Vocabulary Learning Strategy Use by Japanese EFL University Freshmen

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Abstract

This study investigates vocabulary learning strategy (VLS) use by Japanese EFL university freshmen through a questionnaire developed by the researcher. The questionnaire consists of two parts: VLS for identifying a word's meaning (determination strategies) and VLS for consolidating knowledge on various aspects of a word (consolidation strategies). Results from determination strategies revealed a similar pattern of VLS use to previous research with a high dependence on bilingual dictionaries. Results from consolidation strategies identified seven VLS factors: *Written rehearsal, note-taking, reference, organization, simple rehearsal, metacognitive regulation,* and *language exposure.* Structural equation modeling confirmed moderate goodness of fit of the seven-factor VLS model. Besides the multiple choice questions, participants were asked an open question on vocabulary learning in English. The results provided insightful information on how they perceive the importance of vocabulary learning and its strategies, and conduct their learning either in line with or contrary to what they believe important.

1. Introduction

Vocabulary learning strategy (VLS) is a field that has witnessed a growing volume of research since the 1990s. Although there have been several studies conducted with Japanese learners, the results do not seem to significantly concur with those conducted in other EFL or ESL settings. The aim of this current study is to help form the basis of a more comprehensive piece of research that aims to reveal VLS use and its structure in relation to Japanese EFL learners, especially at high school and college levels.

VLS research with Japanese EFL learners can be divided into two major categories. The first category endeavors to describe comprehensive VLS belief and use, such as that espoused by Schmitt (1997), while the other category tends to focus on the relationship between VLS use and English proficiency, such as that carried out by Horino & Ichikawa (1997), Maeda, Tagashira, & Miura (2003), and Saida (2006). The latter type generally uses factor analysis based on questionnaire results, identifying such factors as *organization, imaging,* and *repeating.* Organization strategy uses cognitive efforts to build networks of various aspects of word knowledge. Imaging strategy targets grasping nuance or imagery of words' meanings. Repeating strategy places an emphasis on reading aloud or writing words repeatedly.

Other researchers provide information on VLS from yet another point of view; the importance of metacognitive aspects of vocabulary learning. Gu & Johnson (1996) reported that *self-initiation*, *selective attention*, and *deliberate activation* in vocabulary learning predicted both vocabulary size and proficiency. Kojic-Sabo & Lightbown (1999) suggested that "time

and learner independence were two measures most closely related to success in vocabulary learning and higher overall English proficiency" (p.176). Although the relationships between L2 proficiency and VLS use were not investigated, Pavicic (2008) extracted three VLS factors from her study with 359 Croatian EFL learners (aged 11-14). They were *formal vocabulary learning*, *independent vocabulary learning*, and *incidental vocabulary learning*. Here again, VLS relating to learner independence and metacognitive aspects emerged with younger learners.

Recent studies have shown the situation differs with Japanese EFL learners' VLS use. Mizumoto & Takeuchi (2008) identified six VLS factors from a confirmatory factor analysis based on their VLS questionnaire. The factors identified were *self-management*, *input-seeking*, *imagery*, *writing rehearsal*, *oral rehearsal*, and *association*. Tanaka (2008) conducted a study with 386 high school students and 77 college students and identified four factors from an exploratory factor analysis. They were *organization*, *note-taking*, *rehearsal*, and *language exposure*. Of the four factors, language exposure influences the number of indexes in students' writing. These two studies show learners' independence and metacognitive aspects exist in VLS use patterns among Japanese EFL learners. Table 1 summarizes previous VLS studies using either exploratory or confirmatory factor analysis. A perusal of the table implies that further research needs to be promoted to incorporate and reorganize confusing VLS models. In order to both propose and validate an incorporated VLS model, it is necessary to have a large number of participants take part in the survey. It is also significant to take a qualitative stance, incorporating the

learners' voice in addition to quantitative data obtained from the questionnaire to examine the validity of the model.

