



Journal of Applied Sciences

ISSN 1812-5654

science
alert

ANSI*net*
an open access publisher
<http://ansinet.com>

A Comparison of the Effects of Implicit and Explicit Corrective Feedback on Learners' Performance in Tailor-Made Tests

Azizollah Dabaghi

Faculty of Foreign Languages, University Language Centre,
Isfahan University, Hezarjereeb, Isfahan, Iran

Abstract: The study investigated the effects of correction of learners' grammatical errors on acquisition. Specifically, it compared the effects of manner of correction (explicit versus implicit correction). It also investigated the relative effects of explicit and implicit correction of morphological versus syntactic features and correction of developmental early versus developmental late features. Data were collected from 56 intermediate level Iranian students of English. Each participant was required to read and then retell a written text in their own words during an oral interview. During or following the interview the researcher corrected the participants on their grammatical errors implicitly (using recasts) or explicitly. Individualised tests focusing on the corrected errors were constructed and administered. Statistical analyses were conducted on the scores the participants received on their individualised tests. Results showed that the participants who received explicit correction gained significantly higher scores than those who received implicit correction. Analyses of the interactions between independent variables showed that explicit correction was more effective for the acquisition of developmental early features and implicit correction was more effective for the acquisition of developmental late features.

Key words: Second language acquisition, error correction, tefl

INTRODUCTION

The effect of learning under explicit and implicit conditions has long been a controversial issue in the field of psychology. Most experimental studies in this area (Reber, 1976, 1993; Reber and Allen, 1978; Zizak and Reber, 2004) show that learning entails complex stimuli without conscious awareness. Most of these studies used artificial languages in their tasks as stimuli. However, in the domain of second language acquisition, where natural languages are used, it is not clear how readily these findings can be generalized. In second language acquisition, the main body of research has been very much in response to Krashen's claim that learners only learn through unconscious acquisition. Learning, he claims, which is conscious, does not lead to acquisition, which is unconscious and acts only as a monitor. Conversely, some other researchers (Schmidt, 1990, 1994, 2001; Schmidt and Frota, 1986; Ellis, 1991) believe that learner attention is essential for focus on forms to be beneficial to learners. Some of these researchers go so far as to claim that subliminal learning is impossible and that learning is the product of the conscious noticing of forms.

However the main concern of language learning is not so much the distinction between conscious and

unconscious learning. A more important issue here is the degree of explicitness and implicitness of learning. As Robinson (1996) argues, engaging in such research is likely to provide a clearer individual base for the speculations of second language theorists regarding the extent to which unconscious learning of forms is, or is not, possible. Moreover, the extent to which explicit and implicit error correction, as a reactive type of focus on form, can be effective in restructuring the learners' interlanguage is theoretically and pedagogically critical: It may provide a clear understanding of how the human cognitive system operates when acquiring a second language. Also, it may provide practitioners with better strategies in choosing when to correct the learners explicitly and when to do so implicitly.

Closely related to the manner of error correction, there are a number of questions relating to types and developmental aspects of forms. Decisions regarding which errors to correct impose responsibility on the second language teacher. Questions such as: which errors are amenable to error correction?; are some errors resistant to error correction? and are the common and persistent errors the best candidates for correction? are still unresolved issues in second language acquisition. There are two important issues involved here: (1) the

difference between the explicit and implicit manner of correction in terms of their effectiveness (2) the effect of manner of correction on the types of errors that need to be corrected.

Unfortunately, the number of research works in the area of explicit and implicit correction with respect to the questions above is considerably limited in comparison with other areas of error correction. Most studies, so far done, have focused on large scale instruction programs as well as on specific differences in explicit presentation and explanation of rules and implicit practice of rules (Chaudron, 1988). We still do not have a clear idea as to what makes correction of some features sometimes successful and sometimes unsuccessful in terms of learning. First, the existing research on the manner of correction of errors is limited and further research is required to have a clear idea on whether explicit or implicit correction helps learners more in restructuring their interlanguage. Second, the body of research does not give us a clear picture of whether the manner of correction affects the types of structures corrected. Finally, despite the fact that some research has been conducted on the order of acquisition of a number of morphemes and syntactic structures, we do not know which group of early or late acquired features benefits more from correction. Therefore, there is a need for further analysis of issues such as the manner (implicitness and explicitness) of correction and the learnability of the type and developmental aspect of forms. This study attempts to answer the following research questions:

RQ1: Is there a difference between the effects of explicit correction and implicit correction in language learning?

RQ2: Is there any difference between the effects of error correction on structures which are acquired early and those which are acquired later?

MATERIALS AND METHODS

Study design: The design of the present study could be described as quasi-experimental because the research aimed to uncover the causal relationship between different treatments and learner's scores by giving a treatment and administering a post-test on naturally occurring groups (Brown, 1988) each individual learner was assigned two different passages which are called Task A and Task B passages in this study. The learner was asked to read these two tasks for information on two separate occasions. Subsequently the learner was asked to reconstruct the content of the task. The interval between the two occasions was short, in that as soon as the learner finished reading, reconstructing and having

corrective feedback with one passage, he/she started with the other passage. Some randomly selected grammar errors made by the learner in each of the task passages were then corrected by the researcher according to one of the two treatment categories below:

Category one consisted of the following two treatments:

- Immediate explicit treatment
- Delayed explicit treatment

Category two consisted of the following two treatments:

- Immediate implicit treatment
- Delayed explicit treatment

This research did not include a control group because of the following reasons:

- The design of the study was a between-groups design that used comparison groups to investigate research questions. The comparison was made between the groups, with treatment (the independent variable) differing between them. This is referred to as comparison group design Mackey and Gass (2005).
- It was not feasible to have a control group in the research because the treatment groups received individualized tailor-made tests which were based on error correction episodes they had received in the treatment. Therefore, it would not be possible to devise tests for a control group (who did not have error correction episodes because there was no basis for devising tests for the control group).

Research site: The research was conducted at seven private language institutes in Isfahan, Iran. These research sites were chosen because, in general, the research had initially intended to investigate error correction among TEFL learners.

Participants: A total of 56 learners from seven language institutes with 12 upper-intermediate classes participated in this study. The reason for choosing these classes was because the numbers of learners who could talk were naturally higher in such classes. The source of data for participants' profiles was a questioner that was given to each learner prior to their taking part in the research. The questioner consisted of several question items pertaining to age, gender, mother tongue, educational level, the length language learning and the purpose for which they learned English. Participants averaged about 22 years of age with some as young as 17 and others as old as 33.

