Concordance and Academic Vocabulary Knowledge: Evidence from Iranian EFL University Students

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ABSTRACT

Concordancing in the classroom is fairly a new approach that has emerged with the use of corpora in language learning. In a concordance, language is presented in an authentic context; learners are able to examine a key word in the context of a string of sentences which can exemplify the use of that particular word. This study examined whether the use of an online concordance program together with an online dictionary by 30 intermediate EFL learners aided in the transfer of word knowledge to an academic writing task. The learners were selected from Islamic Azad University, Tonekabon branch, and randomly assigned into 2 groups of control group and experimental group. The subjects in the experimental group were asked to use the concordance and online dictionary in their writing, but the control group used only the online dictionary. The results indicated that there was statistically significant transfer of vocabulary knowledge to the writing task.

Introduction

A concordancer is ''a tool for text analysis which can generate lists of words contained in a text or text collection'' (Gabel, 2001, p. 269) that allows the search of a word used in a particular context. Previous studies have shown the benefits of using computerized concordances by non-native speakers to define meanings of words and to assist in the transfer of word knowledge to novel texts (Cobb, 1999a) and that the concordancing approach is more effective compared to conventional methods of teaching vocabulary to second language learners (Gan, Low, & Yaakub, 1996). However, those studies did not focus on academic vocabulary or the transfer of the word knowledge to an authentic writing task; these are the key differences found in the present study.

Vocabulary in L2 and Foreign Language Writing

Formal writing in an academic setting requires L2 learners to have a strong linguistic foundation, including a vast range of lexical skills. Timed essays such as Test of Written English (TWE), International English Language Testing System (IELTS), and other placement tests administered by institutions of higher learning require learners to use specific vocabulary efficiently (Engber, 1995) in order to obtain a high score, which frequently determines student placement.

Native speakers of English learn new words all their lives through interaction with other speakers and exposure to the language in formal and informal situations, but L2 learners' exposure to and use of the target language is often limited. In addition, producing academic essays is different from writing personal accounts because the former requires transforming knowledge; L2 learners have to be aware of how to process information and transfer it by using effective vocabulary (Hinkel, 2004). Therefore, if these learners do not have a broad range of productive vocabulary knowledge, they cannot produce the types of writings expected of them in an academic setting.

Some L2 learners resort to memorizing long lists of words, looking up the meaning in dictionaries, and asking the meaning of words from native speakers; however, these ''shallow'' approaches to vocabulary learning may be less effective (Schmitt, 2000). Furthermore, L2 learners seldom have opportunities to learn new or unfamiliar vocabulary in context. This leads to experiencing lexical gaps when using the target language and the inadequacy of L2 learners to express ideas or concepts in the target language, which they may be able to do in their L1 (Read, 2000). Hence, L2 learners are not native-like when they carry out productive activities because they are impeded by their limited lexical capability.

Studies have shown that language instructors rate the lack of vocabulary knowledge as one of the most serious issues in students' writings and that L2 learners feel that the quality of their writing is influenced by their lack of vocabulary knowledge (Nation, 2001). Poor linguistic control can lead to linguistic coherence problems and misinterpretation (Allison, 1995). Because the choice and correct form of vocabulary will affect the quality of writing, a reader's judgment about the writer's ability is also affected: ''. . . readers took lexical error into account when assigning a quality score'' (Engber, 1995, p. 150). A study carried out by Vann, Meyer, and Lorenz (1984) found that errors made by ESL learners which were not commonly made by native speakers of English were less acceptable to faculty members. Similarly, faculty members stated that vocabulary was one of the problem areas in academic literacy for ESL learners (Johns, 1991).

