

The Role of Teacher Feedback in Enhancing Learner Self-Efficacy and Motivation in Computer-Assisted Environments¹

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Abstract

The purpose of the present study is to investigate how teachers create different proficiency level male and female learners' motivation and self-efficacy beliefs in vocabulary learning through different corrective feedback types. A total of 130 intermediate to upper-intermediate EFL learners participated in the study, 70 (males=28, females=42) of whom received summative feedback (N=35) and formative feedback (N=35) and the other 60 learners (males=25, females=35) were exposed to norm-referenced (N=30) and self-referenced feedback (N=30) types. The results showed that participants in the self-referenced and formative feedback groups experienced an enhancement in their self-efficacy and motivation compared to the norm-referenced and summative feedback group learners. However, the impact of gender and level of proficiency of the learners on evaluative feedback types was found as non-significant.

Resumen

El propósito del estudio presente es investigar la manera en que los maestros generan cambios en motivación y en autoeficacia entre estudiantes masculinos y femeninos en el aprendizaje del vocabulario mediante distintos tipos de retroalimentación correctiva. En el estudio participaron un total de 130 estudiantes EFL de niveles intermedio y intermedio alto, 70 (hombres=28, mujeres=42) de los cuales 35 recibieron retroalimentación sumativa y 35 retroalimentación formativa. Se les expuso a los otros 60 alumnos (hombres=25, mujeres=35) a retroalimentación basada en normas (30) y auto-retroalimentación (30). Los resultados mostraron que los participantes en los grupos de auto-retroalimentación y de retroalimentación formativa experimentaron una mejoría en su autoeficacia y su motivación en comparación con los alumnos de los grupos de retroalimentación basada en normas y retroalimentación sumativa. Sin embargo, el impacto entre el género y el nivel de competencia de los alumnos en los tipos de retroalimentación se encontró a un nivel insignificante.

Introduction

The mastery of vocabulary is a vital, important and determining factor in the process of learning a foreign or second language. It facilitates comprehension and helps the language learners to speak, listen, read, and write in the target language effectively, and thus communicate successfully and appropriately with others. Second language teachers and learners have long realized the importance of vocabulary for improving language proficiency. However, very often vocabulary does not receive sufficient attention in language classrooms (e.g., August, et al., 2005). The significance of vocabulary is a determining factor in the design of classroom teaching methods (Richards & Rodgers, 2001). Regarding the importance of vocabulary learning in EFL and its significant role in language skills, teachers have attempted to instruct it with effective pedagogical practices for learners. For instance, there are several strategies specifically useful for learners, including taking advantage of their first language if the language has

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common cognates with English, making sure that they know the meaning of basic words, making use of technology, and providing efficient review and reinforcement..

In recent decades, foreign or second language instructors and administrators have changed their emphasis from a strictly product-oriented approach to language teaching toward a process-oriented approach. In fact, a more dialectic approach is encouraged to include both process and product (O'Sullivan, 2007; Warschauer, 2002). One significant element of the process-oriented approach to L2 learning is the issue of corrective feedback. Literature concerning this has been barely introduced with the best and most appropriate ways of feedback, yet language teachers are faced with the real necessity of making decisions about the quality, quantity and different aspects of the students' language learning. In reality, how different teachers deal with the learning problems of different students remains an area of concern to be inquired in different contexts.

Vocabulary learning has often been difficult for non-native students especially those who continue their education in academic level since they do not have opportunities to use the learnt items very frequently outside the classroom (Sabzian, Gilakjani, & Sodouri, 2013). The challenge lies in the slow and gradual vocabulary acquisition which makes learners less able to comprehend passages at grade level than their English-only peers. This situation becomes even more unwieldy when learners are not provided with explicit instruction and feedback about their problems. Therefore, different approaches to evaluative feedback have been introduced in order to bring about better achievement in the shortest time possible. Approaching the learners' errors by using the best and most effective method has always been a matter of concern for language teachers and second language acquisition (SLA) researchers. Based on Long's Interaction Hypothesis (1996), Swain's Output Hypothesis (1985), and Lantolf's (2006) Sociocultural Theory of SLA, many scholars (Livingstone, 2012; Panahi, Birjandi, & Azabdaftari, 2013) believe in the potential of feedback strategies in enhancing the process of L2 development. Among different corrective feedback classes, summative/formative feedback and norm-referenced/self-referenced feedback types are compared in the present study as ways of coping with the foreign language learners' problematic areas in vocabulary learning. It should be noted that these feedback categories were provided by means of the computers such that with respect to each type of feedback, different responses were given to the participants based on their tests responses. It is hypothesized that different forms of feedback can affect learners' self-efficacy beliefs about their expectancy of success and coping potential perceptions.

