



Student and Teacher Attitude Toward Using Concordancing in Learning and Teaching Preposition Collocations: Issues and Options

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Abstract

The present study explored the effectiveness and efficacy of concordance-based instruction on learning and using preposition collocations (PCs) by Iranian EFL learners. Furthermore, we explored the instructional issues involved from both students and the teacher's perspectives. To this end, 60 homogeneous intermediate EFL learners participated in the study as the two thirty-subject groups of experimental and control. A researcher-made test on PCs was administered as the pretest to make sure that the learners' knowledge of PCs was approximately equal. Two parallel versions of the pretest were administered, in turn, as the immediate and delayed posttests with the aim of evaluating the possible effect(s) of eight sixty-minute treatment sessions. The results of a repeated-measures ANOVA revealed a significant difference between the performance of the experimental group and control group from the immediate to the delayed posttests. Also, the effect for the interaction of time and group was significant. At the end of the study, a 20-item questionnaire was administered to elicit participants' attitudes towards using concordancing to learn PCs. The results revealed that almost all respondents expressed positive attitudes towards learning PCs through concordancing, although some participants faced some practical or technical difficulties while using this technology. We also surveyed the teacher's attitude towards concordance-based PC instruction via an interview, proposing further issues and options for the classroom teaching practice. Lastly, the implications of the study for language teaching and applied linguistics are discussed.

Keywords: concordancing, grammatical collocations, lexical collocations, preposition, preposition collocations (PCs)

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Introduction

The notion that preposition errors are dominant among the most frequent error types on the part of English as a foreign language (EFL) learners takes hold among many researchers in the existing literature (e.g., Bitchener et al., 2005; Darus & Ching, 2009; Darus & Subramaniam, 2009; Owu-Ewie & Williams, 2017). Referring to the literature on prepositions, it is widely confirmed that preposition usage does not conform to easy-to-teach or easy-to-learn rules (Lindstromberg, 2010). In other words, there are no rules that cover all the occurrences and uses of prepositions (Lokeman Loke et al., 2013; Saravanan, 2014). The choice of prepositions depends on the nouns, adjectives, or verbs accompanying them. Put differently, we should pay attention to the preposition collocations (PCs) (Saravanan, 2014). As it was mentioned above, prepositions can carry immensely varying meanings in different contexts, thus there is no predictability to preposition usage. It is self-evident that they have to be learned context by context in order to serve as a remedy for English learners' erroneous preposition use. As advised by Chodorow et al. (2010), a continued exposure to a good number of correct preposition usage examples plays a decisive role in its successful learning. Vyatkina (2016) supports the idea that learners need repeated exposures of the patterns in rich and authentic context in order to stop poor performance related to the preposition usage. These facts highlight the need for an effective teaching to tap into this requirement and using concordancing technology seems to be efficient in this respect.

Concordancers can serve as advantageous and powerful tools for instructing PCs due to several reasons. For one thing, concordances show how vocabulary and grammar interrelate with each other (lexico-grammar) which serve as a prerequisite for learning prepositions (Vannestäl & Lindquist, 2007). Also, concordances supply learners with "large quantities of real-life target language discourse. Exposure to these examples of genuine language use can (a) enrich learners' understanding of specific uses of target words in a wide variety of contexts and (b) expand their L2 linguistic repertoire" (Yoon & Hirvela, 2004, p. 259). In other words, concordances provide L2 learners with authentic language input, which is defined by Bahrani and Tam (2013) as language input that could be sourced from news, movies, songs, etc. Its main purpose is transferring real messages in the context of genuine communication not language instruction. Authentic materials are mostly accepted as beneficial in language learning. Another reason that proves the fruitfulness of adding concordances to the class syllabus is that inductive language learning could be enhanced through them (Stevens, 1995). Accordingly, discovery learning is there as an inner part of the inductive learning. So, students could discover the rules themselves by being exposed to and examining ample examples of a specific language item in use (Boulton, 2010).

Unfortunately, in Iran, the number of classroom contexts in which learners are provided with the opportunity to learn PCs via concordance-based instruction is inappreciable. In this study, teaching prepositions is coupled with concordancing, which gives EFL learners the bonus of up-to-date and authentic materials besides large quantity of input which is crucial in mastering PCs (Vyatkina, 2016). Also, learning enhancement is achievable when we make sure

of the learners' positive attitudes and perceptions of learning (Dörnyei, 2003). Thus, the learners' opinions on concordance-based PCs instruction were elicited. Putting concordance-based instruction on the map in the classroom context requires drawing teachers' attention to concordance-based instruction prior to initiating teaching (Mukherjee, 2002) although the ultimate goal of concordance-based instruction is to develop autonomous and independent language learners who productively use concordancing outside the classroom (Boulton, 2017; Huang, 2011; Lin & Lee, 2015). So, investigating the teacher's reflection on her experience was another focus of the current study with the aim of informing other teachers of possible advantages and disadvantages of concordance-based instruction.

Review of the Literature

According to Taiwo (2001), some particular prepositions accompany nouns, verbs, etc. in English and the knowledge of such nouns, verbs, etc. is deficient without knowing which prepositions usually accompany them. This kind of togetherness is called preposition collocations (PCs) (Lindstromberg, 2010).

Given that the proper use of prepositions in English is very challenging, using an effective instructional method is of high importance. Lorincz and Gordon (2012) proposed three approaches including traditional, collocational, and prototypical approach to preposition instruction. According to Lam (2009), the traditional method of teaching prepositions is through explicit instruction in which students focus upon learning prepositions separately within context, with no further expanding. As Mueller (2011) stated, collocation approach to preposition instruction means to learn prepositions within collocations. In other words, L2 learners should be provided with "chunks" (words that often occur together) to learn prepositions through them instead of learning them individually. For example, instead of teaching *for* as a single entity, L2 learners can be taught the PCs such as *pay for*, *famous for*, *for instance*, etc. Prototypical approach to preposition instruction was outlined by Lindstromberg (1996). He remarked that "a key contention about prepositions is that each one is likely to have a relatively small number of related literal meanings, among which the tendency is for one to be psychologically 'prototypical'" (p. 225). He maintained that, to learn prepositions, first the prototypical meaning (the prominent meaning among other associated meanings) should be identified and learned, and then the other associated meanings derived from the prototypical meaning should be learned.

