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Insights into ESP Vocabulary Learning Strategies Used by Vietnamese Tertiary Students

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***Background*:** ESP vocabulary is pivotal for learners to master the ESP subject matter, so there has been growing interest in how vocabulary learning strategies (VLS) for ESP are used. In addition, understanding the underlying reasons for using VLS for ESP is indispensable.

***Purpose*:** This paper aims at exploring VLS for ESP in terms of metacognitive strategies, cognitive strategies, memory strategies, determination strategies, social (discovery) strategies, and social (consolidation) strategies employed by Vietnamese tertiary students and their reasons for such VLS deployment.

***Method*:** It involved 270 technical students from a higher education institution in Ho Chi Minh City, Vietnam, who were conveniently selected. This mixed-methods research gathered data by means of a closed-ended questionnaire and semi-structured interviews.

***Results*:** The findings unraveled that participants employed strategies for learning ESP lexical items moderately. Remarkably, the metacognitive strategies were the most frequently used among six groups of VLS for ESP, whereas social (consolidation) ones received the least attention. The results further uncovered that participants used VLS for ESP because of efficiency and regular practice, while lack of confidence and environment for practice hindered them from making use of VLS for ESP.

***Implication*:** Such findings are expected to enrich the knowledge of how students learn ESP lexical items in the Vietnamese context and other similar ones.

***Keywords*:** ESP, learning strategies, tertiary level, Vietnamese ESP context, vocabulary

Introduction

A wide range of researchers (e.g., Ghalebi et al., 2020; Jones & Durrant, 2010; Nation, 2001; Wanpen et al., 2013) have confirmed fundamental roles of vocabulary in learning ESP. Jones and Durrant (2010) pointed out that one of the greatest hindrances for a learner's mastering a second/foreign language is limited lexical range. What is more, Gifford (2013) asserted that those with a higher lexical proficiency are able to communicate more competently. Finally, in ESP context, vocabulary is essential for mastering ESP knowledge, which raises the question of the most efficient ways of ESP vocabulary acquisition.

ESP vocabulary plays a dominant role in ESP courses and the accompanying ESP materials. Harding (2007) viewed ESP vocabulary as a crucial element because learners need technical or specialized words to comprehend and explain the ESP subject matter. Likewise, Ghazal (2017) advocated that the extent to and the way in which vocabulary learning strategies (VLS) are employed can enhance learners' understanding of various genres. Furthermore, the findings of some studies (e.g., Cameron, 2001; Catalan, 2003) have indicated that VLS can help learners not only to acquire new words but also to retain them in the long-term memory. This means learners can learn new words faster and remember them longer when using VLS appropriately and effectively. In a similar vein, Wanpen et al. (2013) have indicated a growing demand for developing ESP competence and recognized VLS as one of the most important factors in attaining this goal. Furthermore, learners employ VLS as a tool to learn vocabulary and self-direct their own lexical learning. Thus, it is the independent learners who are supposed to be effective and successful in vocabulary learning (e.g., Nation, 1990, 2001; Oxford, 1990; Sedighi & Tamjid, 2016; Tran, 2020). In order to learn vocabulary effectively, learners should acknowledge the importance of VLS, i.e., provided they have a wider range of VLS, learners

will be capable of mastering unfamiliar words more easily. Finally, Ellis's (1997) study has shown that learners' use of VLS is positively correlated with their academic achievement, i.e., the higher the academic achievement learners get, the more effectively they use VLS or vice versa.

Language learning strategies have been variously classified (e.g., O'Malley & Chamot, 1990; Oxford, 1990). For example, O'Malley and Chamot (1990) have grouped VLS into three big types (metacognitive strategies, cognitive strategies, & social strategies), while Oxford (1990) classified them into two big categories: direct strategies (e.g., memory strategies, cognitive strategies, & compensation strategies) and indirect strategies (metacognitive strategies, affective strategies, & social strategies). On the basis of these classifications, Schmitt (1997) categorized VLS into two major groups: (i) discovery strategies (e.g., determination strategies & social strategies) and (ii) consolidation strategies (e.g., cognitive strategies, memory strategies, metacognitive strategies, & social strategies). In the meanwhile, Gu (2013, 2018) proposed an inventory of VLS for ESL learners with two main components, namely metacognitive strategies (e.g., beliefs about vocabulary learning & metacognitive regulation of vocabulary learning) and cognitive strategies (e.g., guessing strategies, dictionary strategies, note-taking strategies, rehearsal strategies, encoding strategies, & activation strategies). Given the fact that Schmitt's (1997) categorization of VLS is a comprehensible taxonomy which has been commonly applicable to numerous educational contexts (e.g., Catalan, 2003; Takac, 2008), it is employed in this study as well.

A variety of studies on VLS for ESP have been carried out in numerous contexts. Lessard-Clouston (2008) examined the VLS used by Canadian and foreign learners. Two instruments including a questionnaire and an interview were utilized for data collection. The results indicated that learners used different types of VLS including looking up the dictionary and glossary, drilling new words on the sheet of paper, taking written notes in class, writing word lists, creating flashcards, repeating written and oral words, and questioning the new words to others. Wanpen et al. (2013) did research to find out how engineering students utilized VLS. A questionnaire, a test, and an interview were used to gather data from 47 respondents. They found out that vocational students had a higher level of ESP vocabulary than general education ones, and they used VLS for ESP differently. In Vietnam, Tran (2012) conducted research on the use of VLS by ESP students. A questionnaire was administered to 100 students at Da Nang University. The author found that students employed VLS in a wrong way without critical thinking. Le and Thach (2017) investigated 100 Vietnamese students' VLS use for ESP. They used questionnaire, semi-structured interview and learner diary for data collection and found out that participants employed discovery and cognitive strategies for ESP.

