

Research Article

The Effectiveness of Concordancing on Vocabulary Learning: EFL Intermediate-level Learners in focus

Ali Bahreman¹, Mahnam Saeid², Neda Fatehi Rad^{3*}

^{1,2,3}*Department of English Language, Kerman Branch, Islamic Azad University, Kerman, Iran*

*Corresponding author: Nedafatehi@yahoo.com

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Abstract

Corpus linguistics has developed a new avenue of research in the field of language teaching. One important aspect of corpora is concordancing. Drawing on the concept of concordance, this study aimed to explore whether concordancing can effectively improve the vocabulary learning and retention of Persian EFL learners. To this end, 50 homogenous learners were randomly assigned to experimental and control groups. Vocabulary pre-test and post-test, and interviews were employed to collect the data. The results of this mixed method study revealed a statistically significant difference between the control and experimental groups on post-test scores; furthermore, the experimental group's retention of these items was weaker in the delayed post-test. Finally, the results of interviews showed that this approach increased learners' enjoyment and interest in learning, led to a greater appreciation of particular uses of words in various contexts, enhanced learners' command of the target language's linguistic rules and patterns, facilitated the development of autonomy, and improved learners' language awareness.

Keywords: Corpus Linguistics, Concordancing, Vocabulary Teaching, CALL, Data-Driven Learning

Introduction

There is no doubt that vocabulary is an inseparable part of language learning process (Ghalebi, Sadighi, & Bagheri, 2020) and the main component of language proficiency (Richards & Renandya, 2002), which is considered as a challenge to language learners (Golabi, 2022). The importance of learning vocabulary lies in the fact that without learning enough words, communication is impaired (Alqahtani, 2015); moreover, mastering language skills would be impossible without vocabulary acquisition (Susanto, 2017). Additionally, learning vocabulary is basically difficult because of the large number of words in a language and the inadequate attention paid to the needs of students (Ko & Goranson, 2014). These reasons have made vocabulary learning a daunting task both for language learners and for language teachers. To overcome this problem, many researchers have tried to develop methods and strategies to help language learners solve this problem.

Traditionally, there have been two main perspectives on vocabulary learning. While the first perspective considered the best way as vocabulary-through-input, according to which reading lots of texts is the best way to learn vocabulary, the second group proposed word-focused instruction, based on which 12 times of facing a word in a text will help learner acquire the word (Laufer, 2017). Other methods include, not limited to, rote memorization and the keyword method and mnemonic and non-mnemonic elaboration techniques (Sagarra & Alba, 2006). With the advent of technology new methods have been proposed to overcome this challenge (Enayati & Pourhosein Gilakjani, 2020). In this context, using corpora has been considered as a revolutionary attempt (O’Keeffe, McCarthy & Carter, 2007) that has been the focus of many researchers for years. Concordance is a prominent aspect of corpora (Yılmaz & Soruç, 2015), which is described as a way of finding how often a particular word or phrase occur (O’Keeffe et al., 2007). However, research is necessary on the benefits of corpora in the realm of vocabulary acquisition to consolidate its application in the meadow of teaching a language.

Using corpus linguistics in teaching a second language refers to the development of Collins COBUILD English Language Dictionary in 1987; later on, attempts were made to use corpora in classroom; therefore, Widdowson's (1990) and Johns and King (1991) developed concordance-based learning procedures (Mukherjee, 2006). The advent of Concordancing created a new

avenue of research in language teaching and myriad studies were devoted to this issue. Interestingly, numerous studies have focused on the role played by Concordancing in learning a language skill or building blocks of a language like vocabulary. Generally, these studies can be categorized as two main branches. The first category is concerned with the exercise of concordance in schoolrooms to help students learn and memorize vocabulary in a better and more convenient way (Thurston & Candlin, 1998; Jalilifara, Mehrabi, & Mousavinia, 2014; Yılmaz & Soruç, 2015; Alsahafi, 2022; Golabi, 2022). The other category involves using concordance to improve language skills especially writing skills (Gilmore, 2008; Sun, 2007; Stapleton & Radia, 2009; Yoon, 2011; Muftah, 2023). It goes without saying that studies on concordance have tried to test if corpora can be used as a valuable and trustworthy instrument in real-life classrooms. They all have pointed to the fact that concordance can be employed in classes to improve learning vocabulary. However, what seems to be missing in the literature is that whether its application may really be an absolute alternative to traditional approaches of vocabulary learning. Moreover, literature review gave away that previous works have ignored the opinions of language learners about new methods of learning vocabulary. In other words, research needs to be performed to compare concordance with traditional methods and strategies of language teaching to understand which method(s) is more reliable. To fill this gap, this study as tried to address these questions:

