# Vocabulary Learning Strategies and Vocabulary Size among Tertiary Students 

Alpino Susanto ${ }^{1}$, Jepri ${ }^{2}$, Yusmarwati Binti Yusof ${ }^{3}$, Heri Sunandar ${ }^{4}$, Said Nuwrun ${ }^{5}$, Hazriyanto ${ }^{6}$<br>${ }^{1}$ Universitas Karimun<br>${ }^{2}$ Universiti Tun Hussein Onn Malaysia<br>${ }^{3}$ Universiti Tun Hussein Onn Malaysia<br>${ }^{4}$ Universitas Islam Negri Sultan Syarif Qasim<br>${ }^{5}$ Universitas Karimun<br>${ }^{6}$ Sekolah Tinggi Ilmu Ekonomi Galileo

Email: susanto.alpino40@gmail.com


#### Abstract

Vocabulary learning strategies have been considered as something that exists in every English learner with different levels. Students' strategies in learning English can show what they are focusing on. Vocabulary learning strategies are part of learning strategies that are fundamental in language learning, where vocabulary is the basis of the foundation. This study aimed to investigate the relationship between Vocabulary Learning Strategies (VLS) employed by students studying English in Riau Archipelago Province and their vocabulary skills and size. A total of 289 students has been taken from various universities in Riau Archipelago Province participated in this study. Data has been analyzed through quantitative methods using two measurement instruments: the vocabulary learning questionnaire used to find students 'VLS preferences and the Vocabulary Level Test (VLT) used to estimate participants' English vocabulary sizes. Data analysis found that there is a significant relationship between the use of several types of learning strategies and vocabulary sizes among tertiary level students. This research proposes a new model of vocabulary learning strategies that can increase vocabulary levels. Students with higher Strategies to retain the knowledge of newly learned vocabulary items ideally increase the level of English vocabulary.


Keywords: Vocabulary Learning Strategies; Vocabulary Skills; Vocabulary Level Test

## 1. INTRODUCTION

Learning a foreign language is one of the most cognitively challenging endeavors that most people go through for life. Many argue that learning foreign language vocabulary is perhaps the most challenging aspect to becoming proficient in mastering the target language (Meara, 1995); (Milton, 2009); (Nation, 2001); (Meyer \& Schmitt, 2002). Language learners need to go through a longer period as it involves various aspects in the learning process. Various empirical approaches have been attempted by experts to find effective learning approach and in accordance with the learner's character. It seems no approach that is suitable for all situations and environments. From an empirical aspect, researchers and experts need to explore the best possible possibilities to find out the best way to improve language achievement among Foreign Language (FL) learners. Some characteristics that distinguish vocabulary learning from other language skills include the fact that vocabulary learning is additional, tends to have no restrictions but depends on the experience of the learners
themselves (Milton, 2013); (Susanto, 2017b) (Susanto, Ab Halim, et al., 2019). Vocabulary mastery is both basic and very important in the journey of learning foreign languages. An area of English vocabulary acquisition research, received many attention in recent years has explained the difficulties faced by some FL learners when learning vocabulary. They are to focus on Vocabulary Learning Strategies (VLS) (Susanto, 2017b)(Susanto, Salleh, et al., 2019)(Susanto, Ab Halim, et al., 2019). Some scholars recently have more interest in the VLS and the phenomenon among language learners. (Meyer \& Schmitt, 2002)(Meyer \& Schmitt, 2002)(Nation, 2001) state how the movement of vocabulary learning from teacheroriented pedagogical philosophy to a more student-centered ideology that includes an interest in how students themselves can manage their own language learning. It might be easier to apply learning strategies to vocabulary learning because the nature of vocabulary learning is relatively different compared to more integrated language skills such as reading, writing, speaking, listening, pronunciation, and grammar, and the phenomenon happened when a leaners start to get little acquaintance with the foreign language (Meyer \& Schmitt, 2002) (Susanto, Ab Halim, et al., 2019).
Learning strategies are means employed by students for active and independent language learning. A research shows that the use of these strategies consciously, regulated and adjusted is closely related to language achievement and proficiency (Hosenfeld et al., 1992) (Chamot, 2004). Research that relate to learning strategies and vocabulary skill over the past four decades has greatly advanced knowledge of FL vocabulary acquisition. Nevertheles, most of the VLS of FL studies conducted to day, have focused on specific learning strategies under experimental conditions such as keyword methods, use of dictionaries, and drawing conclusions. As a result, there is a lack of research on VLS selected by students. This study will help fill this gap by focusing on English as FL in Indonesia. However, we know very little about the techniques or strategies used by students studying English in Campus environment to expand their vocabulary knowledge and what types of strategies result in better English vocabulary learning and how it is related to their vocabulary skill level.
Some research results indicate that the mastery of vocabulary by Indonesian students is still very weak. (Novianti, 2017) states that the results of her research on undergraduate students in West Java that the receptive vocabulary of second year students are lower than 2000 words. This is linear with several studies that have been conducted beforehand such as (Susanto, 2017a) that only $1 \%$ of students mastering the 2,000 -word level that impacts the ability to learn reading comprehension among Indonesian students. the two researchers concluded that in their research the importance of vocabulary learning was improved in English language learners as a foreign language in Indonesia.
Some review of research studies on vocabulary learning recently, relatively few studies have focused on English as FL (Barcroft, 2009); (Pulido \& Hambrick, 2008) ; (Sagarra \& Alba, 2006). Yet, those studies are limited to a number of learning strategies such as memorization, semantic mapping, the use of dictionaries, keywords mnemonics (Sagarra \& Alba, 2006), L2 word-image associations (Barcroft, 2009), and reading (Pulido, 2004); (Pulido, 2009) (Pulido \& Hambrick, 2008). It means the studies ever conducted mostly deal with a small part of the self-chosen vocabulary learning techniques and strategies that are actually used by students from English courses inside and outside the classroom. There has been very few research in the last few decades that investigated various vocabulary learning strategies that are actually used by students who study FL inside and outside the classroom to get vocabulary. In addition, there is a very limited research that investigates the response of students who study VLS at various stages of language development and the effectiveness of this type of strategy towards increasing vocabulary development at various levels of proficiency. Thus there is a need to examine how students focus on a variety of self-chosen learning strategies and how
these strategies relate to their vocabulary skill levels. This study is useful to differentiate the learning strategies among students with different levels of vocabulary skills.