Formative Feedback and Summative Feedback

Some categories of corrective feedback provide information about the type or direction of prior errors which direct learners towards the correction of their errors (Payne & Hauty, 1955). Both summative and formative corrections are examples of this feedback category. However, there is a major difference between them such that summative feedback, as the name implies, focuses on the provision of summaries on past errors, whereas the formative type recommends strategies in order to improve the performance in the future. In other words, formative feedback, according to McAlpine (2004), provides the resources of development to progress during the learning process. On the contrary, any feedback category that prevents such information to be transferred to the students will erode the relation between the means and ends. Learners would be less

likely to see control over the means and their self-efficacy, and as a result, their efficacy would be weakened. Summative feedback is, therefore, the feedback type that gives more attention to the learning products rather than the provision of explicit feedback on learners' progress. This outcome orientation can be modified to performance orientation (Ames, 1992) where learners can be more willing to relate their performance with the appraisal of their ability. In order to inhibit any incompetency, learners can adopt the performance-avoidance objective. In summative feedback orientation, learners are encouraged to produce an outcome that is indicative of their capabilities. For example, in the summative status learners are only provided with a list of the correct and incorrect item numbers so that they can see how well they do on the test. On the other hand, formative feedback helps learners orient their concentration on the process of learning and thus select the learning outcome (Slavin, 1978) and attempt to move forward. Formative feedback is accomplished by providing each learner with verbal progress feedback that they are making progress towards learning. The following are examples: "you answered it correctly because you followed the steps in order" or "for questions 8 and 10 you need to try using the strategy of understanding the meaning of the complete sentence before selecting the answer." Since self-efficacy is concerned with the individual's control over the means towards the ends, formative feedback offers efficient strategy awareness to the individual to learn in the process and make advancements, while summative feedback suffices to the identification of only the previous performance, being no longer variable or controllable.

Self-Referenced Feedback and Norm-Referenced Feedback

In addition to exerting an influence upon the means of control, evaluative feedback can also affect the products of control that in turn lead to the expansion of means. In general educational contexts, the intention of learners can either be the outperformance of oneself or the outperformance of others. Different kinds of evaluation, therefore, direct the focus of comparison.

For example, in self-referenced feedback type, learners' mastery or attainment of the materials becomes the center of attention. As a result, they are more probable to accept the learning goal of knowledge accumulation as a way of learning. For learners in the self-referenced group, the computer used in the present study displayed the number of correct answers in addition to the percentage of accuracy. According to Schunk and Rice (1987), then, self-referenced evaluation helps learners think about their advancement and choose learning goals. In this way, they have a much greater control over the means, which is their efforts in learning, than others' performance. Hence, they may have a higher sense of self-efficacy.

In contrast, in norm-referenced evaluation, learners are assessed on their performance in relation to the performance of others and this can lead them to attribute the product to competition (Ames, 1992). However, since learners do not have control over the performance of the competitors, they have a weak understanding of the means towards the achievement of goals. The means of such performance goal is to outperform others. This in turn leads to lower self-efficacy in them. That is, when a weak performance of learners happens, the performance-avoidance goal becomes more apparent due to the learners' resignation of social comparison that can reveal their problems. In the present study, in contrast to the self-referenced condition, for participants in the norm-

referenced condition, the computer displayed the number of correct answers as well as the percentile in ranking of their performance when compared to others.

Effects of Teachers' Feedback on Self-efficacy

Self-efficacy beliefs are at the core of the social cognitive theory, and of all the beliefs that people hold about themselves and that affect their everyday lives. Efficacy perceptions are the assessments that individuals have about their capabilities to learn or to carry out activities and tasks at determined levels (Bandura, 1977). Perceived self-efficacy is described by Bandura (1997) as "people's beliefs about their capabilities to produce designated level of performance that exercise influence over events that affect their lives" (p.2). It is a future-oriented belief about the level of competence a person predicts he or she will exhibit in a given context. Self-belief is more significant than what is actually feasible. Bandura (1997) suggests that self-belief is more important because "motivation, affective state, and actions are based more on what they believe than what is objectively true" (p. 2). Furthermore, he asserts that perceived self-efficacy cannot be a reflection of a skill. It is the belief an individual holds about what he or she can do in different situations with whatever proficiency the individual possesses.

Self-efficacy is particularly related to task or context and is not recognized as a global personality property (Bandura, 1997; Pajares, 1996). In this regard, this relation actually suggests that people are different with respect to their self-efficacy beliefs across tasks. For instance, people may have a high sense of self-efficacy beliefs for a number of tasks in specific contexts, but at the same time the level of their self-efficacy beliefs may be low for other tasks in some other contexts.

Significance of Teachers' Feedback on Learner Motivation

Dörnyei (1998) states that regardless of the frequent use of the concept of motivation in academic and research contexts, there still remains disagreement regarding the exact meaning of it. Dörnyei (1998) defines motivation as "the process whereby a certain amount of instigation force arises, initiates action, and persists as long as there is no other forces weakening it until the planned goals are reached"(p.118). In other words, motivation can be seen as a force that makes a person to initiate action, and to keep on until the planned goals are achieved.

