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Dictionary consultation as a lexical processing strategy: exploring look-up notes in Iranian university students' academic textbooks

Mohammad Hassan Tahririan

Professor of Applied Linguistics/ TESOL, Sheikhbahaee University, Iran

tahririan@shbu.ac.ir

Elham Sadri

Ph.D. student of TEFL, Sheikhbahaee University, Iran

Elhamsadri@shu.ac.ir

Abstract

Looking up unfamiliar words and writing their meanings in the margin of the texts is a common lexical processing strategy which serves to comprehension and retention of words' meanings when reading English academic textbooks. This study investigated words in academic textbooks looked up by Iranian university TEFL students in hopes of throwing light on challenges and errors they experience. The findings revealed that students extensively consulted the dictionary and were successful in many cases but their dependency on bilingual dictionaries and also their tendency to rely on the initial sense provided in the dictionary led to failure for cases such as technical terms, polysemous entries, and words with different parts of speech. Among the pedagogical implications of these findings is the need for further training of students for effective use of the dictionary while reading academic texts.

Keywords: dictionary consultation; lexical processing strategy; academic textbooks; bilingual dictionary; initial sense

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by 1.Mohammad Hassan Tahririan & 2. Elham Sadri

1. Introduction

Vocabulary as the bedrock supporting academic language proficiency (Beck, McKeown, & Kucan, 2013) is the single most important factor contributing to learning to read and comprehending texts (Knight, 1994). The importance of vocabulary to overall success in reading comprehension has been widely documented (Anderson & Naggy, 1991; Golkar & Yamini, 2007; Hu & Nation, 2000; Laufer, 1992; Schoonen, Hulstijn, & Bossers, 1998). Although such components as topic familiarity, background knowledge, grammar, and syntax knowledge play a role in reading comprehension, it is vocabulary that has been considered to be the strongest predictor of comprehension. This is because vocabulary forms the biggest part of the meaning of any language and the overwhelming majority of meaning is carried lexically (McCarthy, 1990). Accordingly, academic vocabulary has consistently been identified as a major source of difficulty for university students who need to access the content of their text books (Nagy & Townsend, 2012; Snow & Kim, 2007).

In foreign language learning and teaching vocabulary has received significant attention. A recent field of vocabulary research is 'lexical processing strategies' (Fraser, 1999 a, b) which centers on what learners do when they come upon unknown words. In general, it is acknowledged that when L2 readers confront an unfamiliar word they adopt one of three options: ignore and continue reading, consult a dictionary or another individual, or infer its meaning on the basis of linguistic and contextual cues (Fraser, 1999 a, b; Prichard, 2008; Prichard & Matsumoto, 2011). Available results on the effect and outcomes of using these strategies are contradictory and conflicting. Ignoring the unknown words seems advantageous because it does not interrupt or slow down the flow of reading but as it is not a productive strategy, it is of less cognitive appraisal and learning value (Fraser, 1999 a). Inferencing, although a productive strategy, is found to be not an easy or efficient strategy for L2 learners because of text complexity or because of reader limitations (Bensoussan & Laufer, 1984; Haastrup, 1991). Moreover, consultation is considered as a time-consuming strategy that interrupts the reading and interferes with readers' short-term memory (Bensoussan, Sim, & Weiss, 1984; Knight, 1994).

The literature exhibits explicit support for the effectiveness of dictionary consultation; it has been established that dictionary use can indeed improve reading comprehension

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(Knight, 1994; Prichard, 2008). Also, it has been argued that students are more likely to find the correct definition of an unknown word from a dictionary than by guessing from the context (Bogaards, 1998). Moreover, with the advent of electronic and online dictionaries performing word look ups take less time, thus resulting in less distraction from the text (Lew, 2004).

Although consultation strategy has been argued to be effective for tackling unknown words, the ways students actually use this strategy have not received due attention in the literature. The reason may lie in the fact that using a dictionary while reading is a very "private matter" (Nesi & Haill, 2002, p. 277), and is considered to be dealt with outside the classroom behind closed doors. As a result, many students receive little advice for making informed choices about their look up behavior. Thus, a reliable investigation of students' dictionary-using habits opens windows to look at the problems and the demands they place on L2 readers.