## 2. LITERATURE REVIEW

Vocabulary learning strategies are part of general learning strategies (Nation, 2001). Vocabulary learning strategies are part of a broad range of learning strategies such as reading strategies, writing strategies, speaking strategies, pronunciation strategies and so on. In this context, vocabulary as an object of the learning strategies, mean the language used to express meaning verbal and written. The definition of vocabulary learning strategies comes from language learning strategies (Catalán, 2003). (Williams, 2002) states that vocabulary learning strategies are some of the actions students use to help them understand and interpret vocabulary items. (Catalán, 2003) adopted the definition of a vocabulary learning strategy (Oxford, 2003) for the definition of work in his studies. Vocabulary learning strategies are related to the mechanisms, processes, and strategies needed to learn vocabulary as well as the steps that students will take to find out the meaning of words they have not yet known, have never heard of, then store them in long-term memory, for them to be able to use when needed, both verbal and written mode.
Scholars have different methods for classifying language learning strategies (Susanto, Ab Halim, et al., 2019). Meanwhile, classification system makes an important contribution to knowledge about vocabulary strategies. Therefore a brief discussion of vocabulary learning strategies identified in various contexts by several scholars. (Shuell, 2001) proposes that if a language learner wants to learn new words and can categorize and store them in a mental lexicon, students need to use a variety of strategies. In addition, (Shuell, 2001) suggests two main strategies for studying vocabulary items, namely cognitive and metacognitive strategies. Cognitive strategies consist of forming associations, learning words in groups, exploring various meanings, using keywords, reading for evidence in the context of texts, and inference strategies. Metacognitive strategies consist of collecting words consciously from the original context, making word cards, grouping words into lists, reactivating vocabulary using internal dialogue, and making word networks of vocabulary related to specific items.
In Indonesia, an input-poor EFL environment through vocabulary learning tends to be discrete, in the same way as in other Asian EFL settings (Gu, 2003); (Susanto, Ab Halim, et al., 2019). Once the students step out of the classroom, they simply do not need to speak or listen to English. In some campuses far away from the cities, where the environment is dominated by local people, English is not a communication tool at all. The atmosphere of the English class where this language should be used, students find it difficult to use. There is no such a regulation in how English should be taught in junior high schools, high schools and universities from vocabulary perspective. Theoretically, English learning should be taught in stages, especially vocabulary. The vocabulary in English has levels of 1000, 3000, 5000, 10000, with different levels of difficulty. The word that often appears precisely at a low level, namely 1000 to 2000 .
The mastery of vocabulary is a gradual process and needs some effort invested by the language learners. For the FL, to learn new vocabulary has always been challenging for them. It may not be possible for students to learn all new vocabulary items only in the classroom setting, but beyond the environment (Boonkongsaen, 2012). Learner independence has long been recognized important by scholar in the process of vocabulary acquisition (Hamzah et al., 2009). To understand how the FL acquire the language is a common known for researcher to identify how the students as learner work on their VLS. The previous conducted study (Susanto, Ab Halim, et al., 2019) adopted and adapted the innitial questionnaire developed by (Siriwan, 2007). The research proposed three main categories for vocabulary learning strategies. They are strategies to discover the meaning of new vocabulary items, strategies to
retain knowledge about newly learned vocabulary items, and strategies expanding knowledge about vocabulary items. Previous studies of three VLS had an output reliability of 0.88 versus a minimum threshold of 0.7 on 41 items. The average score for the questionnaire developed was 3.69 (Susanto, Ab Halim, et al., 2019). A questionnaire from a previous study consisting of 41 items was then considered as the VLS assessment for the present research. Meanwhile the previous research about overall students' test score for VLT varied in the range of 3 to 29. In terms of total score, the most number of students had achieved 21 or $11 \%$, compared to other scores. However, in terms of students' score distribution, $68 \%$ of the students achieved lower than 21 , and $29 \%$ had a score of more than 21 . This shows that students could only achieve two thirds of the vocabulary test.
Some studies had correlated learning strategies with academic achievement. VLS and FL Proficiency is considered as basic relationships that support English language skills at a later stage (Goundar, 2019). For some reasons, the investigation of language learning strategies is mostly to determine the relationship between strategy employed and foreign language proficiency (Hinkel, 2011). Due to the need, yet not many studies have been conducted to investigate how learning strategy chosen by language learner in relation to the language proficiency (Nyikos \& Fan, 2007). It is believed that FL learners in various level FL learning experience and proficiency have achieved some degree of knowledge about language learning that influences their approach to language learning and the expectations they hold about learning strategies and the outcome of their efforts (Wenden, 1998). There was a study that investigate three different age groups of Japanese FL learners; junior high school, high school, university students, and adult learners, concluded that less experienced L2 learners rely more on mechanical learning strategies such as oral and written repetition, word lists, and flashcards than learners with higher L2 proficiency (Schmitt (1997). In turn, Schmitt argues, L2 learners with higher language proficiency prefer more complex metacognitive strategies such as the use of dictionaries, guessing from context, imaging word meanings, asking teachers for paraphrases or synonyms, word part analysis, and connecting words with personal experiences.
Learning a language is a long life proses which is step by step. Linear with what (MacWhinney, 2015) (Gardner, 2005) state that there are four stages involved in second language proficiency. They are elemental, consolidation, conscious expression, as well as automaticity and thought. The four stages are comparable to those involved in the development of one's first language. The steps involved in mastering language from the very beginning by a language learner are the language, starting to learn several words and developing pronunciation until reaching the maximum level of competency. Similar to what Ellis (2003) stated, the initial step in language learning is called the silent period. It is the earliest stage in the language learner before moving to the next level of learning, which is the sequence of acquisition. This indicates that learning is a process, and it is not a one-off situation. Contradicting with the first language learning in developmental stage, (Nyikos \& Fan, 2007) indicated that successful FL learners, for the most part, show a pattern of selecting more complex, appropriate, and task-compatible strategies for learning new FL words and achieve results comparable to more proficient FL learners. In fact, (Hinkel, 2011) argues that the level of language proficiency can explain between 0.30 and 0.78 variations in the learning strategies employed. The evidence reviewed so far shows that the VLS used by FL students may vary counting on the students' language proficiency and their experience to the target language. Yet, the focus of this study is to evaluate the use of various types of self-chosen learning strategies and their relationship to the size of English vocabulary.
The research questions developed in this study are based on issues that have developed in learning English vocabulary about how these learners vary their vocabulary learning
strategies and their effects on achieving vocabulary. In summary, the questions in this research are

1. What is the relationship between Students who employed at various levels of Vocabulary proficiency and their vocabulary sizes?
2. What types of VLS are associated with higher vocabulary improvements in various levels of ability and why?

