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Developing Iranian EAP students' Writing Skill through Explicit Instruction of Lexical Bundles*

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Abstract

The present study sought to investigate the effect of explicit instruction of lexical bundles (LBs) on the development of Iranian English for Academic Purposes (EAP) students' writing quality and also their receptive and productive knowledge of Lexical Bundles (LB). Assigned to two experimental and control groups, the eighty participants took pre- and post-tests of writing tasks and the receptive knowledge test. Afterwards, the obtained scores were subjected to a series of Analyses of Covariance (ANCOVAs) and paired samples t-tests. Results of the within-group and between-group analyses indicated that explicit instruction of LBs enhanced the participants' productive and receptive knowledge of LBs and also improved the overall quality of their written productions. Possible explanations are provided and the implications of the findings for the applicability of LBs instruction are discussed.

Keywords: Lexical bundle (LB), Explicit instruction, English for Academic Purposes (EAP), Receptive and production knowledge, L2 writing.

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Introduction

University students in the present era might face many different challenges when they enter academic world. One of the great challenges they face is to get their articles published, so they should display a native-like skill in expressing their ideas. The academic genre, like other genres, has its special words usually referred to as jargon. Using special formulaic combinations which are conventionally appropriate in academia is one of the ways to be successful in the academic world. Applying especial prefabricated patterns shows that the author is a member of the academic group, and her/his writing is considered commendable by the professionals in the field of science.

The notion of Lexical bundles (LBs), as introduced by Biber, Johansson, Leech, Conrad, and Finegan (1999) refers to recurrent expressions regardless of their idiomaticity, and regardless of their structural status: that is, simple sequences of words that commonly co-occur in natural language use (Biber et al., 1999). In this sense, Biber and Barbieri (2007) mention that since LBs are highly frequent, learning them is not only with greater ease but also help students spend less effort in developing the productive skill required to use them in a genre of science according to conventions accepted by the insiders of the field. Teaching LBs involves both their discourse functions as well as their proper place of using them. The LBs referred to as multi-word expressions have proven to be essential not only to gain lexicogrammatical competence, but also to develop fluency and pragmatic competence required of academic writers in presenting the results of their research (Cortes, 2004; Granger, 1998). 'Lexical bundles' is adopted as the primary term throughout this study, as it is used by Biber in a series of studies upon which the theoretical and analytical framework of the current study is based.

Among various aspects of EAP practice, teaching vocabulary to EAP/ESP students has remained as a neglected area in writing courses, for which a solution might be teaching formulaic combinations; such a practice has been left mostly under-developed. It is said that research in this area is still in its infancy (Robinson, 2007). In efforts made for gaining insight into EAP vocabulary, Jordan (1989) divided EAP vocabulary into three main categories of technical, semi-technical and

general among which the semi-technical becomes the focus of most studies in EAP vocabulary teaching.

Moreover, the problem of lack of expertise in writing academic texts is becoming more significant as more and more international students are traveling to English-medium universities where proficient writing (including the appropriate use of formulaic language) is required. Similarly, based on our experience as language teachers, Iranian EFL learners have problems in writing unified paragraphs through using appropriate vocabulary in line with the conventions of the discipline. Students need to learn what vocabulary items are essential and how they could learn the most effective ways for improving their writing skill; they may not know what methods they should use in order to improve their writing performance, in general, and paragraph writing in particular.

To sum up, teaching LBs explicitly to the learners is a step which can be taken to present the knowledge about previously unnoticed lexical sequences to learners, helping them improve their understanding of how the passages are produced in styles acceptable to the members of the academic genre. Many scholars have investigated the nature of vocabulary acquisition and have concluded that enough number of exposures are required for learners to claim they have learned the appropriate conventions of writing academic texts with quantities of LBs (Schmitt, 2010, O'Keeffe et al., 2007). Therefore, the trust is to measure the impact of explicit teaching of LBs on Iranian EAP students' academic writing and raising students' awareness of LBs in context by employing an appropriate instructional program.

According to the aforementioned issues, this study addressed the following research questions and hypotheses.

1. Does explicit instruction of LBs have any effect on the frequency of LBs used in Iranian EAP students' written productions?
- H₀. Explicit instruction of LBs does not have any effect on the frequency of LBs used in Iranian EAP students' written productions.
2. Does explicit instruction of LBs have any effect on the overall quality of Iranian EAP students' written productions?

H₀. Explicit instruction of LBs does not have any effect on the overall quality of Iranian EAP students' written productions.

3. Does explicit instruction of LBs have any effect on Iranian EAP students' receptive knowledge of LBs?

H₀. Explicit instruction of LBs does not have any effect on Iranian EAP students' receptive knowledge of LBs.

