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INVESTIGATING THE CORRELATION BETWEEN VOCABULARY LEARNING STRATEGIES AND VOCABULARY SIZE: NON-NATIVE SPEAKERS OF MANDARIN

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Abstract: *This study is targeted to ascertain (1) the types of vocabulary learning strategies employed by USIM students, (2) the different vocabulary learning strategies employed by USIM students based on their course of study and (3) to justify the relationship between vocabulary learning strategies and Mandarin vocabulary size of USIM students. The present study employed a correlational research design, and there were six classes from different programmes: Arabic language and linguistic, Quranic and Sunnah studies, and Economics and Muamalat were targeted as respondents in the present study, the respondents were attained by random sampling technique, and there were 145 respondents in the present study. The USIM students' data vocabulary learning strategies were acquired by Schmitt (1997) questionnaire, and Mandarin vocabulary size was obtained from the Mandarin vocabulary test. Both questionnaires were adopted and adapted to suit to context of the present study. The collected data was analysed using SPSS 21, which focused on descriptive and inferential statistics. The results displayed that the USIM students employed the following vocabulary learning strategies: cognitive strategies, memory strategies, social strategies, determination strategies and metacognitive strategies. Besides, the data result also revealed a correlation between vocabulary learning strategies and Mandarin vocabulary size.*

Keywords: Vocabulary learning strategies (VLS), Mandarin vocabulary size, University Sains Islam Malaysia (USIM).

1. Introduction

In recent times, Mandarin has been promoted as an important international language since the China country has launched the "One belt, one road" policy. In order to grasp this golden opportunity, it aroused students' interest to learn Mandarin as a foreign language (Ghauth, 2012: See & Ching, 2013). However, mastering a foreign language is not a simple task because students should explore many aspects of language to achieve a high degree of language competence (Samira, 2014). Among these language aspects, vocabulary can be considered the most important aspect that should be mastered by learners (Mofareh, 2015). According to Wilkins (1972), there are very little can be conveyed if without grammar, but nothing can be conveyed without vocabulary. In other words, vocabulary plays a key component to support other language skills, such: speaking, reading, writing and listening; without sufficient vocabulary, it is very difficult for an effective conversation between speaker and listeners to happen (Subon, 2013).

To date, there are plenty of studies that mentioned vocabulary learning skills can be considered as the drawbacks of the students (e.g., Annisa, Dian, Estina & Intan, 2017; Baharudin, 2019). Many learners were unable to implement the four skills of language (speaking, writing, reading and listening) due to insufficient vocabulary size (Subon, 2013). Students are always confronted with obstacles or stumbling blocks in speaking Mandarin because of a lack of linguistic support, especially vocabulary (Lam & Kuan, 2019). To communicate in Mandarin effectively and comprehensively, students have to master sufficient vocabulary size of Mandarin since vocabulary can be considered central or fundamental of language (Nation, 2001). In the case of students without sufficient vocabulary, they are unable to express their thinking in both oral and written form. This will indirectly hamper the progress of Mandarin language learning (Fauziati, 2015: Lam & Kuan, 2019).

1.1 Research Objectives

This study intended to ascertain the correlation between Vocabulary learning strategies and Mandarin vocabulary size of USIM students. Thus, the research objectives that guided the study are listed as follows:

1. To identify the types of Mandarin vocabulary learning strategies that students of University Science Islamic Malaysia (USIM) employ.
2. To ascertain the differences in Mandarin vocabulary learning strategies employed by the students of University Science Islamic Malaysia (USIM) based on the field of study.
3. To ascertain the relationship between Mandarin vocabulary learning strategies and Mandarin vocabulary size of University Science Islamic Malaysia (USIM) students.