Regardless of the mentioned importance of vocabulary in general and specifically of ESP vocabulary, the use of VLS for ESP in some educational contexts is likely to be underestimated in ESP teaching and learning. ESP teachers tend to put more emphasis on teaching vocabulary and grammar needed to complete a task (i.e., product-oriented approach) rather than on developing students' strategies of learning ESP vocabulary (i.e., process-oriented approach). Consequently, students attempt to memorize ESP vocabulary without employing systematic VLS, so they are unable to retain ESP vocabulary in long-term memory. In the Vietnamese context, ESP courses have been designed and taught at vocational institutions with a focus on students' practical needs to meet the job requirements. Such ESP courses aim at enabling students to strengthen their ESP proficiency, to acquire specific professional knowledge and to use ESP appropriately in an English-speaking working environment. Nevertheless, there has been a lack of systematic instruction on using ESP VLS among Vietnamese tertiary students. This study endeavors to delve into the use of VLS by ESP students in the context of higher education in Ho Chi Minh City, Vietnam. Specifically, this research attempts to answer the following research questions:

1. To what extent do Vietnamese tertiary students use VLS in the ESP courses?
2. What are the underlying reasons for their VLS use?

Method

Research Context and Participants

This mixed-methods research was carried out in the context of higher education in Ho Chi Minh City, Vietnam. The English department of the selected university employs 13 language teachers with M.A. degrees in TESOL or Applied Linguistics who deliver the courses in General English and ESP. Students at this university are required to take two general English courses in the first two semesters and a 6-credit ESP course in the third semester.

A cohort of 270 students from six disciplines (e.g.,

Information Technology, Electrical - Electronic Technology, Mechanical Technology, Garment technology, Thermal Technology, & Automotive Technology) who were taking ESP courses were conveniently selected from the target population. As can be observed in Table 1, male students (84.4%) outnumbered female ones (15.6%). Regarding the grades, there was a very small number of high achievers, with no students achieving excellent grades in English (from 8.5 to 10), and only 3% obtained good grades (from 7.0 to 8.4). Strikingly, most of them scored average grades (35.2%) and pass grades (54.1%). A minority of them (7.8%) even failed the General English 2 exam. Concerning years of learning English, 193 out of 270 participants have learned English for more than 7 years, while the rest (27%) have learned English for 4-7 years.

Research Instruments

Two research instruments, namely a questionnaire and semi-structured interviews were employed to gather data. The former was adapted from Schmitt's (1997) classification of VLS and it consisted of two parts: Part A asking for respondents' background information; Part B with 35 closed-ended items asking about the extent to which the respondents used VLS for ESP. According to Schmitt's (1997) taxonomy the items were divided into six groups (cognitive strategies: 5 items; determination strategies: 6 items: memory strategies: 8 items: metacognitive strategies: 5 items, social (consolidation) strategies: 7 items, and social (discovery) strategies: 4 items). The five-point Likert scale (from *never* to *always*) was employed. The one-on-one interview was designed to gain an in-depth insight into the use of VLS in ESP. Both the questionnaire and the interview questions were first written in English and then translated into Vietnamese to ensure that the participants did not face any language difficulty in answering the questionnaire and interviews. To increase the validity and reliability of the study, the instruments were piloted prior to the main study, and a linguistics expert was invited to check the validity of the instruments (e.g., construct, content, criterion, and face) and to cross-check the accuracy of the translated versions.Furthermore, the Cronbach's alpha obtained for each of the six groups of items in the questionnaire is as follows: .73 for *social strategies – discover*, .87 for *social strategies - consolidate*, .88 for *memory strategies*, .74 for *cognitive strategies*, and .78 for *metacognitive strategies*. This means that the internal consistency of the questionnaire is acceptable.

Procedures for Data Collection and Analysis

As regards the data collection, after the questionnaire and interviews had been piloted, the official questionnaire was administered to 270 second-year students. Respondents spent roughly 30-35 minutes completing the questionnaire. Following this, 25 students were voluntary for the follow-up semi-structured interviews. The 30-minute interviews which were conducted with each student in the self-study area were recorded for transcription.

The quantitative data obtained by the questionnaire were analyzed by SPSS software version 20.0. The

Table 1

Research Participants' Personal Information

		N=270	
		F	***%***
Gender	Male	228	84.4
	Female	42	15.6
Major	Information Technology	45	16.7
	Electrical - Electronic Technology Mechanical Technology	45	16.7
	Garment technology	45	16.7
	Thermal Technology	45	16.7
	Automotive Technology	45	16.7
		45	16.7
English grades	Excellent (8.5 → 10)	0	0
	Good (7.0 → 8.4)	8	3.0
	Average (5.5 → 6.9)	95	35.2
	Pass (4.0 → 5.4)	146	54.1
	Fail (below 4.0)	21	7.8
Year of English learning	Less than 3 years	0	0
	From 4 to 7 years	73	27
	More than 7 years	193	73

Note: F = Frequency; % = Percentage

descriptive statistics (i.e., mean: M and standard deviation: SD) was computed. The intervals for the mean scores were interpreted as follows: 4.21 - 5.00 (always), 3.41 - 4.20 (often), 2.61 - 3.40 (sometimes), 1.81 - 2.60 (seldom), 1.00 - 1.80 (never) (Kan, 2009).