A good number of researchers advocate using concordancing to teach collocations (Jafarpour & Koosha, 2006; Kulsitthiboon & Pongpairaj, 2018; Żbaj & Olgun, 2017; Saeedakhtar & Seyedasgari, 2018). One short and informative definition of concordances is developed by Yoon and Hirvela (2004) which is "Concordances emphasize the co-occurrence or most frequent combination of words, i.e., collocation" (p. 259). Concordancing serves as a handy tool that taps into two techniques of input enrichment and input enhancement which are facilitators of noticing the input (Schmidt, 2001). Input enrichment lies at the very heart of concordancing owing to the fact that this software provides a vast number of real-life instances of a word or phrase

usage in the target language. In terms of input enhancement, as Vyatkina (2016) points out, "Input enhancement is realized through the use of concordances in a way that concordances supply search results as stacked lines with the search words highlighted in the middle, and thus enhance the visibility of collocational patterns" (p. 160). Put another way, the search term appears in the center of the sentences. This technique is called "Keyword in Context" or KWIC concordance (Jafarpour & Koosha, 2006).

In addition to the positive aspects of the use of concordancing, there are some studies in the literature with the aim of finding probable difficulties or negative sides of using concordances. For example, Thurstun and Candlin's (1998) pilot study results showed that there were some negative reactions besides positive reactions on the part of the participants toward concordancing activities. They remarked that learners came across some cut-off sentences that made them confused and the arduousness of the authentic data made them discouraged. Yoon and Hirvela (2004) maintained that some students become disappointed with learning because some concordancers are not user-friendly due to their complex design.

In this study, it was resorted to concordance software to reduce the common preposition errors of Iranian EFL learners in the realm of four common patterns of PCs (i.e. adjective + preposition collocation, noun + preposition collocation, preposition + noun collocation, verb + preposition collocation). Although there are some studies in the literature that elicited the learners' attitudes toward concordancing in learning vocabulary and collocations in general (e.g., Aliponga, 2013; Saedadakhtar et al., 2020; Yoon & Hirvela, 2004), there are few studies, if any, on investigating EFL learners' attitudes toward the use of concordancing in learning PCs as well as exploring the teacher's stance toward using concordance-based instruction on PCs. This study was an attempt to determine how Iranian EFL learners perceived the use of concordancing to learn PCs. Also, the teacher who was instructed to carry out the instruction was interviewed by the researcher to reflect upon her experience of concordance-based PCs instruction. Thus, in accordance with these goals, the following questions were raised:

1. Is there any significant difference in learners' PCs learning via concordance-based instruction?
2. What are the attitudes of Iranian intermediate EFL learners towards using concordancing to learn PCs?
3. What is the attitude of the language teacher towards using concordancing in teaching PCs?

Method

Participants

In this study, 90 (53 females and 37 males) EFL learners from Bahare Zabanamoozan and Ghoghnoos English Language Institutes, Ardabil, Iran, served as the participants. They were in the age range of 14 to 30. All of them were bilingual in Turkish and Persian. Sixty of these students (38 females, 22 males) were selected as the homogeneous intermediate sample based on their scores on the Solutions Placement Test (SPT).

Instrumentation and Materials

SPT Language Proficiency Test. In this study, to ensure the homogeneity of the participants, or in other words, to make sure that all learners were at the intermediate level, Oxford SPT was administered as the proficiency test (Appendix A). The total score of the SPT was out of 70 (50 marks for the grammar and vocabulary section, 10 marks for the reading section, and 10 marks for the writing section). The test contained three parts including grammar and vocabulary, reading, and writing. For each error in the grammar and vocabulary section and the reading section, one point was subtracted. In the writing section, out of 10 points, four points were dedicated to content, two points to form, two points to range, and two points to accuracy. To analyze the scores and make sure of the homogeneity of the learners, we referred to the guidelines of the SPT, based on which those learners whose scores in grammar and vocabulary, reading, and writing were +31, +8, and +8, respectively, were taken as the intermediate learners and were consequently conceived as homogeneous. The 50 multiple choice questions and the reading task were designed to be done together in a 45-minute period and the writing task took approximately 20 minutes.

Preposition Collocation Test. The participants, before receiving treatment, were pretested through a 60-item researcher-made test comprised of three sections of A, B, and C. Forty multiple-choice items on the four categories of PCs were included in section A (each preposition collocation category was tested through 10 items). Section B included 10 completion items on the four groups of PCs. In section C, ten incomplete sentences were given to the participants and they were asked to finish the incomplete sentences using appropriate prepositions. In the last two sections (B and C), the distribution of items on each collocation of preposition category was equal (five items for each category). Before administering the test, its content validity was checked by two TEFL professors of Mohaghegh Ardabili University. They commented that the test enjoys appropriate level of content validity. However, two items of the test were modified based on their feedback. The test was also validated through conducting a pilot study on 10 L2 learners to make sure that the difficulty level of questions is appropriate and to set an appropriate time limit. Based on the feedback received from learners, the items were neither difficult nor easy and the time limit of the test was set to be 60 minutes. The test given to the main group underwent computing reliability coefficient using the KR-21 formula which came to be 0.87.

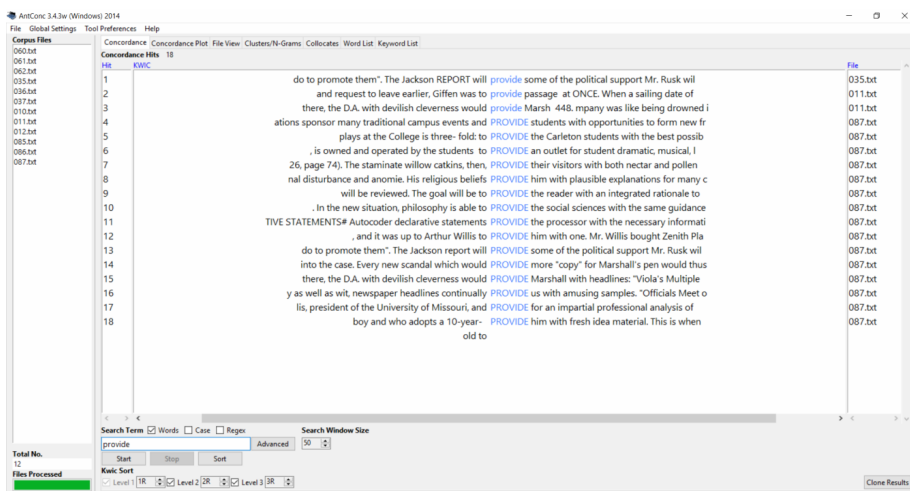
A parallel version of the pretest was administered as the immediate posttest in order to assess the possible effect(s) of the eight-session treatment. To measure the possible long-lasting effect(s) of the treatment on the retention of PCs, another parallel test was administered as the delayed posttest two weeks after administering the immediate posttest.

Preposition Collocations. During the eight-session treatment, the participants were exposed to 96 PCs including 24 adjective + preposition collocations (e.g., pessimistic about), 24 noun + preposition collocations (e.g., approach to), 24 preposition + noun collocations (e.g., by mistake), 24 verb + preposition collocations (e.g., pay for). The PCs were chosen according to the participants' errors on the pretest.