Table 1 Summary of VLS studies using factor analysis

Report	Population	VLS factors
Gu & Johnson (1996)	EFL: university, China (n = 850)	Metacognitive regulation (12) Guessing (12) Dictionary (17) Note-taking (9) Rehearsal (12) Encoding (24) Activation (5)
Horino & Ichikawa (1997)	EFL: senior high school, Japan (n = 250)	Organization (7) Imaging (5) Repeating (5)
Maeda et al. (2003)	EFL: senior high school, Japan (n = 1,177)	Organization (7) Imaging (3) Repeating (5)
Saida (2006)	EFL: senior high school, Japan (n = 311)	Organization (8) Imaging (6) Repeating (6)
Tanaka (2006)	EFL: senior high school, Japan (n = 246)	Organization (4) Imaging (5) Repeating (5)
Pavicic (2008)	EFL: primary school (6th-8th), Croatia (n = 358)	Formal vocabulary learning (11) Independent vocabulary learning (9) Incidental vocabulary learning(7)
Mizumoto & Takeuchi (2008)	EFL: university, Japan (n = 244)	Self-management (7) Input-seeking (4) Imagery (5) Written rehearsal (3) Oral rehearsal (3) Association (3)
Tanaka (2008)	EFL: senior high school, university (n = 463)	Organization (5) Rehearsal (3) Note-taking (3) Language exposure (3)

The factors in Gu & Johnson (1996) represent major VLS classifications of factors, each classified categories contains two to seven items within.

This study, incorporating elements from previous research, investigates Japanese university freshman EFL learners' VLS use with a revised version of the VLS questionnaire first developed by Tanaka (2006). It is part of a series of surveys that aim to develop a measure to self-evaluate VLS use and promote active and autonomous VLS use in classrooms. Given an average of 6 years prior English study, university freshmen were deemed to be at an appropriate level in the course of English learning to reflect and report their learning behaviors. The research questions were

(1) What kind of VLS do Japanese university freshmen use?

(2) Is the VLS questionnaire with the seven-factor model valid as a measurement of learners' VLS use?

2. Method

2.1 Participants

A total of 1,003 university freshmen (M = 672, F = 331) at a national university in Hokkaido participated in this study. The survey questions were given to about 2,500 students who take a compulsory e-learning English course. Some 1,135 students finished answering the items by an arbitrary deadline and agreed to participate in the survey. The number of participants was reduced to 1,003 after excluding cases with exactly the same answers to all the questions and cases with incomplete answers. Though the number of excluded cases was comparatively large, this was done to secure the pertinence of analysis.

2.2 Measurement

In order to assess the participants' VLS use, a revised

version of the Vocabulary Learning Strategy Questionnaire (Tanaka, 2008) was adopted. The questionnaire consists of 33 Likert scale items: eight items on determination strategies and 25 items on consolidation strategies. The consolidation strategy part consists of seven factors: *Written rehearsal*, *note-taking*, *reference*, *organization*, *simple rehearsal*, *metacognitive regulation*, and *language exposure*. Among the four factors noted by Tanaka (2008), three were adopted as they were, and the rehearsal strategy was further divided into two categories: written rehearsal and simple rehearsal. Two new factors were constructed from the results of the previous study and examined in this study. The additional items were reference and metacognitive regulation. The reference strategy is related to a learners' use of dictionaries, whether they are bilingual or monolingual, to consolidate meanings or usage of words. The metacognitive regulation strategy is related to self-planning, monitoring, and evaluating learning processes and outcomes. A five-point Likert scale was used for the 33 VLS items: 1 (*not at all true for me*), 2 (*largely not true for me*), 3 (*partly true for me*), 4 (*mostly true for me*) and 5 (*completely true for me*). Though the scale is not symmetrical as it contains five-possible choices and with choice 3 being positive, the researcher used this form in order to avoid ambiguity in responses.

Two open questions were added to the end of the questionnaire: one to ask participants their general thoughts or beliefs on vocabulary learning in English, the other to query their experiences with learning vocabulary using any kind of computer software. The last question was added because the course was conducted through e-learning and the researcher aims to develop a computer-assisted vocabulary learning system

but was excluded from the analysis for this reason.

