

Exploration for Effective Vocabulary Learning Strategies

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Abstract

W.A.Wilkins (1972) articulated the importance of vocabulary, saying; “without grammar little can be conveyed, without vocabulary nothing can be conveyed.” While it is true that vocabulary constitutes such an essential part of the language learning, many Japanese students trying to learn English tend to stumble over the acquisition of vocabulary at an early stage. This research is an empirical study designed to explore effective strategy for vocabulary learning in the following two areas; (1) study of effects on reallocation of learning hours between classroom study and out-of-class activities, and (2) study of effects on time distribution strategy between massed distribution (intensive instruction without intervals) and spaced distribution (instruction provided at intervals). The study result indicates that shifting some of the classroom hours to out-of-class study in a semi-spaced distribution manner would give certain positive effect over classroom-only massed distribution study.

Key words

spaced distribution, massed distribution, out-of-class activities

I. Introduction

Vocabulary is regarded as the first step of language learning in many respects. Bird (2010) asserted that a language-learning task in a global sense involves complex tasks such as simultaneous use of syntax, vocabulary, and nonlinguistic cognitive skills, all of which are the requirements to gain general proficiency in using language. On the other hand, it is also considered that learning vocabulary is relatively uncomplicated in its nature (Cepeda et al., 2008) with a rather simple task of memorizing a list of words (Miles, S. 2014).

Looking over such nature of vocabulary learning as indicated by Cepeda, et al., there seem to be two major considerations to be given to help learners' vocabulary acquisition; namely, (a) instructing the learners under an effective and efficient methodology

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to optimize their vocabulary learning performance, and (b) enhancing the learners' motivation and confidence to build up their vocabulary. In relation to (a) above, a number of studies have been made to discuss advantages and disadvantages of massed distribution vs. spaced distribution for vocabulary learning (e.g., Bahrick, Bahrick, Hahrick, & Bahrick, 1993; Bahrick & Phelps, 1987; Bloom & Shuell, 1981; Dempster, 1987; Glenberg & Lehmann, 1980). Bloom and Shuell (1981) for example, conducted research using their on-going class activities, where they split their fifty-six high school students enrolled in a second-level French course into two groups. They assigned the first 28 students to a spaced distribution group who studied 10-minute vocabulary session on each of three consecutive days, making the total amount of session time 30 minutes, whereas they assigned the other 28 students to a massed distribution group who studied a total of 30 minutes vocabulary session on one single day. The tests were given on the last day of the session, and also seven days later as a follow-up.

The result was that there was virtually very little difference in the performance of the two groups on the test immediately after the last session; however, there was significant difference found on the follow-up test; that is, the spaced distribution group outperformed the massed distribution group by 35 percent. While there are some research results that showed the superior performance of massed distribution to spaced distribution when measured solely on immediate posttests (Collins & White, 2011; Serrano, 2011; Serrano & Munoz, 2007), the majority of the study results were in line with that of Bloom and Shuell in respect to the delayed tests (e.g., Dempster, 1987; Cepeda et al., 2006). Given the validity of spaced distribution for the delayed test or longer retention (spacing effect), a focus has been made on the optimum length of space or interval to gain better retention. A number of perspectives have been provided in terms of ratio between the retention interval (hereinafter referred to as "RI"), which is the length of time between the test and training session, and the inter-session interval (hereinafter referred to as "ISI") which is the amount of time between the training sessions. There are some different opinions and proposals on the optimum ratio between ISI and RI. For example, Rogers (2015) estimated that the optimal ISI should be 15% of the RI. He stated, "if a delayed posttest was going to be administered ten days after the treatment session, the ideal interval between training sessions would be 15% of ten days, or approximately 1.5 days, or 36 hours" (p.858). Separately, Pashler et al. (2007) suggested the ratio of 10%-20%, while Rohrer and Pashler (2007) estimated an optimal ISI range of 10%-30%.

To supplement (b), one might insist that because the vocabulary learning process is relatively simple and repetitive as in the case of rote memorization, there might be little task, if any, that involves creative thinking activities in the vocabulary learning. Furthermore, there is usually a certain gap in the level of proficiency among learners in the same classroom; that is, some learners are more proficient than others. These

conditions will lead to a hypothesis that intensive or massed practice of vocabulary for a long time may result in reducing learners' motivation or willingness to continue studying. Dempster (1987) indicated that massed practice might receive less attention than spaced practice because of boredom or some sort of habituation operating under massed conditions. With respect to these aspects of vocabulary learning, a creation of some tedious-free class environment appears to be essential.