The qualitative data from interviews were analyzed by the content analysis method within three steps. First, all the interviewees were coded as S1, S2, S3 to S25, and the interviews were carefully transcribed. Then, the transcripts were read, reread, and coded. Finally, major categories and their sub-categories were identified. In order to ensure the reliability and validity of data analysis, the translated version of the transcripts was returned to the interviewees for the meaning check-up, two raters in the field of English language studies were invited to re-analyze three randomly-chosen pieces of data, and the consented level of consistency on the results between the invited raters and the researchers reached 95%.

Results

As can be seen in Table 2, the participants generally employed VLS for ESP with the average mean score of 3.26. More specifically, metacognitive strategies had the highest mean score (M = 3.43, SD = .53), followed by memory strategies (M = 3.36, SD = .82), determination strategies (M = 3.30, SD = .67), social (discovery) strategies (M = 3.29, SD = .64) and cognitive strategies (M = 3.26, SD = .36). The lowest mean score belonged to social (consolidation) strategies (M = 2.90, SD = .79). This can be understood that participants generally used VLS for ESP.

Metacognitive Strategies

Table 3 shows that metacognitive strategies were used most frequently. Specifically, the participants often '[did] ESP vocabulary exercises' (item 2: M = 3.58, SD = .67) and '[categorized]ESP lexical items to memorize them' (item 3: M = 3.43, SD = .82). Additionally, they often '[learned]ESP l lexical items from English magazines, newspapers, TV programs or internet resources and '[highlighted] ESP lexical items that [they] cannot remember', achieving the same mean scores (M = 3.42, SD = .78; M = 3.42, SD = .85 respectively). Nonetheless, students sometimes '[ignored] ESP lexical items when seeing them' (item 4: M = 3.30, SD = .76).

The qualitative data generated from the interviews revealed reasons for using the metacognitive strategies as follows.

> I learn ESP lexical items by writing them on a sticker. Then, I stick it at my learning desk. By doing so, I easily

Table 2.

Overall Results of Used VLS for ESP

VLS	*N=270*		*Level*	*Interpretation*
	M	*SD*		
Metacognitive strategies	3.43	.53	Often	3.41-4.20
Memory strategies	3.36	.82	Sometimes	2.61-3.40
Determination strategies	3.30	.67	Sometimes	2.61-3.40
Social (discovery) strategies	3.29	.64	Sometimes	2.61-3.40
Cognitive strategies	3.26	.36	Sometimes	2.61-3.40
Social (consolidation) strategies	2.90	.79	Sometimes	2.61-3.40
Average	3.26	.64		

Table 3

Metacognitive Strategies

Item	*Metacognitive strategies*	*N = 270*		*Level*	*Interpretation*
		M	*SD*		
2	Do ESP vocabulary exercises.	3.58	.67	Often	3.41-4.20
3	Categorize ESP lexical items to memorize them.	3.43	.82	Often	3.41-4.20
5	Highlight ESP lexical items you cannot remember.	3.42	.85	Often	3.41-4.20
1	Learn ESP lexical items from English magazines, newspapers, TV programs or internet resources.	3.42	.78	Often	3.41-4.20
4	Ignore ESP lexical items when seeing them.	3.30	.76	Sometimes	2.61-3.40

> recognize the words I can and cannot memorize, and then I try to learn them all. Moreover, I often use this strategy because of its simplicity. (S4)

> I often do a lot of exercises and tests to learn ESP lexical items because I want to know their meaning and use in contexts. (S14)

In a nutshell, compared to other categories of VLS for ESP, metacognitive strategies were utilized more regularly by the students. Strikingly, the most significantly used strategy was doing tests or exercises to check their understanding of ESP lexical items.

Memory Strategies

The results in Table 4 show that participants often '[grouped] ESP lexical items in terms of topics to learn (item 6: M = 3.65, SD = .96), '[learned] ESP lexical items by determining keywords in the context (item 10: M = 3.55, SD = 1.08) and '[used] contextual clues to learn the meanings of ESP lexical items (item 7: M = 3.43, SD = .92). However, they sometimes '[learned] the spelling of ESP lexical items' (item 8: M = 3.14, SD = .89), '[mimicked] pronunciation of ESP lexical items' (item 9: M = 3.24, SD = .99), and '[learned] the ESP lexical items' meanings in [their] own way' (item 11: M = 3.14, SD = 1.36).

Regarding the students' favorite memory strategies, some students of Automotive Technology and Electrical and Electronics Technology highlighted the keyword method as their preferred one.

> I often drew pictures for new ESP lexical items to memorize them at ease. (S23)

> I found it interesting and easy to learn ESP lexical items with the keyword method. (S14)

The students of Information Technology and Thermal Technology argued that it was the sentence making activity that helped them memorize lexical terms.