According to Sinclair (1991), any collocation is made up of a node and a collocate that go together. For example, in terms of PCs, the collocate *with* occurs frequently with the node *bored*. In this study, the PCs nodes selection was random. However, the criterion for the selection of PCs collocates was the degree of association between the node and the collocate. Measuring the mutual information (MI) score is one of the most common methods for measuring the strength of the association between the node and the collocate (Baker et al., 2006). In this study, the MI scores were checked from British National Corpus (BNC) available at <https://www.english-corpora.org/bnc/> and the PCs collocates with highest MI were chosen. Moreover, the frequency of PCs was checked from BNC website (Appendix B).

Concordancer. The texts (selected from the Brown Corpus) were concordanced by AntConc 3.4.3 which is a handy, easy to use, and freeware concordance program available at <http://www.laurenceanthony.net/software.html>. This software includes seven tools (Concordance, Concordance Plot, File View, Clusters, Collocates, Word List, and Keyword List). In this study, the Concordance tool (the first tab across the top of the software) was used. It shows search results in a Keyword-In-Context (KWIC) format. On the left side of the software, there are corpus files and the result area is on the right side. To make a concordance, first, the participants clicked on Open Files in order to load the specific files dedicated to each treatment session into AntConc. Next, they typed the word they wanted to find in the Search Term box, and finally by clicking on the Start button below the box, the concordance lines appeared in the main window, with the search term highlighted in the center. An example of concordance output for the target word *provide* is presented in Figure 1.

Figure 1
An Example of Concordance Output for the Target Word "Provide"



Questionnaire. At the end of the study, the participants in the experimental group were asked to complete a questionnaire consisting of 20 Likert-scale items aimed to assess the learner's attitude towards the use of

concordancing in learning PCs (Appendix C). The scale consisted of five points, "Strongly agree" = 1, "Agree" = 2, "Not sure" = 3, "Disagree" = 4, and "Strongly disagree" = 5. The items of the questionnaire were drafted consulting the literature and some of the previous questionnaires of the similar studies (e.g., Aliponga, 2013; Rezaee et al., 2014; Yoon & Hirvela, 2004). This questionnaire, like the previous ones, elicited learners' perceptions of the use of concordancing. However, unlike the previous ones, it elicited learners' attitudes towards the practical and linguistic difficulties that they experienced during the use of concordancing in more detail. The questionnaire contained three main domains. The first domain included eight items which elicited respondents' perceptions of concordance use for learning collocations of prepositions; the second domain was comprised of eight items which dealt with practical and linguistic difficulties experienced by the respondents; the third domain included four items that asked about participants' overall attitudes towards concordance use for PCs learning in the future.

Before conducting the study, first, the accuracy of each statement was checked by two TEFL professors of Mohaghegh Ardabili University. According to their comments, three items were modified. Then, the questionnaire was piloted on 15 L2 learners to eliminate any unclear and confusing items and set the time limit to ensure that the questionnaire could be completed in an appropriate time. Based on the results, the items were comprehensible enough and there was no need to simplify the statements. All the students in the pilot group completed the questionnaire in less than 30 minutes. So, the main groups were given 20 minutes to complete the questionnaire.

Interview. In this research, the teacher was a twenty-six-year-old female MA student of TEFL in Mohaghegh Ardabili University who was experienced in teaching English at pre-intermediate and intermediate levels for about 6 years. She was instructed by the researcher in using AntConc 3.4.3 concordance software and in operationalizing the study. To follow her reflection on the experience of concordance-based PCs instruction, she was interviewed by the researcher on the positive and negative aspects of the class, the effectiveness of the provided materials, her suggestions about possible future alterations that she would make if she taught PCs using the same software, her willingness to suggest concordance-based instruction to her colleagues, and her point of view toward possible ways of popularizing concordance-based instruction in classroom contexts.

The type of the interview used in this study was a structured researcher-made one consisting of six questions (Appendix D). The interview went under inter-rater validation evaluation by asking an expert in the field of research to review it.

Procedure

Having selected a homogenous sample through administrating SPT in the first session, the participants were assigned to two groups of experimental and control at random. In order to make sure that the participants had equal knowledge of PCs, they were pretested through a 60-item researcher-made test in the second session.

In the first treatment session (the third session), the participants were first introduced to the concordancing program. The teacher used the projector

of the classroom to instruct them on the use of AntConc (version 3.4.3) concordancer and how to read concordance lines. They were told when reading concordances, they should look for repeated regularities (Key-Words-In-Context) and look at the words to the right and left of the search word. The instruction on the use of the concordancing which lasted for 15 minutes was done in Persian in order to be more efficient. Then, they were supplied with the software and files of the Brown Corpus. Then, the participants went through searching for the 12 PCs and completed three tasks of (1) analyzing the searching results (concordance lines) and finding the prepositions going with the searching words, (2) preparing a short presentation on their findings, and (3) using the target collocations of prepositions to create their own sentences (the first two tasks were accomplished collaboratively, while the third one was accomplished individually). While they were practicing and completing the tasks, the teacher checked the groups one by one in order to ensure that there were no practical problems. After that, their findings were discussed with the teacher. During the other treatment sessions, 12 PCs were searched on AntConc per session by the participants (after the first treatment session, they did not receive any instruction on using concordancing and there was no teacher intervention). Also, they completed the same three designed tasks in each session.

The control group in all treatment sessions just did three traditional tasks of (1) matching words with the proper prepositions, (2) choosing the correct preposition in a multiple-choice exercise, and (3) using the instructed collocations of prepositions to make their own sentences. After completion of the tasks, the answers were checked and the choices the participants had made were discussed.

The first parallel version of the pretest was administered immediately after the last treatment session (session 11) as the immediate posttest to measure the efficiency of the treatment on the learners' PCs knowledge. They had 60 minutes to do the test. In the same session, after doing the immediate posttest, learners were asked to fill in the questionnaire intended to elicit their attitudes towards the use of concordancing in learning PCs. The delayed posttest (another parallel version of the pretest) was administered after two weeks to measure any possible long-term effect of the treatment on the participants' PCs knowledge.

Results

Quantitative Data Analysis

Before running a repeated-measures ANOVA, the normality distribution was assessed by checking Levene's test for homogeneity on the scores of the pretest and posttests. The results supported the equality of variance assumption across groups on the pretest, $p = .754$, immediate posttest, $p = .531$, and delayed posttest, $p = .167$.

