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Preferred Vocabulary Learning Strategies among Malaysian Students

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Abstract
Vocabulary learning strategies (VLS) are essential to acquire and mastering English language skills. Previous research in the Malaysian context mainly takes students at the tertiary level, with few only done on secondary students and thus has been unable to thoroughly investigate the preferred VLS of secondary and tertiary ESL students. Examining the vocabulary-learning strategies preferred by ESL secondary and tertiary students in Malaysia is significant. VLS is important in determining Malaysian ESL students' English language communication performance. Quantitative convenience sampling methods were employed to determine the preferred VLS among Malaysian students. Data was gathered from 320 secondary and tertiary Malaysian ESL students using a revised Vocabulary Learning Strategies Questionnaires (VLSQ) version 6.4. Findings indicated that secondary and tertiary Malaysian students preferred metacognitive compared to other dimensions. Regarding gender, results showed significant differences between male and female students in meta-cognitive and cognitive VLS dimensions. In addition, secondary students preferred to use dictionaries, whilst tertiary students preferred using meta-cognitive regulation to learn new English vocabulary. These results show that students employed different VLSs in learning new vocabulary. Also, it demonstrated that genders played a significant role when students learn vocabulary, as results showed a significant difference between male and female students in VLS dimension preferences.

Keywords: ESL, Malaysian Students, Vocabulary, Vocabulary Learning Strategies

Public Interest Statement

The paper attempts to understand the VLS between two (2) groups of learners (tertiary and secondary school levels). The existing literature is still lacking in comparing the strategies used by these levels of learners in learning vocabulary. As such, the study is essential since knowing the differences in using the students' VLS at the school level would help instructors identify the possible remedies for effective learning when they are at the higher education level. Also, it is paramount to compare VLS with gender, especially in knowing the meta-cognitive and cognitive VLS dimensions used by them.

Introduction

English is regarded as a lingua franca since it is the primary language for knowledge, trading, banking, entertainment and information communication technology. As an effect, English language learners increase daily, and more people dedicate their time to learning English as a second (ESL) or foreign language (EFL) (Tayyebi, 2021). As an early education for learners to learn the language, parents nowadays use gadgets to equip their children to master language skills (Ali et al., 2020). Yet, learning a language, in a particular second language, is a daunting process (Jaikrishnan & Ismail, 2021). In Malaysia, students at all levels learn all aspects of the English language, intending to have a good command of English to communicate when they enter the workforce. The ability to use effective language would enable tertiary-level students, in particular, to prepare employment documents such as video resumes (Ali et al., 2022)

Nevertheless, one of the main obstacles that ESL learners have to face is poor vocabulary, and as a result, it hinders their second language learning acquisition. Zimmerman (1997) states that "vocabulary is central to language and of critical importance to the typical language learner" (p.5). Also, Alsharif (2022) says that vocabulary is essential in language acquisition, as a lack of vocabulary affects learners' ability to read and speak. Thus, many second language learning research put special attention on exploring the field of vocabulary acquisition by learners (Benedict & Shabdin, 2021; Okyar, 2021).

On the other hand, vocabulary learning strategies (VLS) are any unique ways or techniques people use to acquire, learn or master new vocabulary. It was found that the difference between successful and unsuccessful learners in second language learning is their ability to employ different and effective strategies (Makrami & Al-Awaid, 2020). Experts claim that VLS is a part of general language learning strategies in language pedagogy (Oxford, 1990; Schmitt, 1997). Others (Nation, 2001; Scharle & Szabó, 2000) highlighted the importance of VLS in which learners become aware of their learning, thus, accountable for their language learning acquisition. Schmitt (1997) states that learning depends on collecting, storing, retrieving and using information. In that sense, vocabulary strategies will help learners to modify how they retain, acquire and use new vocabulary.

Vocabulary learning is crucial in second language studies as it is "deeply rooted within the initial stages of language acquisition" (Jaikrishnan & Ismail, 2021, p.299). Most of the studies aim to investigate ESL strategies for learning vocabulary. Yet, according to Fan (2003), vocabulary learning is still unrecognizable at the tertiary level in Asia, and the same can be said in Malaysia. Usually, at the Asian university levels, language educators are stressing more toward integrating basic language skills, which are reading, writing, speaking and listening (Hamzah et al., 2009). If any teaching of vocabulary took place, it is primarily not systematic and only subsidiary (Catalán, 2003; Fan, 2003). Catalan (2003) further claims that learning vocabulary usually happens informally and that teachers and students must work together.

