Vocabulary acquisition strategies of Indonesian postgraduate students through reading

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The ways that students learn new words when studying a foreign language is not well understood. Research in this field has commonly investigated the effectiveness of the application of certain vocabulary learning strategies. Relatively few of the studies have investigated the strategies that students use to learn new words. This paper reports the investigation of the vocabulary acquisition strategies of Indonesian postgraduate students' learning through reading. Several vocabulary learning strategies were identified and then located in a taxonomy. The results of the analysis provide empirical evidence of the contribution of the application of vocabulary learning strategies to acquire new words.

Vocabulary acquisition, vocabulary learning strategies, reading

INTRODUCTION

The purpose of this paper is to describe the investigation of vocabulary acquisition strategies used by Indonesian postgraduate students during reading. Words are the basic unit of language use. Without a sufficient vocabulary, a person cannot communicate effectively. Having a limited vocabulary is also a barrier that prevents students from learning a foreign language (Zhihong, 2000). According to Zimmerman (as cited in Eyraud, Giles, Koenig, & Stoller, 2000) vocabulary is central to language and of critical importance to typical language learners. Gupta and MacWhinney (1997) argued that learning new words was one of the most crucial processes in human development and considerable recent research has given attention to the importance of the investigation of foreign language vocabulary acquisition (e.g., Daulton, 1998; Gardner, 2004; Lawson & Hogben, 1996, 1998; McLauglin, August, Snow, Carlo, Dressler, White, Lively, & Lippman, 2000; Septy, 2000; Waring & Takaki, 2003; Wilson, 2003; Zahar, Cobb, & Spada, 2001). The effectiveness and use of vocabulary learning strategies is one factor affecting the success of foreign vocabulary acquisition. In this paper we focus attention on the practice of vocabulary acquisition through reading. Acquiring word meaning through reading is an interesting issue because reading is likely to remain a common procedure for vocabulary acquisition, simply because it is necessary in the everyday life of all students.

Oxford (2003) noted that second language (L2) learning strategies are specific behaviours or thought processes that students use to enhance their own L2 learning, processes that might involve motivational, cognitive, metacognitive or social activity. Lawson and Hogben (1996) and Nation (2003) have reported taxonomies of vocabulary learning strategies. In Lawson and Hogben's research the great majority of the procedures used by native English L2 learners of Italian at university level involved some form of repetition of the new words and their meanings, mostly a simple reading of the dictionary-like entries provided, or repetitions of the word-meaning complexes. These students gave relatively little attention to the physical or grammatical features of words, nor did they commonly use elaborative acquisition procedures. A similar pattern of

strategy use for vocabulary acquisition in a group of Australian secondary school students learning Italian was reported by Lawson and Hogben (1998).

Although there has been little research on the vocabulary acquisition strategies used by L2 learners during reading, there has been research on the extent of vocabulary acquisition during reading (see Waring & Takaki, 2003). For example, the results of Experiment 1 conducted by Pitts, White and Krashen (1989) showed that respondents gained only 6.4 per cent of target words through reading. In another sample respondents gained only 8.1 per cent of the meanings of target words through reading. Day, Omura, and Hiramatsu (1991) reported that groups of respondents gained only 1 of 17 word meanings (5.8%) and 3 of 17 word meanings while reading (17.6%). Another study conducted by Hulstijn (1992) reported that by stating the meaning of L2 words, the respondents gained only 1 of 13 word meanings. A final study by Horst, Cobb and Meara (1998) showed that in a multiple-choice test participants gained 20 per cent word meanings unknown before reading, and 16 per cent of word meanings in a word-association test.

The results of these studies of vocabulary acquisition through reading are of concern for two reasons. First, the level of acquisition of word meaning is quite low. Second, this low level of recall is of concern for those teaching international postgraduate students, because these students will be largely expected to develop their technical and general L2 vocabularies through their reading. These concerns pointed to the need to undertake an observation of the strategies used by such students during reading and to see how the strategies were related to recall of word meanings.