1. Does concordancing have any significant impact on Iranian EFL learners' vocabulary learning?
2. To what extent is concordancing effective in retaining the gain of vocabulary knowledge?
3. How do Iranian EFL learners perceive concordancing for vocabulary learning?

Method

Participants

The initial selected participants of this mixed method study consisted of 80 intermediate-level male students who were nominated to take part in this study using convenience sampling. 50 male students were deemed as homogenous by conducting PET test and random assignment of the participants into two groups of experimental and control was done. These 50 learners whose age range was between 14 to 18 were students of a private language institute in Kerman. These

students participated voluntarily in this study and they were promised that their personal information shall be kept confidential.

Instruments

iWeb corpus is the software utilized in this paper. Other instruments used to gather data are a) PET b) pre-test c) post-test d) delayed post-test e) interview. Pre-test and post-test were developed based on the vocabulary bank of unit 1 to 3 of the American English File3 third edition student book and their validity was checked by the aid of two university professors and they provided feedback on these tests. Furthermore, these tests were piloted and they were given to a different class and the students also provided feedback on the ambiguous sections which were revised later. Moreover, this study made use of an open-ended interview of four questions which was checked by a university professor and a teacher.

Procedure

To perform this study, the following procedures were followed. To assess the homogeneity of the partakers of this study, the PET test was given to 80 males as the initial population of the study, and after that, 50 homogeneous students were selected as the sample of this study. Next, the sample was divided into two groups of control and experimental by coin toss. Next, both groups were provided with the pre-test for vocabulary knowledge check and the data were collected. Consequently, the control group was taught using the traditional method of vocabulary teaching (i.e. Word list, memorialization, meaning, and matching) and for the experimental group iWeb corpus was used, after they had been taught how to use it. The treatment consisted of 10 sessions (2 sessions per week; 5 weeks overall), and each session was devoted to teaching 5 words. The experimental group was dispensed into 5 groups of 5 members. Every member of the group was provided with one word and he was asked to provide definition, synonym, antonym, phonemic transcription, spelling, and five authentic sentences then he was asked to share his discoveries with other members of his group. Afterwards, each group was given the task of providing a report as the by-product of consulting with each other. Later, the instructor provided each member of each group with appropriate feedback. Following that, the post-test was administered to both experimental and control group and the results were analyzed. Next, the experimental group was interviewed using an interview of four open-ended questions so as to elicit their ideas relating to the implemented method and their responses were collected then analyzed. Lastly, the groups

were presented with a delayed post-test so that their vocabulary retention as the result of each method would be discovered.

Results

Participant Selection

The practical phase of this study began with selecting the participants employing convenience sampling and random assignment. To do so, a group of 80 students were presented with PET, which enabled the researcher to draw a sample of 50 homogenous learners and randomly assign them into one of the two groups in the study, i.e., control group and experimental group.

Table 1:

Descriptive Statistics of Initial and Selected Participants' Score on PET

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Pet	80	141.00	169.00	154.86	6.72	-.051	.269
	50	150.00	160.00	154.78	2.40	-.22	.33
Valid N (listwise)	50						

As reported in Table 1, 80 participants as the initial group had the mean of 154.86 and standard deviation of 6.72 in their PET test. Accordingly, those whose scores fell within the range of Mean $\pm$ 1 SD (148.14 and 161.58) were selected as homogenous participants.

The results of descriptive statistics for selected participants exposed that the minimum score obtained by them was 150 and the maximum score was 160 with the mean of 154.78 and the standard deviation of 2.40.