2.3. Procedures

The survey was administered over the Internet in the e-learning English course in the middle of June, 2007. Participants were asked to answer all the questions after completing listening vocabulary practice for TOEFL ITP that they were required to take during the course. The time to answer was not limited so that participants were able to spend as much time as required to answer two open questions. After answering all the questions, reading material with some advice on foreign language vocabulary learning was provided for the students' information and as a "thank you" for participating.

3. Results

3.1 Determination strategies

This section addresses the first research question together with the next section. Among the eight determination strategies, a 'use of bilingual dictionary' (DET01) was the most common with an average of 3.96 (SD = 1.05), while a 'use of monolingual dictionary' (DET02) was identified the least. Other guessing strategies such as 'guessing the meaning from the context' (DET03, M = 3.89, SD = .89) and 'using knowledge of known words or loan words' (DET06, M = 3.60, SD = .94) were also frequently used. Descriptive statistics of all the strategies are shown in Table 2.

3.2 Consolidation strategies

The 'dictionary to check usage' (REF02, M = 3.68, SD = 1.07) tops the 25 consolidation strategies, and the other two reference strategies were also above the average. A number of simple rehearsal strategies were also frequently employed;

Table 2 Descriptive Statistics of VLS use questionnaire

Item	*Strategy*	M	*SD*
Determination strategy			
DET01	When I try to understand the meaning of a word, I use an English-Japanese dictionary.	3.96	1.05
DET02	When I try to understand the meaning of a word, I use an English-English dictionary.	2.01	1.13
DET03	When I try to understand the meaning of a word, I guess it from the context.	3.89	.89
DET04	When I try to understand the meaning of a word, I guess it from gestures and other acts of the speaker.	3.24	1.15
DET05	When I try to understand the meaning of a word, I use the knowledge of affixes and roots of words.	3.35	1.11
DET06	When I try to understand the meaning of a word, I use the knowledge of known words or loanwords.	3.60	.94
DET07	When I try to understand the meaning of a word, I use classroom materials such as word lists, word books, and other handouts.	3.04	1.13
DET08	When I try to understand the meaning of a word, I use the knowledge of word classes carefully.	3.10	1.18
Consolidation strategy: Simple rehearsal			
RHS01	When I try to remember a word or phrase, I imagine its sound.	3.18	1.15
RHS02	When I try to remember a word or phrase, I imagine its spelling and sound.	3.45	1.07
RHS03	When I try to remember a word or phrase, I read it aloud or imagine its sound in my mind.	3.56	1.10
RHS04	When I try to remember a word or phrase, I imagine its spelling.	3.44	1.04
Consolidation strategy: Written rehearsal			
WRH01	When I try to remember a word or phrase, I write it repeatedly.	3.19	1.30
WRH02	I try to remember a word or phrase by writing it.	3.27	1.23
WRH03	I try to remember a word or phrase by writing it with being conscious of its spelling.	3.33	1.17
Consolidation strategy: Note-taking			
NTE01	When I meet a word or phrase I want to remember, I take notes or memos and record it.	3.30	1.14
NTE02	I make notebooks, word cards, or a list of the words and phrases to remember.	2.49	1.25
NTE03	I go over a notebook, memo, or word list to remember the words and phrases in it.	2.98	1.18

