Frequency of Use, Perceived Usefulness, and Actual Usefulness of Second Language Vocabulary Strategies: A Study of Hong Kong Learners

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This study is the largest scale project ever conducted in Hong Kong concerning the learning of English vocabulary by Cantonese speakers. The aims of the project were threefold: (a) to find out the vocabulary size of the tertiary students and whether they need help with academic vocabulary, (b) to identify the strategies that are conducive to learning vocabulary in general and the strategies that are especially useful for learning high- and low-frequency words in particular, and (c) to look at the discrepancies among the frequency of use, the perceived usefulness, and the actual usefulness of vocabulary strategies. The participants in the study included 1,067 students who had recently been offered places by the 7 local institutions of higher education. A vocabulary test and a vocabulary learning strategy questionnaire were used for data collection. Whereas in an earlier work (Fan, 2001) the author reported the findings in relation to the first aim, this article focuses on the findings for the second and third aims. ANOVA and Multiple Regression were employed for data analysis. The results of the study shed light not only on the strategy profile of the Hong Kong learners in general but also on the complexity involved in strategy use. Strategies relevant to the learning of L2 vocabulary as well as high- and low-frequency words are identified, and their implications are thoroughly discussed.

THE IMPORTANCE OF VOCABULARY KNOWLedge in learning a L2 is nicely summed up by Michael McCarthy, when, in an interview for *Cambridge Connection* ("Interview," 2001), he explained why he was interested in vocabulary:

> Vocabulary forms the biggest part of the meaning of any language, and vocabulary is the biggest problem for most learners. So I've always been interested in ways of helping learners in building up a big vocabulary as fast and as efficiently as possible. (p. 2)

As for the "secret to vocabulary learning," McCarthy remarked on the same occasion:

> The successful learners are those who develop techniques and disciplines for learning vocabulary: it might just be a question of keeping a notebook, or using a dictionary properly or perhaps disciplining yourself to look over your notes or to read a lot outside of class. The more independent you become as a learner, the better and stronger your vocabulary becomes, I think. (p. 2)

The notion of independent successful learners is closely related to the increasing importance now attached to the learner-centered approach to language teaching, which is based on the assumption that language learners who take greater control of their learning will become more successful than those who do not. Accordingly, the strategies employed by successful or good language learners have become the focus

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of attention among teachers and researchers alike.

The importance of vocabulary knowledge in second language (L2) learning is supported by the schema-based approach to language learning. The learning theory based on information processing and the role of cognitive processes suggests that "the information from long-term memory can be used to enrich the learners' understanding or retention of the new ideas by providing related information or schemata into which the new ideas can be organized" (O'Malley & Chamot, 1990, p. 18). In terms of L2 learning, the implication is that only when the appropriate schema for a given language situation or text is activated will comprehension take place. Background knowledge, for example, has been found to be important to the understanding of L2 texts (Carrel & Eisterhold, 1983). It was therefore recommended that in teaching texts, teachers should try to build up the learners' background knowledge by using prereading activities, including those that provide learners with the appropriate vocabulary. The role of vocabulary knowledge in L2 learning is therefore essential.

RESEARCH REVIEW

Definition and Classification of Learning Strategies

An often-quoted definition of learning strategies is: "the process by which information is obtained, stored, retrieved, and used" (Rubin, 1987, p. 29). The strategies for learning cannot be separated from what is being learned or from the process of learning. For the learning of L2 vocabulary, Brown and Payne (1994, as cited in Hatch & Brown, 1995, p. 373) have identified five steps: (a) having sources for encountering new words, (b) getting a clear image, either visual or auditory or both, of the forms of the new words, (c) learning the meaning of the words, (d) making a strong memory connection between the forms and the meanings of the words, and (e) using the words. Accordingly, all strategies for learning L2 vocabulary are, to a certain extent, related to these five steps.

A number of attempts have been made to classify language learning strategies (e.g. Naiman, Frohlich, Stern, & Todesco, 1978; Rubin, 1981). O'Malley and Chamot (1990) proposed three types of strategies: metacognitive, cognitive, and social/affective strategies (pp. 44–45). At more or less the same time, Oxford (1990) proposed two broad categories of strategies, direct and indirect. The former included memory, cognitive, and compensation strategies while the latter included metacognitive, affective, and social strategies (p. 17). Recently, Gu and Johnson (1996) established two main dimensions of vocabulary learning strategies for their study, metacognitive regulation and cognitive strategies, which covered six subcategories: guessing, using a dictionary, note-taking, rehearsal, encoding, and activating, all of which were further subcategorized. The total number of strategies in their study was 74. Schmitt (1997, 2000), however, suggested two categories of L2 vocabulary learning strategies: discovery and consolidation strategies. The former referred to determination and social strategies whereas the latter included social, memory, cognitive, and metacognitive strategies, with 40 strategies in all.

It may be said that in the classification of vocabulary learning strategies, consideration has to be given not only to the process of learning vocabulary but also to the first language (L1) and the L2, to the characteristics of the learners, and to the focus of the research concerned. In fact, no classification is perfect, and any individual strategy may fall into one category or another, depending on the aspect in focus. What is beyond dispute is that strategies may broadly be divided between those that are "more directly related to individual learning tasks and entail direct manipulation or transformation of the learning materials," that is, the cognitive strategies, and those that are connected with "the learning process, planning for learning, monitoring of comprehension or production while it is taking place, and self-evaluation after the learning activities have been completed," that is, the metacognitive strategies (Brown & Palinscar, 1982, as cited in O'Malley & Chamot, 1990, p. 8).

Deep and Surface Processing Strategies

Given that learning may take place intentionally or incidentally, a distinction has often been made between strategies that involve the learners more deeply (deep processing) and those that do not involve the learners deeply or do so to a much lesser extent (surface processing). Although evidence from cognitive psychology indicates that activities that require a deeper, more involved manipulation of information are more conducive to learning than those that do not (Craik & Tulving, 1975), research findings regarding the effectiveness of L2 vocabulary learning strategies seem to be rather conflicting.

Rote memorization, for example, has been considered an "undesirable" way of learning and

is "out of fashion" in communicative language teaching (Read, 2000, p. 39). However, the findings of studies on word lists or paired associates have indicated that a large number of words may be learned within a short period of time (Crothers & Suppes, 1967; Kellogg & Howe, 1971; Nation, 1982). Similar findings were obtained when word lists were learned by using a computer (Coady, Magoto, Hubbard, Graney, & Mokhtari, 1993). Indeed, Lawson and Hogben (1996) reported that both the top-scoring and the bottom-scoring groups made considerable use of word repetition.

Mnemonic devices, in contrast, have been regarded as more "desirable" strategies than memorization. They involve learners more deeply in the process of learning and can therefore help them to retain more words than rote memorization or repetition. Cohen and Aphek (1981) noted that native English-speaking students reported using meaning, sound, and image association strategies in order to enhance memory of Hebrew words. One kind of association strategy that has been intensively researched is the keyword technique (Atkinson, 1975). This strategy, which associates the meaning, sound, and image of the L1 and L2, has been found to improve retention (Hulstijn, 1997; J. R. Levin, M. E. Levin, Glassman, & Nordwall, 1992; Pressley, J. R. Levin, & Miller, 1982). However, this technique has been criticized for focusing only on receptive vocabulary (Meara, 1980) and for requiring too much effort on the part of the learners (Sternberg, 1987).