The present study, which is mainly explorative in nature, examines a broad sample of look up records made by EFL students in the margin of their academic textbooks to reveal patterns that might throw light on problems associated with the use of dictionaries. The rationale for choosing academic textbooks was that when reading them, students frequently encounter unfamiliar words which they need to learn and retain for later use. The most common strategy students use to facilitate long-term retention of word meaning is writing their definitions in the margin of the text (Lawson & Hogben, 1996; Leeke & Shaw, 2000). Unlike conventional short reading passages, which might pose the problem of dictionary underuse (Atkins & Varantola, 1998; Bensoussan, Sim, & Weiss, 1984), academic textbooks provide a more reliable ground for this kind of investigation.

Moreover, unlike previous studies, this study seeks to explore students' consulting behavior outside research conditions and in real-life situations when they are reading their academic textbooks at their own pace and convenience. Many studies have addressed L2 readers' dictionary consultation manners through a variety of methodological approaches: questionnaires or interviews (e.g., Atkins & Varantola, 1998; Be´ joint, 1981; Bogaards, 1988; Tomaszczyk, 1979), observation protocols such as self reports (e.g., Nesi & Haill, 2002), think aloud protocols (e.g., Neubach & Cohen, 1988; Wingate, 2002); immediate

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recall (Knight, 1994), and computer-assisted look up tracking (Prichard, 2008; Prichard & Matsumoto, 2011). Findings obtained through these means should be viewed with caution, because they often measure participants' perceptions and beliefs rather than objective facts. The respondents' desire to conform to researcher's expectations, their impulsive wish to somehow appear better than they really are, or their inability to recall events in detail are some of the challenging factors that may have distorted previous research results. Bearing in mind the above issues, the novel characteristic of this study is that it investigates the ways university students look up words in conditions truly reflective of the typical dictionary usage in natural settings, away from methodological influences and constraints. The following research questions have been central to this investigation:

1. To what extent do students look up and record the meaning of unfamiliar words?
2. What type of words do the students look up more frequently?
3. What dictionaries do students prefer to consult?
4. To what extent are the recorded definitions indicative of successful look ups?

2. Method

2.1. Participants

The participants were 54 undergraduate students majoring in Teaching English as a Foreign Language (TEFL) at Sheikhbahaee and Islamic Azad Universities (Najafabad, Shahreza, and Khorasgan branches) in Isfahan, Iran. They were male and female students aged between 19 and 25 who were all native speakers of Persian. Due to the significance of foreign language proficiency in looking up unfamiliar words (Lew, 2004; Prichard, 2008), a vocabulary test was administered and the students whose scores ranged at ±1SD from the mean were selected. Table 1 presents the distribution of the participants by university and textbook.

Table 1. Distribution of the participants by university and textbook

	N of participants	
University	Textbook I	Textbook II
Sheikhbahaee University	9	12
Islamic Azad Universty (Korasgan Branch)	6	7
Islamic Azad Universty (Najafabad Branch)	5	6

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Islamic Azad Universty (Shahreza Branch)	4	5
Total	24	30

2.2. Materials

2.2.1. Vocabulary levels test

Nation's (1990) Vocabulary Levels Test which is available in different versions and measures vocabulary knowledge at various levels was selected, from which due to time constraints and for feasibility purposes, only the 'University Word Level' test (UWL) was used.

2.2.2. Text books

The textbooks submitted by volunteer students were their copies of two textbooks widely prescribed for a TEFL majors' methodology course. Table 2 describes the textbooks.