To determine the general proficiency band in the study, a standard test of grammar was used. This 40 item test was selected from Section 2 (Structure and Written Expression) of the TOEFL test. Those scoring between 50 and 70 were called on to participate in the research. The reason for choosing this test was that, since the focus of the study was on the grammar constructs of the learners (i.e. structural aspects of language such as morphological and syntactic features), a standard test of grammar was adequate to find out about the linguistic competence of the participants.

Materials: For the purpose of eliciting errors, two passages were designed. They both had general topics; namely: Diamonds Are forever and Britain's Unluckiest Criminal. The difficulty levels of these passages were calculated by using the SMOG Readability Formula. Both passages showed to be of intermediate levels of readability.

Tailor-made tests: Individualized tailor-made tests were constructed based on the errors made by the learners in their two reconstruction tasks. Therefore, every learner had two tailor-made tests, each consisting of a number of test items. The number of test items ranged from 3 to 13 depending on the errors made by the learners in their task reconstructions and also on the researcher's ability to identify the relevant errors (Appendix A).

Procedures: The recordings of sessions were made from the very beginning, so that the instructions given to the learners, the learners' talk and the researcher's corrections would be recorded for further analysis and testing. For this purpose, a wireless cassette recorder with an in-built microphone was used. As soon as interactions between the learner and the researcher began, the cassette recorder was switched on by the researcher to record the reconstructions and error correction episodes. The average length episodes were 17 sec for the immediate corrections and 25 sec for the delayed. The average length of reconstructions that included immediate correction was 6.5 min and of those that followed delayed corrections was 4.2 min.

Immediate explicit correction: As soon as learners made an error, the teacher immediately stepped in to correct them by providing the learners with the correct form as well as metalinguistic explanation of the rule related to this form as in this example:

L: Some diamonds *used to* decoration.
R: Please say, Diamonds *are used for* decoration. Do not say, used to. You must use a passive form of the present simple tense here.
Learner: OK ...

Delayed explicit correction: When the learners made an error, the researcher waited till the learners' attempt to reconstruct the text had finished. In fact, the teacher avoided correcting the error while the learners were talking about the content of the passage. He only made rough notes of the errors made by the learners. The correction was carried out explicitly using explicit corrective moves; that is, providing the learner with the correct form together with a metalingual explanation of the rule for the correct form. The error correction in the following episode took place 15 min after the error was made.

R: Thank you very much for your talk about the passage. If you allow me, I would like to draw your attention to some of the mistakes you made during our conversation. Is it OK?
L: Yea, ok.
R: For instance you said, He *feel* depressed.
L: Yes.
R: You should say, He *feels* depressed.' OK? We need a third person singular s here.
L: Right.

Immediate implicit correction: Implicit correction refers to the process of providing the learner with indirect forms of feedback. After an error was made by the learners, again the teacher immediately stepped in to correct them implicitly. The implicit feedback provided to the learner in the present research was in the form of recast-the correct reformulation of the learners' erroneous utterances. The following error correction episode is an example of immediate implicit correction:

Learner: Carson was a man and a local businessman and every body thought he was honest man, but suddenly he invest and he fell in difficulty.
R: He *invested* his money in a business.
Learner: Yes, he invested his money in a business.
R: What kind of business was it?
Learner: I do not know...

Testing: Individualized tailor-made test items, based on the corrected errors in the learners' reconstructions of the text passages, were constructed and administered to the learners individually in a quiet room five to 8 days after the time of reconstruction.

Analysis

Tailor-made tests: Overall, there were 112 tailor-made tests, for both tasks A and B, administered to the learners. They included a total of 675 test items measuring the same

number of error correction episodes. Of these 112 tailor-made tests, 24% of the tailor-made tests were coded as implicit corrections and 76% of the tailor-made tests were coded as explicit corrections. The reason for the higher number of explicit corrections tests was that all learners received delayed explicit treatment.

Identification of error correction episodes: Error correction episode is defined as an interlude between the learner and the researcher in an interaction. It is triggered by an error made by the learner and corrected by the researcher. The error correction ends when the interaction returns to the topic of discussion (Ellis *et al.*, 2001). In addition to the criteria mentioned in this definition, the following two points were considered in identification of the episodes:

- Error correction episodes included only researcher-corrected errors and not self-corrections.
- Each error correction episode included only one error, addressed by the researcher.

Detailed transcription of error correction episodes: After the reconstruction and error correction episodes, the recorded sessions were copied onto a computer program that enabled the researcher to listen repeatedly to the recordings. Detailed transcriptions of the error correction episodes took place at this time.

Reliability: To determine reliability in the identification of error correction episodes, a sample of 23% of the recorded tasks was evaluated by a second rater. The resulting agreement rate was 88.3%.

Reliability and validity of the tailor-made tests: In the present study, it was not possible to establish reliability using test-retest method, because it did not seem logical to trial the items of a tailor-made test (belonging to one person) on other individuals or a different sample, since every participant had his/her own specific items arising from his/her own errors. Therefore, a different approach needed to be taken in order to establish the reliability of the tailor-made tests: All potential threats to the reliability of the tests were addressed. Following Loewen (2002) and Brown's (1988) checklist of potential sources of error variance or measurement error was used. The checklist points to different potential sources of errors such as environment, administration procedures, examinees, scoring procedures and test items. Ways of reducing error variance due to these factors were considered.

Characteristics of error correction episodes: The error correction episodes were coded for the following characteristics:

Table 1: Developmental early and late features

Early developmental features	Late developmental features
Definite article (the)	Indefinite article (a, an)
Irregular past tense	Regular past tense
Plural S	Relative clauses
	Active and passive voice
	Third person singular S

Manner: Each error correction episode was coded as either an explicit or implicit type of correction.

Developmental aspects: The target features in the error correction episodes were coded as either early developmental or late developmental. However, due to the absence of sufficient research on the acquisition order, it was difficult to distinguish between these two for many features in the data. Therefore, it was decided that a number of relatively clear features from both types be selected, based on previous empirical studies (Pienemann and Johnston, 1986; Krashen, 1977; Larsen-Freeman, 1976; Dulay and Burt, 1974, 1973). These features are shown in the Table 1.