Dictionary strategies are commonly used among L2 learners in the learning of new words. Although Hulstijn (1993) found no significant differences in posttest scores between students who looked up many words in the dictionary and those who looked up only a few, Luppescu and Day (1993) reported that the Japanese learners who used bilingual dictionaries scored higher on a vocabulary posttest than the students who did not. Knight (1994) also reported that students with access to a computerized dictionary demonstrated more vocabulary knowledge after reading than those without. Similarly, Gu and Johnson (1996) found that Chinese students were very positive about dictionary use. They reported using a variety of look-up strategies, which correlated positively with vocabulary scores.

Whereas using dictionary strategies is an intentional way of learning new words, guessing or inferencing strategies are closely related to the incidental learning of vocabulary. Inferencing is generally understood as using available information to guess the meaning of new items. Inferencing strategies have been the focus of many studies (Huckin, Haynes, & Coady, 1993; Liu & Nation, 1985; Saragi, Nation, & Meister, 1978; Seibert, 1945) and have been highly promoted (Nation, 1990). Indeed, Read (2000) regarded inferencing as "a desirable strategy because it involves a deeper process that is likely to contribute to better comprehension of the text as a whole and may result in some learning of the lexical item that would not otherwise occur" (p. 53). However, when Bialystok (1981) looked at the relationship between strategy use and language achievement, she found that functional practice had a stronger relationship with achievement than any other strategy, but inferencing was unrelated to achievement at any grade level. Other research findings have indicated that students may fail to guess the correct meaning (Kelly, 1990; Pressley, Levin, & McDaniel, 1987) and that guessing the contextual meaning does not necessarily result in long-term retention (Mondria & Wit de-Boer, 1991; Parry, 1993).

Some General Conclusions about L2 Vocabulary Learning Strategies

Schmitt (1997) came to three general conclusions about vocabulary learning strategies based on the findings of general learning research and vocabulary learning studies: (a) Many learners are aware that learning vocabulary is important, and they use more strategies for learning vocabulary than for other linguistic aspects; (b) "mechanical" strategies such as memorization, note-taking, and repetition are used more often than strategies that involve deep processing, such as guessing, imagery, and the keyword technique; and (c) good learners use a variety of strategies and take the initiative to manage their vocabulary learning. Schmitt also contended that the frequency of the target words should be taken into account when recommending vocabulary learning strategies to students. Indeed, following Nation (1990), Schmitt (2000) suggested that

> high-frequency words should probably be taught, so they mainly require strategies for review and consolidation, whereas low-frequency words will mostly be met incidentally in reading or listening, and so initially require strategies for determining their meanings, such as guessing from context and using word parts. (p. 133)

However, these assumptions have not been supported by empirical data.

At the same time, many researchers contend that strategy use is related to learning style and

comprises both a person's cognitive approach to learning and his or her attitude toward that task (Kolb, 1984). For example, O'Malley, Chamot, Stewner-Manzanares, Russo, and Kuper (1985) found resistance among Asian students to using strategies for imagery and grouping when learning vocabulary. The Asian students in their study applied rote memorization strategies so successfully that they outperformed the experimental groups, who had been trained in more sophisticated strategies. O'Malley and Chamot (1990) stressed the importance of such student characteristics as motivation, aptitude, age, sex, prior education, as well as cultural background and learning style in the use of learning strategies.

Recent Studies of L2 Vocabulary Learning Strategies

Most studies on L2 vocabulary focus on individual strategies or a small number of them. Two large-scale projects recently conducted by Gu and Johnson (1996) and by Schmitt (1997) concerned Asian students. Gu and Johnson (1996) focused on the relationship between vocabulary learning strategies and vocabulary size, and Schmitt (1997) concentrated on the relationships between strategy use and perceived usefulness. Gu and Johnson (1996) investigated the vocabulary learning strategies used by 850 non–English majors at a university in China and the relationship between strategies, vocabulary size, and language proficiency. The researchers correlated the results of a questionnaire with those of a vocabulary test and a language proficiency test. Contextual guessing, the skills of using dictionaries, note-taking, and activation of newly learned words correlated positively with the two test scores, but visual repetition of new words was the strongest negative predictor of both vocabulary size and general proficiency. An attempt was also made to identify five groups of learners based on the combination of strategies used. Schmitt (1997) surveyed a sample of 600 Japanese students in order to assess which vocabulary learning strategies the learners actually used and how helpful they believed them to be. It was found that the learners used more dictionary and repetition strategies and considered them more useful than other strategies. They used fewer imagery and semantic grouping strategies than other strategies and regarded them as the least useful. There was also some evidence that more advanced learners tended to use more complex and meaning-focus strategies than less advanced learners.

THE PRESENT STUDY

The primary aim of the present study was to investigate the strategy use of another group of Asian students—Hong Kong Chinese students. The focus was on the relationship among frequency of use, perceived usefulness, and actual usefulness of L2 vocabulary learning strategies. The secondary aim was to provide empirical data about strategies that are especially useful or relevant to learning high- and low-frequency words. Particularly, the study set out to seek answers to the following research questions:

1. What are the strategies used most and least frequently by the learners in the study, and what strategies do they perceive as most and least useful?
2. Are there any discrepancies between frequency of use and perceived usefulness of strategies?
3. Which strategies are used most often by the students who are the most proficient in L2 vocabulary?
4. Which types of strategies are especially relevant to learning high- and low-frequency words?

METHOD

Participants

The participants in the study included 1,067 first-year degree students of various disciplines, 40% male and 60% female. They were newly admitted to seven institutions of higher education in Hong Kong. All these students took the Hong Kong Advanced Level Examination (HKALE), which is used for selecting local students for higher education. Their results in English Language, which ranged from grades of A to E, with a major portion of the grades falling into the categories of C, D, and E, particularly D, were representative of students who gained admission into the universities as reported previously by the author (Fan, 2001). Similarly, the age range, the language spoken at home, and the medium of learning for this group of students were also representative of those of the student population in the same academic year.

Instruments for Data Collection

The Vocabulary Test. The purpose of the vocabulary test was to determine the vocabulary size of the students in the study in order to identify the students who were proficient in English vocabulary. The test is similar to the Word Levels Test

discussed by Nation (1990), which contains words at five frequency levels. The 2,000 and 3,000 word levels contain high-frequency words; the University Word List (UWL) level represents one type of specialized vocabulary; the 5,000 word level is on the boundary of high- and low-frequency words; the 10,000 word level contains low-frequency words. The test uses a word-definition matching format. Students are required to match six words to three definitions. There are 36 words and 18 definitions at each level (1990, pp. 264–272). Paul Nation provided a longer version of his test that was used for the present study. It included 144 words and 72 definitions at each of the five levels, with a total of 720 test items, that is, four times the number of those used in the 1990 version. The reliability of this longer version was established through the split-half method as reported by the author in Fan(2001).