> I made sentences with ESP lexical items so that I could memorize the use of the new words in sentences effectively. (S7)

In sum, the students tended to use meaning-based memory strategies such as grouping ESP lexical items, using contextual clues, and using key words to learn ESP lexical items.

Determination Strategies

As seen in Table 5, the participants often determined the meaning of ESP lexical items by 'guessing from textual context' (item 15: M = 3.60, SD = .98), 'using pictures in ESP field' (item 14: M = 3.47, SD = .89) and 'ESP vocabulary lists' (item 18: M = 3.43, SD = .84), and 'using flashcards' (item 19: M = 3.42, SD = .79). They also often [checked] the meaning of ESP lexical items in an English-Vietnamese dictionary' (item 16:M = 3.50, SD = .96). Notwithstanding, the participants used the strategies of determining the meaning of ESP lexical items by 'analyzing the part of speech' (item 12:M= 3.09, SD = .95) and 'suffixes and roots' (item 13: M = 2.97, SD = .86) and '[checking] the meaning of ESP lexical items in an English-English dictionary (item 17: M = 2.95, SD = .89) at a moderate level.

Qualitatively, one student of the Electrical-Electronics Technology department shared his VLS for ESP as follows.

> I downloaded a list of ESP lexical items for my major. Then, I looked for the ESP lexical items I wished to learn, and I wrote them into flashcards to learn. (S16)

In a similar line, one student of the Automotive Technology department gave an explanation for using

Table 4

Memory Strategies

Item	*Memory strategies*	*N = 270*		*Level*	*Interpretation*
		M	*SD*		
6	Group ESP lexical items in terms of topics to learn.	3.65	.96	Often	3.41-4.20
10	Learn ESP lexical items by identifying keywords in the context.	3.55	1.08	Often	3.41-4.20
7	Use contextual clues to learn the meanings of ESP lexical items.	3.43	.92	Often	3.41-4.20
9	Mimic the pronunciation of ESP lexical items.	3.24	.99	Sometimes	2.61-3.40
8	Learn the spelling of ESP lexical items.	3.14	.89	Sometimes	2.61-3.40
11	Learn the ESP lexical items' meanings in your own way.	3.14	1.36	Sometimes	2.61-3.40

flashcards and provided another learning strategy:

> I often used flashcards because I could learn and review new words using flashcards at my convenience. Therefore, I was able to remember the words longer. (S25)

One student of the Information Technology department added that he chose wordlists as a favorite strategy because of its availability:

> I frequently utilized the English wordlists to learn because ESP lexical items were available in the list, so it was easy for me to learn them. (S5)

To sum up, the students preferred determination strategies relating to the meaning of vocabulary in the first language (e.g., guessing the meaning of ESP lexical items from textual contexts and using pictures, flashcards and English-Vietnamese dictionary to learn ESP lexical items) to those focusing on the features of vocabulary in the target language (e.g., using English-English engineering dictionary, doing morphological analysis of words, and analyzing parts of speech).

Social (Discovery) Strategies

Table 6 reveals that participants often '[asked] classmates for ESP lexical items' meanings' (item 23: M = 3.50, SD = .81) and '[looked] for ESP lexical items' meanings through group work activities' (item 24: M = 3.47, SD = .84). However, they sometimes asked teachers for 'ESP lexical items used in contexts' (item 22: M = 3.27, SD = .81), '[translating] ESP lexical items into Vietnamese' (item 20: M = 3.23, SD = 1.00) and 'an antonym or synonym of ESP lexical items' (item 21: M = 2.97, SD = 1.13). Accordingly, we conclude that the participants sought help from their peers for ESP lexical items rather than from their teachers.

To provide an explanation for the high use of social (discovery) strategies, one interviewee of the Information Technology department revealed the benefit of collaborative learning.

Table 5

Determination Strategies

Item	*Determination strategies*	*N = 270*		*Level*	*Interpretation*
		M	*SD*		
15	Determining the meaning of ESP lexical items by guessing from textual context.	3.60	.98	Often	3.41-4.20
16	Check the meaning of ESP lexical items in an English-Vietnamese dictionary.	3.50	.96	Often	3.41-4.20
14	Determining the meaning of ESP lexical items by using pictures in the ESP field.	3.47	.89	Often	3.41-4.20
18	Determining the meaning of ESP lexical items by using ESP vocabulary lists.	3.43	.84	Often	3.41-4.20
19	Determining the meaning of ESP lexical items by using flashcards.	3.42	.79	Often	3.41-4.20
12	Determining the meaning of ESP lexical items by analyzing the part of speech (e.g., noun, verb, adjective, adverb).	3.09	.95	Sometimes	2.61-3.40
13	Determining the meaning of ESP lexical items by analyzing suffixes and roots (e.g., conductor-suffix: -or; root: conduct).	2.97	.86	Sometimes	2.61-3.40
17	Check the meaning of ESP lexical items in an English-English dictionary.	2.95	.89	Sometimes	2.61-3.40

Table 6

Social (Discovery) Strategies

Item	*Social (Discovery) strategies*	*N = 270*		*Level*	*Interpretation*
		M	*SD*		
23	Ask classmates for ESP lexical items' meanings.	3.50	.81	Often	3.41-4.20
24	Look for ESP lexical items' meanings through group work activities.	3.47	.84	Often	3.41-4.20
22	Ask teachers for ESP lexical items used in contexts.	3.27	.81	Sometimes	2.61-3.40
20	Ask teachers to translate ESP lexical items into Vietnamese.	3.23	1.00	Sometimes	2.61-3.40
21	Ask teachers for an antonym or synonym of ESP lexical items.	2.97	1.13	Sometimes	2.61-3.40

> I learned ESP lexical items by asking my classmates for ESP lexical items' meaning as I was unable to write down all the content that the lecturers had conveyed. (S15)

One student of the Thermal Technology department admitted that learning with friends helped him learn technical words better.

