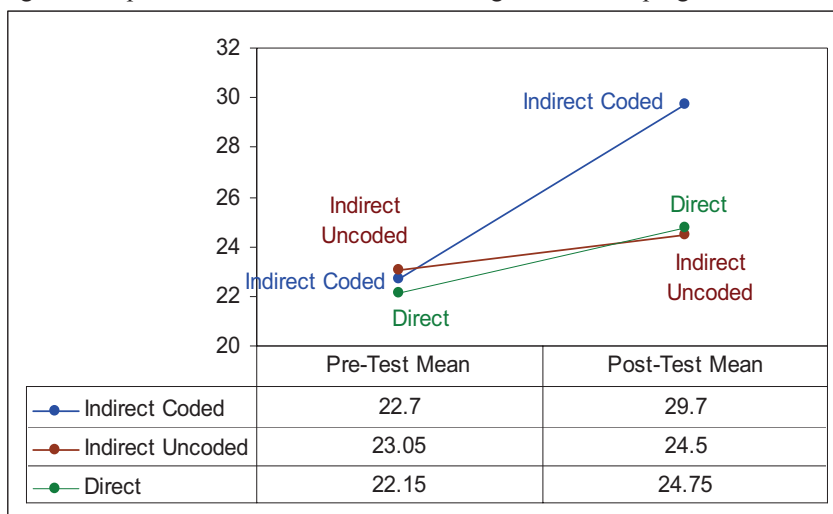
of indirect coded correction group and that of indirect uncoded correction (t = 3.7589, p < 0.01).

Table 5. T-Value of the Difference in the Post Test Mean Scores Between Each Two Treatment Groups

	Groups	N	Mean	Variance	T-value	T (critical)
1	Indirect Coded	20	29.7	24.4315	3.5813	2.7115
	Direct	20	24.75	17.7763		
2	Indirect Uncoded	20	24.5	17.8421	0.1873	2.7115
	Direct	20	24.75	17.7763		
3	Indirect Coded	20	29.7	24.4315	3.7589	2.7115
	Indirect Uncoded	20	24.5	17.8421		

To observe a better schematic representation of the obtained results, an illustrative diagram was generated. Figure 2, below, shows the mean score of the pre- and the post-tests for all of the three treatment condition groups. As can be observed in the figure, the mean score for members of each group showed a relative progress after the treatment. However, the indirect coded correction group seems to show a relatively better progress after receiving the treatment. The figure depicts the difference among the weights of progress in subjects' grammatical ability as well. As shown in the figure, the experimental group *A*, which received an indirect coded correction on its errors, is seen to outperform the control group that received a direct error correction. It also shows a better performance in comparison with the other experimental group, i.e. group *B*, which received an indirect uncoded correction, in the posttest.

Figure 2. Representation of the difference among mean scores progress

	Pre-Test Mean	Post-Test Mean
Indirect Coded	22.7	29.7
Indirect Uncoded	23.05	24.5
Direct	22.15	24.75

6 Conclusions

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In order to contribute for research on different error correction strategies, the present study investigated the extent to which different types of indirect feedback to learners' grammatical errors improve their accuracy in new products. Taking data analysis as well as the previous discussions into consideration, we can now answer the research question mentioned earlier in this paper.

Not only did the study find that indirect coded error correction had a greater effect than the other two methods, i.e. indirect uncoded correction and direct correction, but it also maintains that there is no significant difference between the performance of the group which received a direct correction and that of indirect uncoded correction. Therefore, it can be confidently claimed that among the exercised error/grammar correction techniques, the indirect coded error correction strategy has potentially greater constructive effects on learners' performance in developing their grammatical accuracy. The reason for the greater effect of indirect coded correction strategy can be due to the fact that learners figure out their problems duly and in less time. Accordingly, English teachers are recommended to get familiar with and adopt such a strategy in learners' error treatment.

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Appendix A.

List of Codes in indirect Coded Correction strategy

CODE	Shows an Error In the Use of:
GRN	Gerund
INF	Infinitive
PSS	Past Simple
PSP	Past Perfect
PSC	Past Continuous
PSPC	Past Perfect Continuous
PRS	Present Simple
PRP	Present Perfect
PRC	Present Continuous
PRPC	Present Perfect Continuous
RC	Relative Clause
CON0	Conditional Sentence Type 0
CON1	Conditional Sentence Type 1
CON2	Conditional Sentence Type 2
CON3	Conditional Sentence Type 3
QNT	Quantifier
PASS	Passive
SUBJ	Subject
INSP	Indirect Speech
FS	Future Simple
FP	Future Perfect
FC	Future Continuous
FPC	Future Perfect Continuous
ADV	Adverb

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ADJ	Adjective
DET	Determiner