Table 2. Textbooks from which the words were looked up and recorded

	Textbook	Author	Year
Textbook I	Techniques and principles in language teaching	Diane Larsen-Freeman	2000
Textbook II	Approaches and methods in language teaching	Jack C. Richards & Theodore S. Rodgers	2001

2.3. Procedure

2.3.1. Data Collection

The textbooks under analysis were two textbooks for specialized courses prescribed at different universities. One of the researchers attended the final examination of the courses and invited the students to voluntarily take part in her project. It was ensured that the textbooks would merely be used for a study and would be returned after conducting the research. A number of students from each university submitted their textbooks. A few of the students submitted their recorded notes in the form of separate vocabulary note books or sheets attached to the pages of the textbooks. Each volunteer student was asked to take a UWL test to examine their level of vocabulary knowledge. To control for the proficiency

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variable, only the students whose scores on the UWT test were 1 SD above and below the mean (*N*= 54) were selected as the target sample. The textbooks submitted by these students provided the corpus to be analyzed in this study.

2.3.2. Data analysis

The unit of analysis was every single looked up word along with its corresponding recorded definition. In cases where the same word had been looked up more than once in the same textbook, the repetitions were counted as different entries. A part of the analysis was performed drawing on the vocabulary type categories proposed by Nation (2001) which include high frequency, general academic, domain-specific technical, and low frequency vocabulary. Decision about which words counted as high frequency and general academic vocabulary was made with reference to *A general Service List of English Words* (West, 1953) and *Academic Word List* (AWL) (Coxhead, 1998), respectively. Further analysis was performed regarding the number of look ups, medium of recorded definitions for the type of dictionary consulted, and the success or failure of each look up regarding the intended meaning in the context.

3. Results

3. 1. Frequency of dictionary consultation

The analysis of the notes on the textbooks revealed that the students consulted the dictionary in varying degrees and the definitions of a total of 1520 words were recorded as marginal notes. Table 3 depicts the frequency of dictionary consultation in the analyzed textbooks based on the variety of consultation.

Table 3. Frequency of dictionary consultations done by the students

	Less than 10 look ups per textbook		Between 10-30 look ups per textbook		Between 30-50 look ups per textbook		More than 50 look ups	
	N	%	*N*	%	*N*	%	*N*	%
Students	4	7.4	18	33.3	25	46.3	7	13

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According to Table 3, the number of students who used a dictionary regularly when reading academic textbooks was remarkably larger than those who did not. In fact, only a small number (7.4%) of students consulted the dictionary sparingly and over half of the students used a dictionary frequently and consistently.

3. 2. Types of looked up words

The words that students had looked up encompassed all the four categories of Nation's (2001) vocabulary types, from among which general academic words were the most frequently looked up ones . This is hardly surprising considering their broad range, abundance, and density in academic texts (Nagy & Townsend, 2012; Nation, 2001). The contrary holds true for the results of low frequency words. A noteworthy point in the results is the fairly large number of domain-specific words that students had looked up (14.2 %). Table 4 presents the frequency and types of looked up words.

Table 4. Frequency and percentage of different types of looked up words based on Nation's (2001) categories

	High frequency		General academic		Domain-specific academic		Low frequency	
	N	%	*N*	%	*N*	%	*N*	%
Looked up words	428	28.1	760	50	215	14.2	117	7.7

3. 3. Consulted dictionaries

The majority of volunteers had recorded the meaning of words in the form of L1 (Persian) equivalents. In other words, the students had mostly used bilingual dictionaries. Interestingly, in a few cases the definitions were recorded both in Persian and English.

3. 4. Success of the look ups

The results of the analysis of the records in terms of success or failure of the look ups are depicted in Table 4. Generally speaking, the successful look ups (75.3 %) were more frequent than the failed ones (24.7 %); around one fourth of the look ups were unsuccessful. Further analysis revealed that the failed look ups could be divided into three categories. First, failure due to confusion of the word's part of speech, for example: noun mistaken for verb, or verb wrongly recorded as adverb. The second group of look up failures, which mostly

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included domain-specific terminology, could be attributed to lack of a proper equivalent in the dictionary for the looked up word. The third category related to failure due to wrong interpretation of the looked up word and mostly encompassed polysemous words (i.e., words with two or more unrelated meanings). Table 5 presents the frequency of the word categories.