Method

Participants

Eighty male and female intermediate EAP learners, with the age ranges from 20 to 32, participated in the current research. They had already passed pre-requisite English and general English course and were studying specialized English courses (1 and 2). Participants were randomly divided into two equal groups of comparison and experimental. The proficiency level of the participants (i.e., intermediate level) was determined by an Oxford Placement Test (OPT) before carrying out the treatment. It should be noted that the total number of students were 127, among which only the gathered data referred to the intermediate-level learners were considered for the analysis (N = 80).

Materials

Instructional Materials (micro-lessons)

The experimental group was treated by five micro-lessons and teaching materials which were adopted from the work done by Cortes (2006). The present study took place in specialized English classes for medical students that cover a variety of topics in medicine and dentistry. It was tried to include specific instruction in English writing in seminar-style classes. The researcher helps students to focus on English writing conventions and provides appropriate and frequent feedback to their writing. The researcher tries on a regular basis to introduce the use of LBs to students in this intensive writing class.

For this purpose, the researcher designed five 20-minute micro-lessons that were delivered at different times in the semester, approximately once every 2 weeks in a period of 15 weeks. All the students in this study were expected to produce various papers throughout the semester instead of taking tests or submitting only a final

written report. The researcher was always present in each of 5 micro-lessons, providing and presenting instruction in the use of certain four-word LBs frequently occurring in medical articles. It should be noted that the target bundles were selected from among the list of LBs extracted from published medical papers by Author et al. (2017).

In all micro-lessons, all students in the class worked on exercises provided by the English instructor. In these lessons, a group of related target bundles were introduced to students in contextualized examples taken from the corpus of medical articles. Students worked in pairs analyzing possible uses of these expressions. The micro-lessons finished with some application exercise of the type of filling in the blanks and multiple choice questions.

Vocabulary Knowledge Scale (VKS)

A Vocabulary Knowledge Scale (VKS) was developed based on the model given by Wesche and Paribakht (1996). The VKS was used as pre- and post-tests for the two groups in order to assess their perceived knowledge of LBs before and after the treatment. The specific purpose of this scale is to be a “practical instrument for use in studies of the initial recognition and use of new words” (Wesche & Paribakht, 1996, p. 29). Therefore, as this research had a similar scope, this scale was a useful instrument for this project. In order to investigate the reliability of the VKS, Cronbach's coefficient alpha was calculated, the results of which indicated that the reliability of this test was acceptable value of .83.

The VKS utilized in this research contains 30 LBs and the ranges of the scale are from 30 to 150. It required the participants to self-report their level of familiarity with a particular word on a scale of five levels. Additionally, the upper three levels (3, 4, 5) required the participants to provide evidence of the reported knowledge by either writing the L1 translation of the word (3, 4), or an L2 sentence using the word in context (5).

The five levels of self-reported vocabulary knowledge used in this study were as follows:

1. I have never seen this word before.
2. I have seen this word before, but I don't know what it means.

3. I have seen this word before, and I think I know what it means.
4. I have seen this word before, and I know what it means.
5. I have seen this word before, I know what it means, and I can use it in a sentence.

The Writing Tasks

Following Alhassan and Wood (2015), two writing tasks similar to the first writing task in the academic IELTS test was utilized in the current study (see Appendix). Each task consisted of 2 charts based on which learners were required to write some explanations of about 200 words in 30 minutes. The first task which was used as the pretest, provided a bar chart that shows the medical research funding amount in millions of Dollars in Someland and also shows the death number for this area. The participants had to write a report for a university lecturer describing the information shown below. The second task which was used as the posttest, presented 2 charts regarding the result of a survey in June 1996, about an experimental flu vaccine that was trialed in a large country town on females only. The students were required to summarize the information by selecting and reporting the main features, and make comparisons where relevant.

The Writing Rubric

A writing rubric was used to assess the overall quality of the pretest and posttest writing tasks. The rubric is taken from Colovic-Markovic (2012) which is a modified version of the rubric developed by Jacobs, Harfield, Hughey, and Wormeth (1981). The scoring guide is based on a four-point scale, and student writings were assigned a score on the scale from 1 to 4 for each of the aspects of writing: a) development of the thesis and amount of support provided (content), b) unity of ideas (organization), c) clarity of expression and range of vocabulary used (vocabulary), d) syntactic complexity and grammar accuracy (language use) e) spelling, punctuation, capitalization, and general formatting (mechanics). The scores were calculated by multiplying content by 7.25; organization by 5; vocabulary by 5; language use by 6.25; and mechanics by 1.25. Finally, the sum of these scores forms an overall score.

Procedures

All the data were collected over a 16-week period in four classes at two universities in Isfahan during the spring semester of 2016. The study was conducted in the EAP writing classes that met one time each week (each 1.5 hours). Before the experiment, the participants were informed that all details of the procedures would be confidential and their writings would not be graded as part of their academic achievement.

