Differential Effects of Written Corrective Feedback on Iranian High School Students' Grammatical Accuracy

Ali Roohani[1]
Assistant Professor, Shahrekord University

Aliakbar Jafarpour
Assistant Professor, Shahrekord University

Hedayatallah Teimoori
MA Student, Shahrekord University

Abstract

Prompted by the interaction hypothesis and focus on form instruction, corrective feedback has received much attention in recent years within the interactionist framework. This study investigated the effects of three types of written corrective feedback (i.e., recast without saliency, recast with saliency, and metalinguistic feedback) on Iranian high school EFL learners' grammatical accuracy of two structures in English: conditional sentences and relative clauses. To this end, four intact classes, comprising 104 low-intermediate Iranian high school EFL learners, were selected and randomly assigned to experimental and control groups. The three experimental groups received recasts without saliency, recast with saliency, and metalinguistic feedback in written picture description tasks/activities. Grammaticality judgment tests were used as the instruments to collect data on the participants' grammatical accuracy of the two structures in a pretest-posttest control group design. ANCOVA and MANOVA showed that using written corrective feedback significantly improved the participants'

---

[1] Corresponding Author: roohani.ali@gmail.com

Differential Effects of Written Corrective

grammatical gains in the experimental groups. Moreover, metalinguistic and recast with saliency feedback (i.e., explicit feedback) was more effective than the recast without saliency feedback (i.e., implicit feedback). Furthermore, there was a significant differential effect of metalinguistic feedback for the type of grammatical structure. The study concludes with several pedagogical implications.

1. Introduction
With the rise of communicative approaches to language teaching in the late 1970s, the role of grammar in second/foreign language (L2) teaching was weakened, but recent research has demonstrated the need for focused instruction for L2 learners to achieve acceptable levels of grammatical accuracy. This has led to a resurgence of the role of grammar and corrective feedback (CF) in L2 teaching. However, the more traditional structure-based grammar teaching approaches, in which an explicit teaching of grammatical forms was an essential part of language instruction, were replaced by approaches which might not necessarily include an explicit instruction of target forms (Nassaji & Fotos, 2004). Among the recent approaches, focus on form (FonF) has attracted much attention in the L2 pedagogy.

Although FonF can take various forms in L2 classrooms (e.g., reactive or preemptive), teachers generally attempt to draw L2 learners' attention to grammatical form of language in two ways: implicitly and/or explicitly (Loewen, 2005). Likewise, as Lyster and Ranta (1997) state, teachers react to learners' errors in terms of how implicit or explicit they are. Implicit feedback often takes the form of recasts i.e., "corrective feedback technique that reformulates the learner's immediately preceding erroneous utterance while maintaining his or her intended meaning" (Ellis, Loewen, & Erlam, 2006, p. 341). However,

Roohani, Jafarpour, and Teimoori

explicit feedback often takes the form of metalinguistic feedback i.e., "comments, information, or questions related to the well-formedness of the student's utterance" (Lyster, 2002, p. 405).

Although the issue of CF is less controversial nowadays, one of the challenges and current concerns in L2 learning is the effectiveness of the type of written corrective feedback (WCF) and degree of its explicitness in the development of L2 learners' grammatical accuracy. As Gass and Mackey (2006) states, there is disagreement on what type of feedback should be provided at different contexts and it is difficult to draw firm and unequivocal conclusions regarding the comparative effectiveness of implicit (such as recast), and explicit (such as metalinguistic), feedback in L2 learning. Evidently, it is far from clear what type of WCF allows English as foreign language (EFL) learners to make better gains in grammatical accuracy. This current study was designed to investigate the differential effect of three types of WCF i.e., an error feedback given by teachers as response to students' errors in writing, on the Iranian EFL learners' grammatical accuracy in picture description tasks/activities. That is to say, it sought to differentiate interactional feedback of recast without saliency, recast with saliency, and metalinguistic in terms of its explicitness with respect to the grammatical accuracy gains by the EFL learners with the aim of helping Iranian EFL teachers to provide more good-quality feedback in their classrooms.

2. Literature Review
From 1970s to 1990s, there was some attempt to downgrade the role of grammatical accuracy in L2 learning/teaching in favor of more communicatively-oriented approaches that focused on language use. Thus, some communicative language teaching proponents (e.g., Allwright, 1975; Gass, 1997; Krashen, 1998) widely advocated that L2 learning was mainly driven by exposure to positive evidence and input without any

Differential Effects of Written Corrective

considerable need for CF. However, later, to compensate for the inadequacies in purely meaning-focused instructional approaches, some scholars (e.g., Cook, 2008; Ellis, 2002; Fotos & Nassaji, 2007) offered a number of solutions such as consciousness-raising and FonF, leading to the rise of different taxonomies of CF (e.g. Ferris & Roberts, 2001) and studies on CF types.

A growing body of literature is specifically related to the arguments for and against certain types of CF. For instance, it has been reasoned out that recasts in their implicit form, such as recast without saliency are more helpful in L2 learning than explicit CF types, which hinder the flow of communication (Long, 2006; Saxton, 2005). Along the same line, Iwashita (2003) demonstrated a relationship between being exposed to implicit types of CF, in particular recasts, and gains in the acquisition of L2 grammatical structures. Also, Truscott and Hsu (2008) conducted an unfocused study in which they compared the grammatical accuracy of an indirect WCF group to a control group during revision phase of writing. The results of their study indicated the indirect (implicit) WCF group significantly outperformed the control group during the revision of the previously written drafts. Moreover, Leeman (2003), who investigated recasts as compared to feedback that provided negative or positive evidence among L2 Spanish learners, has concluded that "recasts can promote greater L2 development than input with unenhanced positive evidence" (p. 54). Several meta-analysis studies (e.g., Li, 2010; Mackey & Goo, 2007) have also claimed that recasts are effective type of CF for L2 learners.