Test scores: Test scores were coded as follows:

Manner of error correction episodes:

- Implicit
- Explicit

Characteristics of the target features:

- The early developmental features in Table 1
- The late developmental features in Table 1

Scoring procedures for early and late developmental features:

The learner's final scores on the early developmental and late developmental features would be a fraction of the correctly answered early and late developmental test items over the total number of the early and late developmental test items, which were included in Table 1 and were present in their tailor-made tests. This fraction was then multiplied by 100 to obtain the percentage of the learner's score. Since each learner had two tailor-made tests and therefore, could have two scores on developmental early items and two scores on developmental late items, the average mean of the two scores was considered to be his/her score on the early developmental or late developmental scores.

Statistical analysis: For all groups descriptive statistics were calculated. These included mean, median, low and high range and standard deviations. In order to answer Research Question, the following tests were performed:

- A parametric test; namely, paired-sample t-test, to compare the scores for the explicit correction and implicit correction components of the treatment groups.
- A non-parametric, two- related- sample test; namely, Wilcoxon Signed Rank Test, to compare developmentally early and late features.
- A 22. A 2×3 ANOVA to show which one of the treatments influenced test scores for early developmental or late developmental features.

RESULTS

Results of the scores on the explicit and implicit corrections

Normality of distributions: Figure 1 and 2 show the distribution of the implicit and the explicit scores in relation to a normal distribution. The shapes of the graph show that the distribution of scores in the implicit corrections is relatively normal because most of the scores are bunched in the middle of the curve although they tend to cluster at the right side of the mean line. Skewness of the implicit corrections is -0.662 and the standard error of skewness is 0.319. The ratio of skewness to its standard error is less than +1 and greater than -1, indicating normality of distribution

Figure 2 shows the distribution of scores in the explicit correction group. The skewness is -0.044 with a standard error of 0.39. The ratio of skewness to its standard error is less than +1 and greater than -1, indicating normality of distribution. Since the frequency of scores in both variables follow a normal distribution, parametric tests for comparing means are carried out to compare the two groups.

Descriptive statistics: As shown by Table 2, the mean scores on the tailor-made tests for the implicit correction group and the explicit correction group are 72.38 and 82.03, respectively. The standard deviation was 18.28 for the implicit correction group and 13.20 for the explicit correction one, indicating that the scores in the explicit correction group were less spread and more homogenous than the scores in the implicit correction group. The medians of the two groups are 77 and 83 for the implicit and explicit groups, respectively.

Difference in means for implicit and explicit corrections:

In order to find out whether there is a significant difference between their means, a parametric test; namely, paired-sample t-test was carried out. It was significant ($t = 2.767$, $df = 30$, $p = 0.010$, $p < 0.05$). This indicates that the scores pertaining to the explicit corrections are significantly higher than the scores pertaining to the implicit corrections (Table 3).

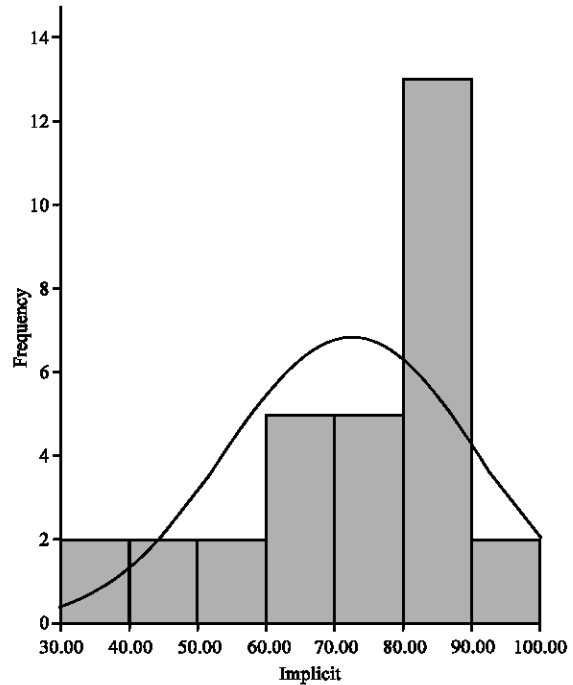


Fig. 1: Frequency distribution of implicit corrections

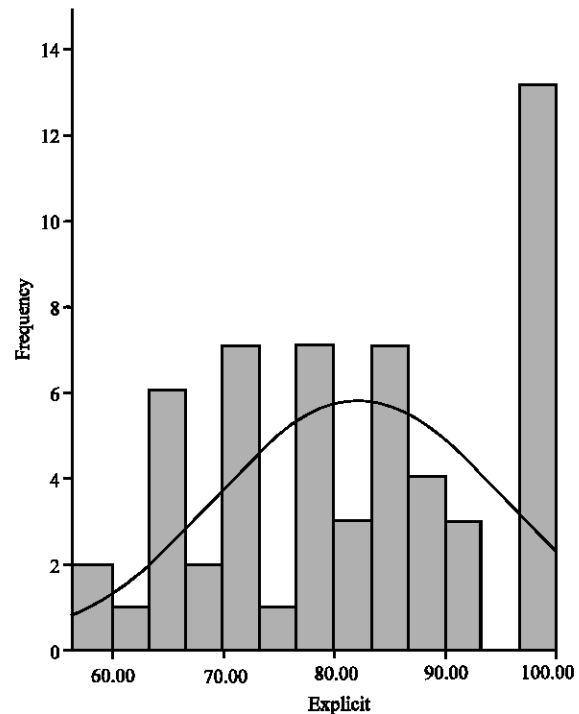


Fig. 2: Frequency distribution of explicit corrections

Correction manner	N (No. of learners)	Mean	Std. deviation	Median
Implicit	30 (55.40%)	72.38	18.28	77.00
Explicit	56 (100%)	82.03	13.20	83.00

Table 3: Paired sample test for explicit and implicit corrections

		Paired differences				t	df	Sig. (2-tailed)	
		Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
					Lower	Upper			
Pair 1	Explicit Implicit	9.64516	19.41056	3.48624	2.52531	16.76501	2.767	30	0.010