The Vocabulary Learning Strategies Questionnaire. The main aim of the vocabulary learning strategies questionnaire was to have a better understanding of the strategy use of the students in the study and to identify strategies that may be related to success in learning L2 vocabulary. The questionnaire, written bilingually in Chinese and English, was made up of two sections.[1] Section 1 contained nine questions, the purpose of which was to collect such background information about the respondents as gender, English proficiency, and the universities in which they were enrolled. Section 2 included 60 vocabulary learning strategies grouped into nine categories. The grouping was based on the findings of previous works on vocabulary learning strategies (Gu & Johnson, 1996; Naiman et al., 1978; O'Malley & Chamot, 1990; Oxford, 1990; Rubin, 1981), on information collected from a pilot study in which students of differing language proficiency levels were interviewed, and on the objects of the study, that is, how the students managed their vocabulary learning, how they exploited the sources for new words, how they used guessing and dictionary strategies to establish the meaning of new words, how they committed words to memory, and how they consolidated the knowledge of words recently learned. Among the 60 strategies, only 56 were used for analysis in this study because of a minor revision in the categorization. The nine categories of strategies are listed in Table 1.

Among the nine groups of strategies, *management* is a category of metacognitive strategies. It may be noted that such metacognitive strategies as social/affective strategies were not treated as a separate category in the study. Rather, they were integrated into the other categories. For example, "I find out how to improve vocabulary learning by asking teachers or my classmates," which could have been classified as a social strategy, was looked at as a management strategy. In the place of social/affective strategies, a *sources* category was established because the sources for encountering new words are very important in the process of learning, but this category of strategies has seldom been investigated in its own right. Both *guessing* and *dictionary* strategies are related to establishing the meaning of new words. *Repetition*, *association*, *grouping*, and *analysis* are all memorization strategies connected with different techniques for committing new words to memory. Among them, repetition strategies have generally been considered mechanical techniques whereas the other three categories are regarded as strategies involving deep processing. Table 1 also shows that more dictionary strategies than other strategies were included in the present study. Because the students who took part in the pilot study emphasized the importance of this category of strategies, this research collected additional information on these strategies (see

TABLE 1
The Nine Categories of Vocabulary Learning Strategies

Categories of Strategies	Number of Items	Section and Item Number
Management	5	A1–A3, A5, F2
Sources	8	B1–B8
Guessing	8	C1, C3, D1–D6
Dictionary	13	E1–E13
Repetition	5	H1–H5
Association	5	J1–J5
Grouping	5	G1–G5
Analysis	4	I1–I4
Known Words	3	A4, A6, A7

also Fan, 2000a). However, the category of *known words* strategies included only three items: (a) "revising words recently learned," (b) "using known words in learning the L2," and (c) "learning the new usage of known words." It was believed that these three strategies were sufficient for the purpose of the study, given the length of the questionnaire.

For each of the items in the questionnaire, students were requested to respond to both of the following: (a) How frequently do you use the strategy stated? and (b) To what extent do you think the same strategy is or may be useful to you? They responded on a 5-point Likert scale, ranging from *never*, *seldom*, *sometimes*, *often* to *very often* for the former and *not useful*, *not sure it is useful*, *quite useful*, *very useful* to *extremely useful* for the latter. This design was adopted from an earlier study (Johnson & Fan, 1996; and Fan, 1998), which produced some evidence that discrepancies may exist between the frequency of use and the perceived usefulness of vocabulary learning strategies. Schmitt's 1997 study only asked learners to indicate either *yes* or *no* for their response regarding the use and helpfulness of strategies. By comparison, the 5-point scale has made it possible to collect more detailed and revealing information. These nine categories of strategies were checked for their internal reliability in terms of both frequency of use and perceived usefulness by using Cronbach's alpha coefficient. The results are reported in Table 2.

The questionnaire was piloted using a small group of students with status similar to the participants in the study. The purpose was to ensure that the questionnaire covered the strategies relevant to learning English vocabulary and that the students could understand the questionnaire easily. All the interviews were recorded and the time for completing the questionnaire was checked.

Procedures

Both the questionnaire and the vocabulary test were enclosed in a letter to 5,000 (slightly less than half) of the students who had just been offered a place in the degree programs of the seven higher education institutions of Hong Kong, based on the estimation of 15% to 20% return rate. The number of students invited to take part in the study was proportionate to the estimated student intake in each of the seven institutions in the same academic year. For example, if the estimated intake of institution X was 25% of the total intake, then 1,250 of the students who had just been offered a place there were invited. So, if institution X offered places to 2,500 students, then 1 out of every 2 of these students was invited to participate in the study. The students were chosen according to family names, which were arranged in alphabetical order. The purpose of this selection process was to make sure that the sample would include students from the seven institutions so that the findings of the study would be relevant to them all.

The invitation letter reached the students through the assistance of the Joint University Programs Admissions System (JUPAS), which is the central office responsible for the allocation of university places in Hong Kong. In the letter, the purpose of the project was explained to the students, and they were asked to sign and return an agreement (written in both English and Chinese) confirming that they would do the vocabulary test in the prescribed manner. For example, they agreed to complete the test on their own, within the specified time, and without any help from dictionaries or other people. They were expected to return the completed test and questionnaire to the institution where the author worked within 3 days from receipt of the letter.

TABLE 2
Internal Reliability of the Nine Categories in Frequency of Use and Perceived Usefulness

Categories of Strategies	Frequency of Use Cronbach's α	Perceived Usefulness Cronbach's α
Management	.707	.673
Sources	.668	.696
Guessing	.662	.753
Dictionary	.746	.808
Repetition	.681	.740
Grouping	.804	.833
Analysis	.665	.662
Association	.712	.700
Known Words	.642	.667

It was entirely up to the students to decide whether they wanted to take part in the study. Also, because all of them had already been offered a place in one of the seven institutions of higher education, how they completed the questionnaire and the test would not affect their chances of admission, nor would they have in mind any particular teacher to please as they completed the questionnaire. The return rate was 20.08%, which was slightly higher than expected. Participants in the study included students who were enrolled in different degree programs from all seven of the institutions.

Analysis

In order to identify the strategies most and least often used and the strategies perceived as most and least useful, the average mean score for each of the 56 strategies in both frequency of use and perceived usefulness was calculated and rank ordered. Although the two scales are not directly comparable, the rank order facilitated comparisons among the 56 strategies within each of the two dimensions.

In order to find out whether there were discrepancies between the frequency of use and perceived usefulness of strategies, the average mean score for each of the nine categories of strategies was calculated for both variables. To check whether there were significant differences among the nine categories in frequency of use and perceived usefulness, ANOVA was applied with the nine categories as an independent variable with nine levels, and the mean scores for frequency of use and perceived usefulness as dependent variables. Bonferroni Multiple Comparison was conducted subsequently to make comparison among the nine categories.

In order to identify the strategies used significantly more often by the students who were most proficient in English vocabulary, one-way ANOVA was used with the three groups (High, Middle, and Low) as the independent variables and the mean score for each of the 56 strategies in frequency of use as the dependent variables.

In order to look for the category of strategies that may be especially relevant to the learning of high- and low-frequency words, Forward Stepwise Multiple Regression was performed with the nine categories of strategies as independent variables and test scores for words at each of the five frequency levels as dependent variables in the five separate analyses.