In contrast, some other researchers (e.g., Panova & Lyster, 2002) believe that the implicit type of feedback such recasts usually pass unnoticed by learners and, hence, they do not facilitate interlanguage development. A few studies (e.g., Lyster & Ranta 1997; Panova & Lyster, 2002) have also indicated that

Roohani, Jafarpour, and Teimoori

recast without saliency do not make learners reflect on their language use to reproduce correct target language. These studies support the beneficial effect of direct feedback on language learning, especially when they are more explicit in nature. For example, Doughty and Varela (1998) studied the provision of recasts with an explicit component (providing recasts with a rising intonation). They reported that saliency and immediacy of recasts caused language learners to enhance target-like use of the past tense. Also, Lyster (2004) reported that, for rule-based L2 development such as grammatical gender in French, form-focused instruction was beneficial, with prompts being more effective than recast. Furthermore, Ellis, Loewen, and Erlam (2006) investigated the effect of both metalinguistic (explicit) and recast (implicit) feedback on the acquisition of past tense–*ed in* two communicative tasks among low-intermediate L2 learners. Statistical comparisons of the learners' performance showed a clear advantage for explicit over implicit feedback. Also, Nassaji (2009), who investigated the effect of recasts vs. elicitations, reported an advantage for elicitation (explicit) feedback. Similarly, Ellis (2009), investigating the effects of recasts and metalinguistic feedback on the acquisition of implicit and explicit knowledge of regular past tense–*ed,* reported a distinct advantage for the group that received metalinguistic feedback.

In partial contrast to the above-mentioned empirical studies, several other studies (e.g., Lyster & Izquierdo, 2009; Sanz & Morgan-Short, 2004) reported no significant difference between the implicit and explicit feedback types. For instance, Lyster and Izquierdo (2009), who investigated the effect of recasts and prompts on the acquisition of grammatical gender among adult French learners, found both types of feedbacks effective. Interested in differential effect on CF, Yang and Lyster (2010) examined learners' use of both regular and irregular past tense in a context of EFL in China. The participants were randomly

Differential Effects of Written Corrective

assigned to prompt, recast, or control group where they engaged in form-focused production activities. The results show superior effects of prompts over the other groups on regular past tense. However, for irregular past tense, no significant difference was identified between prompts and recasts.

   To summarize, the review of literature on CF suggests that the results are not consistent and more research is required to establish an agreed-upon conception about the ambiguity of different types of CF in their effectiveness for L2 grammar development. Also, depending on instructional contexts as well as the characteristics of feedback, recasts can be implicit (Long, 2006) or explicit (Ellis & Sheen, 2006); the efficacy of recasts might be qualified by its saliency, but less attention has been paid to this issue in the above-mentioned studies. Moreover, as research (e.g., Yang & Lyster, 2010) suggests, there are other variables such as the type of target structure which may affect the efficacy of WCF. According to Ellis, Loewen, and Erham (2006), the effectiveness of feedback might depend on the type of target structure. That is to say, some types of CF might be more effective for certain target grammatical structures and impact L2 learners' grammatical development differently, based on how much rule-based the target structure is. Given the above issues and the fact that there are quite a few studies that have simultaneously looked at the effect of recast without enhanced salience and with enhanced salience together with metalinguistic feedback, the current study investigated the effects of these CF types (in written picture description tasks/activities) on the two grammatical structures of conditional sentences and relative clause, which many Iranian high school EFL learners have difficulty to learn. It first examined whether these three types of WCF (recast without saliency, recast with saliency, and metalinguistic) could significantly improve the grammatical accuracy of Iranian high school EFL learners. Second, it explored   whether   explicit   (recast   with   saliency   and

Roohani, Jafarpour, and Teimoori

metalinguistic) feedback was more effective than implicit (recast without saliency) feedback in such context. Third, it examined whether there was any interaction or differential effect of WCF for the type of grammatical structures/items. To these ends, the following research questions were addressed:

1. Does WCF (i.e., recast without saliency, recast with saliency, and metalinguistic) have a significant effect on Iranian high school EFL learners' grammatical accuracy?

2. Is explicit WCF (i.e., recast with saliency and metalinguistic) more effective than implicit WCF (recast without saliency) with respect to grammatical accuracy?

3. Is there any differential effect of WCF for the type of grammatical structures (i.e. English conditional sentences and relative clauses)?

3. Method
3.1 Participants
The main participants of this study were 104 high school male students attending *Bahonar* and *Beheshti* High Schools in Semirom, in Isfahan province. The participants, aged 15-16, were selected based on the scores on Oxford Placement Test (OPT, 2007). All learners were Iranian nationals with Persian language as their first language and English as a foreign language with low-intermediate proficiency level. They had studied English as a part of their general academic curriculum for three years in junior high school and a year in senior high school. Complete randomization was not possible to be implemented in the present study, which used accessibility sampling. The participants in the four intact groups were randomly assigned as one control group (n = 26) and three experimental groups i.e., recast without saliency (n = 26), recast with saliency (n = 26), and metalinguistic (n = 26) groups.

Differential Effects of Written Corrective

3.2 Instruments

This study made use of three instruments for data collection: Oxford Placement Test (Edwards, 2007), and two pen-and-paper grammaticality judgment tests (GJTs). Oxford Placement Test (OPT), consisted 50 multiple choice questions, assessing students' knowledge of key grammar and vocabulary, 10 graded multiple-choice reading questions, and an optional writing task, assessing students' ability to produce the language. Intending to ensure the homogeneity of the participants prior to the main study, this study used OPT. The reliability estimate of the test i.e., Cronbach's alpha, with a sample of 104 EFL students was estimated to be high (0.92).