A natural learning situation, the reading of text in a news magazine, was investigated in this study, with the participants being Indonesian postgraduate students who were studying in an English language study situation. Participants' retention of word meanings across time was examined to gain information about how well meanings were retained beyond the initial occasion of acquisition. Four questions formed the focus of the research:

1) What procedures do foreign language students use when they encounter unknown English words in order to understand and remember the meanings of these words?

2) How frequently are these different strategies used?

3) What procedures do students consider are most effective for acquiring vocabulary?

4) What is the impact of vocabulary learning strategy usage on vocabulary recall performance immediately and over time?

METHOD

Participants

A convenience sampling method was applied in this investigation. In convenience sampling, the researcher selects participants because they are willing and available to be studied (Creswell, 2005). This procedure was selected because it was necessary to gain the agreement of participants to participate in the study across a four week period of time. The 25 participants were aged between 28 and 40 years old and studied at the postgraduate level at a university in South Australia. Ten were male and fifteen were female. Students supplied demographic information about gender, length of time in Australia, English Language (IELTS) scores received before entering the university. Their occupations prior to study included administration staff, university teaching and English teaching.

Instrumentation: Text Selection

The challenge here was to select a text that was sufficiently new to all participants so as to provide a realistic vocabulary acquisition experience for a group of participants who were studying in a

range of different academic fields. A range of text passages was given to several Indonesian postgraduate students not involved in the study to provide guidance on the most suitable text. Finally, a text taken from TIME magazine was selected. The pilot testing indicated that the passage contained about 30 English words whose meanings would be likely to be unknown to the participants. Fifteen of these 30 words were chosen at random as target words for this study. Allowance was made for words to be replaced if any meanings were already known to a participant. However, this was not necessary since all of the 15 target words were new to all participants.

Two different types of vocabulary tests were involved in the study. The first was the Word Recognition Test (WRT) and the second, the meaning recall test, labelled here as the Meaning Translation Test (MTT). In the WRT tests the respondents were asked to write down the 15 English words that they learnt while in the MTT tests the respondents were given 15 English words to write down the meanings of the words in Indonesian. Both tests were given to each participant on four occasions across four consecutive weeks and words were presented on the tests sheets in different orders on each occasion.

The WRT was designed to identify how many words the respondents could remember as being part of the test passage. This test was included to gain information about whether or not participants had some representation of the target words, even if they were not able to generate the meanings of those words. Recognition of the word was assumed to indicate a minimal level of representation of the word in the participant's lexicon. The MTT was a free recall test with participants being required to provide the correct meanings of the 15 English words they learnt. The tests given after the reading of the text passage in Week 1 were called the immediate recall tests and the other tests labelled delayed recall tests.

Procedure

To generate information about strategy use in Week 1, the participants were trained in the use of a think aloud method following the procedures described by Lawson and Hogben (1996). Both concurrent and retrospective verbalisation data were audio-taped and transcribed for analysis purposes. Following think-aloud training participants were asked to read the text passage, then identify and learn the meanings of the target words. They could use any means that they chose to help them memorise the meanings of these words. An English-Indonesian dictionary, paper and pens were available for their use. On the first occasion, following completion of the reading, and after a short delay filled with non-task conversation, they were given the immediate WRT and MTT tests. Once each week for the following three weeks both tests were administered again.

Method of Analysis

Qualitative analysis

The respondents' verbalisations (concurrent verbalisation), interview (retrospective verbalisation) and observation data which had been collected through the think aloud activities in Week 1 were coded using a taxonomy adapted from Lawson and Hogben (1998). To help the researcher analyse the data, NVivo software (version 2.0) was applied in the analysis. The strategies observed in this study were grouped into two main categories, namely non-elaboration strategies and elaboration strategies and the strategies were then grouped into more specific sub-categories: passive, active non-elaboration, simple elaboration, and complex elaboration, defined as follows:

- Passive: the strategies used did not involve any active elaboration.