NTE04	I take notes about not only meanings of a word but also other information of it such as antonym, synonym, and usage.	2.46	1.10
Consolidation strategy: Organization			
ORG01	I group words or compare words with similar sounds or spellings to remember them.	2.68	1.11
ORG02	I group derivatives of a word to remember it.	2.67	1.07
ORG03	I make use of knowledge about affixes and roots to remember words.	3.41	1.13
ORG04	I compare or relate known words and unknown words to remember words.	3.23	1.06
Consolidation strategy: Reference			
REF01	I refer to a dictionary to check the meanings of known words.	3.23	1.10
REF02	I refer to a dictionary to check the usage of known words.	3.68	1.07
REF03	I make use of a dictionary to deepen the knowledge and understanding of words or phrases.	3.33	1.12
Consolidation strategy: Language exposure			
EXP01	I try to remember words and phrases in interaction with other people in speaking and in writing.	2.22	1.09
EXP02	I try to use learned words and phrases as much as possible in speaking and in writing.	2.97	1.07
EXP03	I increase opportunities to be exposed to English through various medias (readings, TV, radio, movies, internet, computer, etc.).	2.54	1.12
Consolidation strategy: Metacognitive regulation			
MET01	I try to remember words or phrases for an aim such as exams.	3.47	1.13
MET02	I check the levels of my comprehension of words and phrases (for example, testing myself).	2.65	1.12
MET03	I try to remember words or phrases that I cannot remember well or forget.	3.53	1.02
MET04	I learn English with objectives such as words and phrases to remember, materials, and exams.	3.22	1.11

n = 1,003

namely 'reading aloud or in mind repeatedly' (RHS03, M = 2.56, SD = 1.10), 'imagining sound and spelling together' (RHS02, M = 3.45, SD = 1.07), and 'imagining spelling' (RHS04, M = 3.44, SD = 1.04). Two metacognitive regulation strategies were

frequently employed: 'review of forgotten words' (MET03, M = 3.53, SD = 1.02) and 'remember for an aim' (MET01, M = 3.47, SD = 1.13).

Some of the least used VLS were those of language exposure, note-taking, and organization strategies. All the three language exposure strategies were below the average: 'interacting with people' (EXP01, M = 2.22, SD = 1.09), 'use newly learned words in speaking or in writing' (EXP02, M = 2.97, SD = 1.07), and 'increase exposure to English' (EXP03, M = 2.54, SD = 1.12). Items regarding grouping techniques of the organization strategies are unpopular: these include 'grouping derivatives' (ORG02, M = 2.67, SD = 1.07) and 'grouping similar words' (ORG01, M = 2.68, SD = 1.11). One organization strategy, 'using knowledge of affixes and roots' (ORG03, M = 3.41, SD = 1.13) is comparatively in frequent use.

3.3 Confirmatory factor analysis of consolidation strategies

In statistically analyzing consolidation strategies data, SPSS for windows 16.0 was used. The researcher judged the seven-factor model was the most appropriate from the results of the exploratory factor analysis using the maximum-likelihood method with promax rotation (eigenvalues > 1). Four items out of the 25, however, did not show sufficient factor loadings at the initial analysis. They were eliminated from the list for the confirmatory factor analysis using AMOS for windows 16.0. Two of these were from 'metacognitive regulation' strategies (MET02, MET03), another from language exposure strategies (EXP02), and the other one from simple rehearsal strategies (RHS04). Even after the four items were eliminated, four factors out of the seven did not show sufficient reliability (Table 3). The seven-factor VLS model with 21 items was within the acceptable

range (GFI = .941, AGFI = .919, CFI = 918, RMSEA = .053, AIC = 774.944). The results of the analysis with the intercorrelations of each factor pair were shown in Table 4.

Table 3 Descriptive statistics of the factors in VLS use questionnaire

Factors	No. of Items	M	SD	α
Simple rehearsal	3	3.40	.86	.68
Written rehearsal	3	3.26	1.12	.89
Note-taking	4	2.81	.87	.74
Organization	4	3.00	.76	.64
Reference	3	3.41	.87	.71
Language exposure	2	2.38	.91	.54
Metacognitive regulation	2	3.35	.96	.63

Table 4 Confirmatory factor analysis of VLS

		WRH	NTE	REF	ORG	RHS	MET	EXP
WRH01	write words repeatedly	.83						
WRH02	remember words by writing	.90						
WRH03	writing with being conscious of spelling	.83						
NTE01	taking notes of words to remember		.61					
NTE02	making wordlist to study		.68					
NTE03	reviewing notes to remember		.69					
NTE04	taking notes of synonym or antonym		.61					
REF01	dictionary use to deepen the knowledge			.76				
REF02	dictionary use for usage			.66				
REF03	dictionary use for meanings of known words			.60				
ORG01	comparing similar words				.56			
ORG02	grouping derivatives				.58			
ORG03	using knowledge of affixes and roots				.49			
ORG04	comparing with known words				.62			
RHS01	imagining sound					.68		