Two GJTs were used to measure the participants' grammar knowledge on the conditional sentences and relative clauses. One of the GJTs was used as the pretest and the other test was used as the posttest (see Appendices A and B). Each GJT included 30 items (15 were grammatically correct and 15 were grammatically incorrect). Test-takers were required to indicate whether each sentence was grammatically correct/incorrect. The total possible score on GJT could range from 0 to 30. In order to ensure the comparability of the two forms, which were developed based on the same test item specification, the parallel form reliability estimate was obtained in the pilot phase with a sample of high school students (n = 39), who were similar to the main participants of the study. The correlation coefficient was found to be high (r = .94). Besides, the *t*-test results did not show a significant difference between the mean scores on the two forms, t (38) = .750, p > .05. Furthermore, the content validity of the GJTs was specified through the development and use of a detailed item specifications and experts' judgments. The test content corresponded to materials in high school *English Book 2* (Birjandi, Nowroozi, & Mahmoodi, 2009), taught as an instructional textbook to high school students in Iran. Meanwhile, the correlation between the scores on the GJTs and

Roohani, Jafarpour, and Teimoori

grammar part of OPT was high (r = 0.87), demonstrating the accurate assessment of grammatical ability of the participants. The internal consistency of the pretest and posttest GJTs, estimated through conducting Cronbach's alpha with a sample of 104 participants, was found to be acceptable (0.86 and 0.89, respectively).

3.3 Procedure

This study had a quasi-experimental design. Four classes of high school male students, which could be accessed by the present researchers, from the above-mentioned schools were selected. They included a sample of EFL students (n = 180) who enrolled in English course in the second year of their study at the aforementioned senior high schools in 2013-2014. At the onset of study, OPT was administered to them. Following guidelines of OPT (Edwards, 2007), 104 who scored below 30 on grammar and language use and below 8 on the reading part were included as low-intermediate level students in the main study. They were randomly assigned as the experimental (recast without saliency, recast with saliency, and metalinguistic) and control groups. To further ensure the homogeneity and comparability of the participants in the experimental and control groups, the Levene's test of equality of variance was run on the OPT scores of the participants in the four groups, which indicated no significant difference.

Then, the participants in the four groups were given one of the GJTs as the pretest. Furthermore, the Cronbach's alpha was obtained to estimate the internal consistency of the pretest (see *Instrument* section).

The instructions started in week 3 of the academic semester in 2013-2014. The participants in all groups were given picture description tasks/activities in which they were asked to write a short text every session in response to prompts with the focus on one of the target forms (one type of English conditional sentences and relative clause). In the following sessions, Group

Differential Effects of Written Corrective

1 received recast without saliency. That is to say, grammatical errors were corrected by one of the present researchers (a high school teacher and MA student of English) in the form of written recast without saliency. Recasts were operationalized as a reformulation of a learner's erroneous utterance, without changing the original meaning intended by the learner in a communicative activity (Sheen, 2006). Recasts in the current study were done implicitly with no specific typographical manipulation of the participants' incorrect utterances. The following examples illustrate how recasts were operationalized in the current study.

Example1:
Prompt: "become-a doctor-help-sick people".
Student: "If I become a doctor I would help sick people."
Teacher: "… if I become a doctor, I will help sick people."

Example 2:
Prompt: "Which man is Iranian?"
Student: "The man which is playing tennis is Iranian."
Teacher: "… the man who is playing tennis is Iranian."

Group 2 received recast with saliency. As examples 3 and 4 illustrate, grammatical errors were corrected by the teacher researcher through typographical manipulation, such as bolding or underling.

Example 3:
Prompt: "become-a doctor-help-sick people".
Student: "If I become a doctor I would help sick people."
Teacher: "… if I become a doctor, I **will** help sick people."

Example 4:
Prompt: "Which man is Iranian?"
Student: 'The man which is playing tennis is Iranian."
Teacher: "…, the man **who** is playing tennis is Iranian."

Group 3 received metalinguistic feedback. As demonstrated in examples 5 and 6, the teacher gave feedback in the form of written metalinguistic information on the students' grammatical errors.

Roohani, Jafarpour, and Teimoori

Example 5:
Prompt: "become-a doctor-help-sick people".
Student: "If I become a doctor I would help sick people."
Teacher: "No. This is not correct. 'Would' is not used. We need the simple future tense in the first type of conditional sentences."

Example 6:
Prompt: "Which man is Iranian?"
Student: "The man which is playing tennis is Iranian."
Teacher: "No. This is not correct. 'Which' is not used. You can see the word 'man' before 'which'. It is human, so 'who' is used."

Furthermore, the participants in the three experimental groups were asked to revise their own texts following the feedback given by the teacher researcher. But Group 4 i.e., control group, did not receive any WCF following the picture description activities. They were asked to self-correct their own mistakes and revise the own sentences. After six weeks of instructions, the other GJT was administered to the same participants as the posttest to assess their grammatical gains on the conditional and relative clause structures. Meanwhile, the internal consistency of the posttest was estimated through Cronbach's alpha (see *Instrument* section).

In order to answer the research questions of the current study, the scores for each participant on the conditional sentences (ranging from 0-15) and the relative clauses (ranging from 0-15) as well as the total score (ranging from 0-30) were obtained. Analysis of covariance (ANCOVA) and multivariate analysis (MANOVA) were employed as statistical procedures (with the alpha level at .05) to address the research questions of the study.

4. Results
In order to examine the effect of WCF vs. no-WCF, descriptive statistics (i.e., the means, standard deviations, minimum and maximum scores) were obtained for the pretest and posttest grammar scores in the experimental (WCF) and control groups.

Differential Effects of Written Corrective

The possible range for the grammar scores in both groups was 0-30.