Table 4: Descriptive statistics for the early developmental features

Early features	Imm./exp.	Imm./imp.	Del./exp.	Total
Plural S	TC = 12	TC = 12	TC = 15	TC = 39
	MS = 7/12	MS = 9/12	MS = 15/15	MS = 31/39
	MP = 58%	MP = 75%	MP = 100%	MP = 78%
	SD = 13	SD = 13	SD = 0	SD = 8.67
Irregular past tense	TC = 8	TC = 9	TC = 15	TC = 32
	MS = 7/8	MS = 7/9	MS = 15/15	MS = 29/32
	MP = 87%	MP = 78%	MP = 100%	MP = 88%
	SD = 11.9	SD = 0	SD = 0	SD = 3.96
Word order	TC = 8	TC = 17	Total = 12	TC = 37
	MS = 7/8	MS = 14/17	MS = 9/12	MS = 30
	MP = 87.5%	MP = 82%	MP = 76%	MP = 82%
	SD = 15	SD = 11.9	SD = 10.7	SD = 12.53
Definite article (the)	TC = 13	TC = 21	TC = 22	TC = 56
	MS = 9/13	MS = 15/21	MS = 14/22	MS = 38/56
	MP = 69%	MP = 71%	MP = 77%	MP = 72%
	SD = 12.6	SD = 13.3	SD = 10.3	SD = 12.40

Table 5: Descriptive statistics for the late developmental features

Late features	Imm./exp.	Imm./imp.	Del./exp.	Total
Third person singular S	TC = 24	TC = 5	TC = 10	TC = 39
	MS = 12/24	MS = 4/5	MS = 8/10	MS = 24/39
	MP = 50%	MP = 80%	MP = 80%	MP = 70%
	SD = 9	SD = 10	SD = 12.7	SD = 10.57
Indefinite article (a, an)	TC = 21	TC = 19	TC = 34	TC = 74
	MS = 13/21	MS = 11/19	MS = 17/34	MS = 41/74
	MP = 61.9	MP = 57.9%	MP = 50%	MP = 56.6%
	SD = 15.3	SD = 16	SD = 16.3	SD = 15.53
Regular past tense (ed)	TC = 10	TC = 11	TC = 22	TC = 43
	MS = 8/10	MS = 9/11	MS = 16/22	MS = 33/43
	MP = 80%	MP = 83%	MP = 72%	MP = 78%
	SD = 10.3	SD = 6	SD = 14	SD = 10.10
Relative pronouns	TC = 11	TC = 8	TC = 8	TC = 27
	MS = 7/11	MS = 6/8	MS = 5/8	MS = 18/27
	MP = 64%	MP = 75%	MP = 62.5%	MP = 67%
	SD = 16.3	SD = 14.3	SD = 15.3	SD = 15.96
Active and passive	TC = 14	TC = 16	Total: 23	TC = 53
	MS = 10/14	MS = 12/16	MS = 15/23	MS = 37/53
	MP = 71%	MP = 75%	MP = 65%	MP = 70%
	SD = 14.3	SD = 9	SD = 10.3	SD = 11.22

Results of the scores on early and late developmental test items:

The descriptive statistics show the total number of corrections for all Tailor-made Tests (TC), the Mean Score of correct answers (MS) in fraction, the Mean Percentage (MP), Standard Deviation (SD) and the total scores (Table 4, 5).

Normality of distributions: Figure 3 and 4 both show the distribution of the learners' scores on the early and late developmental items. The graphs show that the distribution of scores on both early and late developmental items is not normal because most of the

scores are bunched on the right side of the graph. The frequency of the total correct scores has made the distribution of early scores skewed. The skewness of the distribution is -0.395 and the standard error of skewness is 0.319. The ratio of skewness to its standard error is less than -1 (p = -1.24).

The skewness of the distribution of the late scores is -0.564 and its standard error of skewness is 0.319. The ratio of skewness to its standard error is less than -1 (p = -1.77). This indicates that the normality of distributions for both early and late scores is rejected.

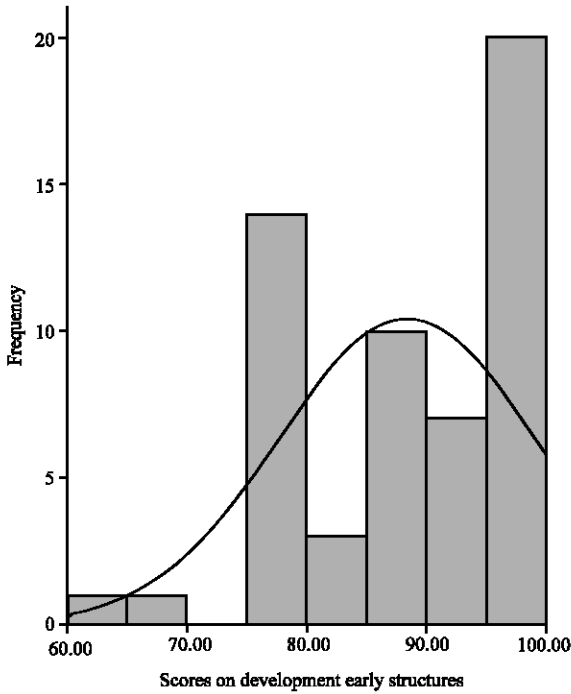


Fig. 3: Frequency distribution of scores on early developmental test items

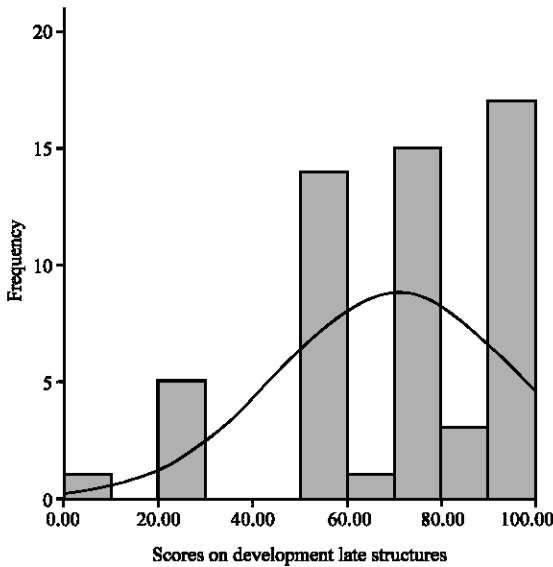


Fig. 4: Frequency distribution of scores on late developmental test items

Descriptive statistics for scores on early and late items: The mean scores for the developmental early items and the developmental late items are 78.21 and 69.64, respectively. The standard deviation of the scores for the developmental early items is 20.21 and for the scores of

Table 6: Group statistics for scores on developmental early and late items

Scores	N (No. of the learners)	Mean	Std. deviation	Median	Range
Developmental early	56	78.21	20.21	75	75
Developmental late	56	69.64	25.01	75	100

Table 7: Wilcoxon signed ranks

Early and late developmental features	N	Mean rank	Sum of ranks
Negative ranks	31(a)	29.52	915.00
Positive ranks	21(b)	22.05	463.00
Ties	4 (c)		
Total	56		

(a) Early < Late
(b) Early > Late
(c) Early = Late

Table 8: Wilcoxon signed ranks statistics

	Early/late
Z	-2.070
Asymp. Sig. (2-tailed)	0.038

the developmental late items 25.01, indicating that the scores for the former are more homogenous than the scores for the latter. There is also a substantial difference between the ranges of the two groups (75 and 100 for early and late, respectively). The medians for the early and late structures are 75 for both (Table 6).