Systematic instruction seems to play a predominant role in L2 learners' development of receptive and productive word knowledge as well as learners' production of academic texts (Hinkel, 2004). Laufer (1991), as cited in Goodfellow (1993), found that university students did not significantly increase their productive vocabulary when there was no systematic instruction to vocabulary learning: ''There is a tendency for learners to favor simple, general and frequent words in production'' (Goodfellow, 1993, p. 99). Some may even resort to avoidance or paraphrasing strategies in their writing by not using low-

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frequency words (Read, 2000). The 2000 most frequent words of English are adequate for learners pursuing academic studies (Nation, 2001) but these alone will not allow them to use the target language to convey their ideas effectively in academic writing. With the acquisition of a wide range of vocabulary, including the Academic Word List (Cox head, 2000), EFL students will have the option of using and experimenting with many different kinds of words when completing their writing tasks in an EFL setting and/or their area of specialization. With the advancement of technology in language learning, the use of concordance can aid foreign language (FL) students in the acquisition of the much-needed vocabulary.

Concordance and Vocabulary Acquisition

According to Stevens (1995), concordancing is beneficial for language learning because the new or unfamiliar word will be seen in a context rather than in isolation. He has proposed three main reasons for using this tool in language learning; authenticity, learner autonomy, and data-driven learning. Concordancers are immensely rich because they are based on a corpus made up of texts from various domains of writing and media, for example, informative writing on sciences and art and also imaginative writing; material from books, periodicals and other published or unpublished discourses (Flowerdew, 1996). The concordancer is a tool for learners to search linguistic features and patterns commonly occurring in everyday speech or written discourse in real-world situations. In some concordances, the keyword is highlighted and learners can click on the word to see it in a complete sentence from the text where it originated. L2 learners need to know how a word is most frequently used rather than the prescriptive rules of using it. They will see the vocabulary as used in a real-world, authentic context rather than ''myths and distortions that are too easily perpetuated from one generation to another of dictionaries, grammar and course books'' (Johns, 1994, p. 296).

Concordancing is advantageous because of the rich, systematic, and open-ended supply of data that encourages learners to explore and discover the language patterns. They have the opportunity to study the rules of the word usage inductively (Hyland, 2002), while experimenting with them in their writings. Hence, ''learning becomes authentically heuristic'' (Butler, 1990, p. 345), which encourages learners to become more independent and have better opportunities in selecting the most appropriate vocabulary required in the given situation. Based on constructivist learning theory, learners are more likely to transfer knowledge gained through such experience, ''. . . knowledge encoded from data . . .'' compared to knowledge transmitted or taught to them by instructors (Cobb, 1999a, p. 15). This is because the finding of a solution by an individual becomes an integral part of the individual, whereas knowledge transmitted by others bears little connection to the individual's personal experience (Gruender, 1996).

In a study conducted on a group of students using adapted version of lexicographers' activities, Cobb (1999a) found that concordancing could replace lengthy and time-consuming contexts for learning and transferring of word knowledge. While language learning is an ongoing process for native speakers of the target language, L2 learners do not have the privilege of learning the same amount of language in a short period of time. In addition, according to Cobb, just as lexicographers have put together an immense amount of data for searching words or phrases and their meanings in a short span of time, L2 learners can use concordancers in the same manner. Thus, data-driven learning can help them become autonomous learners and also provide them the opportunity to act as researchers. In addition,

concordances can reduce the length of time needed to acquire the academic vocabulary.

The purpose of the present study was to analyze the effectiveness of using an online concordancer and dictionary compared to the use of only an online dictionary in acquiring new vocabulary from the Academic Word List (AWL) by EFL learners. It also investigated whether the use of a concordancer influenced the transfer of word knowledge to academic writing through a comparison of students' writing tasks.

This study addressed the following two research questions:

1. Is academic vocabulary used correctly in vocabulary tasks by EFL learners who have access to an online concordancer and dictionary, compared to those using only an online dictionary?

2. Do EFL learners who learn vocabulary with an online concordancer and dictionary transfer the word knowledge correctly to their writing task, as opposed to learners who learn only with an online dictionary?

Hypotheses of the Study

2 hypotheses were formulated in this study:

H1. EFL learners who have access to an online concordancer and dictionary use academic vocabulary correctly in the vocabulary tasks, compared to those using only an online dictionary.

H2. EFL learners using only online dictionary transfer the word correctly to their writing task, as opposed to learners using an online concordance and online dictionary.