Table 1

The Results of the Test of Homogeneity of Variance for Scores

	F	df1	df2	Sig.
Pretest	.099	1	58	.754
Immediate Posttest	.398	1	58	.531
Delayed Posttest	1.958	1	58	.167

The performance of the experimental group and the control group was compared by running a repeated-measures ANOVA over time (i.e., from the pretest to the posttests). Table 2 presents the descriptive statistics for the pretest, immediate posttest, and delayed posttest.

Table 2*Descriptive Statistics for the Pretest, Immediate posttest, and Delayed posttest*

	Group	Mean	Std. Deviation	N
Pretest	Experimental	33.90	3.889	30
	Control	34.47	3.875	30
	Total	34.18	3.860	60
Immediate Posttest	Experimental	51.37	3.690	30
	Control	39.83	3.896	30
	Total	45.60	6.926	60
Delayed Posttest	Experimental	50.00	3.484	30
	Control	39.33	4.138	30
	Total	44.67	6.581	60

Based on the results of Wilks' Lambda = .006 (Table 3), there was a significant effect for time with a large effect size, $F(2, 57) = 4707.698$, $p = 0.000$, $\eta^2 = 0.994$. The performance of the experimental group and control group was significantly different from pretest to the posttests. Furthermore, based on the results of Wilks' Lambda = .021, there was a significant effect for the interaction of time and group with a large effect size, $F(2, 57) = 1330.130$, $p = 0.000$, $\eta^2 = 0.979$.

Table 3*Multivariate Tests*

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Time Wilks' Lambda	.006	4707.698 ^b	2.000	57.000	.000	.994
Time * Group Wilks' Lambda	.021	1330.130 ^b	2.000	57.000	.000	.979

The results of between subjects variables, as illustrated in Table 4, showed that the main effect for group reached statistical significance $F(1, 58) = 54.355$, $p = 0.000$, $\eta^2 = 0.484$. Furthermore, the results revealed that the two groups performed differently with a medium effect size.

Table 4*Results of Between Subjects Variables*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	309756.050	1	309756.050	7195.134	.000	.992
Group	2340.006	1	2340.006	54.355	.000	.484
Error	2496.944	58	43.051			

Questionnaire Data Analysis

The questionnaire data analysis reflects on the results of the second research question aiming to investigate the attitudes of participants towards using concordancing to learn PCs. The questionnaire consisted of three sections. The first section included eight items which elicited respondents' perceptions of concordance use for PCs learning. Table 5 shows the participants' frequency of responses to the items of the first section. The results revealed that nearly all the respondents (93.4%) found concordancing as a helpful tool for learning PCs, with responses centering around Strongly agree and Agree. 93.3% of the respondents acknowledged that they had difficulty in learning PCs before becoming familiar with concordancing. With regard to the third item, being exposed to various examples is beneficial for learning PCs, the majority of the respondents (90%) acknowledged it. The fourth item compared concordancing to teacher's explicit explanation, most of the participants (90%) expressed that using concordancing to learn PCs is more beneficial than teacher's explicit explanation. With regard to attractiveness of concordancing due to its novelty effect, nearly all the respondents (96.6%) expressed agreement, while only a few students expressed disagreement (3.4%). In response to the sixth item, i.e., I like concordancing because it leads me to self-discovery learning, the positive response rate was 88.4%. The results indicated that 85% of respondents hold the view that concordancing is a handy and high speed searching tool for learning PCs. Also, when asked to compare concordancing and using a dictionary, 93.3% of participants considered concordancing more beneficial than dictionaries for learning PCs.

Table 5

Frequencies and Percentages of Participants' Perceptions of Concordancing Use for Preposition Collocations Learning

Item number	Items	SA N (%)	A N (%)	N N (%)	D N (%)	SD N (%)
1	I found it helpful to learn preposition collocations through concordancing.	43(71.7)	13(21.7)	0(0)	4(6.7)	0(0)
2	I had difficulty in learning preposition collocations before becoming familiar with concordancing.	48(80)	8(13.3)	0(0)	3(5)	1(1.7)
3	Being exposed to various examples is beneficial for learning preposition collocations.	45(75)	9(15)	1(1.7)	2(3.3)	0(0)
4	I think using concordancing to learn preposition collocations is more beneficial than my teacher's explicit explanation.	17(28.3)	37(61.7)	4(6.7)	2(3.3)	0(0)
5	Concordancing has attraction because it is something of a novelty.	37(61.6)	21(35)	0(0)	1(1.7)	1(1.7)

6	I like concordancing because it leads me to self-discovery learning.	43(71.7)	10(16.7)	0(0)	4(6.7)	3(5)
7	Concordancing is a handy and high speed searching tool for learning preposition collocations.	25(41.7)	26(43.3)	2(3.3)	5(8.3)	2(3.3)
8	Concordancing is more helpful than dictionaries for learning preposition collocations.	39(65)	17(28.3)	1(1.7)	3(5)	0(0)

SA: Strongly agree A: Agree N: Not sure D: Disagree SD: Strongly disagree

The second section of the questionnaire containing eight items (Table 6) reflects on practical and linguistic difficulties experienced by participants. The results revealed that 87.1% of the respondents maintained that the searching technique was easy to learn. In relation to the 10th item, 14.8% of participants responded that understanding real texts in the corpus was too difficult for them, while 69.5% had a contrary view towards this item. With respect to item number 11 referring to the concordancing output analysis, 37.1% of the respondents had difficulty in analyzing concordancing output, whereas 59.7% expressed that they could easily cope with it. The participants' responses to the 12th item revealed that 28.6% considered concordancing lines very confusing due to the cut-off sentences in the concordance output, while over half of the respondents (63%) with responses centering around Disagree and Strongly disagree rejected it. The results indicated that although 29% of the participants had difficulty in analyzing the concordance output due to unfamiliar vocabulary items, 64.5% of the participants did not come across with problems on unfamiliar words. The results of participants' responses to another problematic aspect of concordancer use (distracted by various sentences in concordance output, whereupon making participants unable to focus on PCs), revealed that 35.5% of them faced difficulties in this respect and 58.1% held contrary views toward this item. The questionnaire also asked respondents whether they could easily find PCs in the concordance output without the instructor's help (item 15). Based on the results, 82.2% of the participants' responses to this item were positive. With respect to the last item of the second section, 80.6% of the respondents found focusing on selected concordance lines useful to learn PCs.