2. Literature Review

2.1 Vocabulary Learning Strategies (VLS)

According to Ming Wei (2007), vocabulary can be considered a significant aspect of second or foreign language learning. Gass and Selinker (2008) also mentioned vocabulary is more crucial than any other language component because, without sufficient vocabulary, students are unable to support other language skills (listening, speaking, reading and writing (Subon, 2013). According to Oxford & Scarcella (1994), the role of vocabulary learning strategies become more significant for novice students because they need a particular system or skill to store a huge amount of new vocabulary in their long-term memory within a short period. Thus, vocabulary learning can be considered as one of the most laborious and arduous section. To address this issue, there are plenty of studies conducted and the findings have revealed that the tremendous vocabulary can be obtained with the assistance of vocabulary learning strategies (Gu & Johnson, 1996; Schmitt, 2000; Nation, 2001: Greene & Coxhead, 2015).

Research findings have revealed that students of Roman alphabetic-based languages favour when learning vocabulary, such as interacting with native speakers, using newly-learnt vocabulary in daily activities, and utilising a monolingual dictionary (Mustapha & Hatta, 2018; Asgari & Mustapha, 2021). In addition, they also are more inclined to use social, memory, and determination strategies. However, this finding cannot be generalised in learning Mandarin as the Mandarin language features differ (Chu & Wang, 2013). Shen (2005) pointed out that orthographic knowledge-based students always used cognitive strategy as the most preferred, and metacognitive strategies as the least preferred, and these findings were supported by Liu (2013), Tan and Hoe (2010), and Wang (2018). In other words, the alphabetic-based languages students and Mandarin language students differ in terms of their vocabulary learning strategies.

2.2 Vocabulary Size of Mandarin

Vocabulary size can be defined as the number of words in a learner's mental (Kalajahi & Pourshahian, 2012). According to Hàn yǔ Shuǐ píng Kǎo shì (HSK- Chinese Proficiency Test), Mandarin students should master 200 words for each level and eventually acquire 600 words. If students acquire 600 Mandarin words, they can use Mandarin to fulfil all the requirements of their personal lives, work, studies and conduct most communication tasks. However, the Common European Framework of Reference for Languages (CEFR) proposed that Mandarin students hold at least 500 words per level and achieve 1,500 words for three levels (Hsiao & Peter, 2013). 500–600 words can be considered as the minimum threshold to perform well in speaking and writing. In a nutshell, to support the four language skills, it is critical for Mandarin students to have sufficient vocabulary (at least 600 words or above) to fulfil the basic requirements, especially in speaking and writing.

2.3 Schmitt's Taxonomy of Vocabulary Learning Strategies

Schmitt's (1997) created Taxonomy of Vocabulary Learning Strategies based on Oxford's (1990) Strategy Inventory for Language Learning (SILL). The taxonomy consists of two main strategies; the discovery strategies and the consolidation strategies. Discovery strategies refer to the strategies that learners employed to acquire the meaning of new words, whereas consolidation strategies refer to the effort the learners employed to store the meaning of new words and implement them in the long term (Schmitt 1997; Ahmad Iskandar, 2008). The discovery strategies comprise two main sub-strategies, namely determination and social strategies, while consolidation strategies have four sub-strategies, namely social, memory, cognitive, and metacognitive strategies.

Determination strategies refer to how learners employ their basic apprehension of the language to guess the meaning or reference materials or context background (Schmitt 1997). Meanwhile, social (discovery) strategies refer to the learners' interaction with third parties to explore the meanings of new words (Schmitt 1997). However, social (consolidation) strategies differ from social (discovery) strategies. Social (discovery) strategies are exerted to acquire the meaning of words that are confronted for the first time, while the social (consolidation) strategies are utilised to enhance or expand the learners' vocabulary knowledge such as by practising meanings of words in discussion groups, requiring someone to inspect flashcards or word notes, and communicating with native speakers.

Memory strategies refer to storing and retrieving newly learnt words (Oxford, 1990) by interconnecting them to any existing knowledge by using some form of imagery or grouping. Cognitive strategies refer to the methods manipulated by learners to help them understand new words (Schmitt 1997). These techniques comprise the usage of repetition and iteration to do something, such as repeating words in written form, taking notes and repeatedly reviewing a vocabulary book. Meanwhile, metacognitive strategies can be considered as strategies that are intentionally employed to manage language learning, such as: planning, monitoring and evaluating one's vocabulary learning through natural exposure and language experiences in the process of learning (Schmitt, 1997).

