An Investigation of the Relationship between Metacognitive Strategies and Vocabulary Size in an ESL Environment

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Abstract. [1] believes that a large amount of vocabulary can be acquired with the help of vocabulary learning strategies. Studies by [2] – [4] indicate agreement as there is positive correlation between vocabulary size and the training of metacognitive strategies of planning, monitoring and evaluation. The purpose of this study therefore was to investigate whether there is relationship between students' ability to use metacognitive vocabulary learning strategies and their vocabulary level. Participants of this study were 113 Malay learners of English as a second language (ESL) studying in an intensive English language programme at a public university in Malaysia. A quantitative research method was employed based on a survey questionnaire adapted from [4] and the Vocabulary Levels Test (VLT) by [5]. Findings of this present study revealed that there was a weak but negative relationship between the VLT and planning category of the metacognitive awareness (r=-0.113). Based on Pearson's product moment correlation, the relationship was not statistically significant. The findings have beneficial pedagogical implications relevant not only to language instructors but also educators and researchers alike. This paper recommends ways to enhance teachers' and students' awareness of the use of the said strategies in acquiring vocabulary more effectively and efficiently.

Keywords: Metacognitive Strategies, Vocabulary Learning, ESL

1. Introduction

Vocabulary learning is integral in the mastery of a second language. Learners are required to have a wide array of target words to be considered as proficient language users. [6] however argues that how this can be achieved is still unclear due to the huge challenge faced by second language learners, as maintained by [7]. It can no longer be assumed that learners will accidentally 'pick up' the necessary vocabulary as they are still in the process of language acquisition. Metacognitive strategies have a central role to play in the improvement of learning. According to [8] when metacognition is being used repeatedly, it becomes an automatic process – thus enabling learners to be more knowledgeable in the metacognitive strategies of planning, monitoring and evaluating.

[9] asserts that metacognition results in the learners reflecting and evaluating; in other words, they have to think about their thinking. He further stresses that in addition to the language issues that teachers are addressing in the classroom, learners should also be geared toward being aware of the thinking process as this may lead to the development of stronger thinking skills. This process will help to prepare them in making conscious decisions about what they can do to improve learning. According to [10] metacognition enables students to retrieve and deploy a particular strategy that has been taught in a particular context such that it could be applicable to other contexts too.

[11]; 561) state that "students without metacognitive approaches are essentially learners without direction or opportunity to review their progress, accomplishment and future directions". Teaching students to use learning strategies according to [12] has produced good results. The main objective of such attempts is to allow students to become more aware of their preferred learning strategies and to help them become more responsible for meeting their own objectives. The positive effects of metacognition have not only been evident in reading [13-14], listening [15-17] and writing [18], but also in numerous studies on vocabulary learning. One such study on 53 Iranian EFL students by [3] has shown a significant positive effect in improving vocabulary learning. This is further supported by [4] in his study on 134 Chinese freshman.

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Literature has thus shown that there is a strong relationship between the teaching of metacognitive strategies and use of vocabulary learning strategies. The focus of the present study, however, is to find out the extent to which the students utilise the metacognitive strategies and whether there is a relationship between the use of metacognitive strategies and the vocabulary levels when no strategy training is given. This attempt to bridge the gap between metacognitive strategies and vocabulary learning has implications on classroom approaches crucial to students' language learning in the academic context.

2. Research Objectives

The objective of this study is to investigate whether there is relationship between students' ability to use metacognitive vocabulary learning strategies and their vocabulary size.

The research questions are:
- Do ESL students use metacognitive strategies in vocabulary learning?
- Is there a relationship between metacognitive strategies and the vocabulary size of ESL students?

3. Methodology

3.1. Subjects

The participants in this study were 113 (38 males and 75 females) students studying intensive English at the Centre for Foundation Studies of the International Islamic University Malaysia. The students were at the intermediate (N=56) and upper intermediate (N=57) levels of a four-level intensive English programme.

3.2. Setting

English is the medium of instruction in the International Islamic University Malaysia. Students are required to sit for an in-house English Proficiency Test (EPT) upon entry. Students who do not meet the minimum requirement of EPT Band 6, IELTS band 6 or TOEFL 550 would be required to undergo the four-level intensive English language programme.