Although numerous studies were conducted examining VLS areas, only a few were directed at secondary ESL students (Logojan, 2021; Mirioglu, 2020; Sasidaran et al., 2021; Thiendathong & Sukying, 2021). Thus, in the current study, the researchers find it essential to identify ESL students' VLS

to produce a better ESL atmosphere, especially among secondary and tertiary students. In addition, exploring ESL students' VLS preferences is crucial as the strategies can help determine their performance in using the language. This study investigates VLS preferred by ESL secondary and tertiary students in Malaysia. The following research questions were formulated to investigate the aim of the study:

1. What are the most and least preferred VLSs among ESL students?
2. Do VLS preferences among ESL students differ between gender?
3. Do VLS preferences vary between secondary and tertiary ESL students?

Literature Review

Definition of Vocabulary

Vocabulary carries a meaning that plays an essential role in achieving successful communication. Since words are the fundamental building block of language, vocabulary is crucial for conveying meaning in the communication process (Balota et al., 1990). Ideas would hardly be expressed without a specific meaning of one word, which would make effective communication impossible. Vocabulary is known for its importance in the language acquisition process. Cameron (2001) views vocabulary as one of the primary sources in developing and acquiring language. Instead of knowing the lexis of the language, second language learners should first know the meaning of the particular words and then understand their purpose (Krashen, 1982).

The significance of vocabulary in ESL is also emphasized by McCarthy (1990), who claims words are essential to express meanings in language and will improve ESL communication besides grammar and phonology studies by ESL learners. Supporting that, Harmer (2019) states that vocabulary is the main structure of any language. In other words, second language acquisition cannot occur without vocabulary, as it binds other aspects of language acquisition. Cameron (2001) states that vocabulary is necessary for learning a foreign language as it is acquired through speech communication, and language learners should be involved in this speech communication (p.92). Hence, both language production and comprehension rely on the number of vocabulary the learners acquire.

Therefore, second language learners must apply various strategies to acquire vocabulary to master a target language (Prichard & Atkins, 2020). On the other hand, the number of vocabulary in both written and spoken texts acquired by the language learners depends on their competence with the VLS. Some scholars, such as Nation (2001) and Scharle and Szabó (2000), agree that VLS is worthwhile as second language learners can apply all strategies to control their learning. Therefore, it is their responsibility to manage their vocabulary learning. McCarthy (1990) believes numerous VLSs can encourage target learners to be independent as they can acquire the language vocabulary themselves (p.29). Therefore, when learners are in charge of their learning, they know their preferred strategies for gaining the target vocabulary.

Vocabulary Learning Strategies (VLS) Classification

Nation (2001) states that VLS are a small branch of language learning strategies (p. 217). Schmitt (1997), on the other hand, claims that VLS is a set of strategies that will affect how a student finds and obtains information (p. 203). Gu (1994) describes VLS as strategies second language learners use to acquire new words in second language learning. Cameron (2001) defines VLS as language learners' steps to remember and develop vocabulary better (p.42). VLS, in a broader definition, refers to any stages that ESL learners take in their quest to master new English words (Asgari & Mustapha ,2011).

Over the years, many studies have developed classifications for VLS and some of those classifications (Gu & Johnson, 1996; Nation, 2001; O'Malley & Chamot, 1990; Oxford, 1990; Schmitt, 1997; Stoffer,

1995) were cited and used extensively within VLS literature. However, besides those mentioned VLS classifications, other experts in VLS classifications have contributed significantly toward vocabulary learning insights related to learners' perceptions, behaviours and preferences (Bastanfar & Hashemi, 2010). Table 1 shows the VLS classification based on several experts.

Scholars	VLS Classifications
O'Malley & Chamot (1990)	1. Metacognitive • Selective • Planning • Monitoring • Evaluation 2. Cognitive • Rehearsal • Organization • Inferencing • Summarising • Deducing • Imagery • Transfer • Elaboration 3. Social/Affective • Cooperation • Questioning for clarification • Self-talk
Gu & Johnson (1996)	1. Cognitive • Self-motivation • Selective awareness 2. Metacognitive • Guessing • Dictionaries • Note-taking 3. Memory • Rehearsal • Encoding 4. Activation • Encoding
Oxford (1990)	1. Direct strategies • Memory • Cognitive • Compensation 2. Indirect strategies • Metacognitive • Affective • Social
Schmitt (1997)	1. Discovery • Determination • Social 2. Consolidation • Social • Memory • Cognitive • Metacognitive