The participants in four intact classes were considered as the experimental group (N= 40) and the control group (N = 40). In the first week, to determine the participants' level of proficiency, the OPT was administered and intermediate-level learners were selected according to the OPT manual. In the second week, the participants in both groups were asked to take the pretests (Writing Task 1 and the VKS) in a normal classroom setting over the scheduled class periods.

During the study all of the conditions were the same for the experimental and control groups except for the treatment in the experimental group (i.e., instruction of the 5 micro-lessons). Both groups were taught by one teacher who used the exact same syllabus, coursework, and the same textbook. All the students in the experimental group were expected to produce various papers throughout the semester instead of taking tests or submitting only a final written report. The lessons were delivered at different times in the semester, approximately once every 2 weeks. In all micro-lessons, all students in the class worked on exercises provided by the English instructor. Students were engaged in a paraphrasing activity, in which they needed to decide what the use of a certain bundle would provide to a bundle-free passage, focusing on the particular function that the author was trying to convey. Students in control group received no instruction of bundles at all.

Once all the micro-lessons were covered, both groups were asked to take the posttest i.e., writing task 2 and the VKS.

Data analysis

After entering the required data into SPSS (v. 22), a number of descriptive and inferential statistics were performed to investigate the research hypotheses of the study. Throughout the analysis, mean scores obtained from the pretests and posttests were considered as the dependent variables. In addition, the independent variable was the instruction of LBs. First, descriptive statistics for each of the writing

tasks were calculated separately in the two testing periods for the experimental and control groups. Second, preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances. Afterwards, in order to investigate the effectiveness of the explicit instruction of LBs, pretest and posttest scores were subjected to a series of Analyses of Covariance (ANCOVAs) and paired samples t-tests.

RESULTS

Research Question 1

The first research question addressed the effect of explicit instruction of LBs on the frequency of LBs used in Iranian EAP students' written productions. In order to investigate this research question, paired samples t-tests were conducted to examine the improvements from pretest to posttest within each group. Afterwards, an analysis of covariance (ANCOVA) was carried out across the two groups to investigate between-group differences at the posttests. The minimum alpha for confirmation of the research hypothesis was .05.

The Descriptive statistics of the frequency of bundle scores for the experimental and control groups at pretest and posttest periods are demonstrated in Table 1. Moreover, Figure 1 provides visual presentations of the scores for the two groups under analysis over the two testing periods.

Table 1 *Descriptive Statistics of the Frequency Scores*

Group		Mean	N	Std. Deviation	Std. Error Mean
Experimental	Pre-Writing Frequency	3.03	40	1.625	.257
	Post-Writing Frequency	5.25	40	2.060	.326
Control	Pre-Writing Frequency	3.10	40	1.549	.245
	Post-Writing Frequency	3.35	40	1.777	.281

Table 1 displays that the frequency scores improved from pretest to posttest in both groups, although this improvement is marginal in the control group. In order to show the differences more clearly findings

are also illustrated in Figure 1. Additionally, as shown in Table 1, the pretest mean score of the control group ($M = 3.10$) is slightly higher than that of the experimental group ($M = 3.03$). Concerning the posttests, the mean score of the experimental group ($M = 5.25$) is greater than the control group ($M = 3.35$).

To establish whether the differences between the pretest and posttest within each group were statistically significant, paired samples t-tests were run and presented in Table 2.

Table 2 Paired Samples T-tests of Frequency Scores

Group		Paired Differences					Sig. (2- df tailed)	
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference			
					Lower	Upper		
Experimental	Pre-Writing	-						
	Frequency - Post-Writing	2.22	.800	.127	-2.481	-1.969	17.39	.000
	Frequency	5					585	
Control	Pre-Writing	-						
	Frequency - Post-Writing	-.250	1.056	.167	-.588	.088	1.439	.142
	Frequency						97	

Paired samples t-tests in Table 2 reveals that the frequency scores of the experimental group significantly improved from pretest to posttest $t(39) = -17.585, p = .000$. However, Table 2 shows that there is not any statistically significant difference between the pretest and posttest scores in the control group, $t(39) = -1.497, p = .142$. These results suggested that explicit instruction of LBs led to a significant increase in the number of bundles used by the participants from pretest to posttest (see Figure 1).

