طريقة الكلمة المفتاحية دعامة كبرى للذاكرة في تعلم مفردات اللغة الإنجليزية كلغة أجنبية (دراسة ميدانية)

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ملخص: من المعلوم أن جل الدراسات التي أجريت على طريقة الكلمة المفتاحيـــة (keyword Method) اعتمدت على التجارب المختبرية للتدليل على فعالية هـــذه الطريقة . غير أن الدراسة موضوع البحث تتناول طريقة الكلمة المفتاحية داخـــل الصف. فقد قام الباحث بتدريس عشرين كلمة إنجليزية غـــير شـــائعة الاستعمال لمجموعة مكونة من خمسة و أربعين طالبا (مجموعة تجريبية) ، كما درست نفـس الكلمات لمجموعة أخرى بطريقة مماثلة بطريقة أيراد الكلمات في سياق الجمل (مجموعـــة ضبط)، و قد طبق اختبار إحصائي (T-test) على نتائج اختباري تحصيل أحدهمـا آني و الآخر أجري بعد أسبوعين. و كانت النتيجة أن الطــلاب فــي المجموعـة التجريبية قد تفوقوا على أقرانهم فــي مجموعـة الضبـط و كــان الفـارق بيـن المجموعتين دالا إحصائيا في مرحلتي الاستيعاب على المدى القصير و الطويل.

The Keyword Method: A Powerful Memory Aid to Vocabulary Learning in the EFL Classroom (An Experimental Study)

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Abstract: Most research findings on the keyword method were based on evidence from lab experiments. This study investigated the use of the keyword method in a normal classroom situation. 45 Arab students were taught the definition of 20 non- frequent English words and nonsense words using the keyword method; another 45 students acted as the control group in which the same words were taught using a contextual method. A t-test was applied to the results of two-criterion tests- an immediate recall test and a delayed recall test administered two weeks later. Subjects in the keyword group outperformed subjects in the control group at a significant level in both acquisition and retention.

Introduction: In American linguistics, vocabulary has always been treated as a *poor relation*. Bloomfield considers the lexicon as a "list of basic irregularities" and Chomsky called it "an ordered set of lexical formatives" (In Beheydt 1987: 55). The emphasis in language teaching has long been predominantly on syntax. However, cognitive psychology in the sixties brought with it a move into the essence of language-memory, meaning and thought, perception and emotion. Cognitive psychology showed that human behavior, specially language, can be taught by rote. The nativist/ generativist side of cognitive psychology, like behaviorist psychology, fell short of providing an all rounded description of the linguistic phenomenon. For instance, the nativists were failing to account for the *functions* of language (Halliday 1973 In Brown 1980).

Theoretical linguists realized that the transformational-generative model was inadequate because it did not consider meaning and, hence, proposed models in the form of generative *semantics* and *case grammar*. Another significant development was the shift of focus from the language

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form to the functions of language in discourse. Cognitive processes involved in learning were seriously studied (Paivio, Allan and Desrochers Alain 1981); for instance, the role of mnemonics, as an aid to memory, to improve learning and especially retention (Higbee 1979). This had a far-reaching effect on vocabulary learning; numerous studies were conducted to investigate the keyword mnemonic in vocabulary acquisition and retention (Atkinson 1975; Atkinson, Richard and Raugh, Michael, R. 1974; Pressley et al 1982; Cohen 1987). Carter (1987) argued that the keyword method has advantages over translation and rote learning.

Psychologists have often dismissed mnemonic devices as mere "tricks and sophistry" (Norman 1969). Mnemonics have been looked down upon until cognitive psychology, with its emphasis in learning on internal processes, brought mnemonics back to the limelight. Rote learning was brought to the forefront once more; teachers were no longer embarrassed by bringing in translation and repetition in language learning, specially in the teaching of vocabulary. There is no evidence, thus far, that the use of the learner's native language inhibits learning of the foreign word or its meaning. However, some researchers demonstrated the impracticality of using the native language in a mixed L1 class, or in cases where the teacher does not speak the language of the learners.