Stoffer (1995)	1. Authentic language use 2. Creative activities 3. Self-motivation 4. Creating mental linkages 5. Memory strategies 6. Visual and auditory 7. Physical action 8. Overcoming anxiety 9. Organizing word
Nation (2001)	1. Planning 2. Choosing words 3. Choosing aspect of word knowledge 4. Choosing strategies 5. Planning repetition 6. Sources 7. Analyzing word 8. Using context 9. Consulting a reference source 10. Using parallel in L1 and L2 11. Process 12. Noticing 13. Retrieving 14. Generating

Gu and Johnson's (1996) VLS classification was used in this study since it was reported that this VLS could establish the selection and the occurrence of strategies used for a specific student. Gu and Johnson (1996) examined Chinese advanced learners' use of English vocabulary learning strategies. In this research, they divide VLS into two classes which are; cognitive and metacognitive strategies. Cognitive strategies involve memory, classification, guessing, dictionary, note-taking and activation strategies. Meanwhile, metacognitive strategies constitute plan-making, self-evaluating, self-checking, and selectively distributing attention strategies

Research on VLS in the Malaysian contexts
Research in VLS among tertiary-level students
Benedict and Shabdin (2021)**1997** conducted a study to identify the VLS of 67 high and low-proficient English language undergraduate students. The study's respondents were selected based on their Malaysian University English Testing (MUET) results, and data were gathered using Schmitt's (1997) VLS questionnaire. Results from the study corroborated that highly proficient language learners use more and various strategies in learning vocabulary than those low-proficient learners. Findings also derive that students with positive attitudes use VLS more frequently than those with neutral attitudes. This study illustrated that VLS is a helpful tool for improving students' vocabulary size and knowledge (Benedict & Shabdin, 2021, p. 241).

Baharudin (2019) examined the types of VLS preferred by ESL undergraduates according to their genders. The study found that male students used cognitive and metacognitive strategies compared to females, who used memory and social strategies to learn vocabulary. The study also showed that male students in tertiary levels preferred learning from their environment, while females preferred to learn vocabulary from their classes, reading and note-taking (Baharudin, 2019, p. 76).

Nayan & Krishnasamy (2015) investigated 52 tertiary students in northern Malaysia to find out the usefulness of VLS among them. The study used a questionnaire consisting of seven questions on VLS.

Results showed that students viewed learning vocabulary through communication and listening as the most useful in their second language acquisition. Also, findings showed that most respondents viewed listening as helpful toward vocabulary learning. Furthermore, Nayan and Krishnasamy (2015) advocate that there is no right or wrong way to teach vocabulary to students, as several factors play significant roles in teaching vocabulary. These factors are classroom environment, family and educational background, internet accessibility, and peer cooperation (Nayan & Krishnasamy, 2015, p.13).

Research in VLS among secondary school students

Intending to explore the VLS among 132 primary school students in Sarawak, Malaysia, Kho et al. (2021) gathered data using a survey and interview. The survey items were based on Oxford's VLS classifications. Results showed that primary students moderately used all five strategies in vocabulary learning. Cognitive strategies were also the most used, while social strategies were the least used. The study suggested that primary school students preferred to use cognitive strategies as these strategies involve a mechanical approach to learning new vocabulary by translating, memorizing and listing words. Another suggestion made by the study was that primary school students' preference toward cognitive strategies in vocabulary learning is due to a high perception of memory retention in learning vocabulary (Kho et al., 2021, p.1391).

In addition, Sasidaran et al. (2021) examined VLS employed by 50 secondary school students in Selangor, Malaysia. The study used VLSQ version 6.4, adapted from Gu (2018), as their principal instrument. The study revealed that secondary students preferred guessing and dictionary strategies the most. In comparison, the least preferred VLS was the rehearsal strategy, especially using word lists in vocabulary learning. The result implied that secondary students viewed writing as a dull activity which required time and effort to learn vocabulary. As such, they would avoid using rehearsal strategies. Besides that, Sasidaran et al. (2021) found that most secondary students did not prefer to use the encoding strategy as their teachers did not incorporate the strategies in their learning process.

Ab Rahman & Shah (2016) aimed to compare the VLS between urban and rural secondary school students. The researchers used an adopted VLS questionnaire, and data were gathered from 94 respondents. The study's results revealed no significant difference between urban and rural respondents' VLS preferences. The study reiterates that high and low language achievers significantly differed in terms of their VLS employed in ESL. These researchers argue that their study strengthens the significant correlation between students' grades and their preference for VLS.