> I often learned ESP lexical items in a small group of friends because I believed that I could learn ESP lexical items better. When learning ESP lexical items with friends, we could help cross-check ESP lexical items so that we remembered them longer. (S19)

In brief, the participants were more likely to use those social (discovery) strategies that involve their peers rather than teachers.

Cognitive Strategies

The results depicted in Table 7 indicate that participants often '[kept] an ESP vocabulary notebook to learn' (item 31: M = 3.44, SD = .86). Meanwhile, they had a tendency to sometimes 'listen to the audio files of ESP vocabulary lists many times' (item 29: M = 3.33, SD = .55) 'label ESP technical components of lexical items to learn their meaning' (item 30: M = 3.33, SD = .56). Additionally, the participants also sometimes '[took] notes of ESP lexical items in class for later review' (item 27: M = 3.30; SD = .54), '[did] exercises of ESP lexical items' (item 28: M = 3.16; SD = .49), and reviewed ESP lexical items 'by writing them many times' (item 26: M = 3.16; SD = .50), and 'by reading them many times' (item 25: M = 3.09; SD = .44).

For more details, the qualitative results disclosed underlying reasons for the use of cognitive strategies.

> I brought my ESP vocabulary notebook so that I could learn new words when possible. (S3).

> I liked to write down ESP lexical items on the piece of paper and read them aloud or use flashcards done by myself because it was the best way for me to learn ESP lexical items. (S7)

> I learned ESP lexical items by writing them repeatedly. This way really helped me remember their spelling correctly. (S22)

> I often read ESP lexical items aloud, and this activity was fun and helpful for me to remember ESP lexical items. (S24)

In short, the results showed that students employed most of the cognitive strategies moderately except for keeping an ESP vocabulary notebook which they used most frequently.

Social (Consolidation) Strategies

As can be seen from Table 8, participants sometimes '[exchanged] ESP vocabulary cards and word lists with friends' (item 33: M = 3.05, SD = .91) and '[learned] ESP lexical items' meanings in a small group' (item 32: M = 3.02, SD = .92). Nonetheless, participants employed strategies of '[reviewing] ESP lexical items' meaning with friends after class' (item 35, M = 2.77, SD = .93) and '[used] ESP lexical items to communicate with foreigners' (item 34: M = 2.76, SD = .96) slightly less frequently than the other two strategies in the social (consolidation) strategies.

Qualitatively, most of the interviewees preferred collaborative learning. Specifically, a significant example is reported as follows.

> I often reviewed the meaning of ESP lexical items with my friends. We played games, did

Table 7

Cognitive Strategies

Item	*Cognitive strategies*	*N = 270*		*Level*	*Interpretation*
		M	*SD*		
31	Keep an ESP vocabulary notebook to learn.	3.44	.86	Often	3.41-4.20
29	Listen to the audio files of ESP vocabulary lists many times.	3.33	.55	Sometimes	2.61-3.40
30	Label ESP technical components of lexical items to learn their meaning.	3.33	.56	Sometimes	2.61-3.40
27	Take notes of ESP lexical items in class for later review.	3.30	.54	Sometimes	2.61-3.40
28	Do exercises of ESP lexical items.	3.16	.49	Sometimes	2.61-3.40
26	Review ESP lexical items by writing them many times.	3.16	.50	Sometimes	2.61-3.40
25	Review ESP lexical items by reading them many times.	3.09	.44	Sometimes	2.61-3.40

Table 8

Social (Consolidation) Strategies

Item	*Social (Consolidation) strategies*	*N = 270*		*Level*	*Interpretation*
		M	*SD*		
33	Exchange ESP vocabulary cards and word lists with friends.	3.05	.91	Sometimes	2.61-3.40
32	Learn ESP lexical items' meaning in a small group.	3.02	.92	Sometimes	2.61-3.40
35	Review ESP lexical items' meaning with friends after class.	2.77	.93	Sometimes	2.61-3.40
34	Use ESP lexical items to communicate with foreigners.	2.76	.96	Sometimes	2.61-3.40

> puzzles, or did exercises. These activities were exciting and useful because they enabled me to recall ESP lexical items for a long time. (S12)

However, some students revealed the drawbacks of group work such as noise, time constraint, and time management.

> I was really irritated when my group mates focused on their gossip rather than our work. Some of them kept talking about topics irrelevant to our task. It was a waste of time. (S17)

> When we worked in a group, every member wanted to raise their voices. Therefore, making noise is unavoidable. (S6)

In addition, more than half of the informants admitted that they did not communicate with foreigners using ESP lexical items because they felt bored and unconfident to do such a task alone, and there were very few opportunities for students to communicate with foreigners.