Although vocabulary has regained its place in the language curriculum, many issues related to vocabulary have not been adequately answered and many others have not even been properly addressed. Language teachers and researchers have often disagreed as to which direction to take in teaching vocabulary: do words have to be taught in isolation or in context? Do they have to be committed to memory by rote or mnemonic aids? Of paramount importance to the language teachers are questions related to techniques; which vocabulary teaching technique(s) should be used when?

Oxford and Crookall (See Oxford and Crookall 1990) divide vocabulary teaching techniques into decontextualized techniques (e.g. word lists, flash cards, and dictionary use; semi-contextualized techniques cover word grouping (semantic fields, word or concept association (elaboration), visual imagery, aural imagery, keyword, physical response, physical sensation and semantic mapping, fully contextualized techniques e.g. reading and listening practice and speaking and writing practice.

The Keyword Method:

The discussion in the rest of this paper will be largely focused on the use of the keyword method for learning foreign words as compared to learning words in context. Since it was developed by Atkinson in 1975, the keyword method has received more attention in research than any other mnemonic device. The method involves the establishment of an acoustic and an imaginal link between an L2 word to be learned and a word in L1 which sounds similar. For instance, the German word *Ei* "egg" can be learned by first establishing an acoustic link with the English word <u>eye</u> and conjuring up an interactive image of an egg with an eye in the middle of it. Similarly, the rather infrequent English word *maverick* (an unorthodox person) can be learned by establishing a link with the Arabic word <u>mariq</u>. (In this case the acoustic link serves as a close Arabic translation of the English word, so there is no need to create an interactive image).

Numerous studies have cited evidence for and against the viability of learning words in isolation and learning words in context. Atkinson, Richard and Raugh (See Atkinson, Richard and Raugh 1974) conducted a research on the effectiveness of the keyword method on a non-Romance language i.e. Russian. The keyword method proved to be highly effective, yielding for the most critical test a score of 72% correct for the keyword group compared to 46% for the control group.

Pressley et al. (See Pressley et al. 1982) compared the keyword method with 5 methods. In experiments 1 to 3, recall of definition of vocabulary words was the critical dependent measure , with the keyword method producing greater learning than any of the semantic-based or control conditions. Pressley et al. (See Pressley et al. 1982, after reviewing 50 studies of the keyword method, reached the conclusions that the keyword method is superior to rote-learning and contextual and definitional methods, giving support to similar findings by Paiveo and Desrocher (1981).

Kasper and Glass (1982) conducted a five-day experiment to assess whether the benefits gained by using the keyword method to teach Spanish vocabulary would generalize to new contexts. Subjects who had learned the vocabulary by the keyword method correctly translated 86% of these new sentence combinations; those who learned by rehearsal correctly translated 49% of the new sentence combinations. Thus there is evidence that the keyword method does not produce context specific memories and that learning does generalize to process distinctive information for each item, which indicates that the keyword method leads to recall independence. This

means that in a sequence of items, the recall of later items in the sequence does not depend on the recall of earlier items.

In a later study Kasper questioned the reasons why the keyword method is not being used to teach foreign language (Kasper 1993). As a rationale for its use, he cited evidence for 90% better recall with the keyword method as compared to 60% recall levels via rehearsal.

Strong evidence was also found for the supremacy of the keyword method over other methods when the keyword method was combined with a contextual method. In a study conducted by McDaniel and Pressley (1984), the keyword method was compared to learning new vocabulary when the meaning of the new vocabulary items had to be inferred from a meaningful context (context method). Combining the keyword method with the context method significantly improved recall over that of context alone but produced recall below that displayed by the keyword method alone. It is interesting that for high-verbal-ability subjects, the keyword method did not promote significantly better recall than a no-strategy control condition.

In Experiment 2, the keyword and context methods were evaluated in terms of how adequately the vocabulary could be used in sentences. It was established that whether keyword and context learners could use vocabulary in sentences was highly predictable from whether they knew the meanings of the items; keyword subjects knew more meanings than context subjects and thus were more likely to produce adequate sentences. Both methods led to highly adequate use of vocabulary in sentences, given that the word's meaning could be recalled. As in Experiment 1, the keyword method produced significantly greater definition recall than the context method.