Methodology

Research design

A survey research design was used using a quantitative method to provide answers to the research questions. The quantitative approach was chosen for this research as this method offers statistically noteworthy deduction on the ESL students population by focusing on a representative sample of secondary and tertiary ESL students (Creswell, 2014). In addition, by applying the quantitative method, this study could cater to relatively large samples of the ESL student population (Mohamad et al., 2021). This study enables the researchers to examine Malaysian ESL secondary and tertiary students' perception of their preference towards VLS in learning English.

Research samples

The study employs convenience sampling to collect data among its participants. Jager et al. (2017) argue that convenience sampling can be used since students participate because they are willing to be

volunteers in research. In the current study, a total of 320 volunteered students participated in this study. Their involvement in answering the survey was done during and outside their class hours. In terms of age, secondary school students are those between thirteen (13) years old to nineteen (19) years old. In contrast, tertiary students are those in their 20s and above. Table 1 shows the profile of the participants in the study.

Table 1: Profile of Participants

Profile	Category	Frequency	Percentage
Gender	Male	137	42.8
	Female	183	57.2
Age	16 years and below	6	1.9
	17 years	14	4.4
	18 years	47	14.7
	19 years	116	36.3
	20 years	16	5
	21 years and above	121	37.8
Education Level	Secondary	183	57.2
	Tertiary	137	42.8

Table 1 shows that 42.8 percent of the samples are males, whilst 57.2 percent are female students. Regarding age, most participants are 21 years and above (37.8 percent) and 19 years old (36.3 percent). 57.2 percent of participants are at the secondary school level, and another 42.8 percent are in tertiary education.

Research instrument

The research instrument used in this study was an online questionnaire using Google Forms. The survey has two sections with 33 items. The first section contains input on the gender and age of participants whilst the second section includes items on the VLS. The VLSQ items were adopted based on Vocabulary Learning Questionnaire (VLQ) 6.4 developed by Gu (2018). VLQ 6.4 was reported to be most suitable for those ESL students in secondary and tertiary education (Gu, 2018). The VLQ version 6.4 was updated based on an earlier questionnaire developed by Gu and Johnson (1996). The original VLQ version 6.4 contained 62 items, and it made use of a 7-point Likert scale. For this study, the main instrument used 31 items using a five-point Likert (Strongly Disagree, Disagree, Undecided, Agree and Strongly Agree), which is similar to the studies by Akbulut (2020) and Hadi and Guo (2020). Using the five-point Likert scale is to get accurate responses and prevent participants from getting confused when answering items in the questionnaire (Sasidaran et al., 2021). Table 2 presents the details of the adapted VLSQ.

Table 2: Categories and Strategies in VLSQ

Dimension	Categories	Strategies	Items
Metacognitive	Beliefs about vocabulary learning	Words should be memorized	3 to 8
		World should be learned through use	9 to 12
	Metacognitive Regulation	Selective attention	13 to 14
		Self-initiation	15
Cognitive	Inferencing	Guessing strategies	16 to 18
	Using Dictionary	Dictionary Strategies	19 to 21
	Taking Notes	Choosing which word to put into notebook	22
		Deciding what information goes into notes	23 to 24
	Rehearsal	Use of word lists	25
		Oral repetition	26
		Visual repetition	27
	Encoding	Visual encoding	28
		Auditory encoding	29
		Contextual encoding	30
	Activation	Activation	31 to 33

Regarding validity and reliability, studies reported that VLQ version 6.4 was a reliable instrument (Akbulut, 2020; Sasidaran et al., 2021). Moreover, Gu (2018) states that VLQ version 6.4 recorded a Cronbach alpha score above .80 for most items. In this study, the adapted survey questionnaires recorded an alpha score of .893 for all 31 items. Two (2) experts from a Malaysian public university reviewed all questionnaire items to check the instruments' face and content validity.

In identifying the data's normality, Table 3 shows the Kolmogorov-Smirnov tests used to determine the normality of the data. The test showed that the data was normal for both VLS dimensions, i.e., metacognitive and cognitive ($p>0.05$). Due to this, parametric tests, namely independent sample t-tests, were employed for further statistical analyses when answering the formulated research questions.