RHS02	imagining sound and spelling			.68		
RHS03	reading aloud or in mind repeatedly			.58		
MET01	studying for aims				.58	
MET04	learning with objectives				.79	
EXP01	interacting with people					.56
EXP03	increase exposure to English					.65

intercorrelations	WRH	NTE	REF	ORG	RHS	MET	EXP
WRH	-	.44	.18	.19	.17	.35	.13
NTE		-	0.34	.63	.21	.53	.43
REF			-	.52	.33	.29	.37
ORG				-	.40	.36	.54
RHS					-	.24	.39
MET						-	.24
EXP							-

WRH: written rehearsal, NTE: note-taking, REF: reference, ORG: organization, RHS: simple rehearsal, MET: metacognitive regulation, EXP: language exposure

GFI=.941, AGFI= .919, CFI = 918, RMSEA=.053, AIC = 774.944

3.4 Learners' perception of vocabulary learning

The participants' response to an open question was analyzed to reveal their perception of vocabulary learning. The question asked participants their general thoughts on their vocabulary learning in English. Though the scope of the question is rather broad and may be criticized as ambiguous, the number of responses tends to imply it is worthy of analysis, with nearly half of the participants (483 cases out of 1,003) answering this question.

The researcher first located themes and assigned initial codes as an open coding (Mackey & Gass, 2005). The initial codes were analyzed and further categorized. A conceptual schema with three major categories and their sub-categories emerged as the results of the final coding (Table 5 – Table 7). The three categories are *affirmative evaluation*, *negative*

evaluation, and *question and anxiety*. The affirmative evaluation refers to 'learners' perception of importance in vocabulary learning' and 'desire in learning English or vocabulary.' The negative evaluation refers to negative evaluation of 'particular VLS,' 'learning experiences,' and 'teachers' or other learners' behaviors.' In order to compare participants' affirmative and negative evaluation on VLS, the numbers of codes in each category are counted and described in Table 8. Many of the final codes in 'perception of VLS importance' and in 'negative evaluation of VLS' overlapped with the seven VLS factors and their items in the questionnaire.

Table 5 Learners' perception of vocabulary learning: Affirmative evaluation

Perception of VLS importance
Note-taking and its use
Contextualization
Securing language exposure
Incidental vocabulary learning
Language activation
Bilingual dictionary use
Monolingual dictionary use
Associating image to vocabulary
Network building of vocabulary knowledge
Grouping words to remember
Using knowledge of affixes and roots
Using knowledge of etymology
Intensive learning
Successive and planned learning
Motivated learning
Monitoring learning progress
Integration of incidental and intentional learning
Autonomous learning
Emotion control
Vocalization
Integration of phonological and orthographical information
Learning by writing

Intentional learning
Visual rehearsal
Desire
Goal-setting by others
Acquiring language skills
Effective learning
Acquiring vocabulary knowledge
Increasing communication opportunities in English
Learning of practical vocabulary
Instrumental motivation by exams or assignments
Learning of practical English

Table 6 Learners' perception of vocabulary learning: Negative evaluation

Negative evaluation of VLS
Note-taking and its use
Incidental vocabulary learning
Bilingual dictionary use
Using knowledge of affixes and roots
Learning by writing
Intentional learning
Learning English on computer
Negative evaluation in learning experiences
Fatigue from learning burden and time
Negative feeling toward implementation of successive learning
Low motivation toward autonomous learning
Lack of experience in explicit vocabulary learning
Attrition of knowledge
Negative feeling toward memorizing
Negative feeling toward acquiring knowledge of derivative forms
Negative feeling toward learning of spelling
Negative feeling toward learning of polysemous words
Negative feeling toward learning certain words
Negative evaluation of teachers or other learners
Effectiveness of teachers' intervention for memorizing and rote learning
Effectiveness of classroom activities
Effectiveness of monotonous vocabulary learning
Practicality of learning targeted toward university entrance exam
Effectiveness of teacher intervention
Negation of universal learning method