3. Methodology

In the present study, the researcher has employed the correlational research design. There were 145 students from six classes of Mandarin level 3 students involved in this study. These respondents came from three majors: Arabic language and linguistic, Quranic and Sunnah studies, and Economics and Muamalat. The survey questionnaire was adopted from Schmitt's (1997) and translated to the Malay language since the respondents share the same mother tongue, which is the Malay language (Lee, 2014, Lam & Kuan, 2019). The questionnaire used a five-point Likert-scale and with a total of 70 items. The respondents were given 45 minutes to answer the questionnaire. SPSS 21 was used to analyse the data from the survey focusing on descriptive and inferential statistics.

4. Findings

4.1 To identify the types of Mandarin vocabulary learning strategies that students of University Science Islamic Malaysia (USIM) employ

In the present study, the data of vocabulary learning strategies concerns the frequency of the students employing vocabulary learning strategies in obtaining a new vocabulary. Therefore, the mean, standard deviation (S.D.), and rank of vocabulary learning strategies of USIM students were calculated as shown in Table 4.1.1 below.

Table 4.1.1: Mean, Standard Deviation (S.D.) and Rank

Strategies	Mean	Standard Deviation (S.D.)	Degree	Rank
Cognitive	3.52	.52	High	1
Memory	3.49	.63	Medium	2
Social	3.11	.54	Medium	3
Determination	2.98	.62	Medium	4
Metacognitive	2.38	.63	Low	5
Total Score	3.09	.47		

In table 4.1.1, the findings of the descriptive statistical analysis for the entire score illustrated the overall strategy use (M = 3.09). In the present study, USIM students exhibited the highest rank of the cognitive strategy (3.52), a medium rank of the memory strategy (3.49), the social strategy (3.11), the determination strategy (2.98), and the lowest rank is the metacognitive strategy (M=2.38). These findings are similar to those from previous studies. With regards to the findings, it can be concluded that the most frequent strategy used by USIM students was the cognitive strategy. The cognitive strategy can be considered as "thought processes used directly in learning which enable learners to deal with the information presented in tasks and materials by working on it in different ways" (Hedge, 2000, p.77). The cognitive strategy encourages the students to make written and verbal repetition, note-taking, flashcards and inferencing. The metacognitive strategy is reported as the least employed strategy among the respondents. The metacognitive strategy is the least employed strategy among the USIM students since most of the students were at the elementary level, and the vocabulary in their repertoire is limited. Thus, they are unable to judge and evaluate themselves at the elementary level. They needed specific methods to facilitate them to direct analyse the problems and transform or synthesise the learning materials (Rubin, 1987).

4.2 To ascertain the differences of Mandarin vocabulary learning strategies employed by the students of University Science Islamic Malaysia (USIM) based on the course of study

The table below showns the frequently employed vocabulary learning strategies (VLS) based on the course of study of USIM students:

Table 4.2.1: Variations in USIM students' vocabulary learning strategies employed in five different categories according to the course of study

Vocabulary Learning Strategies (VLS)	Course of Study					
	Arabic language and linguistic		Quranic and Sunnah studies		Economics and Muamalat	
	Mean	S.D	Mean	S.D	Mean	S.D
Cognitive	3.35	.35	3.36	.42	3.38	.39
Memory	3.32	.38	3.37	.37	3.26	.42
Social	3.27	.41	3.25	.46	3.23	.44
Determination	3.21	.43	3.28	.49	3.18	.41
Metacognitive	3.17	.48	3.23	.52	3.13	.55

As displayed in table 4.2.1, the Arabic language and linguistic students employed cognitive strategy the most (M=3.35), followed by memory, social, and determination, and the metacognitive as the least frequent strategy employed (M=3.17). While students of Quranic and Sunnah studies employed memory strategy the most (M=3.37), followed by cognitive, determination, social, and the least was the metacognitive (M=3.25). In addition, the Economics and Muamalat course students employed the cognitive strategy the most (M=3.38), followed by memory, social, determination and metacognitive was the least employed (M=3.13).