Table 6

Frequencies and Percentages of Practical and Linguistic Difficulties Experienced by Participants Through Using Concordancing

Item number	Items	SA N (%)	A N (%)	N N (%)	D N (%)	SD N (%)
9	The searching technique was easy to learn.	26(41.9)	28(45.2)	0(0)	3(4.8)	2(3.2)
10	The real texts in the corpus were too difficult to understand.	7(11.3)	8(12.9)	0(0)	35(56.5)	8(12.9)
11	I had some difficulty in analyzing concordance output.	8(12.9)	15(24.2)	0(0)	23(37.1)	14(22.6)
12	The cut-off sentences in the concordance output made me confused.	7(11.3)	11(17.7)	0(0)	35(56.5)	4(6.5)
13	I had some difficulty in analyzing the concordance output due to unfamiliar vocabularies.	8(12.9)	10(16.1)	2(3.2)	25(40.3)	15(24.2)
14	I think various sentences in concordance output would distract me and I cannot focus on preposition collocations.	9(14.5)	13(21)	1(1.6)	31(50)	5(8.1)
15	I could easily find preposition collocations in the concordance output without the instructor's help.	27(43.5)	24(38.7)	0(0)	8(12.9)	0(0)
16	Focusing on selected concordance lines was useful for me to learn preposition collocations well.	10(16.1)	40(64.5)	2(3.2)	3(4.8)	4(6.5)

SA: Strongly agree A: Agree N: Not sure D: Disagree SD: Strongly disagree

Section three of the questionnaire (Table 7) was comprised of four items eliciting participants' overall attitudes towards concordance use for PCs learning in the future. In relation to item 17, 73.4% of the participants stated that they would come to use concordancing on their own as they have learned more about it while 18.4% expressed disagreement. As it was expected, the majority of the respondents stated that they would use concordancing to increase their preposition knowledge in the future (90%), while a few respondents expressed disagreement (5%) and the other 5% were not sure about it. Also, 85% of the participants recommended using concordancing in English classes in future quarters, while the other 15% rejected this recommendation. Finally, with regard to the last item of this section, 11.7% of the respondents strongly agreed or agreed that using concordancing is time-consuming and needs lots of effort, so they would not consult it as a reference tool in future when they encountered problems in PCs, while 78.3% thought conversely.

Table 7*Frequencies and Percentages of Participants' Overall Attitudes towards Concordancing Use in Future*

Item number	Items	SA	A	N	D	SD
17	As I have learned more about concordancing, I have come to use it by my own choice.	25(41.7)	19(31.7)	2(3.3)	10(16.7)	1(1.7)
18	I will use concordancing to increase my preposition collocations knowledge in future.	30(50)	24(40)	3(5)	1(1.7)	2(3.3)
19	I recommend using concordancing in English classes in future quarters.	40(66.7)	11(18.3)	6(10)	0(0)	3(5)
20	I won't use concordancing due to time and effort that should be spent on analyzing the data.	3(5)	4(6.7)	4(6.7)	29(48.3)	18(30)

SA: Strongly agree A: Agree N: Not sure D: Disagree SD: Strongly disagree

Structured Interview Data Analysis

The response that the teacher provided concerning the first question in the interview requiring her to reflect upon the positive side of the applied instruction was:

First, this class led me to not be the only active person in class. In fact, it lightened the burden on my shoulders by decreasing the flow of information and communication from me to the students. Second, the nature of this class required me to change the style of seating from rows to U-shaped style. So, by creating multiple U's of four students, I had more control over the learners. As far as I am concerned, benefiting from this type of arrangement was mutual since I found the learners interested, energetic, more involved, and active in the classroom process. Third, through this instruction, increasing the students' engagement in learning was much easier.

On the positive side, the teacher in the current study said goodbye to her traditional role of an absolute lecturer and experienced a new role of a "coach" (McKenzie, 2000). To elaborate, in this class, the students were supplied with a concordancing tool and they were instructed on how to use it to solve their problems instead of the teacher herself showing them how to solve the problems and injecting her knowledge into them. Therefore, a uni-directional teacher-student interaction was replaced by multidirectional interactions of teacher-students, students-teacher, and student-student. Furthermore, substituting a traditional arrangement of the seating with a communication-oriented seating arrangement brought less disengagement of learners and more teacher's control over the students. Also, in this regard, the teacher received positive feedback from students by noticing their boredom

threshold enhancement and creation of inclusivity among students. Further, asking learners to take some responsibilities for learning and involving them in the process of learning requires grabbing their interest and stimulating learners' curiosity (Tomlinson, 2011) which was greatly performed in this study by resorting to concordance program.

With respect to the second question, the teacher expressed her view as:

One of the main negative points of this class was computer access limitation. While each threesome used one laptop, some students did not have their own laptops and they brought borrowed laptops to the classroom. Apart from this, some laptops ran out of charge and students ran into problems due to paucity of plugs. Although students were asked to bring fully charged laptops to the class, in some sessions some of them forgot to recharge their laptops at home. So, this problem was a source of distraction in my classroom. But, it was sorted out with the help of students. Some of them brought their own power banks to the classroom and also I provided the class with a power strip.

On the negative side, one of the reasons behind the question "why some teachers just operate in their comfort zones and do not stretch out of it to utilize technology in their classrooms?" could be attributed to teachers' concern about the facilities. In fact, most English classes are equipped with only one computer and many of the students may not have their own laptops. So, integration of computer-based concordancing into the classroom requires being sure of adequate related facilities. However, being faced with this limitation does not mean to forget about concordance-based instruction. Paper-based concordancing could be a good option (e.g., Boulton, 2010; Daskalovska, 2015). Moreover, in almost all classes, things never go one hundred percent right and there are some issues that are outside of the teachers' control. The teachers should not be worried about these unexpected moments that pop up during the class but be able to make the best possible decision on the spot.

The third question raised in the interview elicited the teacher's perspective of the effectiveness of the provided materials. She maintained that:

Regarding that the students had to search in concordancing to notice what prepositions most commonly occurred with their search term, there was an investigative mood in this class. Also, the provided materials offered my students the opportunity of being exposed to genuine use of language. However, sometimes students came across ambiguous and long sentences that confused them. To tackle the problem, I provided learners with simple sentences on prepositional collocations by breaking long sentences into smaller ones, rephrasing the concordanced words (key words) by my own examples that were simpler in terms of grammar and vocabulary.

In what follows, an example of ambiguous concordance output which was replaced by more simple and tangible example is supplied:

Concordance output example: ...we have a regular that all he's interested in is in fact doing Michael Heseltine's work for him or ...being ethical and professional people interested in community health and well-being...

Teacher's example: Mahsa is interested in playing tennis but she is not interested in studying math because it is difficult to her.

The notes that the teacher has made about the effectiveness of

provided materials in aiding students in learning could be compressed into two terms of involving learners in discovery learning and authentic materials. In the current study, discovery learning is brought to the classroom by incorporating tasks that require learners to go through searching, analyzing, and finding out the prepositions most commonly occurring with the target words. Also, "corpus-informed" materials led the researcher to bridge the classroom to the real-world (Reppen, 2011). However, sometimes the teacher needs to control and adapt the material through omission, addition, and replacement (Maley, 2011) since among concordance lines, some of them are too long or too short that may be ambiguous or distracting to learners. According to Reppen (2011), in corpus-based activities, teachers should "make sure that the vocabulary load is not too great and that the students are exposed to the target form in a way that is meaningful and relevant for the students" (p. 37).