Methodology

Subjects

The subjects consisted of 60 adult students who studied English as a foreign language at Islamic Azad University, Tonekabon Branch. They were all translation students. The age range of the subjects varies from 18 to 26. They were all non-native speakers of English, and their first language was Persian. At first, the students were homogenized through an OPT. The criterion for selection of the students was that their score should be one standard deviation below the mean. Then, they were randomly assigned either to the experimental (n=15) or to the control group (n=15). The experimental group used concordance, and online dictionary, and the control group used online dictionary in their writing.

An introduction session was offered for the participants. During the introduction session, the students were informed about the purpose of this study and how to use concordance and online dictionary. After that, all of the subjects were asked to write a writing sample through using different vocabulary reference.

Materials

The materials used in the present study consisted of computer software and printed materials. The printed materials were a vocabulary list, a questionnaire, a pretest, a cloze activity, a sentence-building task, a writing task, and a post-questionnaire, while the software included a concordance program, and an online dictionary.

Pedagogical Instruments

Vocabulary list and concordance

All the words used in this study were selected from the Academic Word List (Cox head, 2000). The selection for vocabulary to be used in the present study was done by first selecting the most appropriate vocabulary needed to complete the writing task, ''Analyzing an Issue''. It was carried out by three language professors. From the 570 words on the AWL, words that were judged to be beneficial for the fluency of the writing task by at least three of the instructors were chosen; they totaled 73 words. Finally, to further improve the inter rater

reliability, another instructor with 15 years' experience of teaching EFL was asked to select 30 words from the list of 73 that were most likely to be used and most appropriate to complete the writing task. These 30 words were the basis of all the activities carried out in this study.

The online concordancer chosen for this study was Tom Cobb's Compleat Lexical Tutor, which has the ability to query the BNC written corpus. A written corpus was necessary because the present study focused on academic word knowledge and the transfer of the word knowledge to academic writing. Dictionary.com was the online dictionary used in the study.

Measuring Instruments

Questionnaire

Participants were asked to complete a questionnaire to find out their years of exposure to the English language, about their vocabulary learning strategies, and experience with concordancing.

Pretest

The pretest included all 30 words and was used to test the receptive academic vocabulary knowledge of the participants. Each item had four sentences, only one of which used the headword correctly. Participants were asked to choose the sentence that used the headword most correctly. Each option had enough context for participants to understand the meaning of the word but not too much for them to be able to guess the correct answer without actually having any receptive knowledge of the word. The pretest was to determine the words participants could recognize and which words from the total of the selected 30 would need to be focused on in the vocabulary tasks.

An item analysis was conducted on the scores of the pretest to determine if the items were well-written so that they tested the required content (Brown, 1996). Based on item difficulty (IF) and item discrimination (ID), 23 items were selected for the vocabulary tasks. It was necessary to select the items in such a manner as to retain the reliability of the test items and to have a fair distribution of items for the low, intermediate, and high achievers.

Cloze

A study done by Nist and Olejnik (1995), as cited in Nation (2001), found that the average item difficulty for multiple-choice questions was more than 8.0 while it was 0.63 for sentence completion (Nation, 2001). The reason for having both the sentence completion and multiple-choice format in the cloze task was to minimize the difference between participants' learning preferences. The distracters for the cloze were all from the same word list—the Academic Word List—from which the items had been selected (Read, 2000).

Sentence-building

The sentence-building task consisted of the same 23 words determined through the item analysis. Although composing a sentence with the target word may not be the best way to investigate whether participants actually understand the target vocabulary (Read, 2000), it must be noted that in the present study, this was a vocabulary learning activity and not a test. The rationale for doing this activity, as suggested by Read, was that participants could demonstrate their understanding of the meaning, the collocation of the target vocabulary and whether they could use it productively. Furthermore, this activity would allow participants to practice the target vocabulary to prepare them to use those words in the following activity, the essay writing task.