## 3. METHODOLOGY

The present study is intended to develop a correlational model of VLS and Vocabukary skill among tertiary students. As in a prediction design, researchers seek to anticipate outcomes by using certain variables as predictors (Creswell, 2012). In the present study VLS is opted to determine the Vocabulary skills. This research approach does not require intervention other than providing the instruments needed to collect research data. Researchers are looking for phenomena that occur naturally from students studying vocabulary in English courses on their campus and their daily lives, without changing the phenomenon. Written questionnaires and tests were used as a tool to collect data in this survey research. The 41 items of questionnaire was adopted from (Susanto, Ab Halim, et al., 2019) that passed the back-toback translation procedure from English into Indonesian and had acceptable reliability. The data collected from the questionnaire and test were then correlated and measured the level of regression.

## Respondents

This research was conducted among the first year tertiary students in Riau Archipelago Province, Indonesia. There were overall 41127 students in this province. As the population taken from three major universities in three different cities of the province. The biggest number of the students of the university in Batam 7456, Tg Pinang 7456 and Karimun 694 from total 41127 students. From all universities in this province, then selected according to the sample formula suggested by (Sugiyono, 2016). The researcher took a representative sample from the largest number of students and represented each city in the province. The number obtained as a sample representing the entire population was 286 students.

## Instrument

Survey research is considered by describing, recording, analyzing and interpreting existing or existing conditions, in which the researcher does not manipulate variables or manage events that occur (Kothari, 2004). Adopting survey research methods as a data collection technique is seen as the most appropriate choice for this research. Survey researh based on some reasons, such as having certain location, no manipulation required, suitable for social science, and able to answer the research question (Kothari, 2004); (Creswell, 2012). The reason of data gathering can be completed in one go and in certain location is the process easier and cheaper. As for respondents, students are not geographically dispersed and they are investigated anonymously with fewer possible biased responses. This means that the research plan can be designed and deductively describe the expected data. Manipulating variables or arranging for even to occure is not done. The research relate to existing relationships, opinions held, processes that are happening, clear effects, or trends that are developing. Researchers are concerned with the present but sometimes consider past events and influences related to current conditions. Thus, in this research, the variables chosen and observed did exist or had already occurred. The survey research is suitable for studies in social and behavioral sciences. This must make sufficient provisions for protection against
bias and maximizing reliability because the aim is to obtain complete and accurate information.
The important points from this present study are able to answer research questions with the the main instruments questionnaires and tests. (Dörnyei, 1998); (Kothari, 2004) emphasize that the main attraction of the questionnaire is their unprecedented efficiency in terms of the time, effort, and financial resources that allow researchers to gather information directly from students. Adopted questionnaire is to address the vocabulary learning strategies. The VLS questionnaire was adopted from (Susanto, Ab Halim, et al., 2019)., which had gone through back to back translations from English to Indonesian. As in the present research, the students are to fill out the questionnaire as non-English students, can easily understand each item of questions raised through the questionnaire sheet. VLS consists of three sub-variables, namely strategies to discover the meaning of new vocabulary ( 8 items), strategies to retain the knowledge of newly learned vocabulary items ( 16 items), and strategies to expand the knowledge of vocabulary items (17 items). While the second research instrument is the Vocabulary Level Test (VLT) version b to identify vocabulary skills. This test was adopted from Schmitt et al., (2001). In VLT, Smith provides several level categories ranging from 2000 to 10000 and word academic groups. However, from previous research experiance (Susanto, Ab Halim, et al., 2019)(Susanto, 2017a)(Liu, 2016) only 2000, 3000 word groups, and academic words were able to be completed by students. The same condition is expected to happened that students at the tertiary level having difficulty to work on VLT above 3000 word group. Thus the present research only take these three categories as a measure of the vocabulary skills among tertiary students in the Riau Islands Province.
The vocabulary skills is the dependent variable and the VLSs is as independent variable. The VLSs are broken down into three sub-variables. The next step is to develop an analysis plan. This step includes the minimum sample size, variable types (metrics) and estimation methods. SmartPLS data analysis was referred to (Wiyono, 2011). Two types of SmartPLS are involved in the test model, namely the Outer Model (Indicator Test) and the Inner Model (Hypothesis Test).