> I felt shy when I talked with foreigners. I was afraid they might not understand what I was saying. (S11)

> I got more excited and confident to start a conversation with foreigners when I went with my group mates. (S8)

> I just used ESP vocabulary when I talked with my foreign teacher in the classroom. (S10)

To summarize, the students tended to employ the social (consolidation) strategies less frequently than the other strategy groups due to their psychological factors and lack of opportunities for practice.

Discussion

This study has revealed some remarkable findings. It was first found that the research participants employed VLS for ESP only to a limited extent. In other words, they did not use the strategies in learning ESP lexical items very frequently. This result is consistent with the findings of some previous studies (e.g., Pham, 2010; Tran & Nguyen, 2017; Wanpen et al., 2013). In particular, Wanpen et al.'s (2013) study showed that vocational students did not oftentimes use VLS for ESP. In addition, Vietnamese non-English majors, especially those who study technology-based majors are generally considered not to be good at English. Furthermore, this study was dominated by male students (42 females and 228 males), which may have influenced the obtained result – the moderate use of VLS for ESP. This speculation is supported by that of studies conducted by Denton and West (2002) and Rudzinska (2013) which have found that female students were better at learning foreign languages than the male ones. In addition, unwillingness to take charge of their own learning and lack of chances to use ESP lexical items in real-life communication are identified as obstacles to using VLS for ESP in this study.

Metacognitive Strategies: Efficiency and Regular Practice

The respondents preferred metacognitive strategies to other groups of strategies. One of the plausible explanations for this may be that students may enjoy using strategies of which they are fully aware as asserted by Anderson (2005) who claimed that learners can navigate their own learning with metacognitive strategies. Such a finding is confirmed by studies carried by O'Malley et al. (1985) and Wanpen et al. (2013) who have stated that without metacognitive strategies, learners may not be able to see their learning progress, obtain accomplishments, and determine directions for future learning. In the Vietnamese context, the findings of this study are corroborated by Vo and Duong's (2020) study which concluded that the third-year non-English majors at a Ho Chi Minh-based college recognized the importance of metacognitive strategies. In particular, the strategies concerning goal setting, needs-based adjustment, and reflection were preferred. Therefore, it may be claimed that metacognitive strategies are the most useful ones in ESL vocabulary learning.

Furthermore, some participants reported that they

employed the metacognitive strategies regularly. It is possible that the respondents are more familiar with the use of metacognitive strategies because the teachers train them to use them in class. Consequently, the metacognitive strategy which involves 'checking understanding of ESP lexical items by doing tests' was one of the most commonly used VLS for ESP. It is true that EFL teachers frequently make use of tests to check their students' comprehension as Seliger and Shohamy (1997) affirmed that a test is used to collect data on learners' ability or knowledge of language and general proficiency in language acquisition research. According to the regulations applied for Vietnamese vocational schools including the surveyed college, the final grade of a subject is the average of scores obtained from attendance, progress tests (e.g., discussions, group assignments, projects, etc.), and final test. This means that students have a lot of opportunities to do tests during their learning process.

Determination Strategies: A Chance to Promote Learner Autonomy

Determination strategies, known as strategies for individual learning without any support or intervention from others, were used quite often by the participants. This means that they were able to take control of their learning with the use of learning strategies. Similarly, some previous studies (e.g., Baskin et al., 2017; Besthia, 2018; Tran, 2020) revealed that the determination strategies were employed most frequently by the university students compared to the other groups of VLS. In the 21st century, ESL/EFL learners should be encouraged to learn independently and be in control of their own learning (e.g., Benson, 2001; Little, 2009; Rivers & Golonka, 2009; Tran & Duong, 2018; Tran & Vo, 2019). In this study, the students were likely to employ most of the determination strategies frequently, so they may have a chance to promote their learner autonomy. This is confirmed by Nation (1990, 2001) who has pinpointed that learners' VLS is positively correlated with their learner autonomy. In other words, the more VLS learners use, the more autonomous they become. Although the students often used the L1 meaning-focused determination strategies, they encountered some difficulties in dealing with those associated with the characteristics of words in the target language. Hence, the support from the teacher, peers, or other resources (e.g., social (discovery) strategies) is indispensable in this situation.

Social (Consolidation) Strategies: Lack of Confidence and an Environment for Practice

In contrast to the high frequency of use of metacognitive and determination strategies, social (consolidation) strategies achieved the lowest overall mean score (M = 2.90). That is to say, these strategies were not in the students' priority list when they learned ESP lexical items. Such a finding is in alignment with that of Hamzah et al.'s (2009) study which has indicated that social strategies were one of the least often used strategies. Two strategies that received the least attention from ESP students belong to the group of social (consolidation) strategies. These are VLS: '[used] ESP lexical items to communicate with foreigners (item 34) and '[reviewing]lexical items' meanings with friends after class' (item 35). The lack of use of the former may be explained by the fact that students in this context may be shy, or they may not have ever had little chance to interact with English speaking people. This finding is supported by studies conducted by Vietnamese researchers (e.g., Hoang, 2018; Le & Thach, 2017) who have found that Vietnamese learners are in general shy to interact with foreigners. Another explanation could be found in their limited English language proficiency. The participants' background information revealed that more than half of the participants had poor English grades. Gardner and Lambert (1972) asserted that there is a strong correlation between learners' psychological characteristics (e.g., self-esteem, anxiety, motivation, and attitudes) and their academic learning achievement in language learning. Thus, if learners are not proficient in language skills, they may tend to be shy and unmotivated to use that language in communication or vice versa.