Table 3: Tests of Normality for VLS Preferences Dimension

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Metacognitive Dimension	.035	320	.200[*]	.991	320	.052
Cognitive Dimension	.043	320	.200[*]	.990	320	.023

The prepared Google form was used for data collection, and its link was sent to students using WhatsApp and Gmail. Data gathered then was uploaded to Google Drive for storage and safekeeping. After an initial screening to see the missing items and responses, all data were analyzed using SPSS version 26. Descriptive and inferential statistics were used to interpret the findings using frequency, mean scores, standard deviation and t-tests.

Results and Discussion

Vocabulary Learning Strategies Preferences among ESL students

The first research question deals with ESL students' most and least preferred VLS. Data from the descriptive statistic that examined the mean scores of ESL students' preference with VLS dimensions, categories and strategies were presented to answer this first research question. In terms of VLS dimension preferences among ESL (combination of secondary and tertiary) students, Table 4 shows that participants preferred the metacognitive VLS dimension the most, with M= 3.97, SD=.47 compared to the cognitive dimension, with M= 3.86, SD=.54.

Table 4: VLS Dimension Preferences

Dimension	N	M ($\overline{x}$)	SD (σ)
Metacognitive	320	3.97	.47
Cognitive	320	3.86	.54

Table 5 shows the VLS category preferences among secondary and tertiary-level students. 'Using Dictionary' category obtained the highest scores (M=4.20, SD=.59) followed by 'Metacognitive Regulation' (M = 4.12, SD=.56), 'Activation' (M = 3.96, .68), 'Inferencing' (M= 3.96, SD=.68) and 'Beliefs about Vocabulary Learning' (M = 3.82, SD=.75). The least preferred VLS categories were 'Rehearsal' (M = 3.71, SD=.75), 'Encoding' (M=3.68, SD=.81) and 'Taking Notes' (M=3.65 SD=.89).

Table 5: VLS Category Preferences

Category	N	M ($\overline{x}$)	SD (σ)
Dictionary uses	320	4.20	.59
Metacognitive Regulation	320	4.12	.56
Activation	320	3.96	.72
Inferencing	320	3.96	.68
Beliefs about vocabulary learning	320	3.82	.50
Rehearsal	320	3.71	.75
Encoding	320	3.68	.81
Taking Notes	320	3.65	.89

Table 6 shows ESL students preferred to use 'Self-initiation strategy' the most (M = 4.43, SD=.71), followed by 'Dictionary strategies' (M = 4.20, SD=.59), 'Oral repetition' (M = 4.08, SD=.85) and 'Word should be learned through use' (M = 4.07, SD=.60). The least preferred VLS strategies were 'Use of word lists' (M = 3.48, SD=.54), while all these criteria 'Visual Repetition', 'Word should be memorized' and 'Auditory Encoding' obtained the same mean scores. Among them, the least preferred VLS strategy is the 'Use of word lists' (M = 3.48, SD=.99).

Table 6: VLS Strategies Preferences

Strategies	N	M ($\overline{x}$)	SD (σ)
Self-initiation	320	4.43	.71
Dictionary Strategies	320	4.20	.59
Oral Repetition	320	4.08	.85
The world should be learned through use	320	4.07	.60

Activation	320	3.96	.72
Guessing Strategies	320	3.96	.68
Selective Attention	320	3.80	.73
Contextual Encoding	320	3.80	.99
Visual Encoding	320	3.66	1.04
Choosing which word to put into notebook	320	3.66	1.05
Deciding what information goes into notes	320	3.64	.92
Visual Repetition	320	3.58	1.04
Word should be memorized	320	3.58	.62
Auditory Encoding	320	3.58	1.08
Use of Word lists	320	3.48	.99

The current research found that ESL students preferred 'metacognitive' than 'cognitive' strategies, consistent with Benedict and Shabdin's (2021)1997 study. Their study showed that Malaysian undergraduate students use metacognitive VLS, especially 'Metacognitive Regulation' strategies. In contrast, tertiary students in Afghanistan and the Middle East were reported not to prefer using metacognitive strategies in learning vocabulary (Atifnigar et al., 2020; Ta'amneh, 2021)this study aims to survey vocabulary learning strategies (VLSs. The researchers concluded that students perceived metacognitive strategies as having a higher level of thinking; therefore, the strategies were perceived to be more challenging to practice than other strategies (Ta'amneh, 2021). Nevertheless, metacognitive strategies can be enhanced by integrating technology, in particular, game-based learning, into vocabulary learning (Tan et al., 2022). The authentic learning of the vocabulary and the relevancy of the language used in the game developed students' metacognition. This is true since they could relate their knowledge and understanding while playing the online game based on their thinking. Other alternatives to improve or enhance vocabulary are digital board games (Ali et al., 2018) and web-based games that can assist them in retaining target vocabulary (Ali et al., 2022).