Table 7 Learners' perception of vocabulary learning: Questions and anxiety

Anxiety and Question
How to acquire English
Anxiety for language acquisition
Uncertainty of vocabulary learning method
Anxiety for effectiveness of vocabulary learning on language use
Anxiety for effectiveness of wordlists on learning

Table 8 Comparison of affirmative and negative evaluation of VLS

VLS	Affirmative		Negative	
Note-taking and its use	8	2.3%	2	4.3%
Contextualization	44	12.6%		
Securing language exposure	41	11.8%		
Incidental vocabulary learning	15	4.3%	4	8.7%
Language activation	26	7.5%		
Bilingual dictionary use	14	4.0%	2	4.3%
Monolingual dictionary use	4	1.1%		
Associating image to vocabulary	5	1.4%	1	2.2%
Network building of vocabulary knowledge	10	2.9%		
Grouping words to remember	5	1.4%		
Using knowledge of affixes and roots	10	2.9%		
Using knowledge of etymology	7	2.0%		
Intensive learning	2	0.6%		
Successive and planned learning	48	13.8%		
Motivated learning	4	1.1%		
Monitoring learning progress	4	1.1%		
Integration of incidental and intentional learning	4	1.1%		
Autonomous learning	5	1.4%		
Emotion control	3	0.9%		
Vocalization	16	4.6%		
Integration of phonological and orthographical information	18	5.2%		
Learning by writing	28	8.0%	3	6.5%
Intentional learning	21	6.0%	31	67.4%
Visual rehearsal	6	1.7%		
Learning English on computer			3	6.5%
	n = 348		n = 46	

4. Discussion

In order to answer the initial research question, results from descriptive statistics of the VLS use questionnaire (Table 2) and results from learners' perceptions of vocabulary learning (Table 5-8) will be discussed first. Results from the confirmatory factor analysis of VLS (Table 3 and 4) will then be examined to discuss the second research question.

4.1 What kind of VLS do Japanese university freshmen use?

Several strategies were found in frequent use in descriptive statistics. One of the most outstanding ones was the 'use of bilingual dictionary' both as determination and as consolidation strategies. Although it may be arguable whether this simple action of flipping pages ensures the same cognitive process to every learner, it was the most common way both to find meanings and to check and deepen understandings of their target words in this study. On the other hand, the 'use of monolingual dictionary' was quite unpopular as a determination strategy. Though monolingual dictionaries in the form of electronic dictionary are becoming more available and more popular these days, it was still an uncommon strategy for Japanese university students. As Schmitt (1997) points out, many Japanese EFL learners perceive the importance in using monolingual dictionaries in their learning, and he implies that learners "more readily accept their use than has previously been assumed" (p. 225), suggesting some forms of educational intervention might be necessary for this strategy to be more effectively and more frequently used.

The participants also employed simple rehearsal and metacognitive regulation strategies more frequently than other strategies. Simple rehearsal strategy can be recognized as that

used in the first stages of learning to consolidate a word's phonetic and orthographic forms with its meanings. Such strategies don't require complex cognitive processes, unlike organization strategies, or other conditions such as people to talk to or materials to read, unlike language exposure strategies. Thus, they can be regarded as basic and easy strategies for learners to acquire the knowledge of *form* of a word (Nation, 2001). Metacognitive regulation strategy in this study lost two items from the original category in the questionnaire, and the remaining two items refer to planning of study (MET01 and MET04). This might be influenced by the settings of the participants in this study, as they completed university entrance examinations a few months before the survey and were further required to take another test not long after as part of their course. The use of other metacognitive factors such as monitoring and evaluating learners' own learning processes and outcomes should be further examined in a different way in the future.