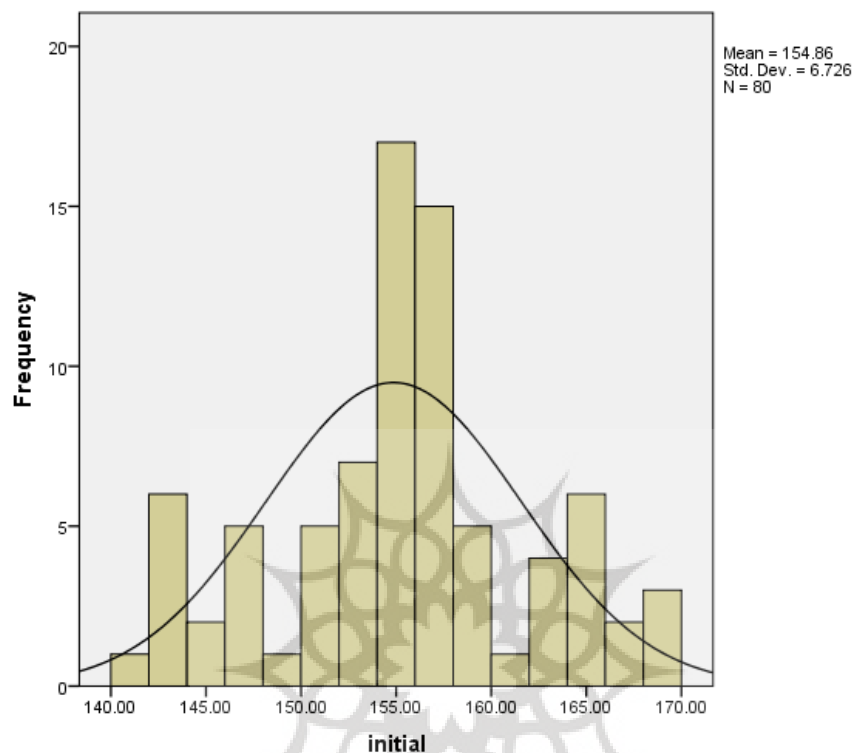


Figure 1: Histogram of Initial Participants' Score on PET

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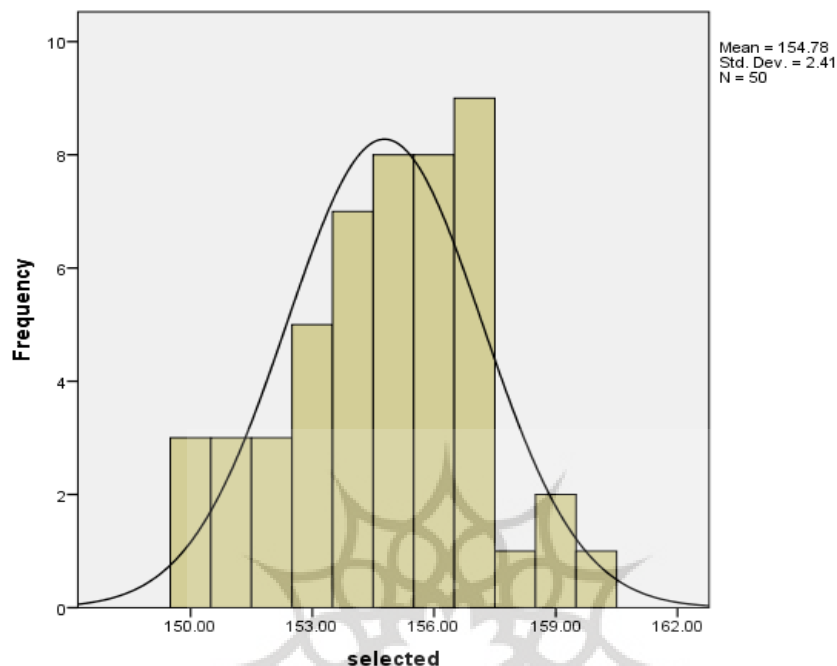


Figure 2: Histogram of Selected Participants' Score on PET

Investigating the Research Questions

To investigate the contribution of concordancing on EFL learners' vocabulary learning, ANCOVA was applied. Firstly, Kolmogorov-Smirnov Test was run to check the normal distribution of score.