- Active non-elaboration: the strategies were active but did not involve any elaboration, any extension of the meaning of the word through any form of association.

- Simple elaboration: the respondents used elaboration in several simple ways.

- Complex elaboration: the respondents used elaboration in more complex ways.

Details of the taxonomy of strategies are shown in Table 1.

Statistical analysis

The recall test data were analysed using two statistical programs, namely SPSS version 11.5, and HLM version 6.0. SPSS was used for descriptive and related analysis. To investigate the acquisition of vocabulary over time, the Hierarchical Linear Modelling (HLM) program version 6.0 designed by Raudenbush, Bryk, Cheong and Congdon (2004) was used. A 2 level model was developed to analyse the effects of student differences on level of recall across occasion. Table 6 sets out the details of HLM analysis undertaken in this study.

Table 1. Taxonomy of developed vocabulary learning strategies

No	STRATEGIES	DESCRIPTION
1	**PASSIVE**	
	Dictionary	The student uses the dictionary to find the meaning
	Repeated pronunciation.	The student pronounces the word more than once without meaning
	Writing of word and definition.	The student writes the word and its meanings.
	Creating a word list.	The student creates his own list of the learned words and the meaning.
	Highlighting the learned words.	The student highlights the learned words in the text.
2	**ACTIVE NON ELABORATION**	
	Word formation analysis	The student analyses the word by breaking up the word according to its formation
	Parts of speech.	The student identifies the parts of speech of the word (verb, adjective, adverb, and noun).
	Guessing	The student gets the meaning of the word without using any identifiable procedure
	Sentence analysis.	The student analyses the sentence according to the grammar or sentence structure.
	Reviewing the learned words.	The student reviews all the words and the meanings that have been learned in simple ways.
3	**SIMPLE ELABORATION**	
	Sound similarity.	The student identifies the sound of the word, including noting sounds of similar words like implausible and impossible.
	Context.	The student identifies the meaning of the word by focusing on the context of paragraph or the whole article.
	Simple Meaning type analysis	The student identifies the type of meaning, such as connotative meaning, denotative meaning, contextual meaning, and technical meaning without further elaboration.
	Word link analysis.	The student makes links between the learned word and the familiar words coming after or before the learned word
	Simple Linking of the unknown word to L1.	The student uses his L1 to find the meaning and help him memorise it without further elaboration.
4	**COMPLEX ELABORATION**	
	Paraphrase	The student identifies synonyms for the new word, or comments on some related words (Indonesian or English)
	Linking of sound and definition	The student identifies a basis for linking the sound of the word to an English word, or to another known Indonesian word.
	Generating an image	The student tries to create a meaningful image for the learned word.
	Complex Linking of the unknown word to L1.	The student uses L1 to find the meanings and help him memorise it with further elaboration.
	Complex Meaning type	The student justifies the type of meaning stated by the learned word, such as connotative meaning, denotative meaning, contextual meaning, and technical meaning with further elaboration.

RESULTS

The frequency of strategy use for the acquisition of the vocabulary at Occasion 1 of the group of participants is shown in Table 2. The table shows that the respondents used more non-elaboration strategies (63.9%) than elaboration strategies (36.1%). In addition, the passive non-elaboration strategies were the dominant procedures used by the group as a whole (45.0%). With regard to the individual strategies, the three most frequent strategies were the use of a dictionary, simple use of context and repeated pronunciation of the word and its meanings. At a lower level of use were strategies that involved the analysis of the part of speech, guessing and word formation analysis.