Writing task

In order to allow participants to demonstrate their productive knowledge, they were handed the list of the 23 academic words and encouraged to use them in their essay, on the topic ''Analyzing an Issue''. Participants were asked to explain an issue from viewpoints in about 550 words and. In this way, it was a very authentic task for participants; they were under no pressure to use the given words or to make reference to the dictionary and/ or concordancer. This writing activity was to investigate the transfer of the academic word knowledge that they had acquired through the past two vocabulary tasks, the cloze and sentence-building. According to Schmitt, when participants produce the vocabulary knowledge of their own accord, only then is ''productive mastery'' demonstrated (Schmitt, 2000, p. 169)

Post-questionnaire

The post-questionnaire consisted of ten questions requiring participants to elaborate their experience with computers, whether the concordancer and/or dictionary were found to be beneficial in completing the vocabulary tasks and if the participants made use of the dictionary and/or concordancer in writing the essay.

Procedure

After randomly assignment of the subjects, an introduction session was offered for the participants. During this session, the students were explained about the purpose of the research, and how they should use online concordance, and online dictionary.

The activities of this study were conducted during the participants' regular class time. The training session and questionnaire were conducted in the paragraph writing in which the class met once a week.

In order to find out the students' years of exposure to the English language, about their vocabulary learning strategies, and experience with concordancing a pre questionnaire was completed. Moreover, in order to measure the subjects' vocabulary knowledge a pretest was given to the students. Participants completed the pretest and were handed the essay assignment sheets in their regular classroom. The subjects were asked to write an essay by using the vocabulary reference tools. The essay-writing task was completed by participants outside of class time, although they regularly met the course instructor for guidance. Every participant was given the list of words. They had practiced in the vocabulary tasks and were encouraged to use those words to lend fluency to their essays.

Finally, the subjects were given a post test including cloze, and sentence building in order to measure the effect of reference tools. They completed a post-questionnaire to find out if online concordance and/or online dictionary were useful in completing the vocabulary tasks.

Data Analysis

In order to find out that if accessibility to concordances and dictionaries influenced the correctness of academic words used in vocabulary tasks in comparison to the use of dictionaries alone, the mean scores of the cloze and sentence-building activities of both groups were compared. For the cloze, one point was allocated for each correct response; the total score was 23 points. The sentence-building task had an overall score of 46 points whereby every correct sentence was awarded two points; each sentence was graded for grammaticality and meaning adopting the criteria Read used for vocabulary assessment (Read, 2000). Both the cloze and vocabulary scores were added to conduct a *t-test* to see if there was any significant difference between the mean score of control and treatment group. This was to answer the first research question

The second research question was answered by comparing the number of academic words used correctly in the writing assignment by both groups.

Results

The first research question investigates if EFL learners who had access to the concordancer and an online dictionary used the words correctly in the vocabulary tasks compared to those who used only the online dictionary.

Participants in the treatment group outperformed the control group in each of the tasks and also in the overall performance, as is shown in Table 1. The data show a difference of 21 points in the total score of the vocabulary activities between both groups, which was not statistically significant.

Table 1. Cloze, sentence-building, and combined scores of vocabulary activities

Group	Mean			SD		
Control	Cloze	Sentence-building	Combined	Cloze	Sentence-building	Combined
	16	28.5	44.40	3.09	8.99	11.47

Group	Mean			SD		
Experimental	Cloze	Sentence-building	Combined	Cloze	Sentence-building	Combined
	23.06	30.8	43	8.89	6.10	12.50

To elaborate this further, recording of the interaction of each group with the online tools can be examined. Table 2 presents the data on look-up behavior of participants in relation to the concordance and online dictionary.

Overall, participants in the treatment group referred to the dictionary more than they did the concordance; the average use of the concordance was 6.4(SD=3.20) as opposed to the dictionary, which was 12.2 (SD=6.6). Similarly, the dictionary look-up behavior of the control group participants was also varied; there was no correlation between the overall score and the number of interactions with the dictionary.

The second research question addressed the transfer of academic word knowledge to academic writing.