Table 2

One-Sample Kolmogorov-Smirnov Test

		Pre-test vocabulary	Post-test vocabulary
N		50	50
Normal Parameters ^{a,b}	Mean	21.9200	28.8800
	Std. Deviation	2.07846	5.72371
Most Extreme Differences	Absolute	.158	.191
	Positive	.142	.191
	Negative	-.158	-.167

Kolmogorov-Smirnov Z	1.120	1.351
Asymp. Sig. (2-tailed)	.163	.052

a. Test distribution is Normal.

b. Calculated from data.

The results disclosed that participants' score on pre and post administration of vocabulary knowledge test were normally distributed ($p = .16$, $p > .05$).

Table 3
Descriptive Statistics of the Post-test of Vocabulary

Grouping	Mean	Std. Deviation	N
Experimental	34.20	2.00	25
Control	23.56	1.98	25
Total	28.88	5.72	50

As illustrated in Table 3, the mean of post-test score of vocabulary knowledge test of participants who were exposed to concordancing was 34.20 with the standard deviation of 2.00; while, the mean of post-test score of vocabulary knowledge test of participants who were exposed to traditional instruction was 23.56 with the standard deviation 1.98.

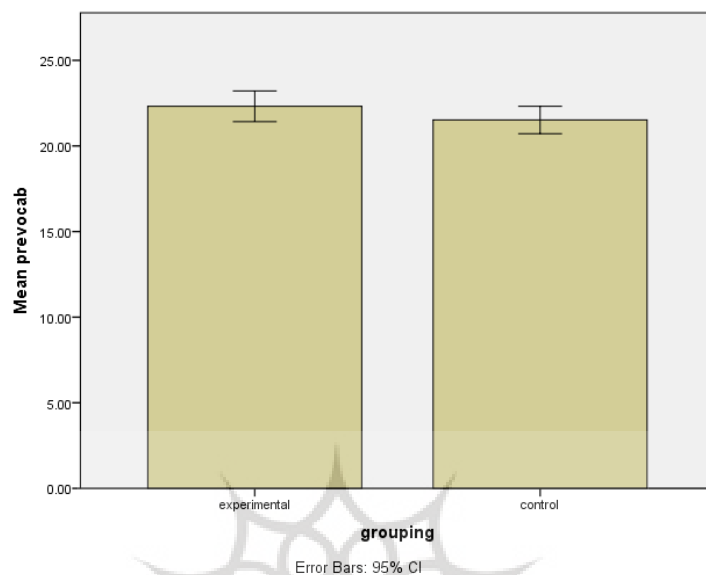


Figure 3: Experimental and Control Groups' Score on Pre-test of Vocabulary Knowledge

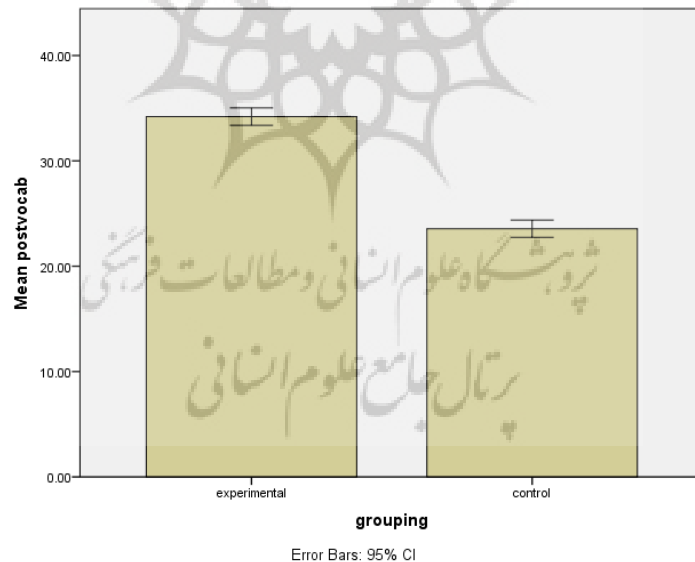


Figure 2: Experimental and Control Groups' Score on Post-test of Vocabulary Knowledge

Table 4
Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1455.88 ^a	2	727.94	229.01	.00	.90
Intercept	152.92	1	152.92	48.10	.00	.50
Pre-vocabulary	40.76	1	40.76	12.82	.00	.21
Grouping	1271.57	1	1271.57	400.03	.00	.89
Error	149.39	47	3.17			
Total	43308.00	50				
Corrected Total	1605.28	49				

a. R Squared = .907 (Adjusted R Squared = .903)

To investigate the effectiveness of concordancing versus conventional instruction on learners' vocabulary knowledge One-way between-groups Analysis of Covariance was run. The independent variable was the type of instruction (concordancing and conventional instruction), the dependent variable was learners' scores on the post-test of vocabulary knowledge, and the participants' score on the pre-test of vocabulary knowledge were used as the covariate in this analysis.