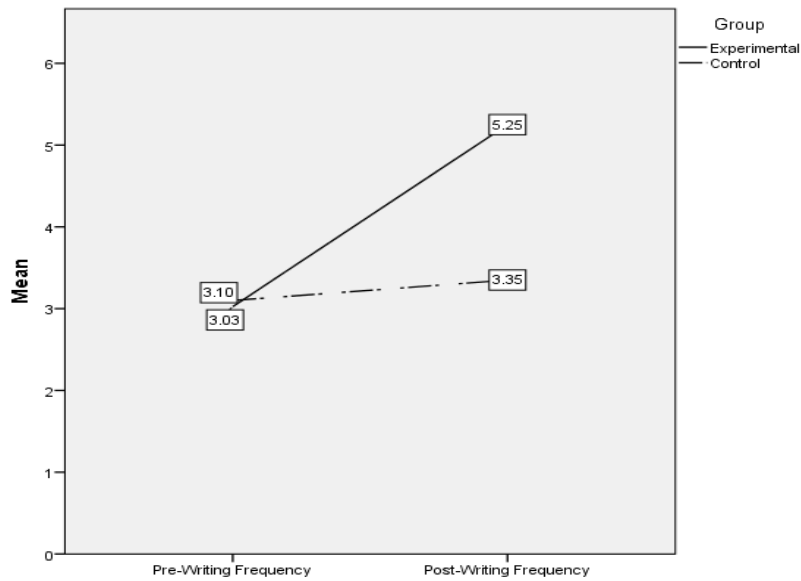


Figure 1. Development of the frequency of used LBs from pretest to posttest

In the next step, an ANCOVA was conducted to examine the impact of the treatment by comparing the posttests of the two groups. Adjusted means of posttests are reported in Table 3. Additionally, Table 4 presents the results of ANCOVA.

Table 3 Descriptive Statistics of Adjusted Posttests of Frequency Scores

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experimental	5.290 ^a	.148	4.994	5.585
Control	3.310 ^a	.148	3.015	3.606

a. Covariates appearing in the model are evaluated at the following values: Pre-Writing Frequency = 3.06.

Table 3 shows that the mean of the experimental group is greater than the mean of the control group. That is, the experimental group outperformed the control group as far as the number of used LBs was

concerned. But the significance of this difference needs to be checked in the ANCOVA table below.

Table 4 Results of ANCOVA for Frequency Scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	293.030 ^a	2	146.515	166.471	.000	.812
Intercept	18.452	1	18.452	20.965	.000	.214
Group	78.323	1	78.323	88.991	.000	.536
Error	67.770	77	.880			
Total	1840.000	80				
Corrected Total	360.800	79				

a. R Squared = .812 (Adjusted R Squared = .807)

The results of the ANCOVA in Table 4 reveals that, after adjusting for pretest scores, there are statistically significant differences between the two groups as far as the posttest frequency scores are concerned, $F = 88.991$, $p = .000$ (see Figure 1).

Therefore, the obtained results with regard to the effect of explicit instruction on the frequency of LBs in students' written productions indicated that the experimental group outperformed the control group at the posttest. Additionally, within-group analyses showed that the explicit instruction led to significant developments from pretest to posttest. Consequently, the null hypothesis predicting that the explicit instruction of LBs does not have any effect on the frequency of LBs used in Iranian EAP students' written productions is rejected.

Research Question 2

The second research question sought to examine the effect of explicit instruction on the writing quality of the students' written productions. As for the previous research question, within-group and between-group analyses were performed in order to investigate the effect of explicit instruction on the writing quality. That is, paired samples t-tests

followed by an ANCOVA were conducted on the participants' writing pretest and posttest scores.

Table 5 presents the descriptive statistics for the writing scores in the pretests and posttests across the two experimental and control groups. In addition, visual representations of the writing scores are provided in Figures 2.

Table 5 Descriptive statistics of the writing scores

Group		Mean	N	Std. Deviation	Std. Error Mean
Experimental	Pre-Writing Score	44.75	40	13.954	2.206
	Post-Writing Score	58.85	40	18.124	2.866
Control	Pre-Writing Score	45.65	40	13.155	2.080
	Post-Writing Score	46.65	40	14.445	2.284

As depicted in Table 5, the pretest mean score of the experimental group ($M = 44.75$) is marginally smaller than that of the control group ($M = 45.65$). In addition, the posttest mean of the experimental group ($M = 58.85$) is larger than that of the control group ($M = 46.65$). In addition, there is a huge increase in the mean scores from pretest to posttest in experimental group. However, as for the control group, this increase is small from pretest to posttest (see Figure 2).

In order to see whether the differences are statistically significant, paired samples t-tests were run on the writing quality pretest and posttest scores within each group.

Table 6 Paired Samples T-Tests of the Writing Scores

Group	Paired Differences								
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)	
				Lower	Upper				
Experimental	Pre-Writing Score - Post-Writing Score	-14.100	12.79	2.02	-18.19	-10.00	-6.97	39	.000
Control	Pre-Writing Score - Post-Writing Score	-1.00	4.55	.721	-2.45	.458	-1.38	39	.17

The results of paired samples t-tests in Table 6, shows that the small improvement in the scores of the control group, illustrated in Figure 2, could not reach significance, $t(39) = -1.388$, $p = .173$. However, the findings presented in Table 6 uncovers that there are significant improvements made by the experimental group from pretest to posttest, $t(39) = -6.970$, $p = 000$. These results suggest the experimental group improved significantly as shown by the development of the scores from pretest to posttest.