3.3. Research Instruments

A quantitative research method was employed based on a questionnaire to test for metacognitive strategies awareness adapted from [4] and [5]'s Vocabulary Levels Test. The reliability of the questionnaire was also assured. It underwent a split-half reliability test and the correlation of the two parts was statistically significant (r=0.817), which proved that the reliability in terms of inherent consistency was fairly good. The questionnaire incorporates 28 metacognitive strategies designed to measure students' employment of metacognitive strategies of planning (1-10 items), monitoring (11-20 items) and evaluating (21-28 items). The questionnaire employs a five-scale Likert-type rating: 1=never or almost never true of me; 2=usually not true of me; 3=somewhat true of me; 4=usually true of me;5=always or almost always true of me.

The Vocabulary Levels Test (VLT) was used to determine the vocabulary size of the students at the five frequency levels; the 2,000, 3,000, UWL, 5,000 and 10,000 word levels. The metacognitive strategies awareness questionnaire and the VLT were given on two separate days to reduce the cognitive load of the students. The students were given approximately 50 minutes to complete the vocabulary test and 15 minutes to complete the questionnaire on metacognitive awareness.

4. Findings

Research question 1: Do ESL students use metacognitive strategies in their vocabulary learning?

Table 1 summarises the results of the strategies employed by the ESL students. In general, the students reported that they used all metacognitive strategies in vocabulary learning (M=3.13). The means range from 2.65 to 3.74. Two metacognitive strategies reported by students as usually used in vocabulary learning are:
- EV 7: "I usually think why I make a mistake in vocabulary learning" (M=3.74)
- EV5: "after accomplishing a certain task, I will consider how to do it better the next time" (M=3.58)

All other metacognitive strategies were reported by students as "somewhat used" in vocabulary learning. As far as categories of metacognitive strategies are concerned, the students concentrated more on evaluation strategies (M=3.18), followed by planning strategies (M=3.16) and monitoring strategies (M=3.04).

The findings suggest that without prior metacognitive strategies training, the students usually think about the mistakes that they make during vocabulary learning. Furthermore, at the end of certain tasks, they usually think about improving the methods used in accomplishing future tasks. The findings also imply that, in general, the students moderately used metacognitive strategies of planning, monitoring, and evaluation in vocabulary learning without the training.

Table 1: Mean and standard deviation of metacognitive strategy use in vocabulary learning

No.	STRATEGIES	Mean	SD
	PLANNING STRATEGIES	3.15	0.85
PL9	I would continuously adjust the plan according to the present situation.	3.42	.810
PL7	I would predict the difficulties encountered and the ways of solving it.	3.35	.821
PL5	I would consider how to better accomplish my plan.	3.34	.809
PL8	I would check whether the plan is implemented in time.	3.25	.797
PL1	I have a clear goal in vocabulary learning.	3.24	.689
PL10	I will ask teachers, parents and peers to scout the implementation of my plan.	3.15	.938
PL6	My plan is detailed, including the deadline of accomplishing all the tasks.	3.10	.866
PL3	I have a short term plan and a long term plan.	3.09	.996
PL2	I have the awareness of drawing a vocabulary learning plan.	2.98	.866
PL4	I would spend some time memorizing vocabulary every day.	2.65	.875
	MONITORING STRATEGIES	3.04	0.81
MO4	When starting to learn a new word, I would consider to what extent I can master the word.	3.35	.706
MO9	I will listen to the vocabulary learning experience of my peers.	3.31	.856
MO3	I attempt to find out the best way of learning vocabulary.	3.26	.843
MO1	Before carrying through a vocabulary activity, I would think of the purpose and requirement of the activities, including what strategies to use.	3.18	.804
MO10	When finding my vocabulary strategies no longer effective, I would adjust them in time.	3.15	.826
MO2	I know when to use certain vocabulary strategies and how to use them.	2.97	.807
MO7	I would share vocabulary learning strategies with peers.	2.91	.861
MO8	I would check the disparity between the present situation and the goals set in the plan.	2.89	.795
MO5	After class, I immediately review the vocabulary learned during the class.	2.75	.785
MO6	I frequently discuss the learning experience with teachers.	2.67	.829
	EVALUATION STRATEGIES	3.18	0.78
EV7	I usually think why I make a mistake in vocabulary learning.	3.74	.843
EV5	After accomplishing a certain task, I will consider how to do it better the next time.	3.58	.705
EV8	I could draw a lesson from the previous mistakes in vocabulary learning.	3.27	.848
EV6	I often evaluate my vocabulary learning strategies to find out the problems existed and the ways of solving them.	3.18	.735
EV1	I would check my improvement on vocabulary learning at certain time intervals.	3.12	.803
EV3	I always summarize the ways of learning vocabulary.	2.95	.766
EV4	I always summarize my vocabulary learning in order to find out the achievement made and deficiency existed.	2.83	.706
EV2	I will fix a date to check whether my vocabulary strategies are used smoothly and effectively.	2.76	.869

Research question 2: Is there a relationship between metacognitive strategies and the vocabulary size of the students?