RESULTS

A preliminary examination of the data showed that the average mean for the 56 strategies in frequency of use ranged from 1.91 to 4.05 whereas the average mean in perceived usefulness varied from 1.36 to 4.16. The overall mean for the former was 3.06 (3 = *sometimes*, 4 = *often*) and the overall mean for the latter was 3.40 (3 = *quite useful*, 4 = *very useful*). These findings revealed that the students only sometimes used vocabulary learning strategies although they considered them useful. In the following discussion, means and standard deviations are given in parentheses. For example, (E7, 4.05/0.85) indicates that for the 7th strategy in section E of the vocabulary strategy questionnaire, the mean and standard deviation are 4.05 and 0.85, respectively.

Question 1

What are the strategies used most and least frequently by the learners in the study, and what strategies do they perceive as most and least useful?

Strategies Used Most Often and Perceived as Most Useful. It was surprising to find that among the 56 strategies, only 1 from the known words category was found to be both often used and perceived as very useful: "In reading a sentence or a passage, when I come across a word I have recently learned, I recall the meaning of the word to help me understand the context" (K2, frequency of use 4.01/0.87; perceived usefulness 4.16/0.83). One other strategy reported to be often used was "I use the dictionary to find out the context meaning of the new word" (E7, 4.05/0.85). The six other strategies perceived as very useful were:

> I revise the new words I have learned (K1, 4.03/0.87).
> When I meet a word I have recently learned in reading, I pay particular attention to its new usage and new meaning (K3, 4.01/0.90).
> I increase my English vocabulary by reading stories, newspapers, magazines etc. outside class (B6, 4.05/0.94).
> When I meet new words in reading, I guess their meaning and then look in the dictionary (D8, 4.10/0.93).
> I look in the dictionary to find out the grammatical pattern of the word (E10, 4.01/0.93).
> To remember a word, I analyze it by breaking it into sound segments (I1, 4.00/1.03).

These findings, in general, indicated that the students in the study used and considered useful the strategies for reviewing and consolidating their knowledge of known words, and that they had a preference for dictionary strategies. It should also be pointed out that the strategies considered *very useful* outnumbered those reported to be *often used*.

Strategies Used Least Often and Perceived as Least Useful. There was one strategy, the keyword technique, that was both seldom used and perceived as *not useful:*

> I use sound and meaning associations. For example, I link the new word to a Chinese word which sounds similar. Then I form a mental image based on the interaction of the meanings of the new word and the Chinese word to help me remember the sound and the meaning of the new word. (J5, 1.91/1.03)

The other strategy that had a mean score lower than 2 in frequency of use was: "I increase my English vocabulary by studying wordlists at the back of course books and readers" (B5, 1.99/0.90). One other strategy that had a mean score lower than 2 in perceived usefulness was: "I link the word to a Chinese word with similar sound" (J4, 2.09/1.10). Strategy B5 is related to rote memorization, whereas both strategies J4 and J5 are association strategies. These findings seem to imply that the learners did not favor rote learning or using images in learning L2 vocabulary.

Given that some research findings suggest that L2 learners tend to use many mechanical strategies, the author made a special attempt to examine the use of repetition strategies by the students in the study. It is interesting that the data showed that they tended to use some of the repetition strategies more often than others. For example, they used the strategies "repeatedly saying the new word in their mind" (H3, 3.27/1.03) and "spelling the new word in their mind" (H4, 3.23/1.08) more often than they used the strategy "repeatedly saying them aloud" (H2, 2.33/1.07). These findings seem to contradict those of Gu and Johnson (1996) who reported that Chinese students use more oral repetition strategies than other kinds of rehearsal strategies.

Question 2

Are there any discrepancies between frequency of use and perceived usefulness of strategies?

In order to find an answer to this question, the strategies under study were examined first by category and then individually in both frequency of use and perceived usefulness. The findings indicated that the two categories of strategies most often used were guessing and known words whereas the three categories of strategies least often used were grouping, association, and management. Table 3 is a summary of the findings.

TABLE 3
Mean Scores in Frequency of Use by the Nine Categories

Categories of Strategies	*N*	*M*	*SD*
Guessing	1078	3.54	0.51
Known Words	1083	3.51	0.71
Analysis	1080	3.25	0.81
Dictionary	1076	3.22	0.53
Sources	1071	3.07	0.56
Repetition	1082	3.04	0.72
Grouping	1082	2.54	0.80
Association	1076	2.51	0.74
Management	1080	2.51	0.69

Note. 1 = *never use*; 2 = *seldom use*; 3 = *sometimes use*; 4 = *often use*; 5 = *very often use.*

Results of one-way ANOVA indicated significant differences among the mean scores for the nine categories in frequency of use, $F(8, 9699) = 392.900$, $p < .001$ (see Table 4). Further analysis using Bonferroni Multiple Comparison Test ($p < .05$) showed that the mean scores for guessing and known words were significantly higher than those for all other categories and that the mean scores for analysis and dictionary were significantly higher than those for sources and repetition, the mean scores for which were, in turn, significantly higher than those for grouping, association, and management. The general picture that emerged was that the students most often used strategies to guess the meaning and to review and consolidate the knowledge of new words, which was expected because the students in the study were advanced L2 learners. That they often used dictionary and analysis strategies in learning new words was also expected because these students needed to learn a lot of academic vocabulary for their studies. However, what was unexpected was that they seldom used management strategies.

One would expect a similar pattern in the perceived usefulness of these categories of strategies, but this pattern was not entirely found, as is shown in Table 5.

Results of one-way ANOVA indicated significant differences among the mean scores for the nine categories of strategies in perceived useful-

TABLE 4
Results of One-Way ANOVA on Frequency of Use by the Nine Categories

Source	*df*	*SS*	*MS*	*F*	*p*
Between Groups	8	1476.588	184.574	392.900	.001
Within Groups	9699	4556.324	0.470		
Total	9707	6032.912			

ness, (8, 9697) = 334.072, $p < .001$ (see Table 6). A Bonferroni Multiple Comparison Test ($p < .05$) showed that the average mean score for Guessing was significantly lower than those for known words and dictionary. In contrast, management, which ranked as low as association in frequency of use, was found to have an average mean score significantly higher than those of both repetition and grouping, the mean scores of which were, in turn, significantly higher than that of association, which ranked the lowest in both frequency of use and perceived usefulness.

Consistent evidence regarding these discrepancies was obtained when individual strategies were examined. Although the guessing strategies, in general, rated higher in frequency of use than dictionary strategies, a considerable number of dictionary strategies rated higher than guessing strategies in perceived usefulness. For example, "I use my experience and common sense to guess," which ranked 9th (D6, 3.64/0.92) in frequency of use, was rated 43rd (3.13/0.97) in perceived usefulness. By contrast, "I look in the dictionary to find out the grammatical patterns of the word" ranked 24th (E10, 3.31/1.01) in frequency of use but 6th in perceived usefulness (4.01/0.93). Obvious discrepancies were also found among the management strategies, all of which ranked higher in perceived usefulness than frequency of use. For example, "I plan my vocabulary learning," which ranked 46th (A1, 2.5/0.87) in frequency of use, was rated 28th (3.46/.099) in perceived usefulness. The same pattern was noted with sources strategies. For example, "I learn new words at every opportunity," which ranked 27th (B1, 3.20/0.98) in frequency of use, was rated 10th (3.89/0.97) in perceived usefulness.