Brown and Perry (1991) compared three vocabulary learning strategies: the keyword method, a semantic processing method and a combined keyword-semantic condition. A strong effect was found for the keyword-semantic producing significantly better results than keyword and slightly better than semantic method.

Avila and Sadoski (1996) conducted a study on the use of Spanish keywords to acquire English vocabulary. Sixty-three fifth-grade limited English proficiency students learned the definitions of 10 English words either by the keyword method or by control instructions emphasizing direct translation and memory. Result showed that the keyword method produced superior recall and comprehension both immediately and after 1 week. Their findings, so far as the keyword method enhances comprehension, lend support to Kasper and Glass (1982), McDaniel and Pressley (1984) and

Brown and Perry (1991).

Many researchers have found that mnemonics provide excellent "cognitive pegs" for storage and retrieval of the learning task (Craik and Lockhart 1972; Tulving 1972). However, several others questioned the role of mnemonics in language learning. For instance, Fuentes (1976. In Levin et al, 1979) found that keyword students did *not* outperform controls on either post-test a most surprising result, given the many previous studies demonstrating the effectiveness of the keyword method. In reaction to Fuentes' study, Levin et al (1979) conducted a series of studies, and concluded that the keyword method is superior to other methods, and that it can be successfully implemented in a classroom situation.

The utility of the keyword method was also challenged by Hall (1988). In his study, the keyword subjects (university students) scored significantly more poorly than control subjects on items not selected for keyword suitability, and additional data indicated that it was difficult to generate keywords for many of those items and that an alternative mediational strategy was preferred.

Meara (1982) criticized mnemonic methods on their treatment of vocabulary items as "one-off experiments" which "ignore the complex patterns of meaning relationships that characterize a proper, fully formed lexicon, as opposed to a mere word list." (P.104).

In his review of the literature on the use of mnemonics in foreign language learning, Cohen (1987) discussed the issues of contention regarding retrieving foreign words or their meanings. He pointed out the difficulties involved in activating the link between the target word and the native word meaning. Several researchers brought up the negative effect of the keyword method on the pronunciation and spelling of the foreign words; however, this claim has not been verified through experimental research and as such it has to be taken with some reservation.

Mnemonics are basically concerned with the management of the learning process, which according to Meara (1982: 106) is "on the periphery of acquiring new vocabulary." In this connection, Meara did not specify what he meant by "the periphery of acquiring new vocabulary". If by this statement is meant that learning vocabulary through the keyword method is limited to the learning of only the conceptual meaning in the native language, not many EFL teachers view this as the "periphery". Needless to say, there is a lot more to vocabulary learning than the simple association of words with the native language equivalent, however, that in itself is a major

breakthrough, on the part of the learner, which does not inhibit, but actually contributes, to the acquisition of the numerous other aspects of meaning.

Vocabulary in Context

Teaching vocabulary in context is considered by many to be the epitome of vocabulary teaching and learning. For instance, Bright and McGregor (1970: 40) see "no value in teaching words from lists." Context is believed to be superior to list learning for two reasons: it provides room for greater associations and meaningfulness of the learning material, and it provides a situation similar to discovery learning. The learner must actively process the linguistic environment and use available clues to guess the meaning of unfamiliar words.

Brown, D.F (1974) condemns the learning of vocabulary lists and describes it as "dull and has some dangers from the point of view of concept formation and usage." Rivers and Melvin (1977. In Burt, Dulay 7 Finocchiaro, eds. 1977: 168) deplored the teaching of words out of context: ".. a word learned out of context is for the most part a useless bauble." Schouten-van parreren (1991) strongly argued that guessing words in context enhances long term retention, and suggests that pupils guess the meaning of the words from context before the teacher tells them the meaning of the words.