Table 5. Frequency and percentage of successful and failed look ups and their distribution by word categories

	Successful look ups		Unsuccessful look ups (24.7 %)					
			Part-of-speech confusion		No equivalent found		Wrong interpretation	
	N	%	*N*	%	*N*	%	*N*	%
Looked up words	1145	75.3	175	46.6	147	39.2	53	14.2

4. Discussion

The findings of the study indicated that a great majority of the participants had consulted the dictionary when reading their academic textbooks by themselves and at their own free will. This stands in contrast to the established postulation those L2 learners who are left on their own consult dictionary infrequently and sparingly (e.g., Bensoussan & Laufer, 1984; Paribakht & Wesche, 1997). Alternatively, the obtained findings support those of Akbari and Tahririan (2009) who identified that the most frequent word study strategy used by Iranian university students is consulting bilingual dictionaries. Dictionary consultation is directly influenced by individual differences in cognitive ability, personality characteristics, and attitude (Lew, 2004; Fraser, 1999 a). The fact that the majority of the students, regardless of their personal differences, relied on dictionary might relate to the type of reading texts in this study (i.e., academic textbooks). Academic texts provide fewer contextual clues for inferring the meaning of unfamiliar words (Nagy & Townsend, 2012). On the other hand, students need to pay attention to individual words in order to comprehend the contents of what they read ; thus, they need to consult dictionaries to ensure their comprehension.

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A significant finding of the study was that almost all of the students had preferred bilingual dictionaries. This reflects the common traditional tendency of L2 readers to use a bilingual dictionary as their lexical resource, even at the university level (Akbari & Tahririan, 2009; Lew, 2004; Nesi & Hail, 2002; Wingate, 2002). The common reasons why L2 readers prefer to use bilingual dictionaries lie in such factors as ease, simplicity, and precision (Lew, 2004; Wingate, 2002). Heavy reliance on bilingual dictionaries is worthy of consideration from two aspects. First, a typical dictionary entry in a monolingual dictionary presents the definitions along with a host of other kinds of information (e.g., examples of use, pronunciation, part of speech, conjugation, word's origin, level of formality, synonyms, antonyms, etc.). Bilingual dictionaries (or, at least many English-Persian dictionaries presently available in Iran) do not follow that pattern. Thus, students are automatically deprived of a great deal of useful information that may otherwise be a potential source of incidental learning. The second and more important point is the fundamental differences witnessed in compilation of monolingual and bilingual dictionaries. Recent insights into the lexicographical research (Lew, 2010, 2013) reveal that in monolingual dictionaries the basis of meaning provision relies solely on the source language, or on "meaning structure" (Lew, 2013, p. 4). In bilingual dictionaries, on the other hand, the issue is more complex, as it involves not one but two lexical systems. In fact, bilingual dictionaries are driven by interlingual equivalence relations or "equivalence structure" (Lew, 2013, p.4). Nevertheless, by depending on the equivalents of lexical items in the two languages, semantic information is likely to undergo elimination, redundancy, mismatch or getting lost in translation.

Another important finding refers to the success or failure of the look ups. The results indicated that a good number of words (75.3%) were looked up successfully and the recorded definitions attached to them were generally on target. However, in almost one fourth of the look ups (24.7 %), the recorded definitions did not match the intended meaning of the word in context. A number of unsuccessful look ups included domain-specific terms whose equivalents were not found in bilingual dictionaries. According to Nation (2001), these types of words are directly related to the subject matter of the technical field and could only be comprehended by gaining adequate knowledge in the subject. Hence, general dictionaries (especially bilingual ones) are not valid sources for making sense of technical terms; they can

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even result in confusing and sometimes bizarre definitions. Table 6 illustrates examples of such misleading recorded meanings observed in the textbooks. It seems that some students in this study had been unaware of this and had searched for the meaning of a large number of domain-specific words in the bilingual dictionary. In general, this echoes Akbari and Tahririan's (2009) finding that in using word study strategies (e.g., dictionary use), students do not make a distinction between specialized and non-specialized vocabulary.