TABLE 5
Mean Scores in Perceived Usefulness by the Nine Categories

Categories of Strategies	*N*	*M*	*SD*
Known Words	1083	4.07	0.67
Dictionary	1072	3.58	0.56
Sources	1071	3.49	0.57
Guessing	1075	3.46	0.59
Analysis	1073	3.44	0.77
Management	1077	3.36	0.70
Repetition	1082	3.27	0.75
Grouping	1080	3.22	0.81
Association	1072	2.61	0.73

Note. 1 = *not useful*; 2 = *not too sure it is useful*; 3 = *quite useful*; 4 = *very useful*; 5 = *extremely useful*

It was also noted that among the four categories of strategies for committing words to memory, the analysis strategies in general ranked relatively high in both frequency of use and perceived usefulness. For example, "To remember a word, I analyze it by breaking it into sound segments," which ranked 7th in perceived usefulness as reported earlier, ranked 4th (I1, 3.92/1.08) in frequency of use. As for the grouping strategies, although they ranked rather low in frequency of use, all of them ranked higher in perceived usefulness than the association strategies. For example, whereas the association strategy "I link the word to another English word with similar sound" ranked 44th (J3, 2.52/1.10) in frequency of use and 53rd (2.54/1.09) in perceived usefulness, the grouping strategy "I group together words and expressions that are used in a certain situation" ranked 46th (G4, 2.50/1.10) in frequency of use and 40th (3.22/1.01) in perceived usefulness.

There was, therefore, ample evidence to indicate that discrepancies exist between the frequency of use and perceived usefulness of vocabulary learning strategies both within and between categories, confirming the findings of the author's earlier works (Johnson & Fan, 1996; Fan, 1998).

Question 3

Which strategies are used most often by the students who are the most proficient in L2 vocabulary?

Another very important aim of the study was to identify strategies that are used more often by the students who are most proficient in English vocabulary. To this end, it was necessary to find (a) the students who outperformed the oth-

TABLE 6
Results of One-Way ANOVA on Perceived Usefulness by the Nine Categories

Source	*df*	*SS*	*MS*	*F*	*p*
Between Groups	8	1263.453	157.932	334.072	.001
Within Groups	9676	4574.301	0.473		
Total	9684	5837.754			

TABLE 7
Mean Scores (%) of the Three Groups on the Vocabulary Test

Groups	*N*	*M* (%)	*SD*
High	367	83.4	4.5
Middle	358	74.0	2.2
Low	359	63.3	6.1

Note. The three groups were obtained based on the overall results on the vocabulary test with about 33.3% of the subjects under study in each category.

ers in the vocabulary test, and (b) the strategies used significantly more often by this proficient group. All the students were first classified into the high-, middle-, and low-scoring groups, according to their overall results on the vocabulary test, with about 33.3% of them in each category. The average test scores of the three groups are represented in Table 7. The results of ANOVA using the three scoring groups as the independent variables and their test scores (%) as dependent variables confirmed significant differences among the three groups, $F(2, 1081) = 1758.289$, $p < .001$ (see Table 8).

Next, in order to identify strategies used significantly more often by the high-scoring group than by the other two groups, one-way ANOVA was applied with the three scoring groups as independent variables and the mean scores in frequency of use as dependent variables, as reported earlier. The results revealed 24 items that were used significantly more often by the high-scoring group, or more specifically, 18 were used significantly more often by the high-scoring group than by both the middle- and low-scoring groups, and 6 were used more significantly by the high-scoring group than by the low-scoring group (see Appendix A).

The 18 items included 1 management strategy, 4 sources strategies, 4 guessing strategies, 5 dictionary strategies, all the 3 known words strategies, and 1 analysis strategy. Repetition, grouping, and association strategies were totally absent; they are all memorization strategies. The high-scoring group was therefore distinguished in that they planned their vocabulary learning and encountered new words both inside and outside class significantly more often than the other two groups. By comparison, they used significantly more often both guessing and dictionary strategies in learning new words. In order to guess the meaning of words, they used their knowledge of grammar and morphology. They consulted the dictionary for the English definitions, the pronunciation, the derived forms, and the appropriate usage of the new words. They employed strategies for consolidating the knowledge of known words significantly more often than the other two groups. Among the 4 categories of memorization strategies under study, a total of 19 strategies, they used significantly more often only 1 of them: "To remember a word, I analyse it by breaking it into prefix, root, and suffix," an analysis strategy. It seems that they did not consider the role of memory important in L2 vocabulary learning.

It is particularly interesting to note that the results of ANOVA revealed two strategies that were used significantly more often by the low-scoring group than the high-scoring group: "I repeatedly write the word" (H5, Low 2.97/1.20; Middle 2.83/1.25; High 2.64/1.25, $F = 6.537$, $p = .002$); "I use sound and meaning association" (J5,

TABLE 8
Results of One-Way ANOVA on Test Scores by the Three Groups

Source	*df*	*SS*	*MS*	*F*	*p*
Between Groups	2	73072.242	36536.121	1758.289	.001
Within Groups	1081	22462.489	20.779		
Total	1083				

Low 1.99/1.04; Middle 1.96/1.04; High 1.79/1.02, $F = 4.121$, $p = .002$).

There was also one strategy used significantly more often by both the middle- and low-scoring groups than by the high-scoring group: "I link the word to a Chinese word with similar sound" (J4, Low 2.28/1.13; Middle 2.17/1.06; High 1.95/1.06, $F = 8.830$, $p = .000$).

These findings suggest that the students who were less proficient in L2 vocabulary depended much more on repetition and association strategies in their learning than the more proficient students. It was also interesting to note that the high-scoring group, like the other two groups, reported using some of the 24 strategies more often than others. For example, they reported using the strategy, "In reading a sentence or a passage, when I come across a word I have recently learnt, I recall the meaning of the word to help me understand the context" (K2, 4.20/0.76) much more frequently than the strategies "I think about my progress in learning vocabulary" (A4, 2.39/1.04) and "I plan my vocabulary learning" (A1, 2.60/0.92), both of which are management strategies. These findings, to a certain extent, reflect the learning habits of the students in the study, which will be discussed further in the last section.

Question 4

Which types of strategies are especially relevant to learning of high- and low-frequency words?

As reported in the *Analysis* section, five separate Stepwise Multiple Regression analyses were conducted using the nine categories of strategies as independent variables and the total test scores for each of the Word Levels as the dependent variables (see Appendixes B–F). As summarized in Table 9, results of analysis revealed that of the nine categories of strategies under study, six of them were found to have significant positive or negative correlation with the vocabulary test scores. Table 9 shows that dictionary and known words were positive predictors for test scores for all the five word levels, including both high- and low-frequency words. In contrast, repetition and association were negative predictors for test scores for all the word levels. Second, regarding test scores for the 3,000 word level, in addition to dictionary and known words, the other positive predictor was guessing. As regards both the 5,000 and 10,000 word levels, the other positive predictor was sources.