Table 2: summary of students' vocabulary size

Vocabulary size	2,000	3,000	5,000	TOTAL
TOTAL	N = 67 (59.3%)	N = 29 (25.7%)	N = 17 (15.0%)	N = 113 (100)

The Vocabulary Levels Test designed by [5] was employed to measure students' vocabulary size. The results show (Table 2) that the vocabulary size of a majority (59.3%) of the students is around 2,000 words.

Moreover, 25.7% of the students' vocabulary size is around 3,000 words and only 15% of the students has vocabulary size of around 5,000 words.

A correlational analysis was conducted to investigate the relationship between students' vocabulary size and the use of metacognitive strategies in vocabulary learning. The findings of the analysis indicate a negative relationship of (r=-0.113) between vocabulary size and metacognitive strategies of vocabulary learning (Table 3). Based on the Pearson product moment correlation, however, the relationship is not statistically significant.

Table 3: Relationship between metacognitive strategies and vocabulary size

		Metacognitive strategies awareness
	Pearson correlation	-0.113
Vocabulary size	Sig. (2 tailed)	0.234
	N	113

p<0.05

A correlation analysis was also conducted to investigate the relationship between vocabulary size and the three types of metacognitive strategies of vocabulary learning; namely, planning, monitoring and evaluation Based on the analysis, (Table 4), there was no significant relationship between vocabulary learning and planning and monitoring strategies. Evaluation strategy, however, had a statistically significant but negative relationship (r=-0.202; p<0.05) with vocabulary size. Thus, it is safe to assume that the smaller the vocabulary size, the more frequent the evaluation strategy is used and vice versa. The relationship, however, is quiet weak.

Table 4: Relationship between types of metacognitive strategies and vocabulary size

	Planning	Monitoring	Evaluation
Vocabulary size	r=-0.31	r=-0.91	r=-0.202*

p<0.05

5. Discussion and Conclusion

The purpose of the study was to investigate the relationship between ESL students' metacognitive strategies in vocabulary learning and their vocabulary size. In general, the findings of the present study revealed that the students were moderate users of metacognitive strategies in vocabulary learning. The findings of this study also revealed that there was no significant relationship between students' vocabulary size and their use of metacognitive strategies in vocabulary learning. Only evaluation strategies had a statistically significant but negative relationship with vocabulary size. The findings of the study is not in line with that of [3] and [4]. A possible explanation for this could be that in other studies, students were subjected to metacognitive training and they were later tested for vocabulary size improvement after the training. In this present study, students were not given any training.

One of the implications of this study is that students may have metacognitive awareness, as has been shown on the findings of this study. However, these students may not be able to positively use this skill to benefit their vocabulary acquisition. It is thus imperative that teachers play a guiding role to ensure that these students are steered in the right direction so that there is effective vocabulary learning. As was pointed out by [10], metacognition gives students the ability to deploy and retrieve a strategy that there were taught in one context and apply in a different context. The students in the context of this present study were not specifically taught any metacognitive strategy. This would be a possible explanation for the moderate use of metacognitive strategies, the absence of significant relationship, and the negative but statistically significant relationship with the evaluation strategy.

This study has practical implications for vocabulary strategy instruction in the Malaysian setting especially one that requires students to use English as a medium of instruction at the tertiary level. As it was

shown in this study, the students were moderate users of metacognitive strategies without undergoing the training. Metacognitive strategies training for vocabulary learning is expected to generate more frequent use of effective strategies and, ultimately, increase vocabulary size. It is thus the role of the teacher not only to raise awareness of the significance of using a variety of strategies, but also to have the knowledge to conduct the training in the effort to assist learners become independent and effective vocabulary learners specifically and efficient language learners in general.

6. Acknowledgement

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