The Effects of Blended Learning on EFL High School Students' Vocabulary Mastery

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Abstract—**Blended learning is a learning model that combines ICT-based learning with face-to-face learning and when implemented as a teaching strategy, it involves the use of media to assist students with limited vocabulary. Local scholars have reported an alarming case of vocabulary deficiency among Indonesian EFL learners and studies have raised concern with traditional teaching approaches that rarely provide students opportunities for active interaction. Therefore, this study aims to investigate the effects of using blended learning on EFL learners' vocabulary mastery as compared to a traditional teaching approach. The research participants were second-year junior high school students (age 14) in the Riau Province, Indonesia. Using a pretest-posttest control-group design, this study involved 50 students in an experimental group (N=25) and a control group (N=25) for a four-week intervention programme. The pre- and post-test administered to the participants was a 40-item test on vocabulary mastery in the format of multiple-choice questions and open-ended essay. Findings of the study revealed that the experimental group participants outperformed their counterparts in the control group, suggesting a positive impact of blended learning on the EFL students' vocabulary mastery. Implications of the study are discussed at the end of the paper to shed light on how future studies of a similar nature may be conducted.**

Keywords— Blended Learning, English as a Foreign Language, ICT-Based Learning, Students' Vocabulary Mastery, Vocabulary Strategy

I. INTRODUCTION

Learning is the process of a person acquiring new knowledge, skills, values, behaviours or preferences, or the process of modifying and strengthening them and it may involve synthesis of existing information. To learn effectively, students need to rely on external factor or controller that makes the learning process fun and effective and this includes the mastery of English vocabulary. In order to tackle learning issues, teachers and students are advised to increase the need for learning resources and also learning strategies that are of great interest to the students [1].

Since English is a foreign language in Indonesia, learning it poses a great number of challenges to the learners. As it is stated in [2], the purpose of learning English in the curriculum is to enable students to understand the meaning of language. Unfortunately, local educators and scholars alike have long acknowledged the state of low vocabulary proficiency among high school students. As these students have very limited vocabulary, they form the most suitable target group to be studied. In addition to language learning expectation, the Prime Minister of Education Indonesia called for Peraturan Menteri Pendidikan Nasional (Permendiknas) which states that the Ministry of Education and Culture needs to also pay attention to the development of information technology and communication that is progressing at a rapid pace. The Policy provision aims to enable students to have the ability to recognise, understand, and interact with the information and communication technology so as to prepare them with adequate level of literacy in technology. The students are expected upon graduation to be technology-savvy particularly in the learning of English.

II. LITERATURE REVIEW

In learning vocabulary, human will experience and most likely notice an increase for every development from infancy to kindergarten. Studies suggest that vocabulary competence in a learner's primary grade will be a reading comprehension predictor in secondary grades (Cunningham et al., 1997 cited in [3]) and early childhood is the primary period for conceptual development.

Vocabulary is challenging for those who learn it in deprivation of stimulus. [4] Suggests that elementary school children produce an average of about 2,000 words and at the age of seven they will have reached around 7,000 words. Thus, at the age of 14 years, a teenager must be able to recognise 14,000 word and in adulthood the number will increase significantly. College students can understand between 60,000 and 100,000 words (Mackey, 1965 cited in [5]). However, Indonesian students who learn English as a foreign language at school have limited vocabulary particularly when support from the surrounding is low due to the limited use of the language. The main medium for students to gain new English words is when taught formally by the teacher in the classroom. Every teacher may have a different way to teach vocabulary but [6] suggests several effective steps, namely: a) displaying the words either on paper, on the teaching board, or on projector screen, b) articulating the words and making sure the students could catch the words spoken, and c) explaining the meaning of the words by including them in sentences as well as easy-to-understand examples.

Vocabulary is one aspect of language that cannot be tolerated and must be learnt well to understand the language fairly easily. Language learners with adequate vocabulary competence will have the ability to speak, write, read, and listen well [7]. However, it is also one of the most intense challenge for English language learners [8]. Vocabulary

knowledge entails the ability to know a word and its meaning upon seeing it and to know how to use it in appropriate context.

Due to the status of English as a foreign language in Indonesia, it explains why a teacher's role as a facilitator in the classroom is vital. The English teacher is the main human resources for students in the learning process. Thus, it is also suggested that teachers have the capability to communicate in English to encourage their students to use the language frequently.