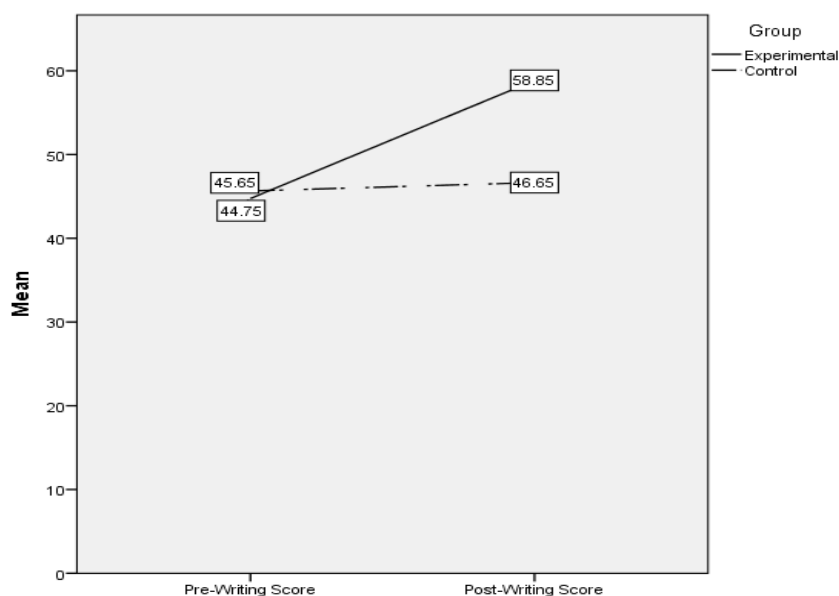


Figure 2. Development of writing scores from pretest to posttest

Yet, between-group differences should also be examined before jumping to any conclusions. Subsequently, an ANCOVA was carried out to examine if there was a significant difference between the posttest scores while pretest scores were hold constant. Adjusted means of posttests are reported in Table 7.

Table 7 Descriptive Statistics of the Adjusted Posttests of the Writing Scores

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experimental	59.291 ^a	1.528	56.248	62.334
Control	46.209 ^a	1.528	43.166	49.252

a. Covariates appearing in the model are evaluated at the following values: Pre-Writing Score = 45.20.

As reported in Table 7, the adjusted posttest mean scores for the experimental group is smaller than that of the control group. That is, the experimental group outperformed the control group as far as the quality

of the writings was concerned. But the significance of this difference needs to be examined via running an ANCOVA.

Table 8 Results of the ANCOVA for the Writing Scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	16737.427 ^a	2	8368.713	89.653	.000	.700
Intercept	463.721	1	463.721	4.968	.029	.061
Group	3418.678	1	3418.678	36.624	.000	.322
Error	7187.573	77	93.345			
Total	246530.000	80				
Corrected Total	23925.000	79				

a. R Squared = .700 (Adjusted R Squared = .692)

The results of the ANCOVA, shown in Table 8, reveals that there is a statistically significant difference between the two groups at the posttest, $F = 36.624$, $p = .000$. This finding indicates that the writing quality of the students who received the instruction was significantly better than those who did not get any instruction (see Figure 2).

All in all, based on the obtained findings, deductions could be made that the participants in the experimental group could significantly improve their writing scores from pretest to posttest. Besides, the students who received instruction in the experimental group significantly outperformed the control group as far as the writing posttest scores were concerned. That is, explicit instruction had a positive effect on the learners' writing quality. Therefore, the null hypothesis as explicit instruction of LBs does not have any effect on the overall quality of Iranian EAP students' written productions was rejected.

Research Question 3

Since the third research question tried to investigate the effect of explicit instruction on the receptive knowledge of LBs. Paired samples t-tests and an ANCOVA were computed to investigate this research hypothesis. In the first step, to examine the development of the

receptive knowledge scores through the two testing periods, paired samples t-tests were run within each group. The descriptive statistics of the receptive knowledge scores over the two testing periods across the two groups are demonstrated in Table 9. Additionally, visual representations of the receptive knowledge scores are illustrated in Figure 3.

Table 9 *Descriptive Statistics of the Receptive Knowledge Scores*

Group		Mean	N	Std.	
				Deviation	Std. Error Mean
Experimental	Pre-Receptive Knowledge	54.74	40	16.082	2.543
	Post-Receptive Knowledge	65.82	40	18.580	2.938
Control	Pre-Receptive Knowledge	56.52	40	18.122	2.865
	Post-Receptive Knowledge	58.31	40	19.850	3.139

Table 9 reveals that while the mean scores of the two groups were not equal in the pretests, the posttest mean score of the experimental group ($m = 65.82$) is larger than the posttest mean of the control group ($m = 58.31$). Additionally, the mean score of the experimental group has increased from pretest to posttest. Moreover, Table 9 shows that increase from the pretest to posttest is not noticeable for the control group (see Figure 3).