A closer examination of the results of Multiple Regression Analysis further revealed a consistent pattern in the five analyses: Known words, besides being the positive predictor for test scores for all the five word levels, was also the category of strategies having the strongest association with the test scores compared to the other positive predictors in the same word level (Appendixes B–F). These findings imply that reviewing and using words newly learned, in particular, and consulting the dictionary are important to the learning of words at all frequency levels. In contrast, repetition and association strategies may not be useful for the learning of words at any frequency level. Whereas guessing strategies may be especially relevant to learning high-frequency words (3,000 word level), exploiting sources for encountering new words may be very useful to learning low-frequency words (5,000 and 10,000 word levels), which learners probably meet incidentally.

DISCUSSION

This section will discuss the learning style of Hong Kong students, the strategies found to be used by the students who were most proficient in

TABLE 9
A Summary of the Positive (+) and Negative (−) Predictors of Test Scores for the Five Word Levels

	Word Levels				
Strategies	2000	3000	UWL	5000	10000
Sources				+	+
Guessing		+			
Dictionary	+	+	+	+	+
Repetition	−	−	−	−	−
Association	−	−	−	−	−
Known Words	+	+	+	+	+

Note. All the nine categories in frequency of use were entered into a Forward Stepwise Multiple Regression Model using entry criteria .05 ($p < .05$). Independent variables not found to be significant (Management, Guessing, Analysis) are not shown in the table.

L2 vocabulary, the strategies especially related to the learning of high- and low-frequency words, and the discrepancies between frequency of use and perceived usefulness of strategies and their pedagogical implications.

Learning Style of Hong Kong Students

Although Schmitt (1997) concluded that L2 learners tend to use many mechanical strategies, there is no evidence in the present study to suggest that this is the case among the Hong Kong learners. Unlike the Japanese learners in Schmitt's study, these Hong Kong learners did not use repetition strategies more often than other kinds of strategies. In fact, one of the two strategies reported to be used least often by all the students in the study was "increasing English vocabulary by studying wordlists at the back of course books," which is often connected with rote learning. On the contrary, the only memorization strategy that they all perceived as very useful was an analysis strategy that involves deep learning, that is, "breaking words into sound segments to remember them." Nor did the Hong Kong students consider repetition particularly useful in learning L2 vocabulary. Indeed, the fact that the category of repetition strategies was ranked lower in perceived usefulness than frequency of use may well be taken as an indication of the learners' attitude toward mechanical strategies. These findings might be unexpected because Chinese learners are generally believed to have acquired sophisticated memorization skills in learning their L1 and could easily transfer them to the learning of a L2. There seems to be no evidence in the present study to support this assumption.

There is also strong evidence that Hong Kong learners, including those who are the most proficient in L2 vocabulary, do not favor association strategies. These findings are similar to those in the study of Japanese students (Schmitt, 1997) and those in the study of Chinese students (Gu & Johnson, 1996), lending strong support to the findings of O'Malley et al., 1985) that Asian students do not favor strategies for imagery and grouping in learning vocabulary. The unwillingness on the part of the Hong Kong learners to use associations in their learning may be due to the language distance between Chinese and English.

Nevertheless, there is not enough evidence to determine whether Hong Kong learners prefer surface or deep processing strategies. For example, they use guessing strategies most often, but they seldom use grouping and association strategies although all of these three types of strategies involve deep processing. Such inconsistent findings suggest that much more evidence needs to be obtained before the style of a certain group of learners can be ascertained and before a reliable generalization can be made. Learners in different Asian countries may have similar as well as different ways of learning the same L2 and so may Chinese students in different parts of the world. For example, the Chinese students in Gu and Johnson's 1996 study were found to prefer oral repetition strategies, but the Hong Kong Chinese learners may favor doing the repetition in their heads.

Strategy Use of Students Most Proficient in L2 Vocabulary

The students in this study who were the most proficient in English vocabulary used various kinds of strategies significantly more often than the less proficient students, a finding that is in agreement with the findings of many previous studies on L2 vocabulary (Ahmed, 1989; Gu & Johnson, 1996; Lawson & Hogben, 1996; Sanaoui, 1995). In particular, these students reported using more sources, guessing, dictionary, and known words strategies than the less proficient students.

Concerning the importance of sources strategies in the learning of L2 words, as pointed out by Michael McCarthy in the interview reported at the beginning of this article, reading a great deal outside class is as important as, if not more important than, paying attention to the words used in class. As a matter of fact, the high-scoring group reported using very often the strategy "Reading stories, newspapers, magazines etc. outside class to increase English vocabulary" and the strategy "I pay attention to the new words and expressions used by my teachers and classmates," both of which had a high mean score (3.84 and 3.81, respectively) compared to the mean scores of most of the 24 strategies identified.

Regarding guessing and dictionary strategies, although the learners in the study reported using guessing strategies significantly more often than dictionary strategies, they perceived the latter as significantly more useful. The more proficient students reported using both categories of strategies much more often than the less proficient groups and, indeed, "When I meet new words in reading, I guess the meaning of new words and then look in the dictionary" was perceived as *very useful* by all the students in the study. These findings imply that students need both guessing and

dictionary strategies in order to learn new words, confirming the findings of Gu and Johnson (1996) and suggesting that neither category should be promoted at the expense of the other in L2 teaching.

There is very strong evidence in the study that it is important to review and consolidate the knowledge of newly learned words when learning L2 vocabulary. "In reading a sentence or a passage, when I come across a word I have newly learnt, I recall the meaning of the word to help me understand the context," which was the only strategy most frequently used and perceived to be most useful by all the students in the study, was also used significantly more often by the most proficient students. The pedagogic implication is that learners should be provided with as many chances as possible to re-encounter the words newly learned for their acquisition. As Baddeley (1990, as cited in Sokmen, 1997) remarked:

> the act of successfully recalling an item increases the chance that that item will be remembered. This is not simply because it acts as another learning trial, since recalling the item leads to better retention than presenting it again; it appears that the retrieval route to that item is in some way strengthened by being successfully used. (p. 242)

In contrast, there is consistent evidence to indicate that both repetition and association strategies may not be useful for learning L2 vocabulary, given that the less proficient groups reported using these strategies significantly more often than the most proficient group. These findings contradict those of O'Malley et al. (1985), who reported that Asian students applied rote memorization strategies successfully in learning L2 vocabulary, as well as the findings in other previous research that association strategies enhance learning (e.g., Cohen & Aphek, 1981; Hulstijn, 1997).

Strategies Relevant to Learning High- and Low-Frequency Words

In an earlier work (Fan, 2001), the author reported a relatively strong correlation between vocabulary test scores at the 2,000 and 3,000 word levels, the 3,000 and 5,000 word levels, and the 5,000 and 10,000 words levels, indicating a close relationship between knowledge of words at related frequency levels. It is therefore reasonable to assume that certain strategies may be more relevant than others with respect to learning words at related frequency levels. There seems to be some evidence in the present study in support of this assumption. For example, the category of sources strategies has been found to be a positive predictor for test scores for both the 5,000 and 10,000 word level, that is, for low-frequency words. However, the category of guessing strategies has been found to be the best predictor for test scores for only the 3,000 word level and not for the 2,000 word level, although words at both levels are high-frequency words. Also, one would expect the category of analysis strategies to be a positive predictor for test scores at the UWL level, but there was no evidence to support this general belief.