At present, educators have the access to technology and they are able to utilise it for the purpose of improving education for children. [9] State that in today's 21st century learning, blended learning is prevalent and it is designed as a dynamic learning strategy by using the technology. It is considered effective in assisting teachers and EFL students if it meets the students' needs and interests. Blended learning may not be common in Asian classrooms but it is also not a novel area and Malaysian scholars believe besides blended learning also as part of teacher teaching and student learning in vocabulary learning is important [10]. The strategy is usually utilised in a formal education programme or setting whereby students learn partially through online instruction with several elements that they get to control over a time frame and setting of their choice. The strategy also combines face-to-face conventional teaching approach with computer-mediated activities. Participants and supporters of the hybrid learning mode as such will undergo lessons in a comprehensive and efficient arrangement. Lessons are carried out innovatively and the technology is used which emphasizes online learning with better interaction and innovation than traditional learning.

As a strategy, blended learning has a guide to be adhered to for its implementation. (Slimer & Soekartawi, 2005 cited in [11]). There are five stages in designing and conducting blended learning for optimal results, namely for teachers to: a) set kinds and teaching materials, b) set design of blended learning used, c) set the formal learning, d) perform a test of the design, and e) prepare criteria for evaluating the implementation of blended learning.

There are several studies using blended learning to overcome difficulties when acquiring English vocabulary in a second and foreign language context. [12] Who had conducted an experimental research to investigate the effects of blended learning strategy in teaching vocabulary and the students' perceptions of blended learning in vocabulary. The participant of the research were 40 students from two classes who study intensive English at META prep-school in Turkey. A paper-based vocabulary test was carry out to both group among experimental group and control group while the interview focused on students' perceptions of blended learning in vocabulary enhancement. The result revealed that the suggested blended learning strategy did not improve the students' vocabulary achievement. It indicated by students' scores on vocabulary tests and also short duration of the research. [13] Who investigated the impact of blended learning to EFL teaching on students' achievement, around 22 students studying International Finance in English at the University of Finance under the Government of the Russian Federation in Moscow as participant in the research. A pre-test and a post-test were the main instruments used for the purpose of data collection. The findings showed in line with several previous studies that found a positive impact of blended learning in face-

to-face teaching. It indicated that the suggested blended learning strategy improved the students' vocabulary achievement.

Then, [14] who examined at improving the vocabulary mastery of students at Politeknik Negeri Padang for the 2015/2016 academic year by applying a blended learning strategy. The research was a classroom action research. The instrument of the research were test, observation, field note and interview for the data collection. Quantitative data was a test result while qualitative data to further supported data included observation, field note, and interview. The findings revealed that blended learning strategy can improve the vocabulary mastery and participation of the students in vocabulary.

The problem in acquiring English vocabulary is mainly due to the poor competence before the beginning of the lesson. This is usually a problem that accumulates on a yearly basis as students are expected to have mastered certain vocabulary items in the previous year only to still be lacking the competence. In addition, many teachers find it difficult to teach English because students refuse to participate in the lessons and little to no interaction takes place in the language classroom. Schools with a hybrid learning mode such as in blended learning may be able to improve students' mastery of vocabulary. Since knowledge of vocabulary is imperative, without sufficient competence of it, students will have a difficult time constructing sentences and understanding English materials. They will also have difficulty understanding teacher's instruction. Even with good grammar mastery the skill will be in vain and cannot be put to use without adequate vocabulary competence to express ourselves. [15] Suggests that the aim of vocabulary learning is to recognise a word and to understand its meaning in a paragraph.

Based on the discussion above and on the scarcity of study with similar nature in the Indonesian context, it is important to investigate the effects of blended learning on students' vocabulary mastery. Blended learning is chosen as a learning strategy because it is considered an interesting approach to teach students English. To find out if it is indeed effective, two intact classrooms were studied, whereby students from one classroom were assigned to the experimental group, taught using blended learning and the second classroom were assigned to the control group who were taught using the traditional teaching method. The blended learning utilised learning sources in the form of multimedia – videos, audios, and still and moving pictures through a slideshow. This was expected to invoke interests in students to learn English as a subject as opposed to using traditional activities that circled around the concept of chalk-and-talk.

Thus, the study aimed to investigate the effects of the strategy on vocabulary mastery by second-year junior high school students in the Riau Province, Indonesia. More specifically, the study was carried out to answer the following research questions.