II. RESEARCH QUESTIONS

The methodology of time distribution was reviewed in the previous section with such key factors as massed distribution, spaced distribution as well as ISI and RI. For the purpose of forwarding the present study, the following tentative assumptions were made: (1) it would take 80 minutes for the students of English at Osaka International College who are the subject of this research (hereinafter referred to as "Learner" or "Learners" as the case may be) to memorize and acquire 20 new words on an average, and (2) the optimum ISI-to-RI ratio would be 20%. As regards the assumption (1), one class period typically consists of 90 minutes at Japanese colleges and universities, and therefore, 80 minutes to acquire 20 new words will theoretically take up a large portion of class time.

Taking into account the time requirement for as well as the time distribution of vocabulary learning, the following two research questions are raised:

1. Can some part of the regular time for classroom session be shifted to Learners' independent out-of-class activities?
2. Can a classroom session be effectively integrated with out-of-class activities and yield similar or even better learning performance than classroom session alone?

III. METHOD

1. Participants

The present study was conducted based on two groups of Learners who had been registered in the same course and the same semester but in a different year. The first group of participants (hereinafter referred to as "Group A") are the twenty-five first-year students (all female) taking Business English Practice Course on Friday evening during the second semester of 2017, and the second group of participants (hereinafter referred to as "Group B") are the twenty-one first-year students (all female) registered in the same course on the same day during the second semester of the previous year, 2016. All of the participants had received a total of six years' English education at junior and senior high schools. In pursuing the research on the test scores in relation to retention, the data of two students from Group A was excluded from the analysis: both of them were infected by the flu and could not take the posttest administered at the end of the semester.

In addition, the data of three students from Group B was excluded from the analysis:

two of them were absent from the class because of disease, and one left the session early due to sickness: accordingly none of the three were able to take the test administered immediately after the session.

2. Procedures

The research was conducted as part of the regular, ongoing class activities. The class uses a textbook specifically designed for the practice of Business English for Japanese university and college students. The textbook is generally available on the marketplace and contains 15 units, each of which lists 20 new words to be learned, and it includes other things such as listening training, grammatical explanations, and related exercises, reading comprehension, etc. The class proceeded at the pace of completing one unit per two weeks. Because the object of the present study is to explore a practical and effective strategy for vocabulary education to be applied to real-world class activities, there were no special laboratory-type activities arranged for this research. Based on these conditions, Group A spent the 80 minutes for learning of 20 words over two weeks' period with the following breakdown: (a) 20 minutes in the first week's classroom session; (b) five minutes in the second week's classroom session; and (c) the remaining 55 minutes in the out-of-class engagements; while Group B spent the same 80 minutes for learning of 20 words over two weeks' period in classroom only, that is, 40 minutes respectively in each classroom session. Every week, Group A started off the session with vocabulary quiz and the session was followed by other areas of studies than vocabulary, while Group B engaged in the same vocabulary quiz, but after the quiz, they continued with the regular classroom vocabulary activities. The quiz was created based on the game-based learning platforms (hereinafter called "Kahoot") introduced by a Norwegian software developer in 2013. Both groups conducted Kahoot covering 20 multiple-choice questions for the 20 words appearing as new words in each unit of the textbook. For both groups, Kahoot was carried out for 20 minutes in the first classroom session (first week) of a unit, and five minutes for the second classroom session (next week) using the same unit, with the first session providing a pause at each new word so that verbal explanation could be given to facilitate Learners' understanding of the word.

During the first classroom session after Kahoot, Group B spent the remaining 20 minutes out of 40 minutes by typing and pronouncing the new words minimum of three times, then looking for and finding the sentences in the textbook in which the new words appeared, and copying those sentences, then finally working out their own compositions referencing the original sentences as models in the textbook; and in the second classroom session, Group B engaged in Kahoot for five minutes followed by the pair activities where the pair helped each other in memorizing new words by way of oral repetition and giving quizzes and making error corrections. Each Learner would alter her pair three times to

repeat the task; when completed, the pair would come to the teacher to demonstrate their task achievement by pronouncing the words in English and corresponding Japanese.