In order to investigate whether the differences are significant or not, paired samples t-tests are computed within each group to investigate the development receptive knowledge scores over time.

Table 10 Paired Samples T-Tests of the Receptive Knowledge Scores

Group		Paired Differences						t	df	Sig. (2- tailed)
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference					
					Lower	Upper				
Experimental	Pre- Receptive Knowledge - Post- Receptive Knowledge	-11.08	5.46	.86	-12.82	-9.33	-12.8	39	.000	
Control	Pre- Receptive Knowledge - Post- Receptive Knowledge	-1.79	9.52	1.50	-4.83	1.25	-1.18	39	.24	

As reported in Table 10, paired samples t-tests manifest significant gains from pretest to posttest in the experimental group, $t(39) = -12.836$, $p = .000$. Moreover, Table 10 indicates no significant differences from pretest to posttest within the control group, $t(39) = -1.189$, $p = .241$. These results suggest the explicit instruction group improved significantly from pretest to posttest (see Figure 3).

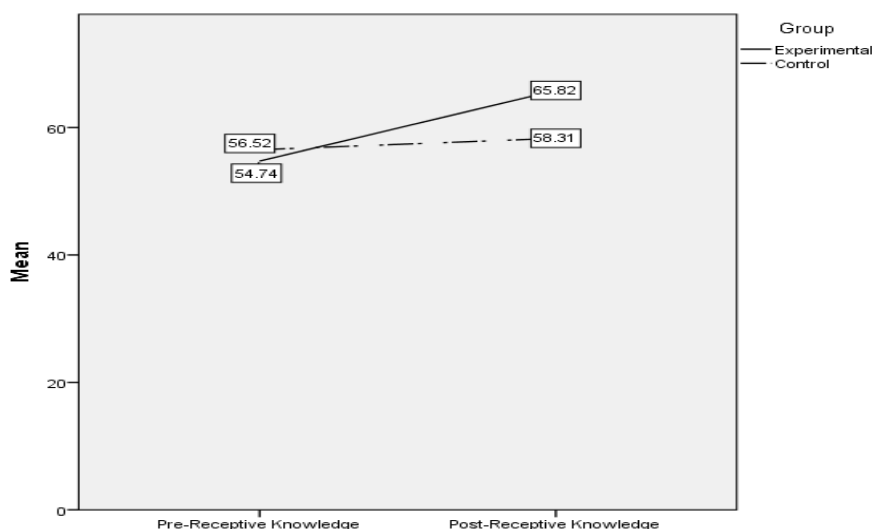


Figure 3. Development of receptive knowledge from pretest to posttest

Subsequently, an ANCOVA is run to inspect between-group differences. The adjusted receptive knowledge posttests are presented in Table 4.11.

Table 11 Descriptive Statistics of the Adjusted Posttests of the Receptive Knowledge Scores

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Experimental	66.735 ^a	1.234	64.278	69.192
Control	57.397 ^a	1.234	54.940	59.853

a. Covariates appearing in the model are evaluated at the following values: Pre-Receptive Knowledge = 55.63.

The descriptive statistics in Table 11 show that the adjusted posttests mean score of the experimental group ($M = 66.735$) is greater than the adjusted posttests mean score of the control group ($M = 57.397$). Afterwards, an ANCOVA is carried out to examine if there is a significant difference between the posttest scores while pretest scores are hold constant.

Table 12 Results of the ANCOVA for the Receptive Knowledge Scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	25277.109 ^a	2	12638.555	207.840	.000	.844
Intercept	164.712	1	164.712	2.709	.104	.034
Group	1739.282	1	1739.282	28.602	.000	.271
Error	4682.287	77	60.809			
Total	338131.983	80				
Corrected Total	29959.397	79				

a. R Squared = .844 (Adjusted R Squared = .840)

The results of the ANCOVA, shown in Table 12, indicates that there is a statistically significant difference between the two group regarding the receptive knowledge posttest scores, $F = 28.602$, $p = .000$. Therefore, as displayed in Figure 3, the experimental group outperformed the control group.

Therefore, findings with respect to the receptive knowledge of LBs indicated that learners in the explicit instruction group could significantly improve their scores from pretest to posttest. Also, between-group comparisons showed that the explicit instruction group outperformed control group. As a result, the null hypothesis stating that explicit instruction of LBs does not have any effect on Iranian EAP students' receptive knowledge of LBs was rejected.

Discussion

Research Question 1

Results of the first question indicated that the experimental group outperformed the control group at the posttest. Additionally, within-group analyses showed that the explicit instruction led to significant developments from pretest to posttest. Consequently, the null hypothesis predicting that the explicit instruction of LBs does not have any effect on the frequency of LBs used in Iranian EAP students' written productions is rejected.