1) 1. What are the effect of using blended learning on EFL Students' vocabulary mastery?

a) Is there a significant difference between the experimental group and the control group on their vocabulary mastery in the post-test?.

b) Is there a significant difference of mean score change in the experimental group participants' result between the pre-test and post-test?

Therefore, the hypotheses to be tested in the study are

Ho : There is no significant difference of the EFL students' vocabulary test between the experimental group and control group using the blended learning.

Ha : There is a significant difference of the EFL students' vocabulary test between the experimental group and control group using the blended learning.

III. METHODOLOGY

A. Research Design

The study employed a quasi-experimental design that is similar to an experimental research [16] but without random assignment of participants to establish cause and effect relationship between the independent variable, namely Blended Learning (variable X) and the dependent variable, namely vocabulary mastery (variable Y).

B. Research Participants

The present research was carried out at a junior high school in Riau province, Indonesia involving second-grade students (age 14) of two classes. The first class was assigned as the experimental group and the second as the control group. The total student population was 225 that was comprised of nine classes. Details of the participant selection is indicated in Table 1. To avoid selection bias, the two classes that were recruited in the study were picked randomly; all the nine classes were labelled VIII1, VIII2 ,VIII3, VIII4 ,VIII5 ,VIII6, VIII7, VIII8 and VIII9 and the two were selected by lot. The experimental class was taught using the Blended learning approach (the intervention programme) and the control group was taught using conventional teaching approach.

TABLE I.   DEMOGRAPHIC INFORMATION ON SAMPLE

No.	Class	Learning Method	Sample (N)
1	VIII^1	Blended Learning	25 (Experimental Group)
2	VIII^6	Traditional Learning	25 (Control Group)
TOTAL			50 students

C. Instruments

Data were collected using a 40-item test that was administered twice as the pre-test and post-test. The test was in the form of multiple-choice questions and open-ended essay questions based on materials taken from the school English textbook in line with the 2013 curriculum for the second-grade students in Riau Province, Indonesia.

D. Procedures

The project completion was carried out through 6 meetings in 3 phases. The first was the pre-intervention stage, followed by the intervention and finally the post-intervention stage.

In the pre-intervention phase, the experimental and control groups were given a pre-test prior to the treatment. Results of the test would determine the baseline of the students' vocabulary mastery. Meanwhile, in the intervention phase the experimental group was taught using blended learning that required students to complete online tasks in addition to the frequent use of videos, audios, images, and slideshows to support the learning process of students. The treatment was carried out in four meetings for 120 minutes for each meeting, totaling up to 480 minutes.

The implementation of teaching activities during the intervention period (blended learning) was conducted through three stages. The stages were as follows.

1) Pre-teaching:

a) Teacher gave apperception.

b) The teacher gave an explanation about what should be achieved about the material.

2) While-teaching:

a) Teacher introduced blended learning to the students and explained how vocabulary would be taught.

b) Teacher began explaining the materials using multimedia.

c) The teacher gave examples using multimedia.

3) Post-teaching:

a) Teacher asked students' learning challenges with the materials.

b) Teacher gave exercises to increase students' vocabulary.

c) Teacher and students drew a conclusion about the material.

In the last meeting, the teacher gave a post-test to the students. The purpose of this activity was to measure whether there were any effect on the students' vocabulary mastery after blended learning was implemented in class. Their post-test scores were compared with the pre-test scores to measure learning gains in vocabulary.

E. Data Analysis

To measure the effects of the intervention, mean scores between the pre-test and post-test were calculated using the independent sample *t* test to determine if the changes were statistically significant.

IV. FINDINGS AND DISCUSSION

Prior to carrying out the parametric test, the distribution of normality was tested and as indicated in Table 2 and Table 3, the Asymp Sig. of the data in Shapiro-Wilk column is greater than 0.05 (0.495 > 0.05 and 0.053 > 0.050) which suggests that the data were normally distributed.

TABLE II. TEST OF NORMALITY (PRE-TEST)

	GROUP	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	EXPERIMENTAL GROUP	.157	25	.115	.944	25	.184
	CONTROL GROUP	.159	25	.105	.950	25	.248
a. Lilliefors Significance Correction							

TABLE III. TEST OF NORMALITY (POST-TEST)

	GROUP	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Post-Test	EXPERIMENTAL GROUP	.141	25	.200[*]	.964	25	.495
	CONTROL GROUP	.149	25	.158	.921	25	.053
a. Lilliefors Significance Correction							
*This is a lower bound of the true significance.							