Gardner (1988) describes language learning motivation as "the combination of effort plus desire to achieve the goal of learning the language plus favorable attitudes toward learning the language" (p. 110). In other words, motivation to learn a language is the extent of the effort an individual is willing to exert to achieve the goal of learning a language because of a desire to do so and of favorable attitudes towards such language.

It seems evident that different methods of language teaching and learners' attitudes lead to different degrees of learner motivation. Both learner external factors (i.e., teaching methods) and learner internal factors (i.e., learner' attitude) can have considerable effects on the success or failure of the learners. When learners appeal for help, they have a chance to understand the language in the primary input. This process can be predicted to have positive influence on comprehension and learning, and research results in this regard are consistent with this expectation.

The majority of studies on the relation between motivation and evaluation (e.g., Ho, 2001; Salili, 2001; Sue & Okazaki, 1990; Watkins & Biggs, 2001) have focused on three

different viewpoints on learner motivation including the motivation components of individual learner, contextual influences, and cultural beliefs. Taking these factors into account, the following motivational framework can be proposed by adding an additional layer to its initial version (Assessment Reform Group, 2002). The figure shown below has an extra outer circle generating the reconceptualization of motivation and forms the basis of the present study. This figure exhibits how three different aspects impact the learners' motivation to learn. It indicates an addition to the motivation framework introduced by the Assessment Reform Group (2002) by placing an additional emphasis on the cultural beliefs of the learners and their effects on the learners' motivation. The following is Figure 1:

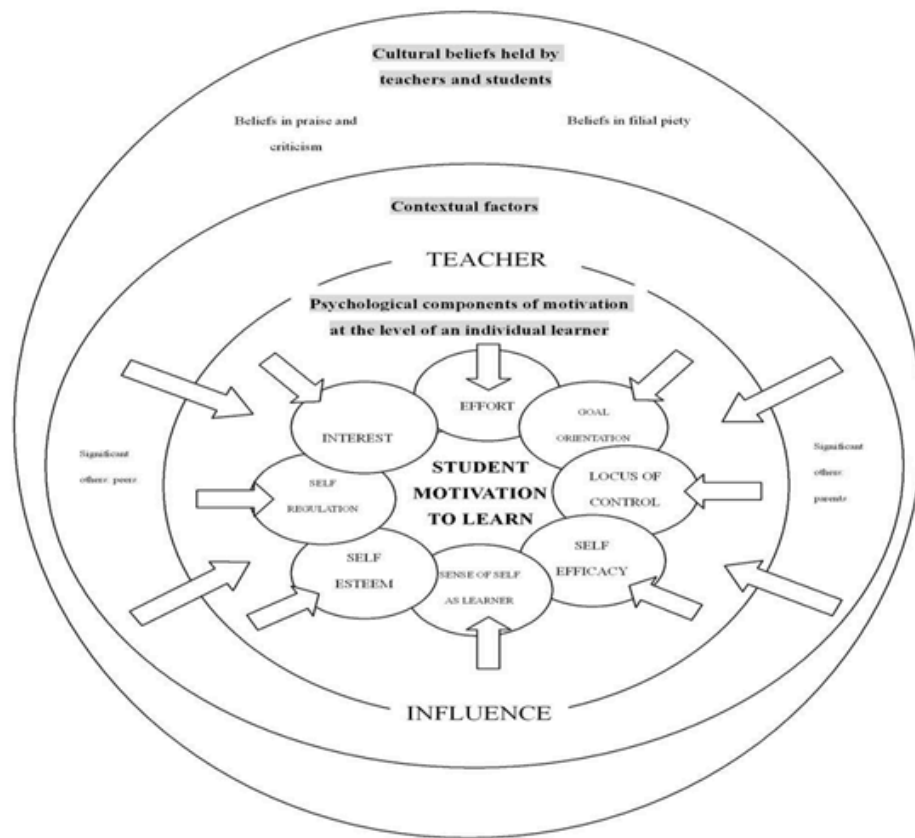


Figure 1. The motivational framework

The major focus of this framework is that the motivation components at the individual level are interrelated and they should not be considered independently. The first outer circle includes the contextual elements that point to the influence of significant others, mainly the teachers, parents and peers. And, the last outer circle shows the significance of the teachers and learners' cultural beliefs which are key values that can have an impact upon the learners' motivation to learn.