4.3 To ascertain the relationship between Mandarin vocabulary learning strategies and Mandarin vocabulary size of University Science Islamic Malaysia (USIM) students

4.3.1 The USIM students' Mandarin vocabulary size

USIM students' Mandarin vocabulary test score is illustrated in Table 4.3.1.

Table 4.3.1: The frequency and percentage of USIM students' Mandarin vocabulary test scores.

No	Classification	Score	Frequency (F)	Percentage (%)
1	Excellent	91-100	0	0
2	Very Good	76-90	2	1.370
3	Good	61-75	19	13.83
4	Average	51-60	69	47.58
5	Poor	26-50	31	21.37
6	Very Poor	0-25	23	15.85
Total			**145**	**100**

In Table 4.3.1 above, only two USIM students (1.37%) achieved very good classification and 19 (13.83%) achieved good classification. Meanwhile, 69 (47.58%) USIM students achieved average classification, 31 (21.37%) were classified as in poor classification, and 23 USIM students were classified as very poor (15.85%). The classifications were further grouped into three main stages: high level (Excellent and very good classification), medium level (Good and average classification) and low level (Poor and very poor classification). Findings show that only two USIM students were categorised in high level, 88 students grouped at medium level and 54 students at low level.

In addition, the findings of the mean score of USIM students' Mandarin vocabulary test are tabulated as below:

Table 4.3.2: The Mean score and Standard Deviation of USIM students' vocabulary test score

	Mean score	Standard Deviation (S.D.)
Mandarin Vocabulary Test Score	55.37	11.67

As per the above table, the mean score of the USIM students' Mandarin vocabulary test score was 55.37 and the standard deviation is 11.67 which can be considered at a medium level.

4.3.3. The correlation between Mandarin vocabulary learning strategies and Mandarin vocabulary size among the USIM students

This section will focus on the correlation between USIM students' vocabulary learning strategies and Mandarin vocabulary size. In the present study, the correlation coefficient is represented by the value "r". According to Bruce (2009), the r-value between 0 and 0.3 or 0 and -0.3 indicates a weak positive or significant negative correlation, a value between 0.3 and 0.7 or 0.3 and −0.7 indicates a medium or moderate positive or significant negative correlation, and a value between 0.7 and 1.0 or −0.7 and −1.0 indicates a strong positive or negative linear relationship.

Table 4.3.3: Correlation of overall Mandarin vocabulary strategies and Mandarin vocabulary size

		Mandarin Vocabulary Learning Strategies	Mandarin Vocabulary Size
Mandarin vocabulary learning strategies	Pearson Correlation	1	.548
	Sig. (2-tailed)		.002
	N	145	145
Mandarin Vocabulary Size	Pearson Correlation	.548	1
	Sig. (2-tailed)	.002	
	N	145	145

***correlation is significant at the 0.05 level**

Results show the Pearson correlation (r) = .548, and it denotes that the degree of correlation is a moderate positive significant, and the sig. (2-tailed) is .002, which is considered lesser than $\alpha = .05$. In other words, there is a significant correlation between USIM students' vocabulary learning strategies and Mandarin vocabulary size, which is considered as moderate positive correlation.

Table 4.3.4: Correlation between vocabulary learning strategies and Mandarin vocabulary size

Correlations

		Mandarin Vocabulary Size
Cognitive	Pearson Correlation	.746
	Sig. (2-tailed)	.006
	N	145
Memory	Pearson Correlation	.436
	Sig. (2-tailed)	.032
	N	145
Social	Pearson Correlation	.252
	Sig. (2-tailed)	.048
	N	145
Determination	Pearson Correlation	.172
	Sig. (2-tailed)	.104
	N	145
Metacognitive	Pearson Correlation	-.138
	Sig. (2-tailed)	.239
	N	145

Table 4.3.4 displays the correlation coefficient between the five vocabulary learning strategies and the Mandarin vocabulary size of USIM students. Based on the table, the preferred strategy is the cognitive strategy. Finding displays that r = .746, where this figure is greater than .70, and p-value = .006 which is lower than $\alpha = .05$ ($p < \alpha$). In other words, the result implies that the cognitive strategy has a strong positive correlation with the Mandarin vocabulary size of USIM students.