But context also came under attack. The trouble with guessing words in context is that, more often than not, the learners are either not proficient enough to exercise guessing, or not trained well enough to use the strategy or both. Thus, on many occasions, the learners are required to guess the meaning of words from context prematurely. Another criticism against guessing the meaning of words from context is that the learner has no way to check whether his response is correct or not. Deighton (1959. In Gershman, 1970) observed that getting meaning from context had "important limitations":

Context reveals meaning for far less than has commonly been supposed. To avoid misunderstanding, it is worth stating that while context always determines the meaning of a word, it does not necessarily reveal that meaning. (p.4)

Cohen and Aphek (1980; 1983) hypothesized that perhaps only once students have some proficiency in Hebrew are they able to benefit from having vocabulary in a context; that until that time, the appearance of words in isolated lists simply means fewer distractions.

Laufer and Osimo (1991), in response to Schouten van Parreren's theory (1985) that guessing words in context enhances long term retention, argued that the learners may not always be able to correctly guess the meaning of words because of false clues, or because the clues themselves are in words unfamiliar to the learner (Bensoussan and Laufer 1984; Laufer 1989)

Nagy (1988: 8) argued that context seldom supplies adequate information for the person who has no other knowledge of the meaning of a word. "Most contexts in normal text are relatively uninformative."

Our understanding is that strategies that encourage learning isolated words and those that advocate learning in context are not mutually exclusive. However, a distinction has to be made between "learning and comprehension purposes" (Lawson and Hogben 1996). The theoretical strength of memory strategies (e.g.. keyword) resides in the <u>memory</u> side of vocabulary acquisition whereas the theoretical strength of semantic strategies (e.g.. context) resides in the <u>comprehension</u> side. Nation and Coady (1988) argued that "redundancy" in a given context may act to help a learner to guess the meaning of an unknown word, but the same reader may fail to retain the word because he was able to understand the text without knowing that word.

In the current study, the investigator conducted a purely classroom research which is different in structure, content, procedures and implications from laboratory research. The target words for this study, unlike most studies, have been randomly selected. There was no attempt to deliberately select words that are acoustically or semantically responsive to the keyword method. Many of the researchers who investigated vocabulary learning via the keywords method have chosen mostly concrete nouns that are easy to find keywords for. In this study, however, the target words comprise 7 nouns, 7 adjectives and 6 verbs.

This study has specifically addressed the following research questions:

1. How far does the keyword method facilitate the short-term and the long-term acquisition of vocabulary by pre-intermediate level students studying English for business and economics in the English Language Teaching Unit at the University of Qatar?

2. To what extent do subjects deviate from their instructed strategy (the keyword method) and use other non-instructed strategies?

3. To what extent do subjects in the Keyword condition confuse the native keywords with the translations of the target words?

METHOD

Participants

The sample has been drawn from the population of the students of the Faculty of Administrative Sciences and Economics taking English for business and economics at the English Language Teaching Unit (ELTU), University of Qatar. This course is the first of three courses which students take as university and faculty requirements. All students studied English for a period of 8 years before joining the university at a rate of 5 hours a week. The sample comprised 90 students divided into two groups: an experimental group and a control group with 45 students in each group. The experimental group includes 22 males and 23 females; the control group includes 19 males and 26 females. Most of the students (91%) are of Qatari nationality, the rest come from various Arab countries; the average student's age in this population is 18.78 years. The sample's mean score in an English achievement test administered prior to the study was 55%. The data for the current study was collected from two sources: all subjects (90), and the subjects in the keyword condition (45).

Materials

The subjects were given a test prior to the experiment with the aim of selecting 16 words completely unknown to them from a pool of 257 words representing the entire vocabulary taught in English for business and economics. To this were added another 4 simulated words to bring the total to 20. Two booklets were constructed for each learning condition (keyword and control). Each booklet contained two lessons; each lesson contained 10 words. Each lesson is made up of four sections: section A introduces the new words and allows the subjects to learn the words, section B is a practice session on the recognition of the words, section C is a practice session on the production of the words, and section D is a review session to reinforce learning.