Although research has shown that learners can be motivated or demotivated based on numerous factors (see Brown, 2000; Gardner & Lambert, 1972), there has been a lack of support in the literature on how feedback can be improved in support of self-efficacy and motivation. This article helps to address this gap by investigating the possible relation of feedback types (i.e., summative/formative and self-referenced/norm-referenced feedback categories) with self-efficacy and motivational beliefs of the learners. The

present study can also be considered as an innovative research area since the feedback types are provided by means of computers and can lead to promising results with regard to technology. The main research questions include the following:

1. Is there any significant difference between self-referenced and norm-referenced computer-assisted feedback with regard to motivation?
2. Is there any significant difference between self-referenced and norm-referenced computer-assisted feedback with regard to self-efficacy?
3. Does learners' vocabulary performance in self-referenced and norm-referenced computer-assisted feedback types differ across their gender?
4. Does learners' vocabulary performance in self-referenced and norm-referenced computer-assisted feedback types differ across their level of proficiency?
5. Is there any significant difference between summative and formative computer-assisted feedback with regard to motivation?
6. Is there any significant difference between summative and formative computer-assisted feedback with regard to self-efficacy?
7. Does learners' vocabulary performance in summative and formative computer-assisted feedback types differ across their gender?
8. Does learners' vocabulary performance in summative and formative computer-assisted feedback types differ across their level of proficiency?

Method

A total of 130 intermediate to upper-intermediate EFL learners 15 to 25 years of age participated in the study, 70 (males=28, females=42) of whom received summative feedback (N=35) and formative feedback (N=35) and the other 60 learners (males=25, females=35) were exposed to norm-referenced (N=30) and self-referenced feedback (N=30) types. The participants of this study had learned their English more or less entirely in an instructional setting. None had ever been to an English-speaking country, and they had had little opportunity to use English for communicative purposes outside the classroom. The participants in each intact class (N=4) were considered to constitute a fairly homogeneous group in terms of their learning history and English proficiency as measured by the final exam in the language center. As language center students, they had three hours of English per week, focusing on all the language skills of reading, listening, speaking, and writing. They were told that the test and questionnaires were for purposes of research only. They were not told the precise purpose of the study and were assured that the information collected would not impact their course grades. No participants withdrew from the study.

Instruments

Two questionnaires were employed which were administered after the completion of the treatment at the eighth session. The first instrument that was used for eliciting data on learners' motivation was a questionnaire developed according to the motivational framework suggested in the present study and was completed in ten minutes. The major advantage of the questionnaire is that data can be collected from a large number of respondents in a cost-effective way within a short period of time. The motivation questionnaire is a 6-point Likert scale (6=strongly agree; 1=strongly disagree) questionnaire.

Concerning the construction of the questionnaire, three EFL students were asked to read the items and provide feedback in order to find possible shortcomings and problems of the items. Based on the feedback received from the group, a final version of the questionnaire was developed. The questionnaire's initial pool of items was created. The initial list of items was subjected to judgment for redundancy, content validity, and clarity. When multiple forms of each item were eliminated, 42 items remained. These items were revised in order to reduce the large list of items pool. The revision of items resulted in the elimination of some redundant items, the combination of some items into one, and the addition of some new items. Then, based on revision of the list of items, a near-final version of questionnaire was developed and the items pool was reduced to sixteen items (Appendix A).

In order to find possible drawbacks of the questionnaire, a pilot study was conducted. The questionnaire was administered to a group of twenty students who were very similar to the target population the instrument was designed for. Four questionnaires were excluded because they were returned blank or incomplete. In order to confirm and validate the instrument of the pilot study, an exploratory factor analysis was conducted using a principal components analysis followed by a Varimax rotation method. This procedure was used both to reduce a large data-set and to identify clustering items in the scale. Based on the factor loadings results, several items were eliminated from the analysis because they exhibited low factor loadings (less than .30) or loaded highly on more than one factor. The factor analysis was recalculated after the elimination of these items. Based on results of the factor loadings, the list of items was subjected to judgment for redundancy, content validity, and clarity. This revision resulted in the deletion of some irrelevant or redundant items, the rewording of problem items, and the addition of some new items to cover omissions. The Cronbach-alpha coefficient value for the overall reliability analysis of the questionnaire was found as .83 which showed a satisfying level of reliability.

The second questionnaire was developed to evaluate the self-efficacy of learners and consisted of ten items which was a 7-point Likert scale (7=very much; 1=not at all) type questionnaire. This questionnaire measured the participants' beliefs about their success and sense of efficacy after the instruction and reception of different feedback types (Appendix B). The self-efficacy questionnaire, too, was subject to validity and reliability analyses explained above for the motivation questionnaire. The reliability of this questionnaire was calculated by means of Cronbach-alpha coefficient and turned out to be .75, indicating a satisfying level.

Also, in addition to the questionnaires, a test was developed by the researchers to investigate the participants' amount of vocabulary (i.e., prefix) learning. This test was administered on the computer screen and was a multiple-choice test. It consisted of fifteen questions related to prefix knowledge and participants had thirty seconds to answer each question. The screen displayed a prompt when there were five seconds left. The instructor informed learners that after they moved to the next question, they would not have an opportunity to make changes in any previous answer.