Also, the teacher was asked, "Imagine yourself teaching the same content by using the same software. What would be different when you conduct the teaching?" She replied:

If I carry out the same instruction in future, I will start the initial sessions with the same three assigned tasks and in the subsequent sessions I will break the monotony and add or replace those tasks with more challenging tasks to maintain the learners' joy.

Reflecting upon the teacher's notes with reference to the last question, the challenging aspect of tasks would fade away after being repeated for a long time and this would lead into decreasing sense of accomplishment on the part of learners. As Tomlinson (2011) put forward, learners should be engaged in "tasks which are stimulating, which are problematic, but which are achievable too" (p. 10). He also maintains that tasks that are simple to accomplish might not make learners feel successful because they think that they are not really using their brains. As a variation, for instance, students could go through concordance-based tasks that are of information gap type besides the three same assigned tasks. For example, the same number of words could be divided amongst the groups and students could have been asked to collect the related concordance lines and become "experts" of their own words. Then, the groups could have exchanged their concordance lines with a gap and ask each other to guess the missing word (Willis, 2011).

The next interrelated questions in the interview held with the teacher were "Do you suggest your colleagues adopting concordance-based instruction of collocations? If yes, what is the purpose behind your suggestion?" She replied:

Yes, I like to share my experience of concordancing with my colleagues and suggest that they get familiar with and use it in the classroom context. For one thing, this helpful software may find favor with them too, and for another, they can develop their English teaching experience besides giving their students the opportunity to experience learning English through the up-to-date and user-friendly software.

The inference that could be made from the teacher's point of view is the reciprocal beneficiaries of the concordance-based instruction. Both teachers by extending their teaching repertoire and students by being offered a novel learning situation with its possible advantages can experience

concordancing.

The final question in the interview was on the teacher's suggestion(s) for popularizing integrating concordance-based instruction into classroom context of Iran. She replied, *"As far as I'm concerned, in order to develop concordance-based instruction, it could be practical if there were some specialized training sessions or workshops for students to be informed of concordance-based English learning activities and its advantages."*

According to the teacher's notes, in order to develop integration of concordance-based instruction into classroom contexts, we should go directly to English students to draw their attention to concordance-based learning activities. However, according to Mukherjee (2002), failing to inform teachers of concordance-based instruction and its possible advantages results in failing to involve English learners in concordance-based activities, and consequently generating autonomous learners. It would be beneficial if webinars, workshops, and teacher training courses are held by the researchers and pioneers in this field to familiarize English language teachers with corpus-informed materials and concordancing and inform them of the significant contribution that corpus-informed materials can offer with respect to learning language patterns such as collocations, idioms, tenses, etc.

Discussion

The results of this study revealed a marked preference on the part of learners to work with and master PCs via concordance-based instruction. Therefore, owing to results of this study and others (e.g., Jafarpour & Koosha, 2006; Kheirzadeh & Marandi, 2014; Kulsitthiboon & Pongpairoj, 2018), concordance-based instruction of PCs plays a remarkable role in decreasing English learners' preposition errors.

According to Schmidt (2001), when L2 learners pay conscious attention to the input that they receive and compare what they have noticed with their own output, it brings about a cognitive process in them which will lead to "noticing the gap", whereupon the acquisition of the input occurs. In this study, as a route to noticing the gap, the participants were asked to identify all the preposition errors and compare how their usage differed from the concordance lines.

The effectiveness of concordancing can also be discussed in terms of exposure to the authentic data in concordance lines. Encouraging learners to make use of language form in a meaningful context, giving learners the chance of being exposed to genuine language, and offering them the chance of incorporating their background knowledge into the new situation are the beneficial effects of receiving authentic input among others (Gilmore, 2007).

According to Əzbay and Olgun (2017), exposure to massive repetitive patterns, which recur in the middle of the concordance lines (Key-Word-in-Contexts), provides a great opportunity for learners to deduce the meaning of collocational patterns. Non-native speakers of English, in comparison with native speakers, are less able to trust their intuitions concerning rules and examples in grammar and vocabulary use. So, "they need an objective linguistic informant to reinforce or refute their intuitions" (Flowerdew, 1996, p. 103); concordancing could fill the gap left by an objective linguistic informant

because it provides learners with reliable objective data on grammatical and lexical usage.

Rezaee et al. (2014) identified an added bonus of novelty effect in using concordancing to instruct collocations. In this study also, based on the results of the questionnaire, concordancing achieved positive impact and the majority of the learners stated that concordancing has attraction because it is something of a novelty helping them in mastering PCs.

In the current research, the questionnaire items concerned with the same underlying themes were grouped into three main domains. The first domain reflected on the participants' perceptions of learning PCs in the context of concordancing. The results of the questionnaire made clear that almost all the participants in the experimental group greatly welcomed the use of concordancing to learn PCs. Furthermore, they appreciated using concordancing as a reference tool for learning PCs much more than the teacher's explicit explanation and dictionaries. The findings of this study confirmed the findings of similar previous studies examining students' attitudes towards learning collocations in the context of concordancing (e.g., Chujo et al., 2016; Huang, 2014).

The second domain was to elicit participants' attitudes towards practical and technical difficulties they encountered during treatment sessions. In spite of the fact that a small number of respondents encountered difficulties during using concordancing, including being confused by cut-off sentences, being distracted by various sentences, being unable to analyze concordance output due to unfamiliar vocabulary items, difficulty of finding PCs in the concordance output, and difficulty of the real text in the corpus, the vast majority of them expressed their satisfaction towards concordancing. The findings related to this domain are inconsistent with the studies of Geluso and Yamaguchi (2014), Yoon and Hirvela (2004), and Kheirzadeh and Marandi (2014) who found that a high number of participants faced difficulties using concordancing.

The last domain was developed to check the students' opinion on using concordancing as a reference tool for learning PCs in the future. Based on the findings, not only did they approve of using concordancing in English classes in future quarters, but they also asserted that they would use concordancing by their own choice to increase their PCs knowledge in the future.