It is interesting to note that sources, guessing, dictionary, and known words strategies, which were used significantly more often by the most proficient students, were also found to be positive predictors for the test scores at various word levels by category. Similarly, for the repetition and association strategies under study, some of them were used significantly more often by the low-scoring groups than by the high-scoring group, and these strategies were also found to be negative predictors for test scores at all five word levels by category. These findings, to a certain extent, indicated the consistency of the study.

Also, whereas Schmitt (2000) contended that consolidation strategies are relevant to high-frequency words and guessing strategies to low-frequency words, the findings of the present study seem to indicate that guessing strategies are more useful for learning high-frequency words (3,000 word level) than low-frequency words whereas known words strategies, which may be considered consolidation strategies, may enhance the learning of both high- and low-frequency words. More research needs to be done in order to have a better understanding of the relationship between strategy use and word frequency.

Discrepancies between Frequency of Use and Perceived Usefulness in Learning L2 Vocabulary

Although there is evidence in the earlier works of the author (Fan, 1999, 2000b) to indicate that there is a positive relationship between learner beliefs and strategy use, that is, the more learners believe that a certain strategy is important, the more frequently they will use it, the information collected from the dual responses of the students to both frequency of use and perceived usefulness in the present study has further revealed the complexity involved in strategy use. The evidence indicates that L2 learners may or may not consider useful the strategies they often use. For example, although the students reported using more guessing strategies than other categories of strategies, they did not think that these strategies

were more useful than consulting the dictionary in learning L2 vocabulary. In contrast, although they seldom used management strategies, they perceived these strategies as useful. These findings, when considered together with the strategies found to be used significantly more often by the students who were the most proficient in L2 vocabulary, have yielded at least three types of strategies to be recommended for the learning and teaching of L2 vocabulary:

1. Strategies which are perceived to be useful, often used, and used significantly more often by the most proficient students, such as "using the dictionary to find out the context meaning of the new word" and "recalling the meaning of the known words to help with reading."
2. Strategies which are perceived to be useful and seldom used, but found to be related to high vocabulary proficiency, such as the management and sources strategies.
3. Strategies seldom used and perceived as not too useful, but used significantly more often by more proficient students than by students with lower vocabulary proficiency, such as "I think about my progress in learning vocabulary" and "I use the dictionary to find out the appropriate usage of the word."

For type 2 strategies, students may need a push from their teachers, who may also have to find out why students seldom or sometimes use these strategies although they consider them useful. For type 3 strategies, teachers may need to introduce them to the students and encourage them to use these strategies in their learning.

CONCLUSION

It should be admitted that the questionnaire data for the study are based only on the self-reports of the students and that the results of the vocabulary test may reflect only students' passive vocabulary knowledge although it is reasonable to assume that there is overlapping and interaction between reception and production and that knowledge is used indifferently for producing as well as understanding (Melka, 1997).

Despite these limitations, it may well be concluded that the findings of this study provide valuable information concerning the strategy use of Hong Kong students when learning English vocabulary. More important, the study has identified strategies that may be relevant to success in learning L2 vocabulary and in learning of high- and low-frequency words. Findings of the study have also shed some light on the complicated relationships among how frequently strategies are used, how useful they are perceived to be, and how useful they actually are in enlarging the vocabulary of learners, thus deepening our knowledge of the strategy use of L2 learners and resulting in direct implications for the learning and teaching of L2 vocabulary.

Regarding the issue of deep and surface processing learning strategies, there is no evidence in this study to confirm that the more "desirable strategies," such as association strategies, are connected with high vocabulary proficiency although repetition strategies, which are mechanical strategies, have been found to be related to poor learning. To conclude, the "secret to vocabulary learning" may include helping students see the relevance of strategy use in learning L2 vocabulary, introducing them to the strategies used often by proficient vocabulary learners and, most important, encouraging them to develop their own effective strategies for learning.

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NOTES

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APPENDIX A

The 24 Vocabulary Strategies Used Significantly More Often by the High-Scoring Group than the Low-Scoring Group

	Scoring Groups					
	Low	Middle	High			
Strategies	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*F*	*p*	Comments
A1. I plan my vocabulary learning.	2.39 (0.83)	2.49 (0.85)	2.60 (0.92)	5.436	.004	H>L
A4. I think about my progress in learning vocabulary.	1.99 (0.92)	2.05 (0.90)	2.39 (1.04)	18.607	.000	H>M H>L
B1. I learn new words at every opportunity.	2.95 (0.93)	3.12 (0.94)	3.53 (1.00)	34.915	.000	H>M H>L
B2. I pay attention to the new words and expressions used by my teachers and classmates.	3.41 (0.94)	3.59 (0.90)	3.81 (0.92)	17.928	.000	H>M H>L M>L
B6. I increase my English vocabulary by reading stories, newspapers, magazines, etc. outside class.	3.13 (1.06)	3.49 (0.99)	3.84 (1.00)	44.340	.000	H>M H>L M>L
B8. I learn new words from all kinds of materials in English outside school e.g., forms, road signs, and programmes.	3.20 (1.05)	3.25 (1.00)	3.64 (1.02)	19.994	.000	H>M H>L

	Scoring Groups					
	Low	Middle	High			
Strategies	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*F*	*p*	Comments
D1. I look at the part of speech of the new word [to guess the meaning of a new word]	3.23 (1.06)	3.31 (1.02)	3.50 (1.04)	6.284	.002	H>M H>L
D2. I look at the meaning of the different parts of the new word [to guess the meaning of a new word]	3.25 (0.97)	3.31 (0.97)	3.53 (0.99)	7.993	.000	H>M H>L
D5. I consider the main idea of the passage [to guess the meaning of a new word].	3.52 (1.01)	3.56 (0.95)	3.76 (1.01)	5.901	.003	H>M H>L
D6. I use my experience and common sense to guess.	3.57 (0.99)	3.61(0.85)	3.74 (0.91)	3.570	.028	H>L
D8. I guess their meaning and then look in the dictionary [when I meet new words in reading].	3.42 (1.01)	3.49 (0.97)	3.67 (1.01)	5.927	.003	H>M H>L
E1. I use an English dictionary.	2.88 (1.17)	3.09 (1.18)	3.37 (1.24)	15.319	.000	H>M H>L
E4. I use an English-Chinese/a Chinese-English dictionary.	3.06 (0.94)	3.39 (0.97)	3.64 (1.05)	32.256	.000	H>M H>L M>L
E5. I use the dictionary to find out the pronunciation of the new word.	2.41 (1.09)	2.53 (1.18)	2.85 (1.31)	13.210	.000	H>M H>L
E7. I use the dictionary to find out the context meaning of the new word.	3.92 (0.94)	4.09 (0.79)	4.13 (0.79)	6.412	.002	H>L M>L
E9. I use the dictionary to find out the derived forms of the new word.	3.23 (1.00)	3.26 (0.93)	3.45 (1.00)	5.541	.004	H>M H>L
E10. I look in the dictionary for the grammatical patterns of the word.	3.14 (1.02)	3.33 (0.98)	3.46 (1.01)	9.131	.000	H>L M>L
E11. I look in the dictionary for the collocational patterns of the word.	2.71 (0.97)	2.82 (0.99)	2.95(1.04)	5.262	.005	H>L
E12. I look in the dictionary for the frequency of the word.	2.38 (1.02)	2.49 (1.09)	2.67 (1.16)	6.297	.002	H>L