These results are in agreement with the findings by (AlHassan & Wood, 2015; Boers, Eyckmans, Kappel & Demecheleer, 2006; Ergin, 2013) that instruction led to the usage of larger number of LBs by participants. Further, AlHassan & Wood (2015) demonstrated the effectiveness of the focused instruction of formulaic sequences in helping students to use more LBs in their writing. In addition, Boers, Eyckmans, Kappel, Stengers, and Demecheleer (2006) found that the treatment facilitated students' use of formulaic language. Similarly, the results of Ergin's (2013) study revealed that after the formulaic language treatment the number of formulaic sequences used in the posttest was greater than the pretest. In another study, Jones and Haywood (2004) reported that EAP student's usage of formulaic language improved after receiving awareness raising activities and they were able to use more discourse markers in their essays. Moreover, findings of Nguyen (2014) indicated that form-focused instruction was successful in helping learners produce the newly learnt formulaic sequences in a different context.

Most of the participants in the present study used very few LBs, if any, in the pretest. However, after the explicit instruction, they used LBs more frequently and produced more coherent and cohesive texts. In fact, increasing the learners' awareness of the usefulness of LBs in writing a decent piece of writing seems to encourage them to implement more LBs. Looking through this lens, our results support AlHassan and Wood (2015), Hyland (2008b), and Nattinger and DeCarrico (1992).

The fact that the explicit instruction of LBs in the present study resulted in an increase in the number of LBs used by the participants resonate with the suggestion of other SLA scholars concerning the value of teaching formulaic sequences explicitly in the classroom (e.g., Boers & Lindstromberg, 2009; Granger, 1998; Hyland, 2008b; Paquot, 2008)

On the other hand, our findings are not in line with that of Cortes (2006) who analyzed history students' final written productions for LBs after the instruction but found no significant improvement. Although, Cortes mentioned that students' awareness of and interest in these expressions were increased after the treatment. In the same vein, Jones and Haywood (2004) reported that that students rarely used LBs in their written productions before and after instruction.

Research Question 2

The second research question addressed the effect of explicit instruction on the writing quality of the students' written productions. It was found that the participants in the experimental group could significantly improve their writing scores from pretest to posttest. Besides, the students who received instruction in the experimental group significantly outperformed the control group as far as the writing posttest scores were concerned. That is, explicit instruction had a positive effect on the learners' writing quality. Therefore, the null hypothesis as explicit instruction of LBs does not have any effect on the overall quality of Iranian EAP students' written productions was rejected.

These findings are in agreement with the findings of some other researcher such as: AlHassan and Wood (2015), Dastjerdi and Shirzad (2010), Ergin (2013), Kazemia, Katiraeib and EslamiRasekh's (2014) Ranjbar, Pazhakh and Gorjian (2012), and Wood (2009) all of whom suggested the positive effect of instruction on the writing quality of the students' productions.

On the contrary, our results are not consistent with Čolović-Marković (2012) in that his results showed no statistically significant difference between the quality of the essays produced by the students who received and those who did not receive explicit instruction on the formulaic sequences. However, he suggested that the explicit instruction facilitated learning of the target formulaic sequences when the learning is measured by a test.

The obtained results with regard to the quality of the participants' written productions implies that explicit instruction of LBs not only fostered the attainment and internalization of the LBs, but also facilitated the correct usage of LBs which led to better and more professionally written texts. According to Handl (2008), this is considered essential for proficient writing skills.

Accordingly, the above discussion shows that explicit instruction of LBs is likely to raise L2 learners' awareness of different LBs and promote EAP students' ability to accurately integrate them in their writings and write quality texts (Boers & Lindstromberg, 2009; Ellis et al., 2008; Granger, 1998).

Research Question 3

The findings with respect to the receptive knowledge of LBs indicated that learners in the explicit instruction group could significantly improve their scores from pretest to posttest. Also, between-group comparisons showed that the explicit instruction group outperformed control group. As a result, the null hypothesis stating that explicit instruction of LBs does not have any effect on Iranian EAP students' receptive knowledge of LBs was rejected.

Our finding is consistent with Peters (2012) who detected that the pedagogical intervention had an effect on participants' recall scores, suggesting that it facilitated learning of unknown lexical items, and learning of formulaic sequences in particular. In addition, similar results were drawn by Thomson (2016) who indicated that noticing LBs with schematic linguistic representation had a positive effect on the knowledge of LBs. However, she reported that no significant results were obtained regarding the long-term knowledge retention. Moreover, in Alali and Schmitt's (2012) study, positive effects of teaching on the knowledge of idioms and words were reported.

Moreover, this study supports the Schmitt's (2010) idea that enhancing the receptive knowledge of lexical items demands the teachers to instruct the LBs or create situations in which L2 learners can have multiple exposures.