The materials for the keyword group include a set of 20 transparencies containing interactive pictures for each word. In section A of the booklet, each English word is introduced with its matching keyword, the Arabic translation and a sentence describing the interactive image. Figure 1 is an example of the word "prospect" as introduced in the keyword condition in section A of lesson 2 in the booklet. In the control group, the same word is introduced in a context as follows: "I accepted the job because it has good **prospects**, chances, for promotion. (Definition by synonym)."

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No	WORD	KEYWORD	TRANS	IMAGE
16	prospect	*baras bakat	*fursa	*diktor qal lwahda 'indik baras. Bakat

* In the actual materials, these appear in Arabic script

Figure 1. An example of the word "prospect" as introduced in the keyword condition.

Test Instruments

A 20 item definition recall test (recognition) was constructed to test both short term (immediate recall) and long term retention (delayed recall) of the target words. Reliability of both tests was established in a pilot group (rel coeff= 0.78). A split-half reliability of the same test was also established (rel coeff = 0.89). The immediate recall test was administered on the second day immediately following the end of the second teaching session. The delayed recall test was given two weeks later. In both tests, the subjects were instructed to supply the correct Arabic equivalents of the target words. All test sheets were kept in a folder clearly marked with the group number, date, time, test room number and number of copies. At the end of the second session, the test sheets were placed back in the envelopes. The same test was given two weeks later; however, the order of the questions was altered to avoid the effect of serial learning. A binary scoring scale was used in which a correct answer was awarded a score of 1, and an incorrect answer, a score of 0. The supply of the correct Arabic word or any of its synonyms was the correct measure of the meaning of a given item. Controversial responses were referred to a panel of referees to decide on each case individually. Blanks are considered incorrect answers and awarded a grade of 0. In the keyword condition, If keywords are given instead of the translation equivalent, a score of 0 is given. Mistakes in grammatical forms and spelling are disregarded as long as they are not totally disruptive.

Procedures

Subjects were randomly assigned to the experimental and control conditions. Classes met every other day two times a week. Each class was taught the 20 target words in two lessons of 55-60 minutes each, at the rate of 10 words per session. Classes were taught by two non-native EFL teachers who received adequate training on the keyword method, class

procedures and the post-learning session for the keyword condition prior to the experiments. The teachers were also instructed not to divulge such information, between experimental and control groups, that may render the experiment invalid. A pilot group (N= 25), who was not part of the experiment, was used for the practical application of these procedures.

On the first day of the experiment, the teacher explained the purpose of the experiment. The subjects in the experimental group were told that they would be learning 20 new words over two days, using keywords, Arabic equivalents of the target words, verbal images and pictures. A few examples were given to orient the subjects on the keyword method. The experiment proper was conducted only after the teacher was adequately satisfied that the students understood the keyword procedures. The first 10 words were introduced and pronounced to the students, and each word was orally learned with the aid of keywords, translations, interactive images and pictures. The students were then given an exercise to test their ability to recognize the words, followed with an exercise to test their ability to produce the same words in a different order. Finally, going through the images and pictures on the overhead projector reinforced the learning of the 10 words.

On the second day of the experiment, the same procedure was repeated with the remaining 10 words. The students, in both conditions, were then engaged in a 5 minute discussion, after which they took test 1 (the immediate recall test). The subjects in the keyword condition were interviewed immediately after test 1 to see to what extent they had deviated from their instructed strategy (the keyword method) and used some other non-instructed strategies, and whether or not they had confused the native keywords with their Arabic translations.

The subjects in the experimental group and in the control group were given the same test two weeks later to test their delayed recall.

Limitations

Since the artificial vocabulary items and the use of a paired-associates test in which subjects were required to recall the Arabic equivalent when cued with the foreign word (English), are not representative of an actual learning situation (at least not in the University of Qatar), their use could be considered a limitation of the study. However, while the researcher does recognize this limitation, it must be said that the simulated words did permit relatively good control-- the language backgrounds of the

subjects, while not irrelevant, were minimally "contaminating".