Table 2. Frequency of strategy use during learning on Occasion 1

No	Strategy	Frequency strategy usage (N:25)	Frequency of strategy usage (%)
1	*Passive*		
	1.Dictionary	601	27.60
	2.Repeated Pronunciation	266	12.29
	3.Writing of word and definition	92	4.26
	4.Creating a word list	3	0.14
	5.Highlighting the learned words	18	0.83
		Total: 980	Total: 45.02
2	*Active non elaboration*		
	1.Word formation analysis	106	4.87
	2.Parts of speech	132	6.06
	3.Guessing	130	5.97
	4.Sentence analysis	20	0.92
	5.Reviewing the learned words	23	1.07
		Total: 411	Total: 18.88
3	*Simple Elaboration*		
	1.Sound similarity	20	0.92
	2.Context	583	26.78
	3.Simple meaning type analysis	52	2.39
	4.Word link analysis	13	0.60
	5.Simple linking of the unknown words to L1 or L2	6	0.28
		Total: 674	Total: 30.96
4	*Complex elaboration*		
	1.Paraphrase	19	0.87
	2.Linking of sound and definition	2	0.09
	3.Generating an image	33	1.52
	4.Complex linking of the unknown word to L1or L2	10	0.46
	5.Complex meaning type analysis	48	2.20
		Total: 112	Total: 5.14
		Total : 2177	Total: 100%

The frequency of use of simple context analysis was reasonably high. By contrast there was very little evidence of use of other simple elaboration strategies and little use of any of the more complex elaboration strategies. The results of this study are similar to those found in the study conducted by Lawson and Hogben (1998). These authors reported levels of strategy usage found in their study as follows: passive strategies (60.6%), active non elaboration (13.6%), simple elaboration (13.7%), and complex elaboration (12.1%).

Differences Between Individual Learners

Table 3 shows the differences between individuals, in the number of different strategies used by each respondent and the frequency of total strategy use to learn the new words. The data in this table refer only to the strategies reported on the first occasion. Table 3 shows that none of the respondents used all of the 20 strategies. One participant used 16 strategies, with the mean number of strategies used being 12. Four students used a more restricted number of strategies. The pattern of results in Table 3 suggests that as a group these students were quite active in carrying out this task, using a varied group of strategies.

This picture of a high level of strategic activity is reinforced by consideration of the total frequency of strategy use for the target words. Participant 1 used strategies more often than others (116), followed by participant 9 (115). Although participant 8 reported only a total of 43 strategy uses, this does suggest that this student was, on average, using more than two different strategies for each target word.

Table 3. Individual differences in using the strategies on Occasion 1

Student Id	Number of different strategy usage (max 20)	Overall frequency of strategy usage
1	14	116
2	9	62
3	12	64
4	13	68
5	16	109
6	12	100
7	14	112
8	6	43
9	13	115
10	15	108
11	14	106
12	10	88
13	13	87
14	13	83
15	10	96
16	12	104
17	16	115
18	11	67
19	13	110
20	13	99
21	8	51
22	11	86
23	11	56
24	12	67
25	9	55
Mean	12.0	86.7
SD	2.4	23.3

Recall Performance

Word Recognition Tests (WRT)

The WRT was designed to investigate how well the respondents could remember the 15 target English words as being part of the target passage. Table 4 shows the results of the WRT across the four occasions. The mean level of recognition is the highest for the immediate test (Occasion 1). There was then a slight decrease in mean recognition on Occasion 2 followed by slight increases on Occasion 3 and again on Occasion 4. In addition, the minimum and maximum scores show that, as a group the respondents did well on this recognition test on Occasion 1 and were performing at a similar level again by Occasion 4. Inspection of individual profiles indicated that this pattern of word recognition performance was quite general across the group and Figure 1 shows the general pattern of the students' WRT performance.