Table 1

Descriptive Statistics for WCF and Control Groups

Test	Groups	M	SD	Min	Max
Pretest	WCF	19.48	1.12	17	21
	Cont.	19.73	1.21	17	22
Posttest	WCF	24.26	1.49	20	28
	Cont.	20.23	1.58	16	23

Cont. = Control

WCF = Written Corrective Feedback

As Table 1 depicts, the pretest mean score in the WCF group (19.48) was close to that of control group (19.73). But the posttest mean score in the WCF group (24.26) was larger than that of control group (20.23), indicating the better grammar gain of the WCF vs. no-WCF (control) group from the pretest to posttest. The small and close standard deviations in the WCF and no-WCF groups could contribute to the normality of the scores in the pretest and posttest.

To make sure the scores in the pretest had similar variance across the WCF and control groups, the Levene's test of equality of error variances was used. The results of the Levene's test for homogeneity of variance (see Table C1 in Appendix C) indicated no statistically significant variance difference in both groups ($F = 3.12$, $p = .080$).

The first research question was intended to find out whether WCF, in general, had a significant effect on Iranian high school EFL learners' grammatical accuracy. To probe it, covariate analysis (an extension of analysis of variance) was conducted. According to Larson-Hall (2010) "such a technique may be useful when you assume that there is some external factor, such

Roohani, Jafarpour, and Teimoori

as pretest … which will affect how your students will perform on the response variable" (p. 357). Firstly, ANCOVA was done to make sure that there was not any significant interaction between the treatment and pretest scores, $F (1, 100) = 1.669$, $p = .199$. Secondly, one-way ANCOVA was done for the treatment effect on the posttest grammar scores. The results are summarized in Table 2.

Table 2

Analysis of Covariance on Posttest Grammar Scores

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	345.81	2	172.90	61.45	.000	.549
Intercept	69.78	1	69.78	24.80	.000	.197
Pretest	27.78	1	27.78	9.87	.002	.089
Group	332.41	1	332.40	118.14	.000	.539
Error	166.99	10	2.81			
Total	56895	1				
Corrected Total	629.99	10				

The results in Table 2 revealed that group variable was statistically significant, $F (1, 101) = 118.142$, *$p < .05$. That is to say, there was a significant difference between the WCF and no-WCF groups. The effect size was found to be about .54, which was large. When the adjusted means on the dependent variable were obtained, the results showed that the WCF group in the posttest ($M = 24.29$) performed better than no-WCF group ($M = 20.15$). Accordingly, the treatments of the study in the experimental groups had a significant effect on the participants' posttest grammatical accuracy scores.

Differential Effects of Written Corrective

The second research question was intended to see whether explicit WCF was more effective than implicit WCF with respect to grammatical accuracy. Given the pretest-posttest design of the study, ANCOVA was used as a statistical tool for the analysis of grammar scores of the three groups of recast without saliency, recast with saliency and metalinguistic. Table 3 reports the descriptive statistics of pretest and posttest grammar scores of the three groups.

Table 3
Descriptive Statistics of Three Experimental WCF Groups

Test	Groups	N	M	SD	Min	Max
Pretest	RWOS	26	19.69	1.12	17	21
	RWS	26	19.26	1.15	17	21
	M	26	19.50	1.27	17	21
Posttest	RWOS	26	22.94	1.49	20	25
	RWS	26	24.69	1.09	23	27
	M	26	25.50	1.50	22	28

RWOS= Recast Without Saliency
RWS= Recast With Saliency
M = Metalinguistic

As Table 3 demonstrates, the pretest mean scores in the recast without saliency (19.69), recast with saliency (19.26), and metalinguistic (19.50) groups were not greatly different. Moreover, the comparison of mean scores in the pretest and posttest showed that the mean score of the three groups increased with metalinguistic WCF having the greater gain. In order to see if the differences between the three groups in the pretest and posttests were statistically significant, one-way ANCOVA were conducted after checking the assumption of no

Roohani, Jafarpour, and Teimoori

significant interaction between the treatment variable and pretest scores, $F (2, 72) = .028$, $p = .973$ (see Table C2 in Appendix C). The results are reported in Table 4.

Table 4
Analysis of Covariance for the Treatment Effect on Posttest Scores in the Three WCF Groups

Source	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	127.04	3	42.34	25.62	.000	.510
Intercept	68.83	1	68.83	41.64	.000	.360
Pretest	19.88	1	19.88	12.03	.001	.140
Group	115.13	2	57.56	34.83	.000	.485
Error	122.30	74	1.65			
Total	46191	78				
Corrected Total	249.35	77				

As demonstrated in Table 4, the difference between the three groups was statistically significant at .05, $F (2, 74) = 34.83$, *$p < .05$, indicating that the type of WCF in the study had a significant effect on the participants' grammar posttest scores. The subsequent posthoc comparison test further showed that the metalinguistic and recast with saliency groups were significantly different from the recast without saliency group in terms of grammatical accuracy gains; that is to say, the adjusted grammar mean score of the metalinguistic group (25.49) and the recast with saliency group (24.70) was significantly better than that of the recast without saliency (22.60) in the posttest. In sum, the results in Tables 4 and 5 showed that there was a statistically significant difference between the three groups. And the explicit WCF groups significantly performed better than the implicit WCF group.

Differential Effects of Written Corrective

Table 5
Multiple Comparisons of Means for Experimental WCF Groups

(A) Group	(B) group	Mean	Difference	*Sig.*
M	RWOS	2.89*		.000
RWS	RWOS	2.10*		.000
M	RWS	-0.80		.000

RWOS = Recast Without Saliency; RWS = Recast With Saliency; M = Metalinguistic

The focus of enquiry in the third research question of the study was to examine any differential effect of WCF (recast without saliency, recast with saliency, and metalinguistic) for the type of grammatical structures (i.e. English conditional sentences and relative clauses). The descriptive statistics of the scores on the two grammatical structures (i.e., conditionals and relative clauses) for the three WCF groups were obtained (see Table 6) and MANOVA was carried out (with the posttest scores on the English conditional sentences and relative clauses as two dependent variables and the type of WCF i.e., group(s) of the study, as an independent variable with three levels). According to Pallant (2007), MANOVA is an extension of ANCOVA for use when we have more than one dependent variable; It tells us "whether mean differences between the groups on the combination of dependent variables are likely to have occurred by chance"; it also "provides the univariate results for each of dependent variables separately" (p. 275).