In addition, results showed that the 'Taking Notes' and 'Encoding' categories are the least preferred VLS among ESL students. Such a result was in contrast with Dóczi (2011)it describes the study itself, for the purpose of which a questionnaire was devised, based on Schmitt's (1997, who reported that taking notes was the most preferred VLS among Hungarian ESL students. The current finding also contrasts with Ali's (2022) study. It was found that taking notes was also the preferred VLS since it assisted students in transforming the information they learned. In particular, one of the students in her study was found to be preparing notes to complete the written task assigned by their teachers.

Vocabulary learning strategies preferred between genders
In answering Research Question 2, an independent samples t-test was conducted to identify the VLS between genders, particularly in using metacognitive and cognitive strategies. Table 7 shows that there was a significant difference in metacognitive dimension preference for males (M=3.85, SD = 0.51) and females [M = 4.05, SD = 5.71, t (255.46) =-3.78, p=0.008]. In terms of cognitive strategies, Table 8 shows that there was a significant difference between males (M = 3.73, SD = 0.56) and females [M = 3.96, SD = 0.51, t (318) = -3.851, p=.115]. The magnitude of the differences in the means was very small (p < .005).

Table 7: VLS dimensions preferred based on gender

Dimension	Gender	M (x̄)	SD (σ)
Metacognitive	Male	3.85	.51
	Female	4.05	.41
Cognitive	Male	3.73	.56
	Female	3.96	.51

Table 8: *T*-test on VLS dimensions preferred between genders

Dimension		F	Sig.	t	df	Sig. (2-tailed)
Metacognitive	Equal variances assumed	7.19	.008	-3.901	318	.000
	Equal variances not assumed			-3.783	255.46	.000
Cognitive	Equal variances assumed	2.50	.115	-3.851	318	.000
	Equal variances not assumed			-3.801	277.996	.000

Table 9 shows that male (M=4.09, SD =.60) and female (M=4.28, SD = .58) students scored the highest mean using the dictionary. Similarly, for the least preferred VLS categories, both genders identified note-taking as their least preferred VLS category. In particular, the mean scores for male students are M=3.53, SD= .96 while the mean scores for female students are M = 3.74 and SD =.84, respectively.

Table 9: VLS Categories of strategies preferred by students based on gender

Categories	Gender			
	Male		Female	
	M (x̄)	SD (σ)	(x̄)	SD (σ)
Beliefs About Vocabulary Learning	3.70	.60	3.91	.55
Metacognitive Regulation	4.00	.68	4.20	.53
Inferencing	3.86	.81	4.03	.61
Using Dictionary	4.09	.60	4.28	.58
Taking Notes	3.53	.96	3.74	.84
Rehearsal	3.56	.84	3.83	.70
Encoding	3.49	.86	3.82	.73
Activation	3.83	.77	4.06	.68

Table 10 shows that both genders Male (M = 4.0, SD = .81) and female (M = 4.52, SD =.61), identified 'Self-initiation' as their most preferred VLS strategy. For the least preferred VLS strategies, male students did not favor word list use (M = 3.27, SD= 1.00). Likewise, female students identified word lists (M = 3.63, SD= .95) as their least preferred VLS strategies. In addition, the same mean scores (M = 3.63, SD= 1.00) for visual repetition showed that female students identified that the strategy was the least preferred.

Table 10: VLS strategies preferences based on gender

Strategies	Gender			
	Male ($\bar{x}$)		Female ($\bar{x}$)	
	M ($\bar{x}$)	SD (σ)	M ($\bar{x}$)	SD (σ)
Words should be memorized	3.49	.58	3.65	.64
World should be learned through use	3.92	.66	4.17	.54
Selective attention	3.70	.79	3.88	.67
Self-initiation	4.30	.81	4.52	.61
Guessing strategies	3.86	.78	4.03	.58
Dictionary Strategies	4.09	.62	4.28	.55
Choosing which word to put into notebook	3.52	1.17	3.76	.94
Deciding what information goes into notes	3.55	.96	3.72	.89
Use of word lists	3.27	1.00	3.63	.95
Oral repetition	3.90	.96	4.21	.74
Visual repetition	3.51	1.08	3.63	1.00
Visual encoding	3.62	1.09	3.69	.99
Auditory encoding	3.34	1.21	3.75	.93
Contextual encoding	3.51	1.09	4.01	.85
Activation	3.83	.74	4.06	.70