Meaning Recall Tests (MTT)

The MTT aimed to investigate how well the respondents could remember the correct meanings of the 15 target words. In general the results in Table 5 show that they follow the pattern for the WRT, though the mean level of meaning recall was lower. The mean score for the immediate test was at the highest level with students being able to recall about 35 per cent of meanings of target

words. By Time 4 they were, as a group, able to recall the meanings of about one-third of the target words. The general profile of WRT and MTT performance was that the scores of the tests were higher in the immediate tests (Time 1) and then dropped off in Time 2 , with recovery on Time 3 and 4. The recovery could be associated with the repetition effect observed by Wheeler and Roediger (1994). Word recognition scores were at a higher level than word meaning, indicating that some form of representation of the new words was available, though this did not guarantee recall of meaning.

Table 4. WRT performance across occasions

WRT	N	Minimum	Maximum	Mean	Std. Deviation
Occasion 1	25	5	15	10.80	2.74
Occasion 2	25	2	14	7.00	3.12
Occasion 3	25	3	15	9.40	3.72
Occasion 4	25	4	15	10.44	3.43
Valid N	25				
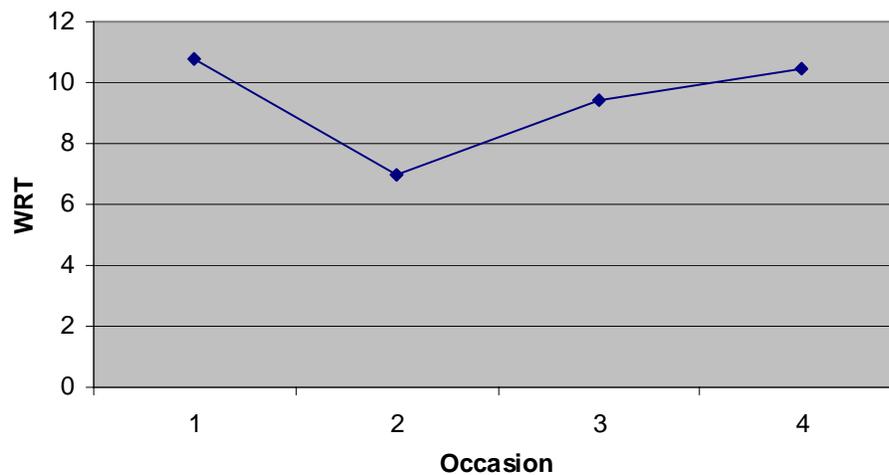
Figure 1. General Pattern of the WRT

Table 5. Descriptive results of the MTT

MTT	N	Minimum	Maximum	Mean	Std. Deviation
Occasion 1	25	2	10	5.24	2.49
Occasion 2	25	1	12	4.16	2.78
Occasion 3	25	0	11	4.64	2.58
Occasion 4	25	1	11	4.88	2.83
Valid N (listwise)	25				

The mean level of immediate MTT recall here is at a level somewhat higher than that reported in similar studies reviewed in the introduction. One possible explanation is that the postgraduate level of these students influenced their performance in terms of motivation or strategy use. In general these results indicate, as their lecturers would hope, that for students at this level, reading can be an effective means to acquire new English words, though only for about a third of the words on average.

Hierarchical Linear Modelling

The purpose of this section is to investigate further to answer the fourth research question in terms of the impact of the vocabulary learning usage on the vocabulary recall performance over time. This analysis involved the use of a two level HLM model to analyse the collected data. The main interest was to investigate how the outcome variables, recall scores on the WRT and MTT tests, were influenced by a number of predictor variables.

It was initially hypothesised that student recall would be influenced by both within-student factors (level 1), such as occasion of testing, and between-student factors (level 2) such as sex, length of time in Australia, IELTS score, occupations, and the types of strategy. The labels for the variables which were expected to influence the process of vocabulary acquisition are shown in Table 6.

The first step in the HLM analysis was to consider the null model which was analysed to examine reliability. This was followed by a series of explanatory analyses to seek information about which variables would be likely to be significant predictors in these exploratory analyses. Those coefficients that were found not to be significant were removed from the model and the next potential variable was entered into the equation. In addition the deviance for each step of analysis was examined to gain information about the goodness of fit of the resulting model. These steps were repeated step by step until a final model for each level with only significant effects at each level were attained.