For the memory strategy, result shows that r =.436, which is higher than .30, or p-values = .032, that is lesser than $\alpha = .05$ ($p < \alpha$). Thus, the result indicates that the memory strategy has a medium positive correlation with the Mandarin vocabulary size of USIM students. Meanwhile, for the third strategy is social strategy, finding shows that r=.252, where this figure is lesser than .30, and p-value =0.48 is lesser than $\alpha = .05$ ($p < \alpha$). This shows the social strategy has a weak positive correlation with the Mandarin vocabulary size of USIM students.

The following strategy is the determination strategy. Analysis displays that r=.172 which is lower than .30 and p-value=.104 is greater than $\alpha = .05$ ($p > \alpha$). Hence the findings show that the determination strategy does not correlate with the Mandarin vocabulary size. The last strategy is the metacognitive, based on the data analysis, which displays that r= -.138, where this figure is lesser than .30, and p-value=.239 was higher than $\alpha = .05$ ($p > \alpha$). Therefore, it can be considered that the metacognitive strategy also does not correlate with the vocabulary size of USIM Mandarin' learners.

5. Findings and Discussion

The present study shed new light on the insights of vocabulary learning strategies of USIM students. The first objective of the present study is to identify the types of vocabulary learning strategies of USIM Mandarin students. The findings show that Mandarin vocabulary learning strategies employed by USIM students correspondingly from the most preferred to the least preferred as 1) cognitive strategy, 2) memory strategy, 3) social strategy, 4) determination strategy and 5) metacognitive strategy.

Based on table 4.2.1, the respective vocabulary learning strategies used by the students of three main courses were displayed as means and standard deviation (S.D.). The analysis showed that the Arabic language and linguistic course, and Economics and Muamalat course students most preferred the cognitive strategy, followed by the memory strategy, social, determination, and the last strategy was the metacognitive strategy. In contrast, the Quranic and Sunnah studies students employed the memory strategy as the most preferred, followed by cognitive, determination, social strategies and metacognitive. These findings are supported by Soner (2012) in his research which found that elementary students need the memory strategy to establish new vocabularies and to remember them in the long term. Thus, novice students should be trained about the memory strategy even implement it in learning new vocabulary.

In addition, the present study has shown that the Pearson correlation (r) =.548, and this denotes the extent of correlation is moderate positive and the sig (2-tailed) p-value is .002, which is lesser than $\alpha = .05$. In other words, there is a moderate significant positive correlation between USIM students' vocabulary learning strategies and Mandarin vocabulary size. These findings are similar to Filiz & Yunus (2012) which pointed the vocabulary learning strategies could facilitate the students to manage and develop vocabulary by checking different means, even create a new opportunity to explore new vocabularies.

6. Conclusion

The present study revealed that USIM Mandarin language students were inclined to employ the cognitive strategies followed by the memory, social, determination and, the least were metacognitive strategies. The result also showed Arab language and linguistic, and Economics and Muamalat students prefer to use the cognitive strategy, while Quranic and Sunnah students preferred the memory strategy. Besides, findings also revealed a moderate significant correlation between USIM students' vocabulary learning strategies and Mandarin vocabulary. Thus, it is important for Mandarin language lecturers to know more about the vocabulary strategies that students prefer, in order to take the necessary action to assist the students, prepare adequate language materials or assignment to facilitate them, which indirectly can reinforce or strengthen the Mandarin language students' skills in using the vocabulary learning strategies. This will ensure that the Mandarin language students could learn the new vocabulary more efficiently and successfully.

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