Roohani, Jafarpour, and Teimoori

Table 6
Descriptive Statistics of Scores on Conditionals and Relative Clauses
for the Three WCF Groups

Group	Time	Dependent Variable	M	SD	Min	Max
RWOS	Pretest	Cond.	10.30	1.04	8	12
		Rel. Cl.	9.42	.90	8	11
	Posttest	Cond.	12.00	.80	10	13
		Rel. Cl.	10.46	1.06	8	12
RWS	Pretest	Cond.	9.53	.98	8	11
		Rel. Cl.	9.84	.96	8	12
	Posttest	Cond.	13.00	.74	12	14
		Rel. Cl.	11.69	.61	11	13
M	Pretest	Cond.	10.00	.89	10	11
		Rel. Cl.	9.50	1.06	9	11
	Posttest	Cond.	13.73	.91	13	15
		Rel. Cl.	12.00	1.41	12	15

Cond. = Conditionals
Rel. Cl. = Relative Clauses

According to Table 6, the posttest mean scores on conditional and relative clause structures in the recast without saliency (12.00 and 10.46 respectively), recast with saliency (13.00 and 11.69 respectively), and metalinguistic (13.73 and 12.00 respectively) groups differ to some extent. Besides, the recast without saliency group received the lowest posttest mean score (10.46) on relative clauses and metalinguistic group received the highest one (13.73) on conditional sentences.

To explore differential effects of three types of WCF for the two types of grammatical structures, MANOVA was conducted. The posttest scores on conditional and relative clause structures were considered as dependent variables and the group was considered as an independent variable in the analysis.

Differential Effects of Written Corrective

Meanwhile, to test equality of variances in MANOVA, Box test was checked (Box's M = 21.65, p = .088). The results for the group effects are reported in Table 7.

Table 7
Multivariate Tests on Group Effects for Two Grammatical Structures/Items

Effect		Value	*F*	*df*	Error *df*	*Sig.*	Eta
Intercept	Pillai's Trace	.997	12631	2	74	.000	.99
	Wilks' Lambda	.003	12631	2	74	.000	.99
	Hotelling's Trace	341.3	12631	2	74	.000	.99
	Roy's Largest Root	341.3	12631	2	74	.000	.99
Group	Pillai's Trace	.530	13.53	4	150	.000	.26
	Wilks' Lambda	.478	16.50	4	148	.000	.30
	Hotelling's Trace	1.07	19.58	4	146	.000	.34
	Roy's Largest Root	1.05	39.61	2	75	.000	.51

As Table 7 displays, the results revealed a statistically significant difference, $F(4, 150) = 13.53$, $*p \leq .05$ (Pillai's Trace = .530; partial eta squared =.26); the *p* value for the group variable, i.e. the type of WCF, was found to be statistically significant at .05. This indicates that there was an interaction between the type of WCF and the posttest scores. In other words, there was a very significant difference between the three groups in terms of type of grammatical structure.

Roohani, Jafarpour, and Teimoori

When posthoc comparison test was done, the results, as shown in Table 8, revealed that the metalinguistic group was significantly different from the other two groups with regard to the conditional structure, but it was not significantly different from the recast with saliency group with regard to the relative clause structure ($p = .927$).

Table 8
Comparison Test on the Two Grammatical Structures in the Three WCF Groups

Dependent variable	(A) Group	(B) group	Mean Difference	*Sig.*
Cond.	M	RWOS	1.73*	.000
	M	RWS	0.73*	.000
	RWS	RWOS	1.00*	.000
Rel. Cl.	M	RWOS	1.54*	.000
	M	RWS	0.30	.927
	RWS	RWOS	1.23*	.000

Considering the adjusted mean scores on the dependent variable for each group, the results showed that the metalinguistic group ($M = 13.73$) performed significantly better than the recast without saliency ($M = 12.00$) and recast with saliency ($M = 13.00$) groups on conditional sentences. Similarly, the metalinguistic group ($M = 12.00$) performed better than both recast without saliency ($M = 10.46$) and recast with saliency ($M = 11.69$) groups on the relative clause structure, but just the mean difference of the metalinguistic and recast without saliency groups on the relative clause structure was significant. Furthermore, the recast with saliency group performed significantly better on the conditionals and relative clauses ($M = 13$ and $M = 11.69$ respectively) than the recast without saliency group ($M = 12$ and $M = 10.46$ respectively). In sum, the results revealed a differential effect of the metalinguistic WCF for the type of grammatical structure.

5. Discussion
The results firstly revealed that those high school EFL students who received WCF had better grammar achievements than those who did not receive any type of WCF. This finding of this study lends support to the view that WCF helps low-intermediate EFL learners in learning grammar. One reason for this finding might be the interactive process maintained through WCF provision. In this study, the interaction between the teacher and learners possibly led the EFL learners in the experimental groups to ponder on the correct use of language forms, and to search for additional confirmatory evidence. Besides, it somehow provided them with information about the nature of their non-target-like form. According to Gass and Selinker (2008), interaction can be achieved through input, output, and feedback; providing WCF on some aspects of grammar is an activity that involves interaction. In general, the three types of WCF directed the high school learners' attention to errors in form, hence better grammar accuracy. Furthermore, the above results partially support the findings of the previous investigations carried out on the effectiveness of CF on L2 development (e.g., Ellis & Sheen, 2006; Gass & Mackey, 2006; Lyster & Saito, 2010) and the positive effect of WCF on developing the grammatical accuracy in students' written work (e.g., Ferris & Helt, 2000).