Table 6. List of variables used in the Two Level HLM Models

LEVEL	VARIABLES	VARIABLE DESCRIPTION
LEVEL 1	OCC	Occasion of the tests
(Student –level)	WRT	Word Recognition Test (WRT)
	MTT	Meaning Recall Test (MTT)
	IMDEL	Immediate Delayed (Immediate and delayed test)
LEVEL 2	SEX	Gender
(GROUP LEVEL)	AUST	Length of time in Australia
	IELTS	Overall IELTS Test Score
	ADMIN	Administration staff (Yes/No)
	UNILEC	University Lecturer (Yes/No)
	ENGTEACH	English Teacher (Yes/No)
	ELABORAT	Elaboration Strategy Usage frequency
	NSTR	Number of strategies used
	OVERALL	Overall frequency of strategy usage
	SIMPLE	Simple elaboration frequency
	COMPLEX	Complex elaboration frequency

The details of the final model for the WRT analysis are shown in Table 7.

The final estimation of fixed effects with robust standard errors was used to interpret the final model. It can be seen that WRT score was directly influenced by the time when the tests were conducted (OCC) and whether the test was conducted as an immediate or delayed test (IMDEL). The number of different strategies used (NSTR) also had a positive impact on the overall level of WRT score. The OCC result indicates that the slope of WRT score over time was affected by overall strategy use, though the coefficient for OVERALL indicates that this effect was quite small. The IMDEL variable shows that the better performance on the Time 1 test is relative to the other tests administered at Time 2, Time 3 and Time 4 was influenced by the IELTS score.

Figure 3 shows the effect of the use of overall strategy on the change in WRT score over time. There are three lines in Figure 3 which show the associations for students who used high overall strategy use, medium strategy use and the low strategy use and their WRT recall score. The results

suggest that the higher the frequency of strategy use, the higher the level of the WRT scores at Time 1, Time 2, Time 3 and **Time 4.**

Table 7. Final model for the WRT

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Final estimation of fixed effects:
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Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
For INTRCPT1, P0					
INTRCPT2, B00	5.51	0.84	6.51	23	0.000
NSTR, B01	0.62	0.16	3.78	23	0.001
For OCC slope, P1					
INTRCPT2, B10	1.72	0.29	5.93	23	0.000
OVERALL, B11	0.01	0.01	1.92	23	0.066
For IMDEL slope, P2					
INTRCPT2, B20	5.29	0.89	5.94	23	0.000
IELTS, B21	2.52	0.99	2.54	23	0.019

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Final estimation of fixed effects
(with robust standard errors)
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Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
For INTRCPT1, P0					
INTRCPT2, B00	5.51	0.82	6.70	23	0.000
NSTR, B01	0.62	0.14	4.49	23	0.000
For OCC slope, P1					
INTRCPT2, B10	1.72	0.28	6.16	23	0.000
OVERALL, B11	0.01	0.00	2.74	23	0.012
For IMDEL slope, P2					
INTRCPT2, B20	5.29	0.87	6.09	23	0.000
IELTS, B21	2.52	0.76	3.32	23	0.003

```
Final estimation of variance components:
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Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCPT1, R0	3.39	11.51	23	66.33	0.000
OCC slope, R1	0.86	0.74	23	35.72	0.044
IMDEL slope, R2	3.28	10.77	23	52.04	0.001
level-1, E	1.65	2.73			