Procedure

Four intact classes in a language center in Tehran, the capital of Iran, were selected based on their level of proficiency (i.e., intermediate to upper-intermediate). One class

was allocated to the summative feedback condition and the other class to the formative condition. The method of instruction and the teacher were not different across the classes. However, the measurement method differed for the tests in the treatment. The study was carried out in the language laboratory room. Firstly, the teacher assigned each learner to a computer system, among which were partitions separating the learners from each other. The program presented vocabulary teaching and tasks, particularly on the use of prefixes, and tests to the learners. The treatment lasted for seven sessions throughout which the teacher presented ten prefixes and provided a few examples to show their correct use. Learners in both classes were given feedback in terms of the number of correct answers they got in the test. Learners of summative group were reported the list of correct and incorrect item numbers and the computer showed how well they have accomplished the test. Also, they were told that the most significant goal was to obtain an efficient result as the test showed their performance. Whereas, learners in the formative condition were given a list that showed the number of incorrect items and recommended a few strategies to compensate the problems. Learners in the self-referenced and norm-referenced classes went through the same procedures except that they received different computer-generated feedback on their vocabulary performance. In the self-referenced feedback condition, learners were given the percentage of correct items whereas in the norm-referenced condition, learners received feedback in terms of the number of accurate answers and the percentile of ranking when compared to their classmates. After each class completed the instructional stages lasting for seven sessions and were given different feedback types, two questionnaires of self-efficacy and motivation appeared on the computer screen in the eighth session. Participants were asked to complete the questionnaires electronically. The self-efficacy questionnaire consisted of ten items that evaluated participants' sense of successfulness and efficacy after the treatment. In addition, the motivation questionnaire developed for the purpose of the present study was used to investigate learners' motivational attitudes towards feedback types.

Results

Two multivariate analyses of variance (MANOVA) were conducted. The first MANOVA was carried out to investigate the effects of gender, proficiency, and individual characteristics (i.e., self-efficacy and motivation) on participants' performance in self-referenced and norm-referenced feedback conditions.

Three statistical tests were performed to examine whether the statistical assumptions underlying the use of Multivariate Analysis of Variance were violated in the data set. First, Box's M test of equality of covariance matrices indicated that there were no significant differences between the covariance matrices. Therefore, the assumption of homogeneity of covariances across groups was not violated. Secondly, Levene's test of equality of error variances indicated that the homogeneity of variance for each of the dependent measures was not violated in the data set ($p > 0.05$). The third test used was the multivariate test of significance, Wilks' Lambda criterion variance which indicated that there was a statistically significant multivariate effect for gender levels ($F = .129$, $p < 0.05$), proficiency levels ($F = 2.977$, $p < 0.05$), and individual characteristics ($F = 1.016$, $p < 0.05$). Having determined that the results met the statistical criteria set out above, the next step was to conduct MANOVA for the self-referenced and norm-referenced

feedback categories. The results are shown in Tables 1 and 2 below. Table 1 indicates descriptive statistics and Table 2 shows MANOVA results.

Dependent Variable	gender	proficiency	Individual characteristics	Mean	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
Self-referenced	male	intermediate	self-efficacy	46.667	9.954	26.024	67.309
			motivation	58.750	8.620	40.873	76.627
	upper-intermediate	self-efficacy	55.600	7.710	39.610	71.590	
		motivation	71.667	9.954	51.024	92.309	
	female	intermediate	self-efficacy	43.000	17.240	7.246	78.754
			motivation	54.833	7.038	40.237	69.430
upper-intermediate	self-efficacy	74.167	7.038	59.570	88.763		
	motivation	75.000	12.191	49.718	100.282		
Norm-referenced	male	intermediate	self-efficacy	36.333	10.024	15.545	57.122
			motivation	56.750	8.681	38.747	74.753
	upper-intermediate	self-efficacy	51.000	7.764	34.897	67.103	
		motivation	48.000	10.024	27.212	68.788	
	female	intermediate	self-efficacy	33.000	17.362	-3.006	69.006
			motivation	48.167	7.088	33.467	62.866
upper-intermediate	self-efficacy	67.667	7.088	52.967	82.366		
	motivation	58.000	12.277	32.540	83.460		

Table 1. Descriptive statistics for self-referenced and norm-referenced feedback types