## Data analysis

The present research consisted of ordinal and numerical data type. The ordinal data measured by the questionnaire was in 5 -poin rating scale. They are $1=$ never, 2 , rarely, $3=$ sometimes, $4=o f t e n$, and $5=$ always. In terms of frequency, (Azar, 1996) indicated that it referred to the frequency level of the words. Never is $0 \%$, Rarely is $10-30 \%$, Sometimes is $40-60 \%$, Often is $70-90 \%$, and Always is $100 \%$. Therefore, in the questionnaire, the researcher indicated a guideline to the respondent, as follows: Always is ten times in ten activities, Often is seven to nine times in ten activities, Sometimes is four to six times in ten activities, Rarely is one to three times in ten activities, and Never is not at all. The VLT was numerical. It is the score of the Vocabulary Level Test of the total 30 items. Therefore, the two different data types were transferred to the STAD97 MSA program to be interval data type. The data were also sent to correlational assessment to obtain evidence about the relationship between two variables (Azman et al., 2006); (Pak \& Oh, 2010). If there is a relationship, the level of correlation must be determined in order to certify the correlation's significance. The correlation range (r) are .91 to 1.00 as very strong, .71 to 0.90 as strong, .51 to 0.70 as moderate, .31 to 0.50 as weak, and 0.00 as no correlation (Chua, 2012). These ranges are also applied for the negative mode.
The quantitative data analysis requires the understanding of text and images, therefore, the researchers can form an answer for the research question (Creswell, 2012). There were several steps involved in analysing and interpreting quantitative data in the present study. The
first is define the multivariate technique to be used. The successful completion of a multivariate analysis involves more than just choosing a correct method but also how to address issues ranging from problem definition to a critical diagnosis (Hair et al., 2010). The second step is to develop the analysis plan. It covers the minimum sample size, types of variables (metric) and the estimation method. The SmartPLS data analysis was referred to (Wiyono, 2011). Two types of SmartPLS were involved in the model test, namely the Outer Model (Indicator Test) and Inner Model (Hypothesis Test).

## 4. RESULTS AND FINDINGS

Based on the data result showed that students employed vocabulary learning strategies as a whole. The present research finding is consistent with the previous studies (Goundar, 2019)(Siriwan, 2007)(Susanto, Ab Halim, et al., 2019). (Rinaldi, Mukhaiyar, 2013) empirically confirmed that some vocabulary learning strategies were applied and different persons preferred different vocabulary learning strategies. The mean score output is 3.46. In overall mean score, students were almost equal one to another. The tertiary students as the participant in average applied all of the categories in vocabulary learning strategies. It is commonly to say that vocabulary learning strategies could also be explored in reference to students in teaching and learning classes. These results are very much in line with a research conducted on the perception of English lecturers in Batam that vocabulary is an important element in students learning foreign languages (Susanto, Salleh, et al., 2019). The results of the study stated that one thing that was lacking in tertiary students in Batam was less of motivation and vocabulary. At present present learning strategies different students can measure the extent of their vocabulary. Practicing vocabulary learning strategies in daily English learning both in the classroom and outside is a very worthy effort to be considered compared to other measures of learning English at the college student level.
From the results of the VLS assessment, it was revealed that students had used the overall vocabulary learning strategies of the proposed items even though the levels differed one another. But these results indicate that most students use vocabulary learning strategies. The findings of this study are consistent with previous studies (Siriwan, 2007)(Susanto, Ab Halim, et al., 2019). (Rinaldi, Mukhaiyar, 2013) empirically confirmed that several vocabulary learning strategies were applied among different language learners would have variations in one another over time. The average value of the latest research results is 3.46. Overall, this shows that students are almost the same as each other.