```
Statistics for current covariance components model
Deviance                    = 454.75
Number of estimated parameters = 7
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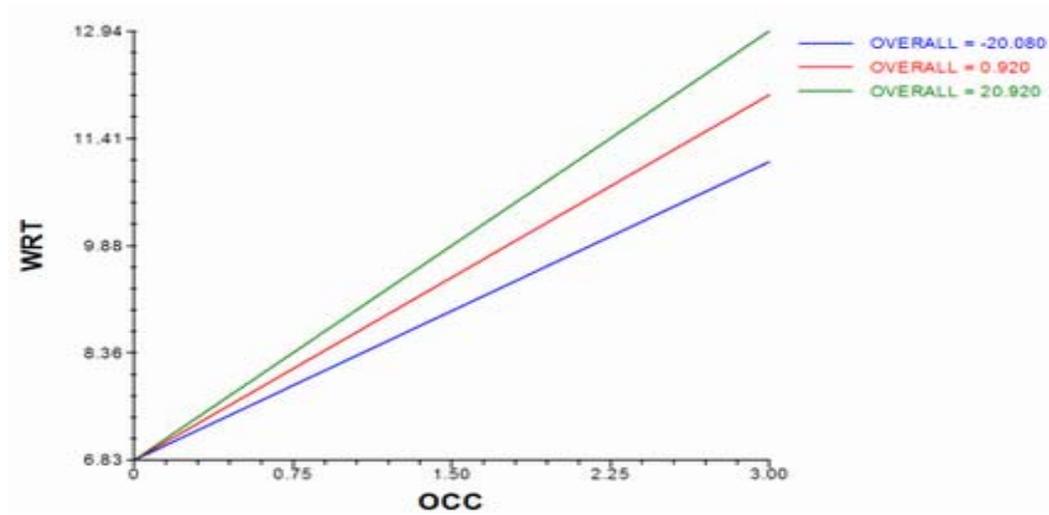

Figure 3. Effect of the overall strategy use on WRT

There is an interaction effect on the immediate and delayed slope which is shown by the emergence of the IELTS variable. Figure 4 shows that the higher the IELTS score, the greater the growth in WRT score across the 4 tests.
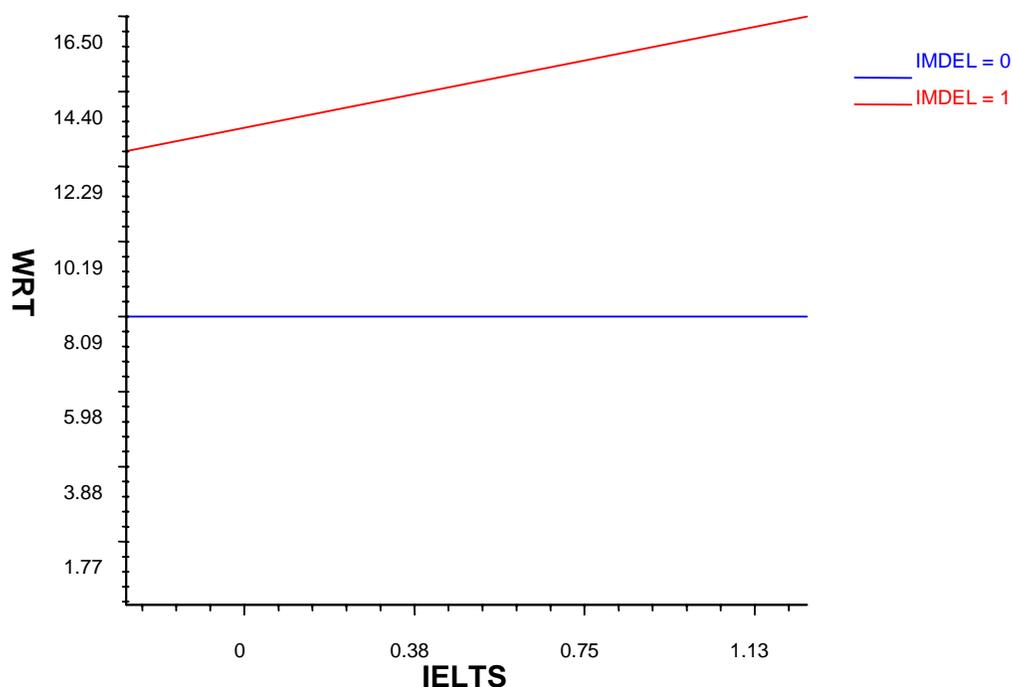
Figure 4. The interaction effect of the IELTS score and WRT performance