The results revealed that there was statistically significant difference between the control and experimental groups on post-test scores, $F(1, 49) = 400.03$, $p = .00$, partial eta squared = .89.

MANOVA was calculated to answer the second research question regarding the efficiency of concordancing in retaining gained vocabulary knowledge. Tables 5 present the descriptive statistics of the two groups' performance on pre, post, and delayed post-tests of Vocabulary Knowledge Test.

Table 5

	Grouping	Mean	Std. Deviation	N
Pre-test vocabulary	experimental	22.32	2.17	25
	Control	21.52	1.93	25
	Total	21.92	2.07	50
Post-test vocabulary	experimental	34.20	2.00	25
	control	23.56	1.98	25
	Total	28.88	5.72	50
Delayed post-test vocabulary	experimental	32.80	2.02	25
	control	23.20	1.70	25
	Total	28.00	5.19	50

Descriptive Statistics

Table 6

Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.996	4052.25 ^b	3.00	46.00	.00	.996
	Wilks' Lambda	.004	4052.25 ^b	3.00	46.00	.00	.996
	Hotelling's Trace	264.27	4052.25 ^b	3.00	46.00	.00	.996
	Roy's Largest Root	264.27	4052.25 ^b	3.00	46.00	.00	.996
Grouping	Pillai's Trace	.900	137.44 ^b	3.00	46.00	.00	.900
	Wilks' Lambda	.100	137.44 ^b	3.00	46.00	.00	.900
	Hotelling's Trace	8.96	137.44 ^b	3.00	46.00	.00	.900
	Roy's Largest Root	8.96	137.44 ^b	3.00	46.00	.00	.900

a. Design: Intercept + grouping

b. Exact statistic

As it is evident in table 6, there was statistically significant difference between experimental and control groups on the combined dependent variables, $F(3, 46) = .10$, $p = .00$; Wilks' Lambda = .10; Partial Eta Squared = .90. When the

results for the dependent variables were considered separately, it showed that the result of the pre-test did not differ significantly from each other ($F= 1.88, P>.05$). However, statistically significant difference was observed in the post-test ($F= 357.20, p<.05$) and delayed post-test ($F= 329.14, p<.05$) scores.

Table 7
Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Pre vocab	8.000 ^a	1	8.00	1.88	.17	.03
	Post vocab	1415.120 ^b	1	1415.12	357.20	.00	.88
	Delayed test	1152.000 ^c	1	1152.00	329.14	.00	.87
Intercept	Pre vocab	24024.320	1	24024.32	5661.66	.00	.99
	Post vocab	41702.720	1	41702.72	10526.56	.00	.99
	Delayed test	39200.000	1	39200.00	11200.00	.00	.99
Grouping	Pre vocab	8.000	1	8.00	1.88	.17	.03
	Post vocab	1415.120	1	1415.12	357.20	.00	.88
	Delayed test	1152.000	1	1152.00	329.14	.00	.87

a. R Squared = .038 (Adjusted R Squared = .018)

b. R Squared = .882 (Adjusted R Squared = .879)

c. R Squared = .873 (Adjusted R Squared = .870)

Considering the eta squared values for the statistical differences of the two groups' results in the post-test ($\text{Eta}^2=.88$) and the delayed post-test ($\text{Eta}^2=.87$), it proved that these items retention for the experimental group was weaker in the delayed post-test.

Results of Qualitative Research Question

On the basis of the results of the quantitative section regarding the positive outcome of concordancing, we decided to use qualitative methods to collect more data about the effects of concordancing on learners' perceptions and therefore gain a deeper understanding of their views. To answer the qualitative research question concerning learners' perception of the effectiveness of concordancing on their vocabulary learning, learners' responses to interview

questions were transcribed verbatim which was done by the researcher himself so as to achieve closeness to the data.