Only one testing technique was used, a definition recall test which was administered to all subjects at the acquisition and retention stages. The definitional test may have favored the keyword method. Perhaps a variety of tests should have been used to cater for the differences in nature between the context and the keyword methods.

Results

A variety of statistical tools were used. In cases where the size of the data does not justify the use of robust statistics, measures of central tendency (mean, mode, median and range) were considered adequate. The t-test was used to analyze the differences between the means of the experimental group and the control group.

The Immediate and Delayed Recall Tests

To determine the likelihood that the differences between the two conditions was not due to chance, the test takes into account the mean differences for the group as a whole and the variations in the size of the differences for individual subjects (Heyes S. et al., 1986). Table 1 contains the means and the standard deviations of the acquisition (immediate recall) and the retention (delayed recall) scores of subjects in each group. Table 2 contains the standard error of the difference, t Values, and significance levels for the differences between the mean acquisition and retention scores for the two conditions (keyword and control).

Table 1: Group Means and Standard Deviations for Acquisition and Retention

	Learning Condition					
	keyword			control		
	M	SD	n	M	SD	n
Immediate	19.3	1.6	45	9.8	4.9	45
Delayed	13.06	5.54	45	5.86	5.06	45

Maximum Score = 20.

Table 2: Standard Error of the Difference, t Values, and significance levels for the differences between the mean learning scores Acquisition and Retention

Group	t	df	Sig.	SE
Immed.	-KW 12.32	88	.000	.77
Delayed	C-KW 6.26	88	.000	1.11

t = t value   df = degree of freedom
Sig = significance   SE of Diff = Standard error of the difference

With a t-value of (12.32) in the immediate recall test and a t-value of (6.2) in the delayed recall test, it is obvious that the difference between the means of the two methods is highly significant beyond the two significance levels of (0.05 and 0.01).

Students' Interviews

Subjects in the keyword condition were interviewed immediately after the immediate recall test. Only 4 subjects (8.8% of the total number of subjects, $N = 45$) deviated from their instructed strategy and reported having used a rote-learning strategy to learn 4 (20%) of the target words. The results are summarized in table 3 below.

Table 3: Use of Non-instructed Strategies

Strategy	Users	Example	Frequency
		estimate	2
rote	4	merchandise	1
		turnover	2
		vacant	1

On the other hand, only 2 subjects failed to distinguish two keywords (tairalnova and baras bakat from their respective definitions: haraka (turnover) and fursa (prospect) in the acquisition stage. However, since 95.5% of the subjects did not exercise any problems in distinguishing keywords from their target word definitions, it can be confidently stated that

subjects in the keyword condition were able to distinguish keywords from definitions in the acquisition phase at a significant level. However, in the delayed recall test, 7 subjects (15.5%) failed to distinguish keywords from target word definitions. This result, though still insignificant as evidenced by the Tukey Test, indicates that retention suffered during the period of the two weeks that had elapsed since the immediate recall test.

In response to open questions eliciting students' attitudes to the keyword method, 84% indicated that they liked the keyword method, 11% were undecided, and 4.4% had negative feelings about the method. Despite the high mean score obtained by the subjects in the keyword condition, the keyword was not immune to some jeering remarks; some found it "odd", "crazy" and "childish". Although 3 subjects mentioned that "keywords and translations can be easily confused", in actual reality, this phenomenon did not present itself in the subjects' responses in the tests. 2 subjects reported that the method was "entertaining"; 3 said it was good for learning "concrete words".

Discussion and conclusions

The first research question investigated the extent to which the keyword method facilitates the short-term and the long-term acquisition of vocabulary. The results showed that subjects in the keyword method performed significantly better than subjects in the control group at the 0.01 confidence level in both the acquisition and retention stages. The extra learning time made available for subjects in the context condition (control) did not give these subjects any advantage over subjects in the keyword condition, who were learning under more stringent time conditions.

