Project-based learning and writing skill in EFL: are they related?

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Abstract. This study aimed at investigating the effect of Project-Based Learning on students' writing skill of grade 9 at SMPN 3 Kuta Selatan. This study employed embedded mixed method design, in which the quantitative data were considered as the main data. The data were collected through guided interview, observation, and writing test. Paired sample t-test was used for the quantitative data analysis. The result showed that Project-Based Learning has significant effect on students' English writing skill (sig. = .000 < α = .05). Project-Based Learning also revealed potentially promotes students' critical thinking, communication, and creativity through collaborative work. In general, it can be concluded that Project-Based Learning significantly improves junior high school students' writing skill in English as a Foreign Language.

Introduction

One of fundamental learning theories that have been highly considered for the 21st century learning foundation is Constructivism. It is a philosophy of learning that the students' learning occurs when the new knowledge is presented in relation to the previous knowledge within an effective teaching environment [1]. In this viewpoint, the new knowledge is practiced through experiences. The students create their understanding of the world they live in by reflecting on their own personal experiences [2]. They play major role to develop and build their own knowledge through active participation during the process of learning. Regarding this, teachers should take into account what students know. Teachers build on the students' prior knowledge and allow students to put their knowledge into practice [3]. In other words, it is the students themselves who have responsibility for their own learning.

A wide variety of instructional activities claim to be based on constructivist learning theory. One of the applicable teaching and learning model which is based on constructivist learning theory is Project-Based Learning. In its simplest definition, Project-Based Learning is a learning model that focused on activities which attempt to produce learning product through project works. It is considered to be an approach and means to achieve the 21st century skills [4]. As the supports of 21st century education, the concept of Four Cs are considered important in the classroom [5]. The Four Cs include critical thinking and

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problem solving, communication, collaboration, and creativity and innovation. Project-based Learning potentially promotes these expected skills due to its learning activities. Project-Based Learning allows the learners work together with hands- on experience in an authentic and meaningful context [6]. When the learner sees the language that can be used in their lives and is applicable to their task or need, they can develop their language skills and communicative competence and gain confidence, co-operation, imagination independence and self-discipline. Moving away from rote learning and memorization, Project-based Learning builds on individual strengths, and allows individuals to explore their interests and ability. It is a process of learning that students are responsible for their own education [7]. Project-Based Learning provides opportunity to create productive and enjoyable classroom atmosphere through the integration of students' knowledge, attitude, and skills.

In its implementation, Project-based Learning is not only expected to create enjoyable classroom, but also give opportunity for students to improve their English skill. One of the skills that should be mastered in English subject is writing. Writing is a cognitive domain-based skill which involves learning, comprehension, application and synthesis of new knowledge [8]. Writing does not only require following the writing conventions, but also involving creative inspiration, problem-solving, reflection and revision that results in a completed manuscript. As a continuous activity, there are two approaches in writing; namely product approach and process approach [9]. Product approach is one approach in writing that expects the students to only analyze texts in terms of what language they used, and how they were constructed. Process writing is a way of looking at what people do when they compose written text. Thus, writing involves a complex process in which the students should become proficient.

Based on the preliminary research, it was found that students learned the concept from the teacher's explanation. In other words, students did not work with the project. The explanation of the material, presenting the text is still dominated by teachers which cause the students is rarely involved in the learning process. This situation confirmed that the learning process happened is not yet as expected. Controlled learning usually teacher-centered in nature, in which with limited resources and facilities to learn, teachers usually become the only source of learning in the classroom, and a textbook is the only learning material [10]. Moreover, in writing activity as a productive skill, the students have to develop their ideas on a paper. It indicates that the teacher role only is not enough. The students are expected to participate actively in the classroom. Regarding the potentials of Project-based Learning and the complexity of writing, a research on this needs to be conducted. This problem leads to the needs for conducting the research in investigating the effect of Project-Based Learning on students' writing skill. Thus, the research question was formulated as: Is there any significant effect of Project-Based Learning on students' writing skill of Grade 9 in SMPN 3 Kuta Selatan?