Secondly, the above results demonstrated the significant effect of metalinguistic and recast with saliency (as two explicit types of WCF) on the EFL participants' grammatical accuracy. That is to say, those EFL learners who received the explicit WCF outperformed significantly better than those who received the recast with saliency (as one implicit type of WCF). A more gradual developmental pattern along a continuum from implicit to more explicit WCF was observed with the implicit (recast without saliency) group having the least development and the metalinguistic group showing the most development. The reason might be related to saliency the explicit CF offered by making

the EFL learners perceive feedback as overtly corrective. Most likely, metalinguistic WCF assisted them to attend to form, thereby promoting the salience of WCF. In addition, the greater positive effect of explicit WCF can be justified by the view that attention plays an important part in L2 learning. According to Gass & Macky (2000), attention mediates between input and intake. Similarly, in line with Schmidt's (2001) noticing hypothesis, attention "is necessary in order to understand virtually every aspect of second language acquisition" (p. 1). Possibly, saliency existing in recast that was operationalized through additional enhancing techniques such as bolding and underlining in the present study prompted the EFL learners to pay more attention to their own errors and observe the corrective function of salient recasts. Moreover, the metalinguistic information and explanation given by the instructor must have made them attend to target forms and notice the difference between their own erroneous structures and the target-like forms. When the target-like structures of conditional sentences and relative clauses were juxtaposed with the participants' non-target like utterances, the gap was further highlighted for the EFL participants. Several researchers (e.g., Long, 1996) also point to salience as a variable that can enhance the effeicency of recast. The enhanced saleince increases the chances that target form is attended to and incorported into the developing grammar (Leeman, 2003).

Additionally, as de Bot (1996) states, explicit WCF types, particularly metalinguistic one, can prompt learners to retrieve target forms to facilitate L2 grammatical accuracy. However, as Lyster and Ranta (1997) point out, when recasts are used without enhanced salience, they remain somehow ambiguous as a kind of WCF to learners. Thus, it is possible that recasts without saliency were vague to the young high school participants who were at low-intermediate level. The above finding is also consistent with the findings of the other studies

Differential Effects of Written Corrective

indicating that explicit CF would have superiority over implicit one in learning grammar (Ellis, 2009; Loewen & Erlam, 2006; Nassaji, 2009), but it is inconsistent with the finding of Lyster and Izquierdo's (2009) study reporting no significant difference between the implicit and explicit feedback types among adult French learners. This issue may be attributed to the type of grammatical category being studied. Unlike the present study, they examined the effects of prompts (explicit) vs. recast (implicit) on the acquisition of grammatical gender in French.

Thirdly, the results revealed that there was a differential effect for the type of CF such as metalinguistic WCF. The metalinguistic group performed significantly better than the other two groups with regard to conditional sentence structure, but the better performance of the metalinguistic group over the recast with saliency group was not significant with regard to relative clause structure. In addition, a significant differential effect was not observed for other WCF types even though the performance on the conditional structure seemed to be better. One possible explanation for the above results might be due to the developmental readiness; that is, learners are sometimes more cognitively ready to acquire a grammatical structure. Several researchers (e.g. Mackey & Philp, 1998) have also argued for developmental readiness as a key factor. The possibility exists that the Iranian high school EFL participants were more at developmentally ready stage to learn conditional sentences. Researchers (e.g., Gass, 1997) have argued in favor of developmental readiness in terms of noticing. According to these researchers, a learner should be at an appropriate level of readiness which allows for the possibility to notice the contrast between the target-like and erroneous utterances when CF is given. Additionally, Long (1996) has proposed that learners at a higher developmental level may benefit from repeated rehearsal with certain grammatical features which free up intentional resources. It is very likely that the participants had higher

Roohani, Jafarpour, and Teimoori

baseline ability with conditional sentences even though the pattern of improvement was observed for both structures. Nonetheless, caution should be exercised in interpreting the above results because we still know little about the learners'interlanguage state or what exactly constitutes their readiness for a given grammatical structure.

6. Conclusion

The aims of this study were to investigate the effects of using three types of WCF (recast without saliency, recast with saliency, and metalinguistic) on Iranian high school EFL learners' grammatical accuracy, explore the effectiveness of explicit (metalinguistic and recast with saliency) vs. implicit (recast without saliency) type of CF in response to the written errors, and examine the differential effects of WCF for two types of grammatical structures (i.e., conditionals and relative clauses). It was found that provision of WCF resulted in significantly higher grammatical accuracy the participants at the low-intermediate level of proficiency.

Furthermore, the results documented a significant advantage for the high school EFL learners exposed to more explicit type of WCF. Metalinguistic and recast with saliency feedback could help the EFL students reduce their grammatical errors. Moreover, the above results revealed that those EFL students who received metalinguistic WCF had better gains in conditional sentences than relative clauses. The differential effect of WCF, including the metalinguistic type, may be due to the learners' interlanguage state or developmental readiness for certain grammatical structures. However, caution should be taken in generalizing the finding. As Ellis (2010) states, in-depth understanding of why some types of CF assist learners better than others in particular situations may depend on other mediating variables.

The findings imply that WCF is beneficial in developing EFL students' grammatical accuracy in high schools in Iran.

Differential Effects of Written Corrective

Moreover, they add to our theoretical understanding of how the level of explicitness can affect L2 grammar development. By implication, the results carry some weight to recommend EFL teachers to use more explicit types of WCF, such as recast with saliency and metalinguistic feedback, for low intermediate-level EFL students in high schools in Iran. The findings can also shed light on the learning potential associated with writing, in terms of the grammatical accuracy that may derive from applying explicit WCF on other grammatical forms in writing tasks.