The second research question deals with the extent to which the subjects in the keyword condition deviate from their instructed strategy and use other non-keyword strategies. A general problem with research comparing different vocabulary learning techniques is that learners may not adhere precisely to the prescribed method. In the keyword mnemonic research of Ott, Blake and Butler (1976), it was found that the subjects had a tendency to compensate for and violate experimental constraints; for example, using mnemonics to learn vocabulary when not requested to do so. By the same token, Belleza (1981) reported that subjects in several studies did not necessarily use mnemonics when they were expected to (only 25% of the experimental subjects in one study and 66% in another), and control subjects used strategies they were not supposed to (39% of the control

subjects in one study). In contrast, the number of subjects in the keyword condition in this study, who deviated from their strategy and used other strategies, was insignificant.

The third research question involves the extent to which the subjects in the keyword condition confuse the native keywords with the translations of the target words. Only two subjects in the immediate recall stage and 7 subjects in the delayed recall stage failed to distinguish keywords from target word translations. It can be argued that memory attrition increases with time which results in this situation, however, in order to reach a solid conclusion on this issue, further research is needed to calculate the increments at which this happens in comparison to other learning strategies.

It seems that the keyword method strengthens the link between the target words and their definitions. The keyword does this through verbal and visual imagery (in this study, the drawings depicting the interactive images used in the keyword condition seem to have positively affected the processing of meaning in memory).

Our study lends support to Pressley et al. (1982) in which the keyword method produced greater learning than any of the various semantic-based or control conditions under which the subjects learned the target vocabulary. The study also supports evidence that the keyword method is easily adaptable to foreign/ second language classroom situation. Brown and Perry (1991) and Avila and Sadoski (1996) reached similar results.

Research Implications

"Think-aloud" protocols could be used in addition to direct teaching and learning of vocabulary to monitor the various processes involved as the learners attack the task of vocabulary acquisition using various methods of presentation.

It would be desirable to replicate this study using an alternative design in which more target words are used in both a definition task and a beyond-sentence level meaning-deriving task. Also, it would be interesting to see if there is any effect on scores if subjects, after having received prior training on various vocabulary learning techniques, are allowed to self-select the technique instead of being assigned by the researcher to the methods.

Pedagogical Implications and Recommendations

Vocabulary learning necessitates that the learners develop the ability to face up to an intentional associative learning task, in which connections

must be formed between new, unfamiliar terms and their definitions. In order to be able to process the meaning of new words, the learners are required to operate at both the formal and semantic level of the acquisition process i.e., they need to learn not only the meaning of the word, but also have to be able to make the association between form and meaning.

Utmost care should be taken when teaching words in context that the text in which the word is introduced, no matter how long or short, must be rich in clues so that it enhances the learners' ability to guess the meaning of the words to be learned. Moreover, the learners have to be given adequate training on the use of context clues.

Both instruction in individual word meaning (list learning) and instruction in deriving meaning (guessing meaning from context) appear to hold potential for adding significantly to the students' vocabulary. The individual meaning training and the deriving meaning training operate in different ways: teaching the meaning of individual words adds specific items to a student's vocabulary store and opens up more opportunities for reading comprehension when the words learned this way are met in future reading contexts. On the other hand, teaching a strategy for guessing meaning from context enhances a student's ability to learn new words independently. This is in line with Prince's suggestion to "combine the advantages" of translation learning and context learning (Prince 1996), and Laufer and Shmueli's emphasis on the importance of attending to newly learnt vocabulary and relating it to the first language (Laufer and Shmueli 1997).

In response to the conflicting views over vocabulary learning approaches, a mixed method approach that combines definitional and contextual methods is proposed, specially at beginner's levels. The approach is viewed as a pyramid-like model which represents at its base those features of "word knowledge" (Nation 1990) that operate beyond the isolated target word i.e. features of collocation, frequency, appropriateness, associations and contextual meaning; the top of the pyramid represents features that relate to the individual word i.e. features of pronunciation, spelling, grammatical pattern and general (non-context) meaning. In this model, it is not important at which point of the pyramid the word is approached, base or top or halfway between the two points; teaching and learning may proceed from isolated word aspects to contextual aspects and vice versa.

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