Research Method

This study employed the Mixed Method design focusing on collecting, analyzing, and mixing both quantitative and qualitative data which was taken on the ninth grade students of SMPN 3 Kuta Selatan. Among the major types of mixed-method, embedded design is considered to be the most appropriate design for the present study. An embedded mixed-method design involves the collection of both quantitative and qualitative data, but one of the data types plays a supplemental role within the overall design [11]. Technically, this design is beneficial when a researcher needs to embed a qualitative component within a quantitative design or vice versa. In the present study, quantitative data was addressed as the core, while the qualitative data provided supplementary one. Quantitative data were

obtained from pre-test and post-test. They played major role to provide information about the extent by which project-based learning affects students' writing skill. The quantitative data collection involves several steps: (i) Administration of a pre-test measuring the dependent variable (writing skill), (ii) Application of the experimental treatment to the subjects, (iii) Administration of a post-test measuring the dependent variable (writing skill).

The qualitative data in this study were collected before collecting quantitative data concurrently. It was collected from observation checklist and interview in the preliminary research. Essentially, it was used to support and provide further elaboration related to the results of quantitative data. In this study, the instrument used in collecting the quantitative data is writing test. For the qualitative data, observation checklist and interview are used.

In embedded design, both quantitative data and qualitative data are collected during a single study, the two data sets are analyzed separately, and they address different research questions. This study used bivariate analysis, which indicated the analysis of two variables, dependent and independent variable. Hypothesis testing which was used for bivariate analysis was Paired Sample t-test. Before paired sample t-test was done in this study, normality test need to be conducted. If the data were distributed normally, paired sample t-test can be done. To find the normality of variance of the data, the researcher is conducted the Kolmogorov-Smirnov Normality Test. It is used to know whether the collected data will be normally distributed, the dependent significant value (less than 0,05) will indicate that the distribution of data differed significantly from a normal distribution. In other words, the data can be categorized as having normal distribution if the significance value is the more than 0.05. Moreover, for the qualitative data, the analysis involves three concurrent flows of activities, namely, data reduction, data display and conclusion drawing/verification.

Results and Discussion

Writing pre-test and post-test were conducted to reveal the effect of Project-based Learning on students' writing skill. The test was in form of instruction in which the students were intended to develop a Report Text based on the topic provided. Pre-test was administered to obtain preliminary data at the beginning of the study before the treatment was conducted. Then, post-test was carried out to investigate the effect of Project-based Learning on students' writing skill. The result of the writing pre-test and post-test can be seen in the table 1.

Table 1 Frequency of Writing Test

	Mean Score	Below the Mean Score	Above the Mean Score
Pre-test	68.5	22	10
Post-test	81	19	13

Based on the result of writing test before the implementation of Project Based Learning in the classroom, it was obtained that the mean score of the writing was 68.5. Moreover, from 32 students in class 9.5 there were 22 students (68.75%) who obtained below the mean score. Meanwhile, 10 students achieved above the mean score (31.25%). It means that there were more than half students in the class 9.5 of SMPN 3 Kuta Selatan whose score were below the mean score.

Furthermore, according to the result of writing post-test, it was revealed that the mean score of the writing was higher than in the pre-test, in which 81. Moreover, from 32 students in class 9.5 there were 19 students (59.37%) who obtained the score below the

mean score. Meanwhile, the others, 13 students obtained the score above the mean score (40.62%).

Before doing further analysis, a normality test was conducted in order to know whether the obtained data were distributed normally or not. This test was administered through Kolmogorov-Smirnov formula of SPSS 23.0 for windows. The criteria for the test to be used are the data can be categorized as normally distributed if the significant data is more than 0.05. The result of normality test of the writing test can be seen in the table 2.