Table 6. Examples of failed looked up domain-specific technical terms

Technical term	Domain-specific description	Persian equivalent
rejoinder	A kind of language drill	جواب تر و چسبان (Lit: A sharp or witty reply)
competence	The ability of an individual to do a job	صلاحیت (Lit: qualification)
Minimal (pair)	Pairs of words different in only one phonological element	کمین (Lit: of a minimum amount)
schema	Organized patterns of thought or behavior	طرح (Lit: representation of a plan)
derivation	The grammatical formation of a word from another word	اشتقاق (Lit: developing of something from something else)

Other sources of failure were 'part-of-speech confusion ' and ' misinterpretation of polysemous entries'. In cases of failure due to part-of-speech confusion, the students had failed to recognize the correct part of speech of the looked up words, for example they had recorded a verb in the form of a noun or an adverb in the form of a verb. These kinds of errors do not seem to have affected the overall comprehension of the text. By way of illustration, a student who had recorded the meaning of 'instruct' (verb) instead of 'instructed' (past participle) should not have had a hard time understanding the text, because although these two words have different parts of speech they are close in meaning. Nevertheless, this may not be true of the other source of failure; that is recording a definition for a polysemous word which does not match the context. More probably, the wrong interpretation of polysemous words may have adversely affected the comprehension of the text. For example,

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recording the meaning of the verb 'address' as 'نشانی ' (particulars of a place or building) instead of ' مورد توجه قرار دادن' (set one's sight or endeavor on something) might have led to confusion and misunderstanding.

On the whole, the instances of look up failures in this study were results of students' tendency to copy the initial definition close at hand in the dictionary entry without going any further in the entry to find the meaning which suited the contexts. A careful investigation of the look ups confirmed that the majority of students chose the first definition and stopped their search after the first sense provided in the dictionary entry. In most cases the first sense corresponded with the intended meaning. However, there were other cases such as technical terms and polysemous entries where this technique led to failure. Previous research (Lew, 2004, 2013; Wingate, 2002) has established that the common habit of not reading dictionary entries beyond the first sense is a consequence of cramped dictionary entry design. Dictionary entries list too much information for a single word and this may discourage L2 learners from going beyond the first sense. More than that, preference for copying the early information provided in dictionary entry implies that many students are not amply skilled in using dictionaries and look up words without careful consideration and adequate attention.

5. Conclusion

This study was an attempt to throw light on Iranian university students' dictionary consulting behavior. It was found that dictionary consultation was a favored strategy among the participants and the majority of them used dictionary to unfold the meaning of unknown words in academic texts. The results also demonstrated that although in many cases the students were successful in finding the accurate definitions, in some other cases they had difficulty in faring with cases such as technical terms, polysemous entries, and words' parts of speech. Their heavy reliance on bilingual dictionaries on the one hand, and their preference for the initial sense provided in the dictionary entry on the other, appeared to be potential sources of problems. On the whole, the findings suggest that even adult students majoring in TEFL need to be more skilled in order to make the best of their dictionary consultation. The prevalent view among language teachers and educators is that looking up words in the dictionary is an easy and effortless activity that will develop naturally without direct training.

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In line with recent insights that cast serious doubt upon this taken-for-granted view and reject the minimal role accorded to dictionary use (e.g., Fraser, 1999 a, b; Lew, 2004; Prichard, 2008; Prichard & Matsumoto, 2011; Wingate, 2002), the findings of the study suggest that dictionary consultation should be accounted as a marked skill that needs special attention. Accordingly, the findings carry clear implications for explicit instruction of dictionary use skill. The fact that a good number of look ups were successful demonstrates that the students already had a basic understanding of dictionary use strategy. Hence, with devoting a short time to teaching this strategy it is possible to maximize the students' consultation ability and help them exploit the full potential that dictionaries provide for processing unknown words. To this end, students need instructions that focus on developing skills for effective look up — the kinds that make them aware of the type of vocabulary they should look up and the type of dictionary they should consult, and that introduce them to best ways of handling the information in the dictionary entries. Further experimental research is required to elucidate the effects of such explicit training on the comprehension of academic texts on the part of students at different levels of proficiency.

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