After the researchers know the test of normality in pre-test and post-test, then the researchers presented the results and discussion for each question of the study in this section.

What are the effect of using blended learning on EFL students' vocabulary mastery?

1) Is there a significant difference between the experimental group and the control group on their vocabulary mastery in the post-test?

TABLE IV. MEAN AND STANDARD DEVIATION OF POST-TEST SCORES FOR TWO GROUPS

Group	N	Mean	Std.Deviation
Experimental Group	25	77.3	6.49198
Control Group	25	68.5	12.22617

Lavene's Test for Equality of Variances			t-test			
	f	Sig	T	df	Sig. (2 tailed)	Mean Dif.
Equal Variances Assumed	7.124	.010	3.179	48	.003	8.80000
Equal Variances not			3.179	36.537	.003	8.80000

Data in Table 4 indicate that based on the result of the post-test the participants in the experimental group (M=77.3, SD=6.49198) outperformed those who in the control group (M=68.5, SD=12.22617).

This result indicates that there is significant difference between the experimental group and control group after six weeks. Based on the test results, it can be concluded that blended learning on EFL students' vocabulary mastery have a positive impact on their vocabulary scores.

2) Is there a significant difference of mean score change in the experimental group participants' result between the pre-test and post-test?

TABLE V. RESULT OF THE INDEPENDENT T-TEST (PRE POST-TEST) FOR EXPERIMENTAL GROUP

Test	Group	Mean	Std.Deviation
Pretest	Experimental Group	53.4	6.53038
Post test		77.3	6.49198

Table 5 shows that the experimental group had shown improvement in their post-test scores as opposed to the pre-test. The mean score in the pre-test was 53.4 and after the treatment (blended learning), the mean score in the post-test increased to 77.3, indicating that there was improvement in their vocabulary mastery.

As explained above, this study was done on EFL students' vocabulary mastery in Riau, Indonesia. Before carrying it out, the main author had analysed the way students learnt English vocabulary. After the analysis, found that the students were very weak with numerous English vocabulary problems and also many English teachers admitted to the difficulties in teaching English due to poor interaction and participation in the learning process. Therefore, to overcome the problems, the main researcher introduced blended learning to investigate the effects of blended learning on the students' vocabulary learning. Based on the results of this study, it was found that the two groups had increased their knowledge in vocabulary mastery, but it was clear that the experimental group outperformed the control group. This suggests that the experimental group had benefited from the blended learning. It can be seen in Fig. 1.
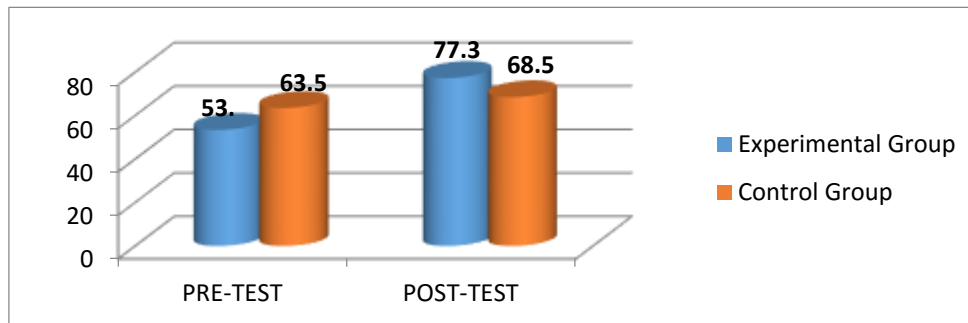

Fig. 1. Mean score difference in pre-test and post-test for experimental and control group.

As shown in the above chart, the mean score for the experimental group in the pre-test was 53.4 and after the treatment, it increased to 77.3. Meanwhile, the control group had increased from mean score 63.5 in the pre-test to 68.5 in the post-test which indicated a slight difference and improvement in their vocabulary mastery. It indicates that there was significant difference between experimental and control group in vocabulary score. It also indicates that blended learning had positive impact on the participants' vocabulary scores.

The result of this study was similar to study done by [13] who investigated the impact of blended learning approach on students' achievement, involving 22 students who studied International Finance in English at the University of Finance under the Government of the Russian Federation in Moscow. Pre-test and post-test were the main instruments. The findings of this study was in line with many previous studies that reported many benefits of blended learning as opposed to face-to-face teaching.