Tests for the difference in means of scores (early developmental versus late developmental items): A non-parametric, two related sample test, namely the Wilcoxon Signed Rank Test, was performed with the alpha level set at 0.05. As displayed in Table 7, the results show that mean ranks for the scores of the early and late test items are 29.52 and 22.05, respectively. The output indicated that the difference in mean scores for the developmental early and late structures was significant at $z = -2.07$ $p = 0.038$ (Table 7, 8). This clearly shows that the learners scored higher on the early developmental items than on the late items.

Interaction between correction type (i.e., explicit vs. Implicit) and structure type (early vs. late structures): Table 9 shows the descriptive statistics for the interaction between the type of correction (i.e., explicit vs. implicit) and the type of structure (i.e., early vs. late). It shows that the learners receiving explicit corrections scored higher than did the learners receiving implicit corrections on early structures. However, the learners receiving implicit corrections on the late structures scored higher than did the learners receiving explicit correction on the late structures.

The standard deviations for the scores on the early test items (subject to explicit correction) and the scores on the late test items (subject to explicit correction) are 21.59

Table 9: Group statistics for the interaction

Early/ late	Explicit/ implicit	Mean	Std. deviation	N
Early structures	Explicit correction	77.8913	21.59859	46
	Implicit correction	71.0000	21.03965	10
	Total	76.6607	21.47580	56
Late scores	Explicit correction	67.9149	24.66280	47
	Implicit correction	86.1111	25.34484	9
	Total	70.8393	25.44854	56
Total	Explicit correction	72.8495	23.61049	93
	Implicit correction	78.1579	23.81004	19
	Total	73.7500	23.62145	112

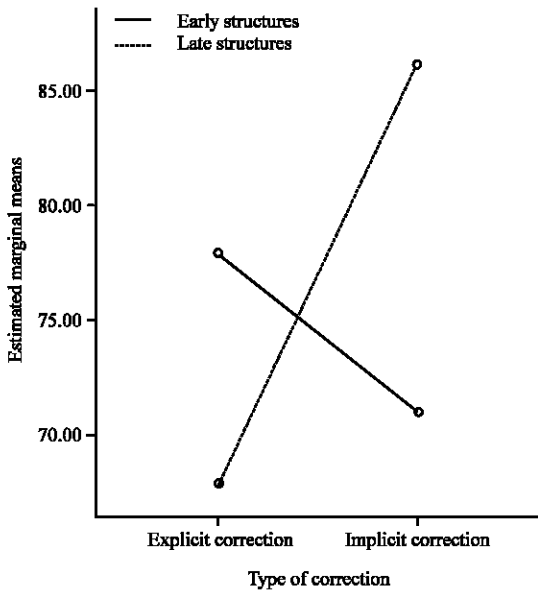


Fig. 5: Interaction between correction type and structure type

and 21.03, respectively, indicating that the scores on both items are spread equally. The standard deviations for the scores on the early and late items (both receiving implicit correction) are 24.66 and 25.34, respectively, showing that the scores on both structures are spread almost equally (Table 9).

Moreover, as shown by Fig. 5, the two lines representing early and late structures intersect each other. This means that there is an interaction effect between correction type and structure type.

Test of interaction between correction type (explicit vs. implicit) and correction type (early structure vs. late structures): A 2×3 ANOVA test; (i.e., a Univariate Analysis) was performed. The results were: $p = 0.034$, $p < 0.05$. Therefore, the null hypothesis that there is no

interaction between the type of correction and the type of structure was rejected, indicating that the effect of the type of correction on the scores for the early and late developmental structures was significant.

DISCUSSION

Research question one: The results of the current study are consistent with those of previous corrective feedback laboratory research studies (Carroll and Swain, 1993; Nagata, 1993; DeKeyser, 1993; Muranoi, 2000; Kim and Mathes, 2001; Leeman, 2003; Sanz, 2003; Lyster, 2004; Rosa and Leow, 2004; Ellis *et al.*, 2006). Although there was significant variation in the purposes and designs of these studies, the findings indicate that explicit correction works better than implicit correction where treatment involves production. In Carroll and Swain (1993) and Carroll (2001), direct metalinguistic feedback outperformed all other types of correction. Formal grammatical explanation was more effective than meaning-focussed debriefing in Muranoi’s (2000) study. Havranek and Cesnik (2003) found that recasts were the least effective type of correction in their study. Lyster (2004) reported that prompts (which included metalinguistic feedback) were more effective than recasts. Also, there is some evidence (Nagata, 1993; Rosa and Leow, 2004) that detailed metalinguistic feedback works better than less detailed metalinguistic feedback. In addition to the laboratory studies, some classroom research studies, conducted by Leow (1998), Doughty (1991) and Scott (1989, 1990) have also shown that explicit correction is more beneficial than implicit correction.

One possible reason for better performance in the explicit may have been that it was more effective in raising awareness of corrected feature in the learners. Explicit correction involved metalinguistic feedback as well as the provision of the correct forms, but implicit correction involved only provision of the correct form. Considering the crucial role of attention in learning (Doughty, 2001; Schmidt, 2001), awareness may have been the main cause for the better performance of the explicit correction group over. Schmidt (1990) believes that subliminal learning is impossible and that intake is what learners consciously notice. He also believes that attention controls access to conscious knowledge (Schmidt, 1994), allowing the new features to be learned.

The explicit correction of learners’ errors may have triggered the learners’ noticing of gaps between the target form and their existing interlanguage forms and this led them to restructure their interlanguage. Moreover, as Ellis (1991) claims, in order for acquisition to take place, learners must notice, compare and integrate the feedback.

Therefore, the explicit correction in this study may not only have pushed the learners to notice the target feature, but also may have created a situation in which they compared the noticed target feature with their own interlanguage rules and thereby were able to incorporate it into their interlanguage. On the other hand, implicit correction probably did not trigger noticing to the same extent as the explicit correction did and consequently may not have created a situation in which the learners could compare the target forms with their existing interlanguage forms in order to incorporate them into their interlanguage systems.