On the other hand, Group A started the preparatory work for Kahoot one week prior to the session. As was the case of Group B, the session proceeded on a two-week cycle for Group A, but the Learners were given homework assignments at the end of every 2nd classroom session, to (1) engage in independent pre-study of the new 20 words listed in the following unit (based on a vocabulary list provided in the next unit of the textbook) during the weekend, and (2) accomplish daily vocabulary quiz from Monday through Friday, both of which Learners were encouraged to engage in to be ready for Kahoot at the beginning of the next Friday evening session. For the succeeding week, Group A was not required to do the weekend task on the ground that they are already familiar with the subject 20 words after having engaged in some exercises every weekday during the previous week, and therefore required to continue to engage only in a daily vocabulary quiz from Monday. For the following week, the same 20 words were incorporated in the quiz but in different multiple choices.

The outline schedule is summarized in Figure 1 and the breakdown of study hours in Table 1. As regards the out-of-class activities of Group A, the following devices were contrived to evoke Learners' motivations, confidence, hope, and strength to participate:

- (1) allowing Learners to use their smartphones in addition to personal computers to facilitate their participation in the out-of-class activities;
- (2) playing Kahoot at the beginning of the class so the Learners' week's efforts through participation in the daily vocabulary quiz would culminate in the game;
- (3) awarding the winners of Kahoot the following points to be reflected in the final grading so as to elicit Learners' competitive minds: one point was given for the first winner; and half a point for the second and third winners.
- (4) giving points on attainment of daily vocabulary quiz to be reflected in the final grading as follows; (a) two points for those who accomplished five consecutive days for the week without missing a single day; (b) one point for those who accomplished four days for the week missing one day; (c) zero point for those who accomplished one, two or three days for the week; and finally (d) minus one point for those who did not engage in any daily vocabulary quiz for the week.
- (5) providing an On-line scorecard to each Learner at the outset, in which Learners individually put their points gained by Kahoot and daily vocabulary quiz at every session: the name and points of each individual Learner was openly announced at the beginning of each session so that each Learner could put their scores in their individual scorecard and everyone would be more conscious of her own current grading status as well as her classmates' performance status; and
- (6) giving variation to the daily quiz by increasing the number of questions day by

day; that is, five questions for the first day, ten questions for the second day; fifteen questions for the third day; and twenty questions for the 4th and 5th days.

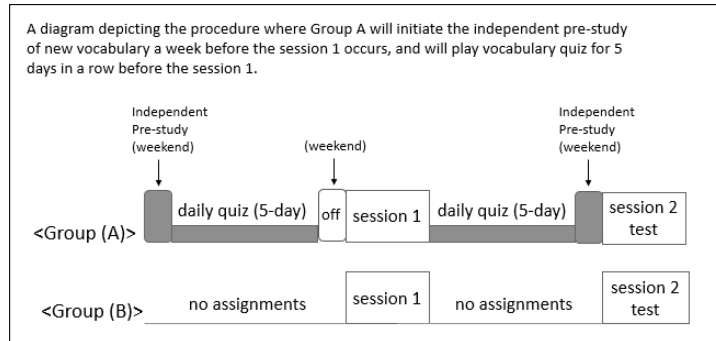


Figure 1 Outline schedule for two week cycle

Table 1 Breakdown of 80 minutes spent for learning of 20 new words listed in each unit of the text

(unit: minute)

	Breakdown of contents	Group A	Group B
Week prior (preparatory)	Independent Pre study	5	0
	Daily Vocabulary Quiz	25	0
	Sub-total	30	0
Week 1	Kahoot	20	20
	Classroom activities	0	20
	Daily Vocabulary Quiz	25	0
	Sub-total	45	40
Week 2	Kahoot	5	5
	Classroom activities	0	35
	Sub-total	5	40
Grand Total		80	80

Google form was employed to create daily vocabulary quiz which was transmitted to each Learner via email every day except for weekends. The quiz was so designed that the players can repeat it as many times as desired, and with this system, Learners were encouraged to try the daily quiz repeatedly until they could get all the answers correctly. Google form was also used to oversee and analyze the data of Learners' daily participation and achievement status including the number of times they had to repeat the quiz to reach the perfect score.