The transcriptions were checked for any missing parts. Once the data was compiled and organized, the researcher started the cyclical process of reading, analyzing, and coding the data so that it could be organized into meaningful pictures depicting the learners' views and experiences. Interview transcripts were recited by the researcher so as to elicit their perceptions. Next, the researcher sorted the learners' responses into broad classifications representing the overarching themes shared across interviews. Learners' responses to interview questions were categorized through thematic analysis with the intention of extracting major recurrent themes provided by them.

First: each respondent's interview was coded first. Then the codes were studied and analyzed for differences and similarities among the participants across the interview question and also the whole interview. After studying the whole dataset, some previous codes were refined or excluded and data went through a process of coding and recoding several times. Then, the researcher looked for connections between these codes and explored the similarities and differences and themes emerged.

The in-depth analysis of the interview data indicated that the participants developed positive attitudes towards the incorporation of concordancing into English vocabulary learning. They were of the opinion that this approach increased learners' enjoyment and interest in learning, led to the greater appreciation of particular uses of words in various contexts, enhanced learners' command of target language's linguistic rules and patterns, facilitated the development of autonomy, and improved learners' language awareness. The emerged themes from interview data, the frequency and the representative excerpts of each can be seen in the following sections.

Table 8
EFL learners' most frequent answer

<i>Answer</i>	<i>Frequency</i>
Enhanced autonomy	7
Increased enjoyment and interest in learning	10
Better command of target language's preposition collocations	8
Greater appreciation of particular uses of words in various linguistic contexts	9
Improved learners' language awareness	8

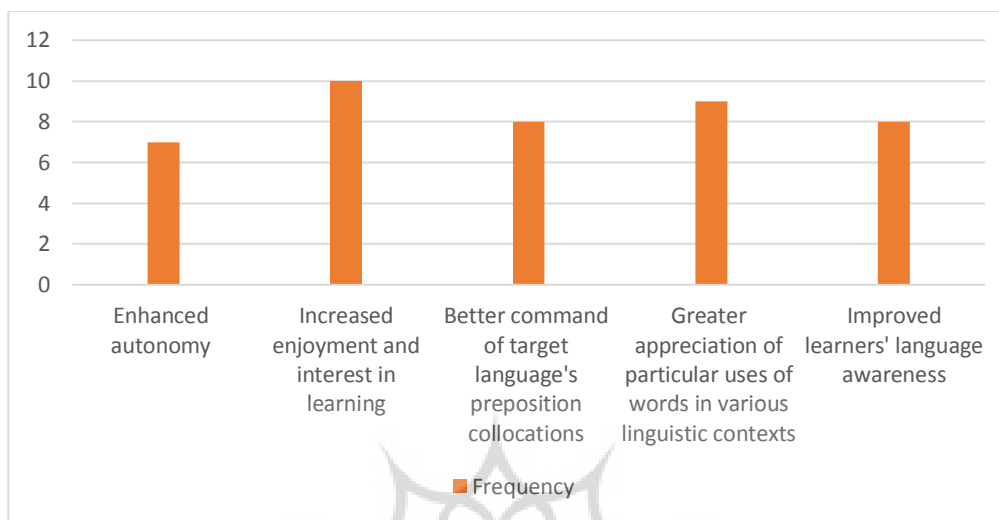


Figure 5: *EFL learners' most frequent answer*

Discussion

The current study embarked on investigating the efficiency of incorporating concordancing in teaching vocabulary knowledge compared with traditional instruction. The results of immediate post-test revealed that the experimental group outperformed the control group. The considerable variations in preposition collocations between the experimental and control groups revealed that the teaching approaches were successful in improving learners' preposition collocations. The findings support previous study that students gained more from the concordancing approach, and concordancing improved students in being able to infer a rule from numerous cases, as well as working as linguistic researchers to discover out typical collocation use (Chan & Liou, 2005; Hadley, 2002; Kaur & Hegelheimer, 2005; Sun & Wang, 2003; Yeh et al., 2007).