The data obtained from the interview revealed that the teacher was deeply satisfied with PCs instruction experience thanks to concordance software. Finding herself as a contributor to the process of exploring and discovering knowledge on the part of learners, not being a mere knowledge disseminator, creating as much interaction as possible in the instruction process, bringing investigative mood, stimulating learners' interest and curiosity, and bridging the classroom to the real world are the main reasons behind her satisfaction with the experimental sessions. These findings are in line with previous studies (e.g., Boulton, 2010; Yoon & Hirvela, 2004) in which they found concordancing beneficial to collocation learning owing to enhancing learners' discovery learning and supplying them with authentic materials. However, the teacher noted that, in order for concordancing to become an integral part of the classroom, it should be ensured that adequate related

facilities are guaranteed. Furthermore, the teacher's reasons behind her willingness towards suggesting her colleagues adopting concordance-based instruction of collocations lends support to the findings of Murray (2010), who states that one of the ways through which English language teachers can provide their students with more accessible and effective learning condition is drawing on their colleagues' experiences. Also, the teacher's point of view toward possible ways of popularizing concordance-based instruction in classroom contexts was elicited because it serves as a main factor in narrowing down the gap between research on concordance-based instruction and real practice of teaching English in classroom context (Boulton & Cobb, 2017; Mukherjee, 2004). Nevertheless, her point of view was in contrast with the study of Mukherjee (2004) who emphasizes focusing on attracting teachers' attention to corpus-informed materials before students. On top of everything else, the experience of one particular teacher in one particular context may not be translatable to other contexts. In order for findings to be confirmed and generalized with more certainty, a larger number of teachers should be interviewed on their concordance-based collocation instruction experience.

Conclusion

The current study has several pedagogical implications. Based on the experimental results of this study and other studies (e.g., Daskalovska, 2015; Jafarpour & Koosha, 2006; Vyatkina, 2016), concordancing can improve learners' PCs knowledge. Teachers should take into account that, in teaching PCs, instead of resorting just to their explicit explanation, they could combine concordancing and their explicit explanations in order to increase efficiency of instruction and make the class more student-centered rather than teacher-fronted. Teachers should note that, in spite of the fact that incorporating concordancing into their teaching may be time-consuming, it can help them to be up-to-date teachers by integrating authentic input with pedagogically simplified input especially in the case of PCs.

Concordancing can provide students with rich real-life examples embedded in a variety of rhetorical contexts. It can serve as a reference tool leading to discovery learning by helping learners discover the underlying rules from the given concordance data on their own and this discovery learning, in turn, leads to long-term retention of PCs. In addition, it can serve as a reference tool that learners can consult when they encounter problems instead of traditional reference resources such as dictionaries or grammar books. As stated by Tomlinson (2011), "novelty" and "variety" are two main factors that contribute to materials to achieve impact. On the one hand, concordancing and concordance-based activities possess both novelty and variety factors. On the other hand, almost all the participants of this study stated that their PCs knowledge improved by the use of concordancing. Hence, these notions give material developers hints and guidelines to develop materials of high quality by integrating concordancing and concordance-based tasks into the materials.

The use of concordancing is not without limitations. The major one is providing all the students with computers, which sometimes is not affordable. This sends an urgent message to app developers on designing and developing a concordancing app capable of being run on smart phones due to the abundance

of such phones these days. Also, using concordancing in classroom is time-consuming and its use requires effort and motivation on the part of both teachers and students. Last but not least, all the concordancers are not user-friendly and some of them may be very complex for students to use.

To confirm the findings of the current research with more certainty, the researchers suggest the following research endeavors:

1. A long-term study with a similar experimental design could be conducted.

2. Researchers could provide participants with various concordance-based tasks in learning PCs.

3. Further studies could apply other types of concordance software such as online concordancing tools of Cobb's Compleat Lexical Tutor (<http://www.lextutor.ca/>), Web Concordancer (<https://www.edict.com.hk/concordance/>), WordSmith (<https://www.lexically.net/wordsmith/>), and MonoConc (<https://www.athelstan.com/mono.html>).

4. Finally, conducting concordance-based studies with different proficiency levels (elementary, pre-intermediate, and advanced) would be helpful to gain more insights on the effectiveness of this technology.

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Appendix A Placement Test

Elementary to Intermediate

Introduction

This placement test is intended to help teachers decide which level of *Solutions* (Elementary, Pre-Intermediate or Intermediate) is the most suitable for their students. It should be given at the beginning of the school year.

The *Solutions* placement test has been developed after consultation with teachers and is designed to assess students' knowledge of the key language as well as their receptive and productive skills. This will enable teachers to have a greater understanding of what level their students are at.

The test contains:

50 multiple choice questions which assess students' knowledge of key grammar and vocabulary from elementary to intermediate levels.

A reading text with 10 graded comprehension questions.

An optional writing task that assesses students' ability to produce the language.

The 50 multiple choice questions and the reading task are designed to be done together in a 45-minute lesson. The writing task can be done in the following lesson and should take approximately 20 minutes.

Interpreting scores

	Total	Elementary	Pre-Intermediate	Intermediate
Grammar & Vocabulary	50	0-20	21-30	31+
Reading	10	0-4	5-7	8+
Writing	10	0-4	5-7	8+

This table acts as a guideline for teachers when choosing which level of *Solutions* is suitable for their students. Reading and writing scores are included separately so that teachers who choose not to include these tasks in the placement test can still make an accurate assessment of their students' abilities.

Where there is a discrepancy in the level attained in the different parts of the test, a student's score for grammar and vocabulary should take precedence. Alternatively, a teacher may wish to conduct an additional oral interview to confirm the result.

Students whose scores fall on the borderlines should be placed according to the level of the rest of the class and monitored closely at the start of the course.

Placement Test**Grammar and Vocabulary****Circle the correct answers.**

- 1 _ you interested in sport?
A Be B Am C Is D Are
- 2 My is a writer and his books are very popular.
A aunt B uncle C sister D mother
- 3 We live in the city centre and our house have a big garden.
A doesn't B isn't C aren't D don't
- 4 There a lot of people outside the school. What's the problem?
A are B is C be D am
- 5 Cathy a game on her computer at the moment.
A plays B is playing C to play D play
- 6 Paul is very . He doesn't go out a lot.
A bored B confident C angry D shy
- 7 _ you like to come out with us tonight?
A Do B Would C Are D Will
- 8 Dad's work right now. He's a teacher.
A on B at C for D by
- 9 Did you shopping after school yesterday?
A went B goed C going D go
- 10 There wasn't milk for breakfast this morning so I had toast and orange juice.
A a B some C the D any
- 11 I five emails before school today.
A sent B sended C did send D was send
- 12 Turn and you'll see the museum on the left.
A on the right B rightly C by the right D right
- 13 The beach was very crowded Monday.
A in B on C at D to
- 14 I the new Batman film yet. Is it any good?
A haven't seen B didn't see C don't see D am not seen
- 15 Tom got the marks in the class for his homework.
A worse B worst C baddest D most bad
- 16 You __ eat all that cake! It isn't good for you.
A don't B may not C should not D will not
- 17 How time have we got to do this exercise?
A long B many C much D quick
- 18 Don't forget to get the bus at Station Road.
A out B off C over D down
- 19 Our teacher speaks English to us so that we can understand her.
A slow B slower C more slow D slowly
- 20 My sister speak French when she was only six years old.
A was B should C could D had
- 21 I really enjoy new languages and I'd like to learn Italian soon.
A to learn B learning C learn D learned
- 22 My father has been a pilot twenty years and he still loves his job.
A since B for C until D by
- 23 Quick - get the food inside! It any moment.
A rains B is raining C is going to rain D can rain
- 24 Sam asked me if I a lift home after the concert.
A had wanted B wanted C would want D want
- 25 Which train _ for when I saw you on the platform on Sunday?
A did you wait B were you waiting
C have you waited D are you waiting
- 26 I not be home this evening. Phone me on my mobile.
A can B could C may D should
- 27 I hope you a good time at the moment in Greece! Phone soon.
A are having B have C have had D had
- 28 If we in the countryside, we'd have much better views than we do now.
A lived B were live C would live D live