In another study, [14] aimed at improving the vocabulary mastery of students at Politeknik Negeri Padang for the 2015/2016 academic year by applying a blended learning model. The research was in the form of a classroom action research project. The instruments in the study were tests, observation, field notes, and interviews. The findings revealed that blended learning had improved the students' vocabulary mastery.

V. CONCLUSION AND IMPLICATIONS

Based on the results of the study, the experimental group participants outperformed those in the control group, suggesting positive impact of blended learning on EFL students' vocabulary mastery. In addition, the findings also reflect that blended learning is a strategy that helps student for mastering their vocabulary. The students found it easier to understand and remember vocabulary items in a way that was considered interesting and easy. The use of multimedia in blended learning was varied, ranging from the teacher carrying out the treatment using blended learning by giving students online task, the use of videos, pictures, audios and slideshows as learning materials to get away from monotonous teaching and learning processes. It also focused on helping students to master basic kind of vocabulary (noun, verb, adjective, adverb, conjunction, pronoun, and interjection). Blended learning had helped the students to be actively involved in teaching and learning process. Therefore, it is recommended that further studies be carried out to investigate the effects of the intervention on other language learning problem with students from different schools, texts of different genre and with students of varying language proficiency.

REFERENCES

[1] Alwehaibi, H. O. (2015). The impact of using Youtube in EFL classroom on enhancing EFL students' content learning. Journal of College Teaching & Learning (Online), 12(2), 121.

[2] Permendiknas No.23 Tahun 2006. Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 23 Tahun 2006. Jakarta.

[3] Dubiner, D. (2018). 'Write it down and then what?': Promoting pre-service teachers' language awareness, metacognitive development and pedagogical skills through reflections on vocabulary acquisition and teaching. Language Awareness, 1-18.

[4] Watts-Taffe, S., Fisher, P., & Blachowicz, C. (2017). Vocabulary Instruction: Research and Practice. Handbook of Research on Teaching the English Language Arts.

[5] Gairns, R., & Redman, S. (1986). Working with words: A guide to teaching and learning vocabulary (pp. 74-80). Cambridge: Cambridge University Press.

[6] Dechant, E. (1981). Teacher's Directory of Reading Skill Aids and Materials. Parker Publishing Co., Inc., West Nyack, NY 10994.

[7] Dali, N. H. M., Saigaran, T. R., & Yunus, M. M. (2018). The Effectiveness of Using Pictemp (Picture Template) to Aid Year 3 Vocabulary Skill in Malaysia. IJIE (Indonesian Journal of Informatics Education), 2(1), 35-44.

[8] Graves, M. F. (2016). The vocabulary book: Learning and instruction. Teachers College Press.

[9] Nursyuhada'Ab Wahab, A. M. Z., & Yunus, M. M. (2018). Exploring The Blended Learning Experience Among 21st Century Language Learners. Language & Communication, 5(1), 136-149.

[10] Ang, T., & Yunus, M. M. (2018). Blended Learning: To Read or Not To Read. IJIE (Indonesian Journal of Informatics Education), 2(1), 29-34.

[11] Lee, Y. H., Hsiao, C., & Purnomo, S. H. (2014). An empirical examination of individual and system characteristics on enhancing e-learning acceptance. Australasian Journal of Educational Technology, 30(5).

[12] Tosun Sezen. (2015). The effect of blended learning on EFL students' vocabulary enhancement. Journal of Procedia social and behavioral sciences, 199, 641-647.

[13] Vasbieva, D. G., Klimova, I. I., Agibalova, E. L., Karzhanova, N. V., & Bírová, J. (2016). Enhancement of students' vocabulary learning through a blended learning approach. International Electronic Journal of Mathematics Education, 11(5), 1195-1203.

[14] Damayanti Muthia and Indah Sari. (2017). Improving students' vocabulary mastery by using blended learning model in Politeknik Negeri Padang. Journal of Linguistic and English Teaching, Vol.2, No.1.

[15] Arndt, H. L. (2014). English Vocabulary Learning Through Watching YouTube Video Blogs and Reading Blog Posts(Doctoral dissertation, University of Oxford).

[16] Dornyei Zoltan. (1995). Research Methods in Applied Linguistics. National centre for English language teaching and research. 115-123.