From the mean result, the strategies to expand the knowledge of vocabulary items achieved 3.50 score, that was the highest among the three VLS categories. The result is different from the previous study (Susanto, Ab Halim, et al., 2019) stated that strategies to retain the knowledge of newly learned vocabulary items was the highest amongst. Meanwhile the means score of the strategies to discover the meaning of new vocabulary was 3.45 and then followed by Strategies to retain the knowledge of newly learned vocabulary items was as 3,41 . The correlation of the VLS and VLT is categorized strong .71 to 0.90 (Chua, 2012). Meanwhile the level of vocabulary skills through VLT among the students indicated that the mean score was 19.67 out of 30 as the maximum score for each word class. According to the validity and reliability assessment, all 90 items in the vocabulary level test were found to be valid and reliable. Validity was indicated from the convergent validity, which was 0.91 and above the minimum adequate range of $\geq 0.70$ (Wiyono, 2011). The mean score of each vocabulary level was 20.89 of 2000 word level, 18,6 of 3000 , and 19.51 of academic word. However, the mean scores indicated that none of the 3 groups in the test was within the master category. The minimum score of the examinee was 24 out of a maximum of 30 , which would lead the examinee to be categorized as a master (Laufer \& Nation, 1999). There is an explicit need to expand an English foreign language learner's vocabulary size to enable them
to reach a certain lexical coverage level. In the present research, 2000-words group is considered as an appropriate target for EFL learners before they enhance to the higher level. It means the higher the VLSs of the students would increase the 2000 -words level. The result was different than the previous study (Susanto, Ab Halim, et al., 2019) that indicated the VLSs would increase the 3000 -words class.
The first research question in this study is to find the relationship between Students who employed at various levels of Vocabulary proficiency and their vocabulary sizes. This result led the researchers to form another hypothesis to investigate the impact of independent variables on the dependent variable. The vocabulary has long been independent variables to language proficiency (Gu, 2003)(Goundar, 2019). The result linear with the hypothesis that there is a significant correlation between VLSs and VLT.
The second research question is to explore the types of VLS are associated with higher vocabulary improvements in various levels of ability and why. The strategy to discover the meaning of new vocabulary reached 0.226 regression level toward VLT. The strategy to retain the knowledge of newly learned vocabulary items reached 0.357 regression level toward VLT. And, the strategy to expand the knowledge of vocabulary items reached 0.337 regression level toward VLT. It is figured out in figure 1. From the result, the strategies to retain the knowledge of newly learned vocabulary items is the most influence toward the vocabulary skill that measured through VLTs. This finding shows that university students in Riau Archipelago province should be motivated to employ vocabulary learning strategies. In learning a foreign language, vocabulary is inseparable from the four language skills. Increasing the level of use of vocabulary learning strategies both independently and in groups will be able to periodically improve their vocabulary skills. Vocabulary as a basis for learners improves language skills such as reading, writing, speaking and listening, directing to the importance of mastered basic skills before proceeding further. Vocabulary learning can be given together with improving the ability of the four language skills, but it cannot be abandoned. The results of this study become a reference for students who want to improve language skills through vocabulary need to optimize their strategies in learning as a basis for overall learning strategies within the scope of foreign language learning.