In terms of the difference between gender in regards to their VLS preference, it shows that both male and female participants preferred the metacognitive VLS dimension over than cognitive dimension. These results do not support Du and Man's study (2022)however, have considered to what extent person factors and strategic processing account for the variance of L2 listening comprehension. This study aims to investigate the predictive power of person factors (i.e., aural vocabulary size, listening metacognitive knowledge, and listening self-efficacy, which found no significant difference between male and female students regarding gender preferences for using metacognitive skills. Such were the results since female students were better in their academic performances and, therefore, able to demonstrate higher metacognitive abilities. The current study's finding also contrasts with Acar-Erdol and Akin-Arikan (2022). Their study found that male students demonstrated lower metacognitive dimensions than female students. Male students showed strong metacognitive abilities, especially in understanding and remembering, summarizing, and assessing the credibility of the assigned reading tasks compared to their counterparts.

VLS preference between secondary and tertiary students

Research Question 3 examines the VLS preferences based on students' levels of academics. More specifically, the proceeding results provide answers concerning the differences in VLS dimension, VLS categories and VLS strategies. Table 11 shows that both secondary (M= 3.81, SD= .42) and tertiary students (M= 4.18, SD=.44) preferred the metacognitive dimension compared to the cognitive dimension.

Table 11: VLS Dimension preferences based on the education level

Dimension	Education Levels			
	Secondary		Tertiary	
	M ($\overline{x}$)	SD (σ)	M ($\overline{x}$)	SD (σ)
Metacognitive	3.81	.42	4.18	.44
Cognitive	3.75	.50	4.01	.56

Further, an independent-sample t-test was conducted to compare the VLS dimension preference for secondary and tertiary students (Table 12). There were no significant differences in metacognitive dimensions among secondary students (M=3.81, SD=.42) and tertiary students [M=4.18, SD=.44, t (318) = -7.74, p =.154]. Also, no significant differences were found in cognitive dimensions between secondary students (M = 3.75, SD=.50) and tertiary students [M = 4.01, SD=.56, t (318) = -4.428, p = .288]. The magnitude of the differences in the means was very small (eta squared = .005)

Table 12: *T*-test on VLS Dimension preferences based on the education level

Dimension		F	Sig.	t	df	Sig. (2-tailed)
Metacognitive	Equal variances assumed	2.044	.154	-7.744	318	.000
	Equal variances not assumed			-7.690	285.225	.000
Cognitive	Equal variances assumed	1.132	.288	-4.428	318	.000
	Equal variances not assumed			-4.362	275.665	.000

Table 13 shows the preferred VLS categories based on education levels (secondary and tertiary levels). It indicates that secondary students preferred using dictionary strategy (M= 4.43, SD=0.61) while tertiary students preferred Metacognitive Regulation (M = 4.60, SD=0.52). Both groups reported that the least preferred strategy was taking notes with secondary students (M=3.84, SD=0.87) and tertiary students (M=4.04, SD=0.91).

Table 13: VLS Categories preferences based on the education level

Categories	Education Levels			
	Secondary ($\overline{x}$)		Tertiary ($\overline{x}$)	
	M ($\overline{x}$)	SD (σ)	M ($\overline{x}$)	SD (σ)
Beliefs about vocabulary learning	4.09	0.52	4.53	0.54
Metacognitive Regulation	4.30	0.64	4.60	0.52
Inferencing	4.10	0.76	4.46	0.56
Using Dictionary	4.43	0.61	4.53	0.58
Taking Notes	3.84	0.87	4.04	0.91
Rehearsal	3.94	0.78	4.11	0.74
Encoding	3.85	0.81	4.12	0.77
Activation	4.15	0.77	4.32	0.65

Meanwhile, Table 14 shows the VLS strategies' preferences based on education levels. It shows that secondary school students preferred to use the dictionary the most (M=4.13, SD =0.58), while tertiary-level students chose the metacognitive regulation category. On the other hand, the least preferred VLS strategy is an auditory encoding (M=3.42, SD =1.12) for secondary school students. In contrast, tertiary students did not prefer using word lists in learning vocabulary (M=3.53, SD= 0.99). Interestingly, the analysis also shows that tertiary level students obtain the same mean scores (M=3.78, SD= 0.64) for these VLS strategies: 'Words should be memorized', 'Deciding what information goes into notes' and 'Auditory encoding'.