Meaning Recall Tests (MTT)

The final HLM model for the MTT scores is shown in Table 8. At level 1, the results in Table 8 show that the MTT was directly influenced by occasions (OCC) and by whether the tests were conducted as an immediate or delayed test (IMDEL). At level 2, there was only one variable that had a significant effect on the mean level of performance (intercept) in the MTT test, overall strategy use (OVERALL). The size of the coefficient for OVERALL (0.08) indicates that the effect of overall strategy use on mean level of recall was relatively small.

DISCUSSION AND CONCLUSION

The results of the study indicate that reading can be used as a means to acquire the meanings of new words. The postgraduate L2 learners of English who participated in this study were active strategy uses, even though most of their strategy use did not involve substantial degrees of elaboration. The results show that the students did better in the WRT than the MTT. It can be interpreted that the students might remember having encountered words previously even though they could not recall the meanings of some of those words. The students can create representations of the words in their memory, though some of these representations are not sufficiently rich enough to allow effective recall of word meanings.

This study also shows that the frequency of strategy use is a significant predictor of both WRT and MTT scores. The results of the HLM analysis indicated that both the number of different strategies used by the participants (NSTR) and the frequency of strategy use (OVERALL) had a small positive impact on both the word recognition and meaning recall outcomes. This serves to remind us that the quantity of knowledge resources is of significance, though clearly it is just one important influence on learning and acquiring new words. Students who were more active in using more strategies showed benefit for recall. IELTS score had a significant effect on the difference between immediate and delayed recall suggesting that it was of immediate benefit. This latter result is of significance for those dealing with international students because the immediate recall

score might be of more moment than the delayed ones, in the sense that in many cases students might make only one serious attempt at acquiring the meanings of new words.

Table 8 Final model of the MTT test

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Final estimation of fixed effects:
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Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
For INTRCPT1, P0					
INTRCPT2, B00	3.84	0.60	6.36	23	0.000
OVERALL, B01	0.08	0.01	5.02	23	0.000
For OCC slope, P1					
INTRCPT2, B10	0.36	0.21	1.72	24	0.098
For IMDEL slope, P2					
INTRCPT2, B20	1.40	0.46	3.04	24	0.006

```
Final estimation of fixed effects (with robust standard errors)
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Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
For INTRCPT1, P0					
INTRCPT2, B00	3.84	0.59	6.53	23	0.000
OVERALL, B01	0.08	0.01	5.69	23	0.000
For OCC slope, P1					
INTRCPT2, B10	0.36	0.20	1.76	24	0.091
For IMDEL slope, P2					
INTRCPT2, B20	1.40	0.45	3.10	24	0.005

```
Final estimation of variance components:
```

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCPT1, R0	2.61	6.79	23	92.63	0.000
OCC slope, R1	0.77	0.59	24	52.52	0.001
IMDEL slope, R2	1.40	1.97	24	38.20	0.033
level-1, E	1.00	1.00			

```
Statistics for current covariance components model
Deviance                      = 384.27
Number of estimated parameters = 7
```

The expected impact of elaboration strategies was not observed in the HLM analysis. It seems that the very low level of more complex elaboration that might have diminished the impact of this variable. The frequency of use of complex elaboration strategies in this study paralleled those in other studies and suggests that there is a need in L2 learning to increase student use of such strategies. The large research base now available on the effectiveness of the keyword method provides one source of evidence supporting such a move. Independent reading is the major study activity of international students. Since reading has an important role in learning, it is important to investigate further the use of reading as a tool to acquire new words. This study investigated the situation without any intervention. More specific further research could be done on the effects of training students in more complex elaboration strategies, and to see how this training influences the new vocabulary acquisition.

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