Finally, after the delayed posttest was administered in the final class, a questionnaire survey was given to Group A to find out the effect of out-of-class activities which included

questions aiming at eliciting Learners' subconscious attitude, evaluating the degree of Learners' consciousness to participate in vocabulary learning, and checking if they had gained confidence in improvement of their vocabulary.

Utilizing the performance data recorded in the Kahoot database, Learners' week-on-week achievement rate for the 20 words was calculated every other week. The results were compared and the difference was analyzed between Group A and B in terms of improvement rate. At the end of the completion of the second session of unit three of the textbook, an immediate posttest was administered. Furthermore, to analyze each group's retention, particularly from the point of view of how out-of-class activities or daily vocabulary quiz affected their retention, the delayed posttest was administered 70 days subsequent to the immediate posttest. Unit three was selected as the subject unit of this research because the completion date of unit three fell on the date 70 days preceding the final classroom session, when the delayed posttest was administered. The 70-day period was calculated based on the two-week span (14 days cycle) of the study of each unit, together with the tentatively assumed optimum ISI-to-RI ratio of 20% (14 days divided by 20% is 70).

3. Analysis

The basic analysis made in the present study includes the following three dimensions:

- (1) analysis of the efficacy of semi-spaced distribution strategy incorporating the out-of-class engagements for better retention;
- (2) analysis of the effect of a combined session of the classroom and the out-of-class engagements as against classroom session alone in regard to improvement of vocabulary learning; and
- (3) analysis of the enhancement of motivation of Learners through the out-of-class engagements.

For the purpose of this study, the term "semi-spaced distribution strategy" was used to denote the combination of (a) classroom sessions (one session per week) covering 20 new words listed in one unit of the textbook based on a two-week cycle, and (b) out-of-class engagements carried out every day for two weeks except for the weekend. The term was employed based on the understanding that nature of the strategy has closer attributes of spaced distribution than massed distribution. The analysis was carried out in the following manner. First, the efficacy generated by the semi-spaced distribution strategy was examined by t-test analysis which compared the groups A and B in the degree to which retention was degraded between the immediate and delayed posttest. Second, every two weeks, the week-on-week improvement was analyzed in terms of growth ratio for each Group, and the results were compared between the two Groups. Third, through the questionnaire survey given to Group A at the last session, information

on Learners' motivation and confidence with respect to the strengthening of vocabulary as well as participation in sessions was collected and analyzed.

IV. RESULT

1. Efficacy of Out-of-Class activities with Semi-Spaced Distribution Strategy

The test result of the immediate and delayed posttests was shown in Table 2. The analysis was made with hypothesis testing function of Microsoft Excel 2013. The analysis showed that as a result of the immediate posttest, Group A made a mean score of 86.2 (SD=12.14), while Group B had that of 74.4 (SD=15.71). At that point, the difference in the mean score between the two groups was 11.8, and there was significant difference seen in their relation ($P=0.018$). Secondly, as a result of the delayed posttest, Group A marked the mean score of 77.6 (SD=12.21) and Group B showed that of 66.6 (SD=16.26), and despite the fact that the difference between the two has decreased to 11.0, the result continued to reveal a significant difference ($P=0.037$). Nonetheless, it should be noted here that Group A lost 8.6 points between the Immediate Posttest and Delayed Posttest, while Group B's loss stood at 7.8 which was appreciably smaller. This result also indicated that Group A's delayed posttest score was 90.1% of the immediate posttest, whereas that of Group B was 89.5%. Group A barely outperformed Group B with the negligible difference, and these results entailed a further review of the effect of the strategy from the point of view of retention improvement.

Table 2 Comparison of immediate and delayed posttest scores between Group A and Group B

	Group A (n=21)		Group B (n=18)		Diff.	t	p
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>		
Immediate Posttest (a)	86.2	12.14	74.4	15.71	11.8	-2.165	0.018
Delayed Posttest (b)	77.6	12.21	66.6	16.26	11.0	-1.837	0.037
Difference (b) – (a)	-8.6		-7.8				
Ratio (b) / (a)	90.1%		89.5%				

Note: significance level=0.05, two-tailed, $df=37$

Accordingly, the amount of loss in the scores of respective groups between the immediate and delayed posttests was analyzed in the second round of t-test. The result found no significant difference ($p=1.14$) between the two groups as shown in Table 3. Overall, the results indicated that while Group A's performance in score was substantially superior to Group B, Group B turned out to be slightly better than Group A regarding the lost points, which has closer relevance to retention, though when translated into the percentage, the difference was close to none.