Appendix B
The List of the Preposition Collocations in association with the Frequency of the Node (F) and Mutual Information (MI)

Adjective + Preposition	F	MI
Afraid of	3	2.75
Ashamed of	3	3.82
Aware of	3	4.26
Bored with	3	4.62
Capable of	3	4.83
Crowded with	4	4.22
Different from	3	3.98
Distracted by	4	5.75
Excited about	3	5.63
Experienced within	5	2.24
Famous for	4	3.21
Fed up with	5	5.38
Harmful to	3	2.68
Inspired by	3	6.16
Interested in	3	5.94
Keen on	3	4.49
Optimistic/pessimistic about	3/3	6.20/6.44
Pleased with	3	4.46
Qualified for	4	3.03
Rude to	4	2.46
Similar to	3	3.54
Thankful for	3	4.82
Tired of	4	2.34
Weak in	5	1.09

Preposition + Noun	F	MI
At last	3	3.43
At once	3	4.24
At risk	4	4.55
By chance	4	2.63
By mistake	3	3.12
By permit	3	5.99
For instance	3	6.48
In advance	3	4.33
In common	3	2.29
In danger	3	3.16
In detail	3	3.60
In fashion	5	2.31
In someone's opinion	5	5.16
On diet	4	4.32
On duty	4	3.32
On foot	4	3.15
On purpose	5	2.74
On time	5	1.24
Out of reach	4	5.46
To someone's surprise	3	3.25
Under arrest	4	2.54
Under condition	4	3.21
Under discussion	5	1.84
Under stress	4	7.63

Noun + Preposition	F	MI
Advice on	4	4.03
Approach to	3	3.14
Attack on	5	4.73
Chance for	4	1.74
Choice between	3	5.05
Control over	4	5.69
Cure for	5	3.94
Damage to	5	2.96
Decision on/about	4	3.99
Decrease in	3	4.53
Delay in	3	2.97
Disadvantage of	3	2.69
Expert on	5	2.87
Habit of	3	3.90
Interaction between	3	7.77
Objection to	4	3.74
Problem with	4	2.92
Process of	3	2.85
Report on	5	3.47
Solution to	3	2.67
Success in	3	2.39
Talent for	4	3.44
Threat to	3	3.44
Trouble with	3	3.88
Verb + Preposition	F	MI
Accuse of	3	4.50
Agree with	3	5.27
Apologize to	3	5.08
Arrive in/at	3	5.79
Believe in	4	3.03
Borrow from	5	3.64
Collide with	4	5.86
Compare with	4	3.80
Compensate for	5	5.92
Concentrate on	5	6.44
Cope with	3	6.73
Depend on	3	6.41
Explain to	3	1.19
Insist upon	3	5.71
Pay for	5	4.01
Plan for	5	3.09
Prevent from	5	4.40
Prohibit from	3	2.76
Provide with	3	5.20
Resist at	3	4.73
Taste of	5	2.03
Trust in	4	4.23
Vary from	3	2.34
Worry about	3	4.51

Appendix C Learner's Attitude Questionnaire

The following statements are about your opinions on using concordancing. Please use the scale below to tell us how much you agree or disagree with the following statements (circle a number from 1 to 5). Thank you very much for your help!

Strongly agree	Agree	Not sure	Disagree	Strongly disagree	
1	2	3	4	5	
Age:					
Level:					
1. I found it helpful to learn prepositional collocations through concordancing.	1	2	3	4	5
2. I had difficulty in learning prepositional collocations before becoming familiar with concordancing.	1	2	3	4	5
3. Being exposed to various examples is beneficial for learning prepositional collocations.	1	2	3	4	5
4. I think using concordancing to learn collocation of prepositions is more beneficial than my teacher's explicit explanation.	1	2	3	4	5
5. Concordancing has attraction because it is something of a novelty.	1	2	3	4	5
6. I like concordancing because it leads me to self-discovery learning.	1	2	3	4	5
7. Concordancing is a handy and high speed searching tool for learning prepositional collocations.	1	2	3	4	5
8. Concordancing is more helpful than dictionary for learning prepositional collocations.	1	2	3	4	5
9. The searching technique was easy to learn.	1	2	3	4	5
10. The real texts in the corpus were too difficult to understand.	1	2	3	4	5
11. I had some difficulty in analyzing concordance output.	1	2	3	4	5
12. The cut-off sentences in the concordance output made me confused.	1	2	3	4	5
13. I had some difficulty in analyzing the concordance output due to unfamiliar vocabularies.	1	2	3	4	5
14. I think various sentences in concordance output would distract me and I cannot focus on prepositional collocations.	1	2	3	4	5
15. I could easily find prepositional collocations in the concordance output without the instructor's help.	1	2	3	4	5
16. Focusing on selected concordance lines was useful for me to learn prepositional collocations well.	1	2	3	4	5
17. As I have learned more about concordancing, I have come to use it by my own choice.	1	2	3	4	5
18. I will use concordancing to increase my prepositional collocations knowledge in future.	1	2	3	4	5
19. I recommend using concordancing in English classes in future quarters.	1	2	3	4	5
20. I won't use concordancing due to time and effort that should be spent on analyzing the data.	1	2	3	4	5

Appendix D Interview

This interview brings into focus the attitudes of the teacher who was instructed by the researcher to operationalize the research plans toward preposition collocation instruction through concordancing.

1. What were the positive aspects of the class to you?

2. What were the negative aspects of the class to you?

3. How effective did the materials seem to be?

4. Imagine yourself teaching the same matter by using the same software.

What would be different when you conduct the teaching?

5. Do you suggest your colleagues adopting concordance-based instruction of collocations? If yes, what is the purpose behind your suggestion?

6. What is your suggestion(s) for popularizing integrating concordance-based instruction into classroom context of Iran?