Concordancing appeared to enable learners to observe real collocation instances and self-induce patterns that finally assisted collocation learning. Although pupils appeared to fail to fully integrate induced collocation patterns over time. This shows that, in the long term, the concordancing method might help learners learn more about collocation, however such an induction-based strategy possibly will take more time for the learning effects to emerge. When completing the vocabulary exercises, the treatment group received access to the

concordancer. The application of concordance is suggested to promote discovery learning (Nation, 2001) and learner autonomy (Stevens, 1995), which may aid in vocabulary acquisition. More importantly, the study's findings highlight the need of teaching various aspects of vocabulary knowledge. Aforementioned vocabulary teaching research has emphasized the learners' need in acquiring various types of vocabulary knowledge if they wish to be capable of employing words in production (Nation, 2008; Schmitt, 2008). This study presented practical support for the facet of vocabulary education mentioned earlier.

The benefits of the corpus enriched instruction over the conventional instruction can be related to numerous inherent characteristics of the corpus-informed education. This approach to education offers learners a large quantity of authentic and contextualized data. As Cobb (1997) argues corpus exposes learners to linguistic phenomena in authentic contexts. It provides an enormous amount of input which in turn advocates inductive learning and necessitates a learner-centered classroom which includes a modification in the role of teacher. Liu and Jiang (2009) contend that the inclusion of corpus not only make achievable a vast amount of authentic language input but also creates various inductive and deductive language learning opportunities not present in the past.

Gilquin and Granger (2010) indicate that corpus is a promising technique which makes learners to deal directly with authentic language, encourages them by presenting elements of discovery, and develops learners' cognitive skills. Teachers need to be open to the approach which nurtures learners' discovery and critical thinking skills by exploring a corpus of authentic input and increases learner-centeredness. Considering learners as recipients of knowledge is a mundane thought. Within a corpus-based approach, students are rather seen as researchers "whose learning needs to be driven by access to linguistic data" (Johns, 1991, p. 2).

The analysis of learners' responses to interview question which explored learners' perception about the inclusion of concordancing in vocabulary instruction revealed that learners developed positive attitudes towards the application of this technique. Findings of the interview are in line with the previous findings revealing learners' positive attitudes towards employing corpus in the process of teaching (Chang & Sun, 2009; Marza, 2014; Yoon, 2008; Yoon, 2011; Yoon & Hirvela, 2004).

They indicated that concordancing empowered them to acquire the language independent of their teacher and contributed to their development of autonomy. Moreover, learners indicated that the concordancing enhanced their

command of target language vocabulary collocations. They stated that while using concordancing they closely analyzed the information and examined how words come together and operated with closely related words and utterances. They maintained that the exposure to these instances of genuine language use expanded their linguistic repertoire and enriched their understanding of specific uses of target words in relation to other words.

Another positive value that the learners pointed out was the contribution of concordancing to learners' greater appreciation of particular uses of words in various linguistic contexts. They explained that noticing preposition collocations and patterns gave them the opportunity to observe directly how context determines individuals' choices of preposition. In addition, learners illustrated that the inclusion of corpus increased their enjoyment and interest in learning. They stated that the direct interaction with native speakers' real life language was an enjoyable experience. Some of the learners commented that they really took pleasure of the discovery learning aspects of concordancing.

The results of this study are also in line with the results of a study conducted by Jalilifar, Mehrabi, and Mousavinia (2014) on the impact of printouts of concordance lines for vocabulary teaching and its impact on Iranian EFL students' learning and retention of vocabulary.

According to Vyatkina and Boulton (2017), research into the application of corpora in language learning is presently evolving. In this regard, one of the most promising areas of study in computer assisted language acquisition is the use of corpora and concordances (Ballance, 2017). As a result, additional study is required to better understand the possible function of concordances for L2 vocabulary knowledge acquisition. Meanwhile, it is anticipated that this work will raise awareness among L2 researchers, instructors, and learners about the possible significance of concordances for L2 vocabulary knowledge acquisition in our progressively technological society.

In line with a study conducted by Rets (2017) on the efficiency of concordance-based learning on L3 vocabulary acquisition and retention., the study disclosed the outperformance of the experimental group over the control group in both post- and delayed tests. The experimental group also showed supremacy in learnt and retained vocabulary knowledge more successfully by using concordance-based activities.

In another study conducted recently by Golabi (2022) on 54 intermediate-level female EFL students highlighted the worth of Concordancing

software in developing learners' vocabulary knowledge. The results of Golabi's study are consistent with the results of the present paper.