Most of the participants in both groups had used the target vocabulary in their writing task but the treatment group yielded higher scores; the treatment group made more attempts and had more correct words compared to the control group. As presented in Table 3, the average number of words used was 3.11 (SD=3.59) for the participants in the treatment group, whereas it was 2.44 (SD=2.50) for the control group. An independent sample t-test showed that there was statistically significant difference (p<0.05) in the percentage of correct word use in the writing task between the treatment group and the other group.

Table 2. The use of concordance and dictionary by both groups

Group	Mean			SD		
Experimental	The use of C	The use of D	The use of C&D	The use of C	The use of D	The use of C&D
	6.4	12.2	17.5	3.20	6.6	7.1

Group	Mean	SD
Control	The use of D	The use of D
	17	6.9

Note: The use of C, D, and C&D indicates the number of times each participant used the concordance, dictionary or both the tools when completing the vocabulary activities. C=Concordancer, D=Online dictionary

Discussion

The treatment group's performance in vocabulary tasks was not statistically significant. Given the time limitation (30 minutes), the treatment group participants had inadequate time to refer to the concordance program and the online dictionary.

This is consistent with the findings in a study by Cobb, where students in the experimental group had a lower number of interactions with the concordance program but made a larger gain (Cobb, 1997). Table 2 shows that the treatment group did not use much of the concordance to look up words in context because they were more familiar with the online dictionary compared to the concordancer. Since the concordancer was not fully exploited by the treatment group, generalizations regarding the influence of concordance in the correctness of word use in vocabulary activities cannot be made.

The treatment group had the availability of the online concordancer as well as the dictionary when completing the vocabulary activities. Since the treatment group was given an extra tool, a concordancer, it was hypothesized that they would interact with the words and text to generate intrapersonal interaction (Ellis, 1999), which would lead to better acquisition of the words. In addition, the use of concordance is argued to encourage discovery learning (Nation, 2001) and learner autonomy (Stevens, 1995), which may contribute to the transfer of word knowledge to writing. Similarly, the percentage of correct word use in the writing task by the treatment group was higher than that of the control group. An independent sample t-test revealed that the treatment group significantly outperformed the control group. This result suggests that the application of the concordance program together with the online dictionary by participants in the treatment group while completing the vocabulary tasks did have some impact in the transfer of academic word knowledge. There were also more attempts made by the treatment group to use the selected vocabulary in the writing task as compared to the control group (Table 3). On the other hand, the control group had access only to the online dictionary to see the definition of the target word during the vocabulary activities. Word knowledge learned from definition is difficult to transfer.

The writing task was a control-free activity and students were encouraged but not required to use the target words. Nation (2001) concludes that while it is relatively easier to improve one's vocabulary knowledge, it is not an easy task to use this word knowledge productively. It must be noted that the essay-writing task was not specially designed for this study, but was a required writing assignment in the course on which participants were enrolled. Thus, participants had the opportunity to apply their word knowledge by producing it in an authentic task.

Conclusion

The first research question asked whether access to a concordancer and dictionary would affect correct word use in vocabulary activities as compared to the availability of a dictionary only. But due to time constraint and the novelty of using a concordancer, the treatment group remained in its comfort zone and preferred to use the online dictionary instead of fully exploiting the concordance program (Table 2). Although the treatment group out-performed the control group, the results suggested that this difference was not significant.

The second research question investigated if vocabulary learned with the use of an online concordance program and dictionary would be transferred correctly to writing tasks, in contrast to vocabulary learned with an online dictionary only. Although both groups attempted to transfer the word knowledge to their writing task, the treatment group made more attempts and had a higher number of correct word use in the writing task. The results are statistically significant and they indicate that EFL learners who have access to both the online concordancer and dictionary when practicing vocabulary are more likely to transfer the word knowledge correctly to their writing task.

Table 3. Number of target words attempted by both groups

Groups	Word attempted	Mean	SD	Correct words used	% of correct words used	Mean	SD
Control	36	4.00	4.46	28	78%	3.11	3.59
Experimental	33	3.66	2.34	22	67%	2.44	2.50

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