The findings for this research question can also be explained from the perspective of hypothesis testing models of acquisition. In these models, learners are assumed to make a hypothesis about the target language form and test it against their own production of the form. Correction has a crucial role in this model of acquisition (Bley-Vroman, 1986, 1989). It may stimulate hypothesis testing, giving learners the opportunity to restructure their existing interlanguage. Explicit correction may better be able to help learners test hypotheses about target features, because as Chaudron (1988) argues, the information in the feedback helps the learners confirm, disconfirm and possibly modify transitional rules in their developing grammars. On the other hand, implicit correction is less effective than explicit correction because it may not provide the learners with sufficient information to test a hypothesis. The provision of the correct form in implicit correction may not so effectively enable learners to understand what is wrong with their erroneous utterance and without such understanding, hypothesis revision is not possible.

Another reason for the better performance of the explicit correction may be related to the obvious nature of explicit feedback. Learners most likely perceive explicit corrections as corrective feedback requiring them to correct their errors. This is because of the nature of the feedback. Explicit feedback involves meta-discourse, whereas implicit feedback may not be perceived as corrective. Accordingly, in this research, the obvious nature of feedback in the explicit correction appeared to have made the learners more attentive to the corrected features and aware of the gaps between their existing knowledge and the target knowledge. Refer to error correction episode 53 A/1 (IE) in Appendix B:

Conversely, implicit correction was more likely to have been perceived as the researcher's confirmation of the learners' utterances. This was because implicit corrections were more meaning-based than explicit ones. The learners may have not interpreted the implicit feedback as providing negative evidence; they might

have perceived it as the researcher simply helping the flow of communication. Refer to error correction episode 17 A/4 (IE) Appendix B.

Research question two: There has been very little research that has compared the effect of correcting features that are acquired early and late. Nevertheless, research has shown that instruction is not likely to have any significant impact if structures that belong to later stages of language learning are taught to the learners who are at very early stages (Lightbown, 1983; Pienemann, 1984; Ellis, 1989).

One obvious explanation for this finding is Pienemann's (1984, 1989, 1998) teachability hypothesis. This hypothesis predicts that learning can only take place if the learner's interlanguage is close to the point when the structure to be taught is acquired in the natural setting. Pienemann (1984) studied the acquisition of German word order among Italian children. He showed that instruction in the word order of structure requiring subject verb inversion was successful in the case of those learners who had reached the stage immediately preceding the stage where this word order rule could be acquired but not successful in learners who had not reached this stage. Pienemann, argued that teaching should be restricted to the learning of items for which the learner was ready.

Another way of explaining why the corrective feedback was more effective with the early than the late features can be found in Schmidt's (1990) account of the role of consciousness in L2 acquisition. Schmidt identifies two kinds of consciousness: (1) consciousness as noticing and (2) consciousness as understanding. His claim is that consciousness as noticing is a requirement in order for acquisition to take place although in subsequent papers he somehow modified his claim to say that it may be not a requirement but it certainly enhances acquisition. However, he does not claim that consciousness as understanding is necessary for acquisition although again he does argue that understanding makes learning more likely. This can explain why the correction of developmentally early features has a great effect. Correction assists the process of noticing and in the case of the explicit corrective feedback also understanding. Learners may be more likely to notice and understand those features that are acquired early.

However, the results of the study showed that correction of some of the late developmental errors was effective. Table 10 compares the numbers of learners who scored higher on the early and the late developmental features. This shows that more learners scored higher on the early items than the late items in all three correction

Table 10: Early and late features for individuals

Groups	No. of learners whose mean was higher for Early	No. of learners whose mean was higher for Late
Immediate explicit N = 28	12 (43%)	7 (25%)
Immediate implicit N = 28	13 (46%)	7 (25%)
Delayed explicit N = 56	22 (39%)	17 (30%)

conditions. It should be noted, however, that in each condition there were a number of learners who scored higher on the late features. For example, in the case of the immediate explicit corrective feedback there were 12 learners who scored higher on the early features but 7 who scored higher on the late features. This indicates the need for care in assuming that corrective feedback is more effective when it is directed at early than late developmental features. Clearly, in this study, the feedback enables some of the learners to achieve greater success with the late features. One possible explanation for this may simply have been that it was these features that they received feedback on (i.e. they did not receive any feedback on the early features). If this is the case, then, it is possible that corrective feedback works, to some extent at least, irrespective of whether the feature is an early or late one. Thus, at best, we can only say that there is a tendency for learners to benefit more from corrective feedback when it is directed at early features.

Interaction between correction type and structure type:

An interaction was found between the type of correction (implicit vs. explicit) and the results for the early and late developmental features. Whereas explicit corrective feedback was more effective than implicit CF in the case of the early structures, the opposite was true in the case of the late structures (i.e., the implicit CF was more effective). This can be explained in terms of Krashen’s (1982) comments about which structures are learnable as explicit knowledge. Krashen argues that it is only possible for learners to ‘learn’ simple and portable rules (e.g., 3rd person -s), not complex rules (e.g., inversion in interrogatives). In the current study, explicit CF proved much more effective in helping learners learn structures that are typically acquired early (and thus can be hypothesized to be easy). It was much less effective in teaching more complex structures. This was probably because the learners found the metalinguistic explanations for these structures difficult to understand. Implicit CF (i.e., feedback that simply provides the learner with the correct form) worked better with the late acquired structures.

SUMMARY AND CONCLUSIONS

Research question One attempted to determine whether there was a difference in the effects of explicit correction and implicit correction on language learning. The answer was yes. Explicit correction was significantly more effective than the implicit correction. A number of reasons for this were suggested: (1) explicit correction created more attention, (2) the fact that learners were explicitly corrected on their errors created a contrast with the form in their interlanguage, (3) the provision of the correct form in implicit correction may not have been effective because it was less clear to learners what was wrong with their erroneous utterances and without such understanding, hypothesis revision was not possible and (4) learners most likely perceived the explicit corrections as corrective feedback requiring them to correct their errors whereas this was not the case with the implicit feedback.

Research question two examined whether there was a difference in the effects of error correction on the learning of the early and late developmental errors. The results indicated that the correction had a significantly greater effect on the learning of early developmental errors than late developmental errors. This can be explained in terms of learners’ readiness to notice and understand early features. There was an interaction effect between the type of correction and the type of structure, indicating that learners learned the early features better when explicitly corrected and the late features better when implicitly corrected. This is probably because learners found the metalinguistic explanations of the late structures difficult to understand.