The results of the study also revealed that there are some differential effects for the two grammatical structures. Now it is time that the research community puts the narrowly form-oriented WCF investigation to rest and turns its attention to the interaction between different types of WCF and various L2 grammatical structures. Besides, future studies can investigate whether WCF enjoys any value for both rule-governed and non rule-governed L2 structures.

References

Allwright, D. (1975). Problems in the study of the language teachers' treatment of learner error. In M. Burt & H. Dulay (Eds.), O*n TESOL 75: New directions in second language learning, teaching, and bilingual education* (pp. 96-109). Washington D.C.: TESOL.

Birjandi, P., Nowrooozi, M. & Mahmoodi, Q. (2009). *English book 2.* Tehran: I.R.I. Ministry of Education, Organization for Educational Research and Planning.

Celce-Murcia, M. (2001). Language teaching approaches: An overview. In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (pp. 3-11). Boston: Heinle.

Cook, V. (2008). *Second language learning and teaching*. (4[th]ed.). London: Hodder Education.

De Bot, K. (1996). The psycholinguistic of the output hypothesis. *Language Learning, 46*, 529-555.

Doughty, C., & Varela, E. (1998). Communicative focus on form. In C. Doughty & J. Williams (Eds.), *Focus on form in classroom*

second language acquisition (pp. 114-138). New York: Cambridge University Press.

Edwards, L. (2007). *Oxford Placement Test*. Oxford: Oxford University Press

Ellis, R (2002). Doing focus-on-form. *System*, *30*, 419-32.

Ellis, R. (2009). Implicit and explicit learning, knowledge and instruction. In Ellis et al. (Eds.), *Implicit and explicit knowledge in second language learning, testing and teaching* (pp. 31-64). Bristol: Short Run Press Ltd.

Ellis, R. (2010). A framework for investigating oral and written corrective feedback. *Studies in Second Language Acquisition, 32,* 335-349.

Ellis, R., Loewen, S., & Erlam, R. (2006). Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition, 28,* 339-368.

Ellis, R., & Sheen, Y. (2006). Re-examining the role of recasts in second language acquisition. *Studies in Second Language Acquisition, 28,* 575-600.

Ferris, D. R., & Helt, M. (2000). *Was Truscott right? New evidence on the effects of error correction in L2 writing classes*. Paper presented at the American Association of Applied Linguistics Conference, Vancouver, Canada.

Ferris, D. R., & Roberts, B. (2001). Error feedback in L2 writing classes. How explicit does it need to be? *Journal of Second Language Writing, 10,* 161-184.

Fotos, S., & Nassaji, H. (Eds.). (2007). *Form focused instruction and teacher education: Studies in honour of Rod Ellis*. Oxford: Oxford University Press.

Gass, S., (1997). *Input, interaction and the second language learner*. Mahwah, NJ: Lawrence Erlbaum Associates.

Gass, S., & Mackey, A. (2000). *Stimulated recall methodology in second language research.* Mahwah, NJ: Lawrence Erlbaum Associates.

Gass, S., & Mackey, A. (2006). Input, interaction and output: An overview. *AILA Review, 19,* 3-17.

Gass, S., & Selinker, L. (2008). Second language acquisition: An introductory course. (3[rd]ed.). New York: Taylor & Francis.

Differential Effects of Written Corrective

Iwashita, N. (2003) Negative feedback and positive evidence in task-based interaction: Different effects onL2 development. *Studies in Second Language Acquisition, 25,* 1-36.

Krashen, S. (1998).Comprehensible output? *System*, *26*, 175-182.

Larson-Hall, J. (2010). *A guide to doing statistics in second language research using* SPSS. New York: Routledge.

Leeman, J. (2003). Recasts and second language development: Beyond negative evidence. *Studies in Second Language Acquisition, 25*, 37-63.

Li, S. (2010). The effectiveness of corrective feedback in SLA: A meta-analysis. *Language Learning, 60*, 309-365.

Loewen, S. (2005). Incidental focus on form and second language learning. *Studies in Second Language Acquisition*, *27*(3), 361-386.

Loewen, S., & Erlam, R. (2006). Corrective feedback in the chat room: An experimental study. *Computer Assisted Language Learning 19*(1), 1-14.

Long, M. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413-468). San Diego, CA: Academic Press.

Long, M. (2006). *Problems in SLA*. Mahwah, NJ: Erlbaum.

Lyster, R. (2002). The importance of differentiating negotiation of form and meaning in classroom interaction. In Burmeister, P., Piske, T. & Rohde, A., (Eds.), *An integrated view of language development: Papers in honor of Henning Wode* (pp. 381-97). Trier, Germany: Wissen-Schaftlicher Verlag.

Lyster, R. (2004). Differential effects of prompts and recasts in form-focused instruction. *Studies in Second Language Acquisition, 26,* 399-432.

Lyster, R., & Izquierdo, J. (2009). Prompts versus recast in dyadic interaction. *Language Learning, 59(2),* 453-498.

Lyster, R., & Ranta, L. (1997). Corrective feedback and learner uptake: Negotiation of form in communicative classrooms. *Studies in Second Language Acquisition, 20*, 37-66.

Roohani, Jafarpour, and Teimoori

Lyster, R., & Saito, K. (2010). Oral feedback in classroom SLA: A meta-analysis. *Studies in Second Language Acquisition, 32*,265-302.

Mackey, A., & Gass, S. (Eds.). (2006). Pushing the methodological boundaries in interaction research *Studies in Second Language Acquisition, 28*(special issue), 55-76.

Mackey, A., & Goo, J. (2007). Interaction research in SLA: A meta-analysis and research synthesis. In A. Mackey (Ed.), *Conversational interaction in second language acquisition: A series of empirical studies* (pp. 407-452). Oxford: Oxford University Press.

Mackey, A., Philp, J., (1998). Conversational interaction and second language development: Recasts, responses, and red herrings? *Modern Language Journal, 82,* 338-56.