Table 3 Comparison of lost scores between Group A and Group B

Group A (n=21)		Group B (n=18)		t	p
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
-8.6	13.05	-7.8	17.33	0.9	1.14p

Note: significance level=0.05, two-tailed, $df=37$

2. Improvement of Vocabulary Learning

As previously mentioned, Kahoot scores were used to analyze the rate of improvement between the two groups. The scores for the first week and the second week of each two-week cycle during the entire semester were averaged out, and then week-on-week improvement (growth in number) of respective groups was calculated. The result is shown in Table 4. It is not surprising to see Group A's outstanding performance in the first week as compared to Group B taking into consideration the fact that Group A had started the preparation of daily vocabulary quiz one week in advance and they were quite ready for the test by the time Kahoot was played. Group A scored 80.4 against Group B's 60.0 in the first Kahoot, and Group A continued to largely outperform Group B in the second Kahoot though the difference was narrowed to 15.6 in the second Kahoot from 20.4 marked in the first Kahoot.

Table 4 Week-on-week improvement in Kahoot scores

	Kahoot Average Score		Improvement	
	1st Test (c)	2nd Test (d)	(d) – (c)	(d) / (c)
Group A (a)	80.4	84.4	4.0	105.0%
Group B (b)	60.0	68.8	8.8	114.7%
(a) – (b)	20.4	15.6		
(a) / (b)	134.0%	122.7%		

3. Learners' Motivation

As mentioned earlier in this study, the daily vocabulary quiz was conducted as the main subject of out-of-class engagements under Google Form platform, and the Learners' status on their achievements was closely monitored. The number of days each Learner engaged in the daily quiz during the week was openly announced at the beginning of the following class. The daily quiz was transmitted via email to each Learner every weekday, Monday through Friday, for the 13 straight weeks out of the total 15 weeks of the semester. The summary of statistical data on Learner's attainment for the entire period was analyzed into the weighted average of four days per week with the following details: 16 Learners accomplished the task for an average of four or more days per week;

four Learners more than three and less than four days; another four Learners more than one and less than two days; and finally, one Learner was just one day. There was no one who had never participated in the daily quiz activities. To further dwell on Learners' participation of the daily quiz activities including any possible changes in their motivation and/or willingness before and after the course in regard to vocabulary learning, a survey questionnaire was conducted covering 21 questions, majority of which was based on the Likert scale. Some of the questions addressed in the questionnaire and their answers are as follows:

- (a) Did daily vocabulary quiz contribute to your vocabulary improvement?
 "Yes" 16; "Somewhat Yes" 9; "Neutral" 0; "Somewhat No" 0; "No" 0
- (b) Was daily vocabulary quiz tiring/would you be happy if there were no daily assignments?
 "Yes" 2; "Somewhat Yes" 2; "Neutral" 8; "Somewhat No" 4; "No" 9
- (c) Did Kahoot enhance your motivation in vocabulary learning?
 "Yes" 12; "Somewhat Yes" 11; "Neutral" 1; "Somewhat No" 1; "No" 0
- (d) Did Kahoot contribute to your vocabulary improvement?
 "Yes" 15; "Somewhat Yes" 9; "Neutral" 1; "Somewhat No" 0; "No" 0
- (e) Did Scorecard encourage your class participation?
 "Yes" 10; "Somewhat Yes" 12; "Neutral" 1; "Somewhat No" 2; "No" 0
- (f) How long did it take you to finish daily vocabulary quiz?
 "less than 3min" 5; "3-5min" 13; "6-10 min" 5; "1-20 min" 2;

Though the responses varied depending on questions, the vast majority of the answers were positive (either "yes" or "somewhat yes") with the only exception of the question (b) which asked about Learners' honest feeling on the daily assignments, and the answers were quite split. This result was contrasting to the answer to the question (a) to which all the Learners expressed positive feelings ("yes"=16 and "somewhat yes"=9). It is noteworthy to mention here that despite the split answers given to the question (b), all the Learners showed their positive views on the contribution of daily assignments to the improvement of their vocabulary. Apart from the Likert scale-based questions, the question (f) asked about the amount of time the Learners spent on an average to finish the daily vocabulary quiz, and the answers to the question were calculated and translated into the weighted average. The outcome was five minutes per day, and the average weekly attainment was four days per week.