Source	Dependent variable	Type III sum of squares	df	Mean square	F	Sig.	Partial eta squared
Corrected model	Self-referenced	3107.217 ^a	7	443.888	1.493	.221	.322
	Norm-referenced	2861.383 ^b	7	408.769	1.356	.272	.301
Intercept	Self-referenced	77998.678	1	77998.678	262.423	.000	.923
	Norm-referenced	53943.901	1	53943.901	178.957	.000	.891
Gender	Self-referenced	69.480	1	69.480	.234	.634	.011
	Norm-referenced	73.750	1	73.750	.245	.626	.011
Proficiency	Self-referenced	1815.526	1	1815.526	6.108	.222	.217
	Norm-referenced	861.641	1	861.641	2.858	.105	.115
Individual characteristics	Self-referenced	564.746	1	564.746	1.900	.168	.080
	Norm-referenced	178.025	1	178.025	.591	.450	.026
Gender * proficiency	Self-referenced	294.667	1	294.667	.991	.330	.043
	Norm-referenced	504.635	1	504.635	1.674	.209	.071
Gender * individual characteristics	Self-referenced	81.266	1	81.266	.273	.606	.012
	Norm-referenced	48.138	1	48.138	.160	.693	.007
Proficiency * individual characteristics	Self-referenced	16.689	1	16.689	.056	.815	.003
	Norm-referenced	789.174	1	789.174	2.618	.120	.106
Gender * proficiency * individual characteristics	Self-referenced	76.102	1	76.102	.256	.618	.012
	Norm-referenced	.680	1	.680	.002	.963	.000
Error	Self-referenced	6538.950	22	297.225			
	Norm-referenced	6631.583	22	301.436			
Total	Self-referenced	121887.000	30				
	Norm-referenced	92601.000	30				
Corrected total	Self-referenced	9646.167	29				
	Norm-referenced	9492.967	29				

a. R Squared = .322 (Adjusted R Squared = .406)

b. R Squared = .301 (Adjusted R Squared = .379)

Table 2. MANOVA results for self-referenced and norm-referenced feedback types

The real performance of the students was recorded and compared. Students in the self-referenced condition did better than students in the norm-referenced condition with regard to individual characteristics ($F=1.90$, $p<0.05$) with a medium effect size. However, the impact of the other variables including gender, level of proficiency and their interaction was found to be non-significant.

Three statistical tests as for the second MANOVA were performed to examine whether the statistical assumptions underlying the use of Multivariate Analysis of Variance were violated in the data set. First, Box’s M test of equality of covariance matrices indicated that there were no significant differences between the covariance matrices. Therefore, the assumption of homogeneity of covariances across groups was not violated. Secondly, Levene’s test of equality of error variances indicated that the homogeneity of variance for each of the dependent measures was not violated in the data set ($p > 0.05$). The third test used was the multivariate test of significance, Wilks’ Lambda criterion variance indicated that there was a statistically significant multivariate effect for gender levels ($F = .201, p < 0.05$), proficiency levels ($F = 1.736, p < 0.05$), and individual characteristics ($F = .102, p < 0.05$). Having determined that the results met the statistical criteria set out above, the next step was to conduct MANOVA for the summative and formative feedback categories.

Dependent variable	Gender	Proficiency	Individual characteristics	Mean	Std. error	95% Confidence interval	
						Lower bound	Upper bound
Summative	male	intermediate	self-efficacy	35.000	13.438	7.427	62.573
			motivation	54.000	11.638	30.121	77.879
		upper-intermediate	self-efficacy	59.000	8.798	40.949	77.051
	female	intermediate	self-efficacy	58.000	23.276	10.241	105.759
			motivation	38.167	9.502	18.669	57.664
		upper-intermediate	self-efficacy	65.571	8.798	47.520	83.622
Formative	male	intermediate	motivation	68.250	11.638	44.371	92.129
			self-efficacy	62.000	11.694	38.007	85.993
		upper-intermediate	self-efficacy	63.857	7.655	48.150	79.565
	female	intermediate	motivation	63.333	11.694	39.340	87.327
			self-efficacy	64.000	20.254	22.442	105.558
		upper-intermediate	motivation	53.833	8.269	36.867	70.799
			self-efficacy	68.571	7.655	52.864	84.279
			motivation	74.000	10.127	53.221	94.779

Table 3. Descriptive statistics for summative and formative feedback types

Source	Dependent variable	Type III sum of squares	df	Mean square	F	Sig.	Partial eta squared
Corrected model	summative	4549.579 ^a	7	649.940	1.200	.336	.237
	formative	1270.671 ^b	7	181.524	.442	.866	.103
Intercept	summative	72800.273	1	72800.273	134.373	.000	.833
	formative	98764.572	1	98764.572	240.757	.000	.899
Gender	summative	207.667	1	207.667	.383	.541	.014
	formative	56.963	1	56.963	.139	.712	.005
Proficiency	summative	1679.439	1	1679.439	3.100	.090	.103
	formative	365.238	1	365.238	.890	.354	.032
Individual characteristics	summative	.873	1	.873	.002	.968	.000
	formative	26.063	1	26.063	.064	.003	.002
Gender * proficiency	summative	30.846	1	30.846	.057	.813	.002
	formative	131.351	1	131.351	.320	.576	.012
Gender * individual characteristics	summative	489.939	1	489.939	.904	.350	.032
	formative	.563	1	.563	.001	.971	.000
Proficiency * individual characteristics	summative	3.858	1	3.858	.007	.933	.000
	formative	124.693	1	124.693	.304	.586	.011
Gender * proficiency * individual characteristics	summative	668.573	1	668.573	1.234	.276	.044
	formative	65.715	1	65.715	.160	.692	.006
Error	summative	14627.964	27	541.776			
	formative	11076.071	27	410.225			
Total	summative	125493.000	35				
	formative	153412.000	35				
Corrected Total	summative	19177.543	34				
	formative	12346.743	34				