Figure 1

## 5. CONCLUSION

The conclusion of this study is that higher vocabulary learning strategies can affect students' vocabulary skills. Measurement of vocabulary strategies with measuring instruments that have been tested for validity through prior research (Susanto, Ab Halim, et al., 2019) on
smaller samples has shown consistent results on larger samples in nearly the same area of student objects in the early stages of their lectures. English is a very important subject but having limited time to give students the opportunity to study in class. Therefore a serious approach is needed to improve students' English skills in their early years of university/college. The vocabulary strategy approach from the results of this study has shown it can significantly improve vocabulary skills. And as a basis for people learning languages, that vocabulary can improve the ability of other language skills.
The function of vocabulary learning strategies is the media to master words through a continuous learning process, as a result, language acquisition could achieve a desired stage in writing and verbally (Ching Wang, 2015). In the stages of learning, the strategy has several levels. In these vocabulary learning strategies, the middle level shows better results in increasing vocabulary skills compared to the level below or above it. Although the regression results are not too large, the results of this study indicate that the phases of learning vocabulary do not necessarily provide results that fully improve the vocabulary ability, but neither no relation at all. This research has not fully measured other aspects of improving vocabulary, but refers to research that has been done that the two things that predominantly affect language skills are motivation and vocabulary (Susanto, Salleh, et al., 2019). The increase of motivation can affect vocabulary learning strategies even though some of the other research has happened otherwise (Susanto, Ab Halim, et al., 2019).
A full of attention must be given by educators on these two main variables. Educators can explore the strengths of their students in the vocabulary arena targeting higher language proficiency. Vocabulary could not work in an instructed foreign language learning, unless the educator encourages students to further explore their potential side. VLS is as a trigger to measure the extent to which the ideal approach taken by students in achieving the foreign language acquisition and VLT is a tool to measure the basic achievement of a student in achieving the desired abilities. Educators can explore the strengths of their students in the vocabulary arena that targets higher language proficiency. Vocabulary skills might not work in learning foreign languages systematically, unless the educator encourages students to further explore their potential side. Educators also need to really include in their curriculum vocabulary learning instructions as a basic and mandatory part for them to go through before reaching a higher level of language expertise. Vocabulary learning strategies are said to help students with the acquisition, storage, retrieval, and use of information (Ching Wang, 2015). Therefore this arena must be part of the items expected in the new curriculum at most levels of universities in Indonesia.

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