However, the findings of this study could not support that of Stengers, Boers, Housen, & Eyckmans (2010). They concluded that there may be no need for learners to explicitly notice the more narrowly defined LBs. However, the difference between their study and ours is that the intervention was teacher-led noticing and the focus was on chunks not four-word LBs. According to Boers & Lindstromberg (2012), non-significant results like in Stengers et al, (2010) might be related to the amount of exposure to formulaic sequences. They mentioned that seeing the phrase a few times is not enough for learning.

Taken together, research on the most effective ways of teaching LBs warrant additional research and is the subject of continuous analysis.

Conclusion

Based on the obtained findings, deductions can be made that explicit instruction of LBs can enhance L2 learners' productive and receptive knowledge of LBs and also improve the overall quality of their written

productions. This finding is in agreement with the findings of other researchers all of whom suggested the positive effect of LBs instruction. Our results suggest that as an EAP student receive the appropriate instruction, the student can learn and produce LBs in quality writings.

The findings of this study can be beneficial for stakeholders who are in charge of planning and designing materials for EAP classes specially the writing and vocabulary sections of course books for students of medical sciences students. In addition, mini-lessons as the ones used in the current study can be designed so as to improve students' autonomy and confidence as a result of feeling proficient enough in English writing and necessary vocabulary for their future career. Teaching LBs explicitly to the learners is a step which can be taken to present the knowledge about previously unnoticed lexical sequences to learners, helping them improve their understanding of how the passages are produced in styles acceptable to the members of the academic genre. Acquisition of LBs can be achieved through repeated exposure the same way as different language skills and items such as grammatical structures or single words are acquired.

The present study had certain limitations that offer opportunities for further research. The participants were required to produce the target LBs in the writing tasks and the frequency of the utilized bundles were considered as an indication of their productive knowledge of LBs. It is unclear how the results would change if they were asked to use the bundles in a controlled context with some hints included. In future studies, therefore, it may be beneficial to use more controlled contexts to assess the productive knowledge. Future studies should also try to increase the qualitative investigations by interviewing students and professors involved. It would be beneficial to find out how the LBs are taught, learned and evaluated.

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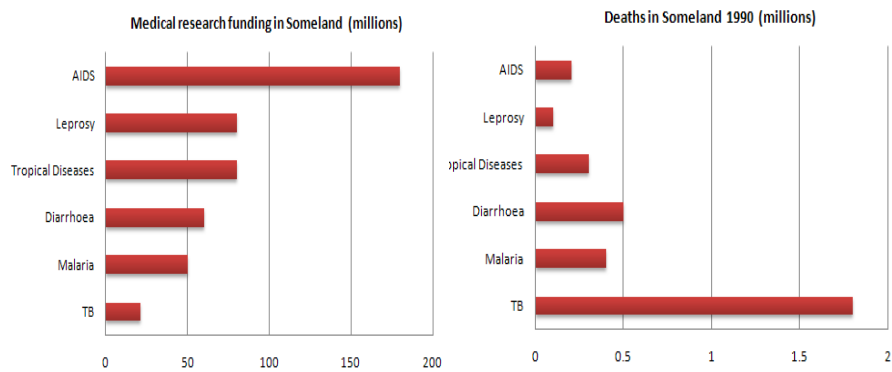
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APPENDIX: Writing Tasks

Task 1: The charts below show the Medical research funding amount in millions of Dollars in Someland and also shows the death number for this area.

Write a report for a university lecturer describing the information in the graphs below.

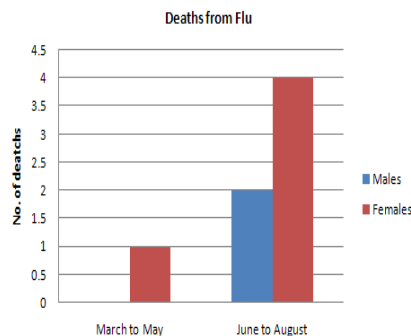
- » You should write at least 150 words.
- » Allow yourself 30 minutes for this task.

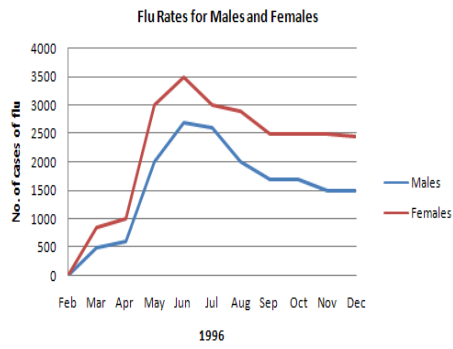


Task 2: In June 1996, an experimental flu vaccine was trialed in a large country town on females only. The result of this survey is presented in the following illustration.

Summarize the information by selecting and reporting the main features, and make comparisons where relevant.

- » You should write at least 150 words.
- » You should spend about 30 minutes on this task. (Taken from: <http://www.ieltsmentor.com>)





Female recipients of new vaccine groups most at risk