a. R Squared = .237 (Adjusted R Squared = .039)
 b. R Squared = .103 (Adjusted R Squared = .130)

Table 4. MANOVA results for summative and formative feedback types

Learners in the formative condition did better than the learners in the summative condition with regard to individual characteristics ($F=0.064$, $p<0.05$) and there was no significant difference between these groups with respect to their gender and level of proficiency. Also, the adjusted R square shows the explanatory power of the regression model that includes a number of predictors. Here, the gender and proficiency variables could predict the variation in the summative feedback to a small degree ($r^2=0.03$), but had a medium prediction of formative feedback ($r^2 = 0.13$).

In sum, participants in the self-referenced and formative feedback groups experienced an enhancement in their self-efficacy and motivation compared to the norm-referenced and summative feedback group learners. However, the impact of gender and level of proficiency of the learners on evaluative feedback types was found as non-significant.

Discussion and Conclusion

The present study was an attempt to investigate the impact of different computer-assisted feedback types on learners' self-efficacy and motivational attitudes in vocabulary learning. Teachers are able to direct their learners towards different academic and attainment goals based on different types of evaluative feedback. In formative and self-referenced feedback assessments, learners are encouraged towards the learning purpose of gradual self-improvement while in the summative and norm-referenced conditions, they are oriented towards a performance goal, considering the outcome of the task and doing their best to outperform their peers. In fact, formative feedback which includes strategy use information is particularly beneficial for learners since achievement results are usually related to the choice of task strategies (Anderson & Jennings, 1980). The findings of this study suggest further investigations of the effectiveness of summative and norm-referenced evaluations since many educational settings employ comparative assessment with learners in evaluating their performance and corroborate social comparison with achievement levels of classmates (Marsh, Kong, & Hau, 2000). In classroom contexts, learners are not given the autonomy of controlling the form of comparative evaluations they receive. Rather, teachers with specialist knowledge and authority (Oettingen, 1995) are the individuals who identify the assessment criteria and type of evaluation (Buunk, et al., 1990). Therefore, learners obtain information about their abilities when compared to their peers (Bandura, 1995). Such type of information influences their self-appraisal of their capabilities and in turn their self-efficacy beliefs (Oettingen, 1995). As a result, the responsibility is on the teachers who can design and present feedback that either retains or improves learners' self-efficacy.

The findings of the present research are consistent with the assumptions of goal theory of achievement motivation (Ames, 1992). In the formative group, learners could learn from their past performances and were motivated to employ learning strategies to take advantage of future performance. Learning strategies, as the means, enable learners to exert control over the academic purposes and improve the means-ends relation. As a result, learners can observe more control in the agent-means relation and as a consequence experience an enhanced self-efficacy. On the contrary, the summative learners were not presented with the learning strategies as tools of enhancement. Therefore, the maintenance of the self-efficacy could pose a challenge to them.

In the self-referenced condition, learners experienced an improvement in their self-efficacy beliefs while those in the norm-referenced group had a drastic decrease. Self-referenced evaluation oriented learners to self-improvement which could only be achieved as a result of consistent effort. However, norm-referenced feedback moved learners towards the goal of outperformance and rivalry. Regardless of the degree of investment, the performance and attempts of the learners are not controlled by themselves and the self-efficacy of the learners in the norm-referenced condition, therefore, cannot be strengthened.

The teachers' role in learners' achievement goals is quite significant. Pajares (2001) believes that learners with a learning goal tendency recognize learning as an end in itself. These learners are more likely to attribute the failure to impermanent and controllable causes such as effort and see a potential in themselves to remove the initial obstacles (Anderson & Jennings, 1980). On the contrary, learners who have a performance goal approach try to perform better than their peers so that their teachers, parents, and classmates can notice their competence. Learners with a performance-avoidance goal orientation carry out their academic assignments due to the sole reason of being afraid of appearing incompetent (Pajares, 2001). They are also more likely to attribute their setbacks to their ability. According to Anderson and Jennings (1980), if learners relate their failure to stable factors such as ability, they can view subsequent failure as unavoidable since they cannot control the stable factors.