V. DISCUSSION

The primary objective of this research is not just to explore possible validation of superiority on spaced distribution over massed distribution, nor is to identify the optimum ISI-to-RI ratio as has been studied and manifested over the years by various

researchers. However, it is to empirically study and explore for a way to improve vocabulary learning strategies by experimenting on the reallocation of some classroom hours to out-of-class activities as well as employing a semi-spaced distribution strategy aiming at realization of longer retention. It is generally understood that to learn vocabulary takes time and efforts because learners forget what they learn and then they would need to relearn them on other occasions, which means, in order to achieve enduring retention, one will need to study information on multiple occasions (Cepeda et al. 2008). Along with this line, Rohrer & Pashler (2007) mentioned referring to spaced distribution, "Because people forget much of what they learn, students could benefit from learning strategies that yield long-lasting knowledge (p.183)." One of the perspectives to be highly taken into consideration in exploring pedagogical strategies in term of spaced distribution would be an efficient use and/or optimization of available time. Rohrer and Pashler (2007) suggested in their review that, despite the argumentation made by many educators supporting overlearning as effective way to boost long-term retention, "overlearning provides a very little bang for the buck, as each additional unit of uninterrupted study time provides an ever smaller return on the investment of study time (p.184)." At the same time, Pashler et al. (2007) implied inefficiency of overlearning in promoting later memory by referring to its association with a massed practice. Their suggestions and/or implications appear to be valid regardless of other educators' different views, however, at the same time, it might raise a question on how and when the session should move on to the next stage to avoid overlearning. According to their articles, overlearning is defined as "continuing to practice material after error-free performance is attained." Because a class comprises a group of learners, and there is usually variability across learners in studying or absorbing the target material, overlearning for one learner may not be overlearning for other learners. As pointed out by Pashler et al. (2007), spaced distribution methodology might be a better solution than massed distribution from the standpoint of avoidance of overlearning; however, even in the case of spaced distribution, the curriculum is arranged such that the amount of classroom study time for all learners would remain the same so long as the sessions are given under a normal classroom conditions; if the learners are given a chance, for instance, to decide their class attendance based on the progress of their learning performance or accomplishment of tests, then overlearning situation might be avoided; nevertheless, such special arrangement might bring about byproducts of negative nature. Consideration as to how such issue can be dealt with is beyond the scope of the present study.

In the meantime, for the purpose of securing longer retention, Karpicke & Roediger (2008) asserted the importance of testing instead of repeated studying after learning. In their experiment, they gave the final test to four subjects one week after their learning of

40 Swahili-English word pairs: the first two subjects repeatedly took tests of all 40 pairs in every study period regardless of whether or not they had correctly recalled some of the pairs in the course of study periods; the third student kept studying all the pairs regardless of attainment of recalling some of the pairs in all study period, but dropped the recalled pairs from the test for the subsequent period(s); and the fourth student dropped the recalled pairs from both further studying and tests for the subsequent period(s). As a result, they evidenced on the final test, that the first two students correctly recalled about 80% of the pairs, while the third student attained 36% and the fourth 33%. Accordingly, they concluded that tests which called for practicing of retrieval would produce more learning than additional study after items have been recalled. Pashler et al., (2007) recognize the effect of retrieval practice and assert that it enhances the initial learning and slow forgetting. The “testing effect” as it is so-called has been perceived to enhance later retention relative to simply studying and taking a final test (Roediger & Karpicke, 2006; McDaniel, Roediger, & McDermott, 2007). Reder and Anderson (1982) stressed the effectiveness of test of repeated and spaced nature as compared with a single and long presentation. Similarly or as an extended theory, the “test-spacing” effect was suggested, referring to superiority in longer retention of spaced tests to massed tests, particularly the tests with interest intervals of an expanding nature (Landauer & Bjork, 1978; Rea & Modigliani, 1985).