Theoretical implications: The results also lend indirect support to Schmidt and Frota’s (1986) Noticing Hypothesis. It is as a result of noticing that learners are able to process the corrective feedback. Also, it is as a result of understanding their errors that learners are more likely able to restructure their interlanguage. Explicit error correction creates more understanding and thus facilitates learning better than implicit error correction.

Pedagogical implications: The main finding with regard to pedagogical implications is that explicit correction on the whole is more effective than implicit correction with one caveat; that is, explicit correction seems to work very well for morphological and not so well for syntactical features. The main implication of this study is that teachers in the context of communicative activities should not be apprehensive about using explicit correction (i.e., providing metalinguistic information). Whenever the right opportunity arises, teachers are advised to provide learners with metalinguistic feedback on their errors.

Moreover, teachers should be aware that the type of error that needs correction also plays a crucial role in the effectiveness of explicit and implicit correction. The evidence from this study indicates that explicit metalinguistic feedback works better with easy rules than hard rules. In contrast, implicit feedback is more effective with hard rules (Table 4, 5). Thus teachers need to be selective in deciding which type of error correction to employ, taking into account the learner's developmental readiness.

Although we found that corrective feedback worked better for early features rather than late features, there were exceptions. There were some late features for which the corrective feedback was effective and there were some early features for which the corrective feedback was not effective. The best recommendation that can be given to teachers is that they should take into account the learners' readiness to learn the features they have problems with. The choice of structure for correction depends mainly on the learner's developmental readiness.

The implications of both research questions are that teachers need to be aware that corrective feedback is more likely to be effective with some linguistic features than with others. As the result of corrective feedback learners may be able to revise their hypotheses about some of their errors but not others and the teacher should not necessarily expect error correction to be uniformly successful. They must be prepared to recognize that it is sometimes effective and sometimes not effective. It will also be useful if they are aware of the factors that are likely to influence whether the corrective feedback works or does not. One such factor is the linguistic difficulty of the feature. If the feature is beyond the learners' current developmental stage, the corrective feedback is unlikely to work. Therefore teachers should have some sensitivity as to what kind of errors their correction is likely to have an impact on and which kind it will not.

The type of correction that may be optimal for late features appears to be different from that which works for late features. Teachers can again correct learners while they are talking, but this time they can provide feedback to them by recasting their erroneous utterances.

Limitations and suggestions for further research: The main limitation of this study was that there was no control group. Without a control group it is not possible to claim that the corrective feedback resulted in acquisition, only that one type worked better than another in terms of the tailor-made tests. Moreover, this study was cross-sectional in nature, affording only a very static view of second language acquisition. No attempt was made to see the effect of correction on errors made by learners at

different stages of development. The issues such as timing, manner and type of correction are so broad and complex that they can not be explained comprehensively and inclusively by a limited study such as the present one.

What are needed are more systematic and fine-grained analyses, which take into account different levels of explicit and implicit corrective feedback as well as a broader range of features for learners of different proficiency levels. The present research included only two levels of manner of correction: explicit and implicit. There can be an expandable range of focus on form possibilities to include various levels of implicitness and explicitness that are found in real classroom situations.

APPENDIX A Tailor-made Test

Name _____ Immediate/Explicit

Date: _____ Passage: Diamonds.....

Directions: Questions 1-5 are incomplete sentences. Beneath each sentence you will see four words or phrases, marked (A), (B), (C) and (D). Choose one word or phrase that best completes the sentence. Then, on your Answer Sheet, fill in the space that corresponds to the letter of the answer you have chosen:

- (1) This passage is about ... English person.
 - (a) ...
 - (b) an
 - (c) the
 - (d) a
- (2) Every body in England had thought Carson was ... honest person.
 - (a) an
 - (b) the
 - (c) a
- (3) He put \$10000 on a horse ... Lucky Seven
 - (a) that's was called
 - (b) was called
 - (c) that was called
 - (d) that's
- (4) After that he ... a used car.
 - (a) buy
 - (b) is buy
 - (c) is bought
 - (d) bought
- (5) Before he ... himself, the Police arrested him.
 - (a) could to kill
 - (b) could kill
 - (c) could killing
 - (d) could kills

APPENDIX B

Error Correction Episodes

53 A/1 (IE)

- L: Yes, this text that I read before was about a summarize about the diamonds and some other sentences that related to this matter. Diamonds, Marilyn Monroe in the film was called Gentleman Prefers Blondes, are the girl's best friends. Diamond maybe you don't think it that this true, this matter true but we can be discuss about this matter.
- R: Not 'we can be discuss about this matter', OK? Good, because ...
- L: We can be discuss (!)
- R: Not 'we can be discuss' because after 'can' we can't use the verb 'be' and the 'main verb'.
- L: Yes we can discuss about this matter. Diamonds as you know and every body knows is one of the hardest matter (SC) (substance) around the world.

Note: The researcher intended to correct the learner explicitly, but the learner reacted to the researcher's comment by interrupting him and repeating the erroneous form. This shows that she had expected to receive corrections from the outset, therefore she was attentive to the feedback and also her uptake clearly shows that her attention was drawn to the form after the feedback.

17 A/4(II)

- L: and now it is a part of crown jewels and is kept in London Tower.
- R: and it is part of the crown jewels and it is kept...
- L: and it is kept right now in the London Tower
- R: and it is kept in the Tower of London
- L: London, diamonds are also used for...