Moreover, in both the self-referenced and formative groups, different feedback impacted the learners' motivation differently. The significant impact of teacher feedback on learners' motivation can be seen in Figure 2. This reconceptualization of motivation that was discussed in the present study pinpoints the role of teachers' evaluation on motivating learners at all stages of the teaching, learning, and assessment cycle in the learner's learning process. It seems obvious that teacher feedback not only plays a significant role in improving teaching, learning, and assessment, but also has a role to play in learner motivation. The red shaded arrows in the figure below highlight the fact that teachers' feedback could motivate learners at every stage in the teaching, learning, and assessment cycle.

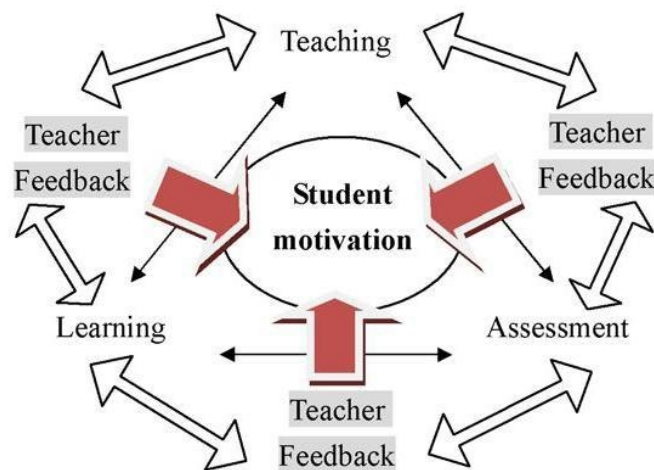


Figure 2. Relationship between teaching /learning/assessment, teacher feedback and student motivation

This figure indicates that teacher feedback is a principal component of the teaching/learning/assessment process. It should not be done only after the evaluation process but as a routine practice. This figure clarifies the fact that if teachers make good use of feedback in this process, learner motivation can be strengthened more effectively. In this study, teacher feedback was considered when teachers delivered feedback to learners after each test. However, their feedback also had a role in the teaching and learning process since it was through teacher feedback transition at each stage of the cycle that the positive influence of it could be made supportable.

In sum, the findings of the present research support previous research (e.g., Hufton, Elliott & Illushin, 2003; Pintrich, 2003) in terms of the influence of teachers' feedback on learners' motivation. As with Pintrich's (2003) findings which showed that understanding how different personal and contextual elements are combined to produce diverse patterns of motivated behavior, this study, too, indicated that the adoption of a holistic perspective when studying learner motivation is crucial and that learner motivation cannot be explained by focusing on only one factor.

The present study presented evidence advocating the supply of teacher feedback to motivate learners. An implication of this study is that teachers can be prepared or trained to make use of feedback as a motivating means. One method for this purpose is to incorporate feedback delivery abilities as an essential component in pedagogy in teachers' development activities. Teachers' both attitudinal characteristics, such as teaching styles and behaviors with learners and professional characteristics such as teaching experience and training, can have influence on their teaching approach and evaluation methods.. This provides justification for program developers to offer professional development support to teachers.

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Appendix A

Respond to the following statements on a scale from 1 to 6, with 1 showing your least level of agreement, while 6 showing your highest level of agreement. Darken the appropriate box.

Teacher feedback makes me feel that I am directed by others (locus of control).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback engages me with learning (interest).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback makes me feel capable of succeeding in the task (self-efficacy).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
After my teacher has given me feedback, I feel that doing the vocabulary task is a valuable learning experience (sense of self as a learner).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback reminds me not to give up (effort).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback makes me feel proud of myself (self-esteem).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback helps me realize that my goal is to learn (goal-orientation).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback encourages me to keep trying (effort).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback makes me feel capable of evaluating my own work (self-regulation).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback makes me feel that I am a failure (self-efficacy).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback makes me feel happy when learning (interest).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback helps me realize that my goal is to perform well in the test (goal-orientation).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback makes me feel that I am in control of learning (locus of control).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
After my teacher has given me feedback, I feel confident to learn from the assessment tasks (sense of self as a learner).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback helps me decide what to do next (self-regulation).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○
Teacher feedback helps me value myself as a learner (self-esteem).	1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○

Appendix B

Dear Participants,

The following questionnaire is part of a research project that investigates your sense of self-efficacy. Your valuable opinions and answers will be appreciated.

	1 Not at all	2	3 Not really	4	5 Quite a lot	6	7 Very much
Can the result of the last test show how much you have learnt the prefixes?							
Was the teaching clear?							
How was the teaching speed?							
Were the examples in the lessons useful?							
Was the classroom noisy?							
Have you learnt more about prefixes after these lessons?							
How confident are you to do well in the next test?							
How much control do you have over the result of the coming test?							
How confident are you to learn all the prefixes in the next lesson?							
How much control do you have over how well you learn in the next lesson?							