Having reviewed the proposition of effectiveness of tests above in contrast to the continuance of additional study after learning, let's return to the issue of overlearning as there appears to be a certain correlation between the two. In the case of the present study, Group A and B, with the total study time having being equated, proceeded in considerably different paths. For Group A, the study time commonly spent in classroom was just 25 minutes out of the total 80 minutes for vocabulary learning of 20 words, and the remaining 55 minutes were covered by the out-of-class engagements, during which participation was substantially left to the Learners' autonomous decision; although they were given points for grading depending on their accomplishment of the daily vocabulary quiz, it was not compulsory; moreover, the average time spent for completion of daily quiz differed depending on Learners, ranging from less than three minutes to over 10 minutes. This means, although the total study time remained 80 minutes overall on an average, some Learners who have diligently and promptly completed all the daily out-of-class tasks may have, without spending even 20 minutes, achieved outstanding performance and obtained high points. In this regard, it may be argued that overlearning issue could be avoided to some degree by shifting the classroom time to out-of-class engagement taking into account the flexibility in the length of time as each Learner could proceed with the task at her own and most suitable pace. On the other hand, there would be a negative aspect of out-of-class engagements such as absenteeism from or

non-participation in daily activities. The daily engagement not being made compulsory, certain less diligent Learners, if any, would be inclined to turn away from such activities. The survey evidenced that two out of 25 Learners honestly responded that they would've been happy and another two responded that they would've been somewhat happy had there been no daily assignment and that they felt the daily quizzes were either tiring or somewhat tiring. This negativity might turn the out-of-class activity into a double-edged sword as it continues for a longer period.

Meanwhile, the daily vocabulary quiz can be thought of as a kind of test which calls for Learners' retrieval practice. As evidenced by the survey, all Learners perceived the positive effect of daily vocabulary quiz based on its contribution to their vocabulary improvement. On the other hand, however, because one set of quizzes was conducted on every weekday based on two-week cycle to cover one unit of the textbook, the practice of daily vocabulary quiz did not produce what Landauer & Bjork (1978) and Rea & Modigliani (1985) referred to as "test-spacing" effect with expanding intervals. As the semi-spaced distribution strategy had relatively short intervals, the strategy seemed to have not gathered a valid effect on longer retention. And this interpretation may also be substantiated from the outcome of the second t-test conducted for analysis of retention comparing the lost points between the immediate and delayed posttests, which showed no significant difference between Group A and B. This being said, the semi-spaced distribution strategy has clearly brought a successful outcome regarding improvement of vocabulary learning from the following perspectives: (1) Group A largely outperformed Group B in the scores on both immediate and delayed posttests, with respect to which t-test demonstrated substantial difference between the two groups as shown in Table 2; and (2) the vast majority of Group A made positive responses to the questions addressed in the survey with respect to enhancement of their motivation and confidence in vocabulary learning. Furthermore, as equally importantly, the spare time gained by arranging a kind of flipped-classroom was efficiently allocated to other areas of study than vocabulary.

VI. CONCLUSION

The present research result can be summarized that the reallocated out-of-class activities with semi-spaced distribution strategy has brought about some promising outlook on effective vocabulary learning with respect to Learners' motivation, and has demonstrated some positive effect on retention on a short- or even mid-term basis, but such effect may not be expected on a longer retention. The notion of "testing being a powerful tool to promote learning in educational situations" (McDaniel et al. 2007, p.205) shed light on the efficacy of the daily vocabulary quiz practices. On the other hand, the statement of Bahrck and Phelps (1987) cast doubt on the validity of the strategy in

view of longer retention, as they put it, “even five or more presentations are unlikely to facilitate long-term retention if the interval between successive presentations is one day or less” (P.349). Finally, before concluding the present study, the following limitations of the research will need to be explicitly addressed here: (1) the population of subjects between Group A and B was substantially limited; and (2) the vocabulary learning activities between the two Groups were considerably different whereby Group A engaged in daily vocabulary quizzes, while Group B engaged in repeating, typing, pronouncing, searching for sentences with new words. This dissimilarity makes unclear the degree to which the semi-spaced distribution strategy contributed to the efficacy of vocabulary learning as the comparison in time distribution was not compared made on an apple-to-apple basis between the two Groups.

From these perspectives, further study will be desired to clarify the contributor of efficacy and validation of effect for the improvement of vocabulary learning.

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