Regarding the latter strategy, it is likely that students may lack an academic environment where they can review ESP lexical items outside the classroom. Concerning the reason for the latter strategy, the participants revealed a similar problem as Tran's (2012) finding that Vietnamese students were unlikely to use ESP lexical items in communication for real life. This means that they had little chance to practice ESP lexical items with friends and people around them outside their classroom. This is particularly true for the Vietnamese non-English majors at this research site when they mostly used ESP lexical items to deal with learning tasks inside the classroom.

Conclusion

This research was conducted using two research instruments, namely the questionnaire and semi-structured interviews. The main aim of the study was to explore the frequency of VLS the technical students used at an institution in Vietnam, and it has reached a

number of conclusions. First, ESP students preferred metacognitive strategies to other groups of VLS for ESP, e.g., memory strategies, determination strategies, social (discovery) strategies, cognitive strategies, and social (consolidation) strategies. Second, their use of VLS for ESP was influenced by such reasons as the usefulness of strategies, learners' psychology, and practicing opportunities.

Some practical implications are drawn in this study. Regarding learner autonomy, ESP students should use learning strategies to develop autonomous learning such as setting goals, creating study plans, managing their learning as well as evaluating their learning ESP lexical items together with VLS for ESP. In this sense, they should use VLS with a special focus on determination strategies more frequently since these strategies are essential for autonomous learners' lifelong learning. Furthermore, ESP students should try to use more social strategies because these are believed to benefit language. Specifically, they should be encouraged to take opportunities to communicate with foreigners. As for teachers, they should motivate students to employ VLS for ESP more frequently. Particularly, teachers should monitor their students' VLS, i.e., the teacher should first introduce VLS to students at the beginning of the course, and then observe and monitor their use.In addition, the findings indicated that five out of six strategy categories were employed moderately except for the often-used metacognitive strategies. That is, the students tended to use the metacognitive strategies more than the others. Therefore, EFL teachers need to offer an instruction on VLS use to broaden the range and frequency of strategies employed.

In spite of the theoretical and practical contributions of the present study, some drawbacks should be taken into consideration. Firstly, the sample was not gender-balanced. Hence, it is recommended that gender should be counted as a variable in further research. Secondly, learners' psychological factors was found to be an underlying reason for their moderate use of VLS, so future researchers can take this issue into consideration. Finally, this study involved only learners as the research participants. It is better if both teachers and learners can take part in the same study so that data triangulation can be conducted.

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Declaration of Competing Interest

None declared.

References

Anderson, N. J. (2005). L2 learning strategies. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning* (pp. 757-771). Lawrence Erlbaum.

Baskin, S., Işcan, A., Karagöz, B., & Birol, G. (2017). The use of vocabulary learning strategies in teaching Turkish as a second language. *Journal of Education and Practice, 8*(9), 126-134.

Benson, P. (2001). *Teaching and researching autonomy in language learning*. Longman.

Besthia, W. (2018). A survey on vocabulary learning strategies: A case study of Indonesian EFL university students. *Journal of Research & Method in Education*, *8*(5), 29-34. https://doi.org/10.9790/7388-0805032934.

Cameron, L. (2001). *Teaching languages to children.* Cambridge University Press.

Catalan, R. (2003). Sex differences in L2 vocabulary learning strategies. *Applied Linguistics, 13*(1), 54-77. https://doi.org/10.1111/1473-4192.00037

Denton, K., & West, J. (2002). *Children's reading and mathematics achievement in kindergarten and first grade*. National Center for Education Statistics.

Ellis, R. (1997). *The study of second language acquisition*. Oxford University Press.

Gardner, R.C., & Lambert, W.E. (1972). *Attitudes and motivation in second language learning*. Newbury House.

Ghalebi, R., Sadighi, F., & Bagheri, M. (2020). Vocabulary learning strategies: A comparative study of EFL learners. *Cogent Psychology*, *7*, 1-12. https://doi.org/10.1080/23311908.2020.1824306

Ghazal. L. (2007). Learning vocabulary in EFL contexts through vocabulary learning strategies. *Novitas-Royal, 1*(2), 84-91.

Gifford, F. (2013). *How to enrich your vocabulary?* Cyber Tech Publications.

Gu, P.Y. (2003). Vocabulary learning in a second language: Person, task, context and strategies. *Teaching English as a Second or Foreign Language TESL-EJ*, *7*(2).

Gu, Y. (2013). Vocabulary learning strategies. In C. A. Chapelle (Ed.), *The encyclopedia of applied*

linguistics. Blackwell Publishing. https://doi.org/10.1002/ 9781405198431.wbeal1329

Gu, Y. (2018). Validation of an online questionnaire of vocabulary learning strategies for ESL learners. *Studies in Second Language Learning and Teaching*, *8*(2), 325-350. https://doi.org/10.14746/ssllt.2018.8.2.7

Hamzah, M. S. G., Kafipour, R., & Abdullah, S. K. (2009). Vocabulary learning strategies of Iranian undergraduate EFL students and its relation to their vocabulary size. *European Journal of Social Sciences, 11*(1), 39-50.