The strategies in note-taking and language exposure were relatively uncommon in this study. Among the four note-taking strategies, two strategies regarding utilization of recorded words in notebooks or in memos were less frequently used (NTE02, $M = 2.49$, $SD = 1.25$; NTE04, $M = 2.46$, $SD = 1.10$) than others. Compared to those two, the first action of 'taking notes or memos to remember' was employed to some extent (NTE01, $M = 3.30$, $SD = 1.14$). The differences may imply that learners are not likely to use their recorded notes in their further study to broaden the network of vocabulary knowledge. Other unpopular strategies were from the language exposure strategies, which means that not many learners try consciously

to meet or activate what they learn for consolidation of the knowledge. The result was quite regretful as it was the most influential one in predicting vocabulary richness in writing in the previous study (Tanaka, 2008).

The results from the learners' perception of vocabulary learning provided a rather complex picture regarding the relationship between their perception and their actual strategy use. There were significantly more affirmative evaluations of VLS than negative evaluations. However, not all the comments regarding the perception of VLS importance necessarily meant that they had actually or frequently been employed, just that they were considered valuable. While some learners may have actually done so, others just reported what they thought or believed important in vocabulary learning in general, while still others may have commented what they wanted to do or what they thought they should have done in the past. For example, there were 48 responses coded 'successive and planned learning,' with one participant noting.

> *Vocabulary is the key to acquiring a foreign language. In order to better learn vocabulary, it is very important to make an effort on a routine basis, though I am often lazy in doing so. (C322 - translated by the author)*

This kind of response reflected the learners' belief in learning. It is not always equal to the actions that the learners actively initiate.

Nevertheless, the results indicated some popular VLS or their beliefs in vocabulary learning. A few of the typical ones were 'successive and planned learning,' 'contextualization,' and

'securing language exposure.' 'Successive and planned learning' involves metacognitive regulation strategies to maintain their vocabulary learning as an effective one by gradual and on-going learning on a routine basis. 'Contextualization' is related to learning words in context such as in a sentence or in a passage, not as discrete pairs of L2 and L1. 'Securing language exposure' is related to the language exposure strategies such as 'read extensively,' 'increasing opportunities to use English,' and 'exposing oneself to English through movies, music, and books.' It is quite interesting that on the perception level, many learners regard it important to meet and activate vocabulary they want to learn, often on a daily basis, but they do not frequently do so according to the results from the questionnaire. Teachers and tasks in classroom should play a big role in matching learners' perception and their use of VLS.

'Intentional learning,' the least common VLS in the 'negative evaluation,' should be paid some attentions for the reason that the figure is much larger than any other one in the same category. Though there were only 46 responses regarding negative evaluation of VLS, nearly 70% of them were related to negation of 'intentional learning.' Many responses referred to intentional learning with wordlists. Wordlists here can be defined in a broader sense from a personal wordlist to remember words to wordbooks, so-called *tango-cho*, which are especially common among senior high school students who study English for university entrance examinations. Typical responses were as follows:

> *Learning vocabulary in word pairs is a dry and tasteless way to remember words, so I get bored when doing so. (C108, translated by the author)*

I don't think it's a good way to start learning a foreign language with rote vocabulary learning. I haven't used any wordbook. Rather than memorizing vocabulary intentionally, I read various kinds of passages. Through reading, I choose words I want to learn. (C432, translated by the author).

It doesn't mean that intentional vocabulary learning is ineffective as research has shown effectiveness of intentional learning, and claims have been made to put focus on effectiveness of integration of intentional and incidental vocabulary learning (Hulstijn, 2001). Simply, the results revealed the tendency that learners had negative impressions from rote vocabulary learning. In fact, there were a few responses that claimed the 'integration of incidental and intentional learning' is effective (1.1%).

Similarly, some responses contained comments that integration of phonological and orthographical information was effective. These comments may imply that learners use a few kinds of VLS in combination at a time or one after another in series. As the results here cannot provide further information in detail, it should be examined in a more cognitively focused way in the future.