Strategies	Scoring Groups: Low *M* (*SD*)	Middle *M* (*SD*)	High *M* (*SD*)	*F*	*p*	Comments
E13. I use the dictionary to find out the appropriate usage of the word e.g., old/modern usage, American/ British usage; formal/informal usage, etc.	2.03 (0.95)	2.21 (1.00)	2.61 (1.17)	29.451	.000	H>M H>L
I3. To remember a word, I analyse it by breaking it into prefix, root, and suffix.	2.83 (1.21)	2.91 (1.16)	3.16 (1.30)	7.373	.001	H>M H>L
K1. I revise the new word I have learnt.	2.78 (0.92)	3.02 (0.89)	3.18 (0.93)	17.861	.000	H>M H>L M>L
K2. In reading a sentence or a passage, when I come across a word I have recently learnt, I recall the meaning of the word to help me understand the context.	3.79 (0.92)	4.04 (0.87)	4.20 (0.76)	21.501	.000	H>M H>L M>L
K3. When I meet a word I have recently learnt in reading, I pay particular attention to its new usage and new meaning.	3.29 (1.03)	3.46 (0.95)	3.80 (0.95)	26.034	.000	H>M H>L

Note. H = high-scoring group; M = middle-scoring group; L = low-scoring group.

APPENDIX B
Forward Stepwise Multiple Regression Model for Predicting Test Scores for the 2,000 Word Level

Dependent Variable: The Total Score on the 2,000 Level

Independent Variables	*B*	*SE*	*Beta*	*t*	*p*
Known Words	0.306	0.054	0.193	5.698	.000
Dictionary	0.008	0.017	0.152	4.447	.000
Association	−0.008	0.029	−0.086	−2.680	.007
Repetition	−0.007	0.031	−0.074	−2.252	.025
(Constant)	64.023	0.726		88.179	.000
					R squared = .081

Note. All the test scores for the nine strategies in frequency of use were entered into the model using entry criteria .05 ($p < .05$). Independent variables that were not found to be significant are not shown in the table.

APPENDIX C
Forward Stepwise Multiple Regression Model for Predicting Test Scores for the 3,000 Word Level

Dependent Variable: The Total Score on the 3,000 Word Level

Independent Variables	*B*	*SE*	*Beta*	*t*	*p*
Known Words	0.08	0.120	0.230	6.739	.000
Repetition	−0.267	0.067	−0.128	−3.978	.000
Dictionary	0.147	0.038	0.134	3.848	.000
Association	−0.211	0.065	−0.104	−3.254	.001
Guessing	0.119	0.059	0.067	2.005	.045
(Constant)	50.270	1.786		28.153	.000

R squared = .111

Note. All test scores for the nine strategies in frequency of use were entered into the model using entry criteria .05 ($p < .05$). Independent variables that were not found to be significant are not shown in the table.

APPENDIX D
Forward Stepwise Multiple Regression Model for Predicting Test Scores for the UWL Level

Dependent Variable: The Total Score on the UWL Level

Independent Variables	*B*	*SE*	*Beta*	*t*	*p*
Known Words	0.767	0.117	0.220	6.558	.000
Repetition	−0.228	0.067	−0.110	−3.400	.001
Dictionary	0.162	0.037	0.149	4.396	.000
Association	−0.216	0.064	−0.108	−3.396	.001
(Constant)	51.680	1.580		32.703	.000

R squared = .098

Note. All the test scores for the nine strategies in frequency of use were entered into the model using entry criteria .05 ($p < .05$). Independent variables that were not found to be significant are not shown in the table.

APPENDIX E
Forward Stepwise Multiple Regression Model for Predicting Test Scores for the 5,000 Word Level

Dependent Variable: The Total Score on the 5,000 Word Level

Independent Variables	*B*	*SE*	*Beta*	*t*	*p*
Known Words	0.982	0.176	0.203	5.580	.000
Repetition	−0.407	0.092	−0.141	−4.423	.000
Sources	0.332	0.088	0.142	3.763	.000
Association	−0.264	0.087	−0.095	−3.028	.003
Dictionary	0.161	0.053	0.107	3.020	.003
(Constant)	33.494	2.213		15.134	.000

R squared = .130

Note. All the test scores for the nine strategies in frequency of use were entered into the model using entry criteria .05 ($p < .05$). Independent variables that were not found to be significant are not shown in the table.

APPENDIX F
Forward Stepwise Multiple Regression Model for Predicting Test Scores for the 10,000 Word Level

Dependent Variable: The Total Score on the 10,000 Word Level

Independent Variables	*B*	*SE*	*Beta*	*t*	*p*
Sources	0.412	0.089	0.180	4.632	.000
Known Words	0.538	0.177	0.113	3.036	.002
Repetition	−0.221	0.093	−0.078	−2.391	.017
Dictionary	0.126	0.054	0.085	2.342	.019
Association	−0.181	0.088	−0.066	−2.065	.039
(Constant)	10.458	2.228		4.695	.000
					R squared = .089

Note. All the test scores for the nine strategies in frequency of use were entered into the model using entry criteria .05 ($p < .05$). Independent variables that were not found to be significant are not shown in the table.

Heidi Byrnes Receives ADFL Award for Distinguished Service

Heidi Byrnes, Associate Editor, *Perspectives*, received from the Association of Departments of Foreign Languages (ADFL) its eighth Award for Distinguished Service in the Profession. As stated in the *MLA Newsletter* (Winter 2002, p. 13), the award to Byrnes recognizes "her erudition, generosity to colleagues and students, clear vision of the profession, and the ability to turn vision into reality."

A professor of German at Georgetown University, Byrnes was noted for the curriculum she developed with colleagues, which integrates language, literature, and culture from introductory through advanced-level courses and for her coordination of the AATG initiative, "The Future of German in American Education." Noted as well was her scholarship, including her collection *Learning Foreign Languages and Second Languages: Perspectives in Research and Scholarship* (New York: MLA, 1988). It is clear that Byrnes has influenced foreign language instruction at many levels and has advanced thinking in second language acquisition research.

For the *MLJ*, Byrnes has been on the Editorial Board since 1994. She conceived of the *Perspectives* column and instituted it in the Summer 2002 issue. She has given much to the *Journal,* which has benefited in untold ways from her influence.

The ADFL Distinguished Service Award was presented to Byrnes at the 2002 MLA Convention in New York at a session in her honor with papers by June Phillips (Weber State University), Janet Swaffar (University of Texas, Austin), and Sally Magnan (University of Wisconsin, Madison). It was followed by a reception.