Harding, K. (2007). *English for specific purposes*. Oxford University Press.

Hoang, H. T. T. (2018). Difficulties in teaching and learning ESP vocabulary for nursing students at Thai Nguyen Medical College and some solutions. *Journal of Science and Technology-Thai Nguyen University, 183*(7), 129-134.

Jones, M., & Durrant, P. (2010). What can a corpus tell about vocabulary teaching materials. In A. O'Keeffe & M. McCarthy (Eds.), *The Routledge handbook of corpus linguistics* (pp. 387-400). Routledge.

Kan, A. (2009). Statistical procedures on measurement results. In the H. Atilgan (Ed.), *Assessment and evaluation in education* (pp. 397-456). Ani Publications.

Lessard-Clouston, M. (2008). Strategies and success in technical vocabulary learning: Students' approaches in one academic context. *Indian Journal of Applied Linguistics, 34*(1-2), 31-63.

Le, H. P. H., & Thach, H. T. H. (2017). Students' strategies in learning English specialized vocabulary. *Journal of Science and Education, 44*(4), 35-43.

Little, D. (2009). Language learner autonomy and the European language portfolio: Two L2 English examples. *Language Teaching, 42*(2), 222-233. https://doi.org/10.1017/S0261444808005636.

Nation, I. S. P. (1990). *Teaching and learning vocabulary*. Newbury.

Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press.

O'Malley, J. M., & Chamot, A. U. (1990). *Learning strategies in second language acquisition*. Cambridge University Press.

O'Malley, J. M., Chamot, A. U., Stewner-Mazanares, G., Russo, R., & Kupper, L. (1985). Learning strategies applications with students of English as a second language. *TESOL Quarterly, 19,* 285-96.https://doi.org/10.2307/3586278

Oxford, R. (1990). Language learning strategies: What every teacher should know. *Reading in a Foreign Language, 15*(2), 103-116.https://doi.org/10.5070/L411004984

Pham, L. T. P. (2010). *An examination of vocabulary learning strategies of first year students in USSH-VNUH* [Unpublished Master's thesis]. Vietnam National University.

Rivers, W. P., & Golonka, E. M. (2009). Third language acquisition theory and practice. In M. H. Long & C. J. Doughty (Eds.), *The handbook of language teaching* (pp. 250-266). Blackwell Publishing.

Rudzinska, I. (2013). Are females better than males in communication in second language? *Journal of Education Culture and Society, 2,* 148-154. https://jecs.pl/doi/10-15503-jecs20132-148-154

Schmitt, N. (1997). Vocabulary learning strategies. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp.199-228). Cambridge University Press.

Sedighi, E., & Tamjid, N. H. (2016). The relationship between Iranian EFL learners' autonomy and their vocabulary strategies with a focus on gender. *The Journal of Applied Linguistics, 9*(18), 183-196.

Seliger, H. W., & Shohamy, E. (1997). *Second language research methods*. Oxford University Press.

Takac, V. P. (2008). *Vocabulary learning strategies and foreign language acquisition*. Multilingual Matters.

Tran, T. Q. (2020). Non-English majors' employment of autonomous English lexical learning strategies. *Ho Chi Minh City Open University Journal of Science, 10*(1), 43-54. https://doi.org/10.46223/HCMCOUJS.soci.en.10.1.540.2020

Tran, T. Q., & Duong, T. M. (2018). EFL learners' perceptions of factors influencing learner autonomy development. *Kasetsart Journal of Social Sciences, 39*(1), 1-6. https://doi.org/10.1016/j.kjss.2018.02.009.

Tran, T. Q., & Nguyen, T. G. (2017). The use of English vocabulary learning strategies among Vietnamese high school students. In *Proceedings of the Third International TESOL Conference Promoting ELT: Diverse Perspectives and New Horizons at Ho Chi Minh City University of Education* (pp. 223-232). Ho Chi Minh City University of Education Publishing House

Tran, T. Q., & Vo, D. Q. (2019). Tertiary English majors' perceptions of the importance of learner autonomy and autonomous language learning strategy use. *Proceedings of the International Conference: Autonomy and Motivation for Language Learning in the Interconnected World* (pp. 102-113). Vietnam National University – Ho Chi Minh City Press.

Tran, H. H. T. (2012). An investigation into the vocabulary learning strategy of ESP students in College of Foreign Language – The University of Da Nang. *A collection of research papers by students for the 8th conference at the University of Da Nang*. University Press.

Vo, T. T. T., & Duong, T. M. (2020). Non-English majors' perceptions and use of metacognitive strategies at a Vietnamese EFL context. *TNU Journal of Science*

and Technology, 225(12), 131-138.https://doi.org/10.34238/tnu-jst.3703

Wanpen, S., Sonkoontod, K., and Nonkukhetkhong, K. (2013). Technical vocabulary proficiencies and vocabulary learning strategies of engineering students. *Procedia-Social and Behavioral Sciences, 88,* 312-320.https://doi.org/10.1016/j.sbspro.2013.08.511