Nassaji, H. (2009). Effects of recasts and elicitations in dyadic interaction and the role of feedback explicitness. *Language Learning, 59*, 411-52.

Nassaji, H., & Fotos, S (2004). Current developments in research on the teaching of grammar. *Annual Review of Applied Linguistics*, *24*, 126-145.

Pallant, J. (2007). *SPSS survival manual: A step-by-step guide to data analysis using SPSS version 15* (3rd ed.). New York: Open University Press.

Panova, I., & Lyster, R. (2002). Patterns of corrective feedback and uptake in an adult ESL classroom. *TESOL Quarterly, 36*(4), 573-595.

Sanz, C., & Morgan-Short, K. (2004). Positive evidence versus explicit rule presentation and explicit negative feedback: A computer-assisted study. *Language Learning, 54,* 35-78.

Saxton, M. (2005). 'Recast' in a new light: Insights for practice from typical language studies. *Child Language Teaching and Therapy, 21*(1), 23-38.

Schmidt, R. (2001). Attention. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 3-32). New York: Cambridge University Press.

Differential Effects of Written Corrective

Sheen, Y. (2006). Exploring the relationship between characteristics of recasts and learner uptake. *Language Teaching Research, 10,* 361-392.

Yang, Y., & Lyster, R. (2010). Effects of form-focused practice and feedback on Chinese EFL learners' acquisition of regular and irregular past tense forms. *Studies in Second Language Acquisition, 32,* 235-263.

Appendix A: Grammaticality Judgment Pretest

Instruction: Mark column A if the sentences are *grammatical* or column B if they are *ungrammatical*.

Items	A	B
1. I know a man who has ten clever children.		
2. When I was abroad, I saw mountains whom were snow-covered in summer.		
3. The meeting which lasted three hours made my students bored.		
4. The man whom escaped last night was an army officer in my town.		
5. Is the young man which is standing in the queue is waiting for their lunch?		
6. Is this the cake which your mother baked last night for herself?		
7. A snowplow is a machine which clears the roads in winter.		
8. The noisy boy whom you pushed away is known as a great fighter.		
9. This city is made for children which love dollhouses.		
10. He invited the clever boys where have blue eyes and black hair.		
11. In the park, there is a merry-go–round which you can play with your little son.		
12. The students have lost the notebook what you brought for me last week.		
13. People talked about topics who are not suitable for that occasion.		
14. You have to learn the social behavior which foreign people show in their lives.		
15. It must be about something who both teacher and student have.		
16. I will phone to inform you if I can get home before 7 o'clock.		

Roohani, Jafarpour, and Teimoori

17. If the sun comes out and the weather is fine, we would go swimming.

18. We can't write to him unless he gives us his address.

19. Will water be hot and change into steam if you boiled it.

20. If I finished my work in time, I may see the teacher in the office.

21. If they offered me a good job, I could take it and stay here forever.

22. We would go to the movies if we were not so busy on Friday.

23. Where will you go if you could go anywhere in the world.

24. If your brother were you, he may start looking for a better job.

25. If Betty and jack studied hard, they would not get bad marks and would succeed.

26. If you did not fall asleep, you will not have a bad accident.

27. What can Susan do for you if she knows more about your problem?

28. What would happen if we are not able to study hard for the exam?

29. If the man in the street does not help me, I would not be able to bring that big box.

30. Would you go to university if you were cleverer?

Differential Effects of Written Corrective

Appendix B: Grammaticality Judgment Posttest

Instruction: Mark column A if the sentences are *grammatical* or column B if they are *ungrammatical*.

Items	A	B
1. The woman who opened the door was wearing a black scarf.		
2. The factory who John works is the biggest in the town.		
3. A butcher is a person which sells meat in the shopping center.		
4. This is the second time whom I make a mistake.		
5. A man who has a lot of money isn't necessarily happy.		
6. The books whom you gave me yesterday were interesting.		
7. I enjoyed the book which you lent me yesterday afternoon.		
8. Charles Dickens which is a great writer wrote "Oliver Twist".		
9. The boy who has lost his book is waiting for you.		
10. He's the mechanic who repaired my father' car in the garage.		
11. Those are the students which I taught English last year.		
12. The girl whom I met in the street yesterday was Ali's sister.		
13. I am wearing the shoes which my mother bought last year.		
14. The tourists whose are sitting in the yard are from Iran.		
15. A crow is a black bird who steals cheese and glowing things.		
16. If the weather is fine this morning, we will play football in the yard.		
17. Can we go to the cinema if you are free?		
18. If she leaves home late, she would not arrive in time.		
19. I will not go for a walk if it did rain.		
20. If the weather is not fine, I can stay at home.		
21. If I were a rich man before, I will buy a house for you.		
22. If he did not eat too much, he would not be so much fat.		
23. Might they come to see you if they had known		

Roohani, Jafarpour, and Teimoori

your address.
24. If they were here last night, I might be able to tell them the truth.
25. I can buy that car if it was too cheaper.
26. If the man had gun, he would shoot.
27. What did the teacher say he would do if he were a student?
28. Will it be all right if I borrowed your car this morning?
29. Could you find any good job if you bought a new suit?
30. The house will look much better if she painted it.

Appendix C: Tables for Checking the Assumptions of ANCOVA

Table C1

Tests of Equality of Variance

Test	Variable	F	df_1	df_2	Sig.
Levene	Grammar	3.12	1	102	.080

Table C2

Analysis of Covariance on Pretest Scores for the Interaction Effect

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	127.14	5	25.43	14.98	.000
Intercept	68.12	1	68.12	40.13	.000
Group	115.13	2	57.56	34.83	.000
Pretest	19.62	1	19.62	11.56	.000
Group*Pretest	.095	2	.047	.028	.973
Error	122.21	72	1.70		
Total	46191	78			
Corrected Total	249.34	77			