Conclusion

Due to the emergence of new technologies, new questions and research avenues has been opened in the world of education and pedagogy. The present paper was an endeavor to probe the role of novel technologies in teaching vocabulary; it was an attempt to examine if concordancing can be effective in improving the vocabulary learning and retention of Persian EFL learners. This investigation has revealed that concordancing can positively influence vocabulary acquisition in a number of ways. First, students encountered real collocation instances and the patterns of words combining together, which helps them get familiar with genuine combinations in the language they are learning. Secondly, concordancing will indirectly induce the idea that the learner himself must take responsibility of acquiring the vocabulary. This will enhance the autonomy of learning, which can act as a motivation so that the student can learn better. Moreover, this technique has been warmly welcomed by the learners because they showed appreciation because of using it in the class.

Generally, it could be claimed that the application of this method in learning environment can help students learn not only the meaning of a word but also the way it is used in a language. Concordancing can promote the Language proficiency of learners in that it makes them encounter and experience natural English through highlighting collocations. Additionally, technology can even enhance the motivation of learners because they think of technology as a normal part of life which must be employed in classes as well. However, there are certain limitations to this study's results. This study has mainly focused on a limited number of male learners in a language institute; obviously, more comprehensive studies are still required to corroborate the results of this paper.

Declaration of interest: None

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Biodata

Neda Fatehi Rad is an assistant professor of English Language Teaching at Islamic Azad University, Kerman Branch, Iran. She mainly teaches language testing, research methodology and teaching language methodology at graduate level and her main areas of interest include teachers' education, cooperative learning, language testing and research. She has published papers in international and national academic journals and presented in several national and international seminars. She has published three books in the field of translation, language learning and teaching.

Ali Bahreman is a PhD student in TEFL at Islamic Azad University, Kerman Branch, Iran. He is an enthusiastic teacher who has been tutoring English at Azad university and language institutes for some years. His main areas of interest are language teaching methodologies, e-learning, CALL and impact of psychology on teaching and learning.

Mahnam Saeid is a PhD student in TEFL at Islamic Azad University, Kerman Branch, Iran. She is an enthusiastic teacher who has been tutoring English at Azad University. She has been involved in teaching English at language institutes for a couple of years. Her main areas of interest include techniques of language teaching, collaborative learning, and psychology of teaching methods.

اثر بخشی استفاده از همایند ها بر یادگیری واژگان: زبان آموزان سطح متوسط زبان انگلیسی در تمرکز
زبان شناسی مجموعه ای، فرصت های پژوهشی جدیدی را در آموزش زبان باز کرده است، که همایند به عنوان
مؤلفه کلیدی این رویکرد برجسته است. با تکیه بر مفهوم همایند، این مطالعه بر آن شد تا بررسی کند که

آیا همانند می تواند به طور موثر یادگیری و حفظ واژگان زبان آموزان فارسی زبان انگلیسی را افزایش دهد. بدین منظور 50 نفر از فراگیران همگن به طور تصادفی به دو گروه آزمایش و کنترل تقسیم شدند. داده ها از طریق پیش آزمون واژگان، پس آزمون و پس آزمون تأخیری و همچنین مصاحبه جمع آوری شد. نتایج این مطالعه ترکیبی نشان داد که بین نمرات پس آزمون گروه کنترل و آزمایش تفاوت معناداری وجود دارد که نشان می دهد استفاده از همانند ها اثر مثبت دارد. علاوه بر این، گروه آزمایش در یک پس آزمون تأخیری حفظ واژگان قوی تری را نشان دادند. مصاحبه ها همچنین نشان داد که این روش باعث افزایش لذت و تعامل فراگیران با یادگیری، درک عمیق تر از نحوه عملکرد کلمات در زمینه های مختلف، بهبود درک آن ها از قوانین و الگوهای زبانی در زبان مقصد، حمایت از توسعه خودمختاری یادگیرنده و تقویت آن شد و آگاهی کلی زبان را تقویت کرد. این مطالعه پیامدهای آموزشی مهمی برای آموزش زبان، یادگیری و توسعه مواد آموزشی دارد.

کلمات کلیدی: زبان شناسی پیکره بنیاد، همانند، آموزش واژگان، یادگیری زبان به کمک کامپیوتر، یادگیری مبتنی بر داده