4.2 Is the VLS Questionnaire with the seven-factor model valid as a measurement of learners' VLS use?

The seven VLS factors should be defined first since four items were eliminated from the original questionnaire.

Simple rehearsal: cognitive processes to map phonological and orthographical forms of words on their meanings

Written rehearsal: actions of writing, sometimes repeatedly,

to learn orthographical forms and meanings of words

Note-taking: recoding and utilization of vocabulary in notebooks or in memos.

Organization: relating words together to memorize in groups or to build and expand the network of vocabulary knowledge

Reference: uses of dictionaries to check or to deepen knowledge of words' meanings and usages.

Language exposure: securing exposure to the target language and activating vocabulary knowledge to learn them

Metacognitive regulation: planning of learning with objectives or goals

Though the numbers of items in each factor were not well balanced and the constructs of a few factors may have changed to some extent after eliminating items from the original design of the questionnaire, the confirmatory factor analysis revealed that the seven-factor VLS model was within the acceptable range. Thus, it can be said that the seven-factor VLS model is valid to some degree. Moreover, the seven-factor model deserves attention since it has incorporated and reorganized the previous three-factor model in a series of research triggered by Horino & Ichikawa (1997) and also the four-factor model by Tanaka (2008). Considering the numeric values of GFI or CFI, which were lower than other studies (e.g., Mizumoto & Takeuchi, 2008), the questionnaire should be reorganized with sufficient number of items in some of the factors.

The validity of the model should also be further examined, especially with a measurement of learners'

vocabulary knowledge. As vocabulary knowledge has multiple dimensions such as receptive versus productive as well as breadth, depth, and fluency, measurement should cover at least some of these facets in order to clarify the complex relationships between VLS and its outcomes.

5. Conclusion

This study investigated VLS use by 1,003 Japanese EFL university freshmen with the questionnaire developed by the researcher. The results revealed the learners' perception of their VLS use both in the beginning and in the course of learning words. The learners in this study frequently used some VLS regarding mapping of forms on meanings, dictionary usage, and planning of vocabulary learning. Other VLS regarding network building of vocabulary knowledge and activation of learned words were not sufficiently employed. Although there is possible room for further review, examination and modification, the seven-factor VLS model was judged to be valid in explaining Japanese EFL learners' VLS use. Most of the learners' comments from the open question supported items and categories in the VLS questionnaire and the results also implied the need to examine the combination or sequences of VLS use in further research.

The study used a questionnaire as a means to identify learners' VLS use in a comparatively large population of learners. As Nykos and Fan (2007) point out, the validity of this kind of questionnaire studies "would be improved if learners were asked to perform specific vocabulary learning tasks coupled with these questionnaires" (p. 254). Therefore, in order to examine the relationship between learners' VLS use and

vocabulary knowledge, two lines of modification or improvement should be sought: One is to refine the questionnaire and measure both VLS use and vocabulary knowledge in a large population of learners, and the other is to use the real time measure like concurrent think-aloud, as Nykos and Fan (2007) suggest, with a certain learning task in a limited population of learners. The latter type will be more valuable, after the former provides insights into learners' VLS use and its relationship with vocabulary knowledge.

Despite the limitation of the study, some pedagogical implications can be drawn from the results. First, learners should be encouraged to use learned vocabulary more in classrooms. As many learners tend not to activate or recycle their learned words on their own decisions, teachers should provide them with opportunities to activate their vocabulary knowledge to inform them of the advantages of language use either in or out of class. Second, teachers should provide their learners with appropriate advice on their VLS use. Since the participants of this study completed and passed university entrance examinations, they may be regarded as relatively successful English learners in Japanese schools. Even so, some participants seemed to have complicated feelings of being successful learners as test-takers and as good language users. Negative perception of intentional vocabulary learning may reflect such feelings. Teachers can fulfill big roles in guiding learners to their learning goals through instructing learning strategies. Learners do perceive and have their inventories of VLS, but they need to secure support to better use them. Research combining VLS instruction and investigation of

learners' actual VLS use would provide practical information for both teachers and learners.

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