REFERENCES

- Bley-Vroman, R., 1986. Hypothesis testing in second language acquisition. *Language Learning*, 36: 353-376.
- Bley-Vroman, R., 1989. What is the Logical Problem of Foreign Language Learning? In: *Linguistic Perspectives of Second Language Acquisition*, Gass, S. and J. Schachter (Eds.). Cambridge University Press, New York, pp: 41-68.
- Brown, J.D., 1988. *Understanding Research in Second Language Learning: A Teacher's Guide to Statistics and Research Design*. Cambridge: Cambridge University Press.
- Carroll, S. and M. Swain, 1993. Explicit and implicit negative feedback: An empirical study of the learning of linguistic generalizations. *Studies in Second Language Acquisition*, 15: 357-366.
- Carroll, S., 2001. *Input and Evidence: The Raw Material of Second Language Acquisition*. Amsterdam: John Benjamins.
- Chaudron, C., 1988. *Second Language Classrooms*. Cambridge: Cambridge University Press.
- DeKeyser, R.M., 1993. The effect of error correction on L2 grammar knowledge and oral proficiency. *Modern Language J.*, 77 (4): 501-514.
- Doughty, C., 1991. Second language instruction does make a difference: Evidence from an empirical study of SL relativization. *Studies in Second Language Acquisition*, 13: 431-469.
- Doughty, C., 2001. Cognitive Underpinnings of Focus on Form. In: *Cognition and Second Language Instruction*. Cambridge, Robertson, P. (Ed.). Cambridge University Press, pp: 206-257.
- Dulay, H. and M. Burt, 1973. Should we teach children syntax? *Language Learning*, 23: 245-258.
- Dulay, H. and M. Burt, 1974. You Can't Learn Without Goofing. In: *Error Analysis*, Richards, J.C. (Ed.). Longman, London, pp: 95-124.
- Ellis, R., 1989. Are classroom and naturalistic acquisition the same thing? A study of the classroom acquisition of German word order rules. *Studies in Second Language Acquisition*, 11: 305-328.
- Ellis, R., 1991. Grammaticality judgements and second language acquisition. *Studies in Second Language Acquisition*, 13: 161-186.
- Ellis, R., H. Basturkmen and S. Loewen, 2001. Learner uptake in communicative ESL lessons. *Language Learning*, 51: 281-318.
- Ellis, R., S. Loewen and R. Erlam, 2006. Implicit and Explicit Corrective Feedback and the Acquisition of L2 Grammar. *Studies in Second Language Acquisition*.
- Havranek, G. and H. Cesnik, 2003. Factors Affecting the Success of Corrective Feedback, Foster-Cohen, S. and A. Nizegorodzew (Eds.). *EUROSLA Yearbook*, 1: 99-122.
- Kim, H. and G. Mathes, 2001. Explicit vs. implicit corrective feedback. *The Korea TESOL J.*, 4 (1): 1-15.
- Krashen, S., 1977. Some Issues Relating to the Monitor Model. In: *Teaching and Learning English as a Second Language*, Brown, H., C. Yorio and R. Crymes (Eds.). Trends in Research and Practice. Washington, DC., TESOL, pp: 144-148.
- Krashen, S., 1982. *Principles and Practice in Second Language Acquisition*. Oxford: Pergamon.
- Larsen-Freeman, D., 1976. An explanation for the morpheme acquisition order of second language learners. *Language Learning*, 26: 125-134.

- Leeman, J., 2003. Recasts and second language development: Beyond negative evidence. *Studies in Second Language Acquisition*, 25 (1): 37-63.
- Leow, R.P., 1998. Toward operationalizing the process of attention in SLA: Evidence for Tomlin and Villa's fine grained analysis of attention (1994). *Applied Psycholinguistics*, 19: 133-159.
- Lightbown, P., 1983. Exploring Relationships Between Developmental and Instructional Sequences in L2 Acquisition. In: *Classroom-Oriented Research in Second Language Acquisition*, Seliger, H. and M. Long (Eds.). Rowley, Mass.: Newbury House, pp: 217-243.
- Loewen, S., 2002. Attention to grammar in incidental focus on form. Ph.D Thesis, University of Auckland.
- Lyster, R., 2004. Differential effects of prompts and recasts in form-focused instruction. *Studies in Second Language Acquisition*, 26 (3): 399-432.
- Mackey, M. and S. Gass, 2005. *Second Language Research: Methodology and Design*. London: LEA Publishers.
- Muranoi, H., 2000. Focus on form through interaction enhancement: Integrating formal instruction into a communicative task in EFL classrooms. *Language Learning*, 50 (4): 617-673.
- Nagata, N., 1993. Intelligent computer feedback for second language instruction. *Modern Language J.*, 77 (3): 330-339.
- Pienemann, M., 1984. Psychological constraints on the teachability of languages. *Studies in Second Language Acquisition*, 6: 186-214.
- Pienemann, M. and M. Johnston, 1986. An acquisition-based procedure for second language assessment. *Aust. Rev. Applied Linguistics*, 9: 92-122.
- Pienemann, M., 1989. Is language teachable? Psycholinguistic experiments and hypotheses. *Applied Linguistics*, 10: 52-79.
- Pienemann, M., 1998. *Language Processing and Second Language Development: Processability Theory*. Amsterdam: John Benjamin.
- Reber, A.S., 1976. Implicit learning of synthetic learners: The role of instructional set. *J. Exp. Psychol. Hum. Learning Memory*, 6: 88-94.
- Reber, A.S. and R. Allen, 1978. Analogy and abstraction strategies in synthetic grammar learning: A functional interpretation. *Cognition*, 6: 189-221.
- Reber, A.S., 1993. *Implicit Learning and Tacit Knowledge: An Essay of the Cognitive Unconscious*. Oxford University Press.
- Robinson, P., 1996. *Consciousness, Rules and Second Language Acquisition*, Lang, P. (Ed.). New York.
- Rosa, E.M. and R.P. Leow, 2004. Awareness, different learning conditions and second language development. *Applied Psycholinguistics*, 25 (2): 269-292.
- Sanz, C., 2003. Computer Delivered Implicit Vs. Explicit Feedback in Processing Instruction. In: *Processing Instruction: VanPatten, B. (Ed.). Theory, Research and Commentary (Second Language Acquisition Research)*. Mahwah, NJ: Lawrence Erlbaum, pp: 241-255.
- Schmidt, R. and S. Frota, 1986. Developing Basic Conversational Ability in a Second Language: A Case Study of an Adult Learner of Portuguese. In: *Talking to Learn: Conversation in a Second Language*, Day, R. (Ed.). Rowley, Mass. Newbury House, pp: 237-326.
- Schmidt, R., 1990. The role of consciousness in second language learning. *Applied Linguistics*, 11: 129-158.
- Schmidt, R., 1994. Deconstructing consciousness in search of useful definitions for applied linguistics. *AILA Rev.*, 11: 11-26.
- Schmidt, R., 2001. Attention. In: *Cognition and Second Language Instruction*, Robinson, P. (Ed.). Cambridge University Press, Cambridge, pp: 3-32.
- Scott, V.M., 1989. An empirical study of explicit and implicit grammar teaching strategies in French. *Modern Language J.*, 73: 14- 22.
- Scott, V.M., 1990. Explicit and implicit grammar teaching strategies: New empirical data. *French Rev.*, 63: 779-789.
- Zizak, D.M. and A.S. Reber, 2004. The structural mere exposure effect: The dual role of familiarity. *Consciousness and Cognition*, 13: 336-362.