Table 14: VLS Strategies Preferences based on education levels

Strategies	Education Levels			
	Secondary ($\bar{x}$)		Tertiary ($\bar{x}$)	
	M ($\bar{x}$)	SD (σ)	M ($\bar{x}$)	SD (σ)
Words should be memorized	3.43	0.55	3.78	0.64
World should be learned through use	3.86	0.57	4.32	0.55
Selective attention	3.59	0.71	4.09	0.67
Self-initiation	4.34	0.75	4.54	0.63
Guessing strategies	3.79	0.71	4.18	0.57
Dictionary Strategies	4.13	0.58	4.28	0.59
Choosing which word to put into notebook	3.49	1.04	3.88	1.03
Deciding what information goes into notes	3.54	0.88	3.78	0.96
Use of word lists	3.44	0.99	3.53	0.99
Oral repetition	3.98	0.87	4.21	0.81
Visual repetition	3.45	1.04	3.75	1.01
Visual encoding	3.53	1.03	3.83	1.02
Auditory encoding	3.42	1.12	3.78	0.98
Contextual encoding	3.66	1.00	3.99	0.95
Activation	3.88	0.72	4.08	0.71

In discussing the VLS dimension based on education levels, it was found that secondary school and tertiary-level students preferred the metacognitive dimension over the cognitive dimension. Such is due to the fact that they can control their cognition. Anderson (2002) argues that students who demonstrate a metacognitive dimension in learning vocabulary undergo various stages of learning. These include (i) preparing and planning to learn a target vocabulary, (ii) selecting and using appropriate vocabulary learning, (iii) monitoring the vocabulary learned, (iv) integrating various strategies for learning vocabulary and (v) evaluating the strategies used and learning. Further analysis was conducted using VLS categories based on education levels. It was found that tertiary-level students used metacognitive regulation greater than its use by secondary school students. Such results may be explained by the fact that the language content at higher education requires them to control their learning process more than those students at the secondary school level. In particular, when they use the metacognitive dimension, they must manage how they use and learn the language (Álvarez Ayure et al., 2018). In other words, they plan, monitor and evaluate how they use and learn a target vocabulary. Yet, students at the secondary school level opted for using the dictionary. This result is likely related to the tasks provided at the level compared to more complex language functions at the tertiary level.

Conclusion and Recommendations

This study showed that both secondary and tertiary Malaysian ESL students preferred the metacognitive VLS dimension to the cognitive dimension. Concerning gender, both male and female students chose the metacognitive VLS dimension over cognitive dimensions. Results indicated that there were significant differences in terms of VLS categories between male and female students. Thus, it could be concluded that gender played an essential role in vocabulary acquisition. Lastly, in comparing secondary and tertiary VLS preferences, the study found that secondary students preferred using the dictionary, while tertiary students mostly used the metacognitive regulation category. Due to the results, the researchers recommend that collaborative learning be optimized to encourage students to improve their vocabulary acquisition. Additionally, there is a need to encourage students to use more metacognitive and cognitive strategies to acquire new vocabulary. Moreover, future VLS studies need to focus on the level of English proficiency among students, which can provide more understanding of the dimension of VLS. Additionally, further research may use different methods, such as interviews, pre-test and post-test, and document checking to produce better findings that reflect ESL students (secondary or tertiary) perceptions and awareness of their uses of VLS. The results from this study are significant for students, language educators, and policymakers. Educators should consider adopting more effective teaching materials and platforms that enable students to get accustomed to the different types of VLS. As this study's data show significant differences between gender and education level, English language policymakers need to think of altering the curriculum related to vocabulary acquisition by catering to the need of gender and students' education levels. Referring to the students' VLS preference toward the metacognitive dimension, instructors can encourage students to become aware of their roles and accountability toward their learning potential. Finally, gender and education levels play essential roles in helping students acquire new vocabulary. By having a good grasp of VLS and knowing their strength and weakness, both genders can increase their participation, especially when learning vocabulary.

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Authorship and Level of Contribution

Author 1 and Author 2 conceived and designed the analysis of the study. Author 3 analyzed the data and checked the technical aspects of the study. Author 4 and Author 5 performed the analysis. Author 6 checked the flow of the article. All authors were involved in writing the paper.

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