Table 2. The Normality Test of Writing Test

		pre_test	post_test
N		32	32
Normal Parameters[a,b]	Mean	68.50	81.00
	Std. Deviation	6.720	7.935
Most Extreme Differences	Absolute	.217	.173
	Positive	.217	.173
	Negative	-.103	-.155
Test Statistic		1.228	.980
Asymp. Sig. (2-tailed)		.098[c]	.292[c]

For writing pre-test, the value of Kolmogorov-Smirnov statistic was 1.228 with significance score of .098. For writing post-test data, the value of Kolmogorov-Smirnov statistic was .980 with significance score of .292. Both statistics showed that the significance value of the statistic was higher than 0.05, which can be said that the data were normally distributed.

The next step done after normality test was parametric test. Since the data were normally distributed, Paired-samples t-test was applied. The acceptation criteria of the significant effect was if the significance score less than 0.05. The result of the Paired t-test for students' writing skill can be seen on the Table 3 below.

Table 3. Paired-Samples t-test for Students' Writing Skills

	Paired Differences							
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
pre_test - post_test	-12.500	5.902	1.043	-14.628	-10.372	-11.980	31	.000

As mentioned previously, there was an improvement of students' writing test from the mean score 68.5 before the treatment become 81 after the treatment. Moreover, the table above shown that the significance of the effect of Project Based Learning on Students' Writing Skills was .000. If the standard of significance is 0.05, it means that the significance data was less than the standard (sig. = 0.00 < α = 0.05). It can be concluded that there was a significant effect of Project Based Learning on students' writing of the ninth grade students.

In addition, another analysis was conducted to describe the students' writing improvement in terms of content, organization, vocabulary, grammar, and mechanic. Firstly, for the content aspect, it was found that the majority of students showed their

development in stating the ideas in form of writing which can be seen from the increased numbers of sentences in the paragraphs. Secondly, in term of organization, it was obtained that the students construct the sentences coherently. For the vocabulary, the students exhibit a satisfying result in which they improve their sentences in paragraph writing. In term of grammar, the students maintained good structure. Lastly, for the mechanic, the students wrote only few errors in spelling and punctuation.

The writing test that the students have in the pre-test was modified in the post-test within the gap of time about 4 weeks for the treatment. In the pre-test, the students were expected to write a paragraph in 30 minutes. Meanwhile, in the post-test, the students were expected to write as many paragraphs as possible within a longer time (45 minutes) to assume that the students had an opportunity to write spontaneously and creatively. However, because the tests were conducted in form of paragraph writing, it can be assumed that the pre-test did not affect the post-test, but the treatment did. In other words, there was not any opportunity for the students to remember the answer of the pre-test when the post-test was conducted.

From the observation during the implementation of Project-based Learning, it was found that the students actively responded to the guiding questions delivered by the teacher. It indicates that critical thinking is also promoted by Project-based Learning. Furthermore, since Project-based Learning activities mostly done in group, the interaction in the classroom was also improved. It makes the communication as one skill which also encouraged in Project-based Learning. In addition, as the students expected to produce learning product, the students get opportunity to explore their creativity.

The previous elaboration indicated that this research found a significant effect of Project Based Learning on students' writing skill. The significant effect can be seen from the improvement of students' writing score after the implementation of Project-Based Learning. This finding was in line with a study conducted by Bas which found out that Project-Based Learning was more effective in the positive development of the students' academic achievement levels [12]. It was also showed a significant difference between the attitude scores of the experiment group and the control group.

Furthermore, the similar result was also found in Foulger and Jimenez-Silva's research which Project-based classrooms integrated technology within an environment where writing development was of concern. The study reported that via project-based learning, writing embedded in natural settings that helped create increased levels of language cognition – attention to topic organization, awareness raising on linguistic features, vocabulary and word choice, genre principles, and sentence formation for a variety of purposes are processed all at the same time [13]. It supported the findings of this research in which Project-based Learning gives opportunity for the students to practice more for their academic achievement.

The findings of this research are also confirmed by Thitivesa. Project work could be viewed as the natural language learning context, in which language learning, writing in particular, is contextualized and presented in the way that learning becomes integrated with the task of communication about some theme [14]. Project-based Learning improves students' writing skill since it place an emphasis on communication, students focus their attention on conveying their message and, at the same time, apply knowledge of conventions to their writing. The conventions are used at various points in the project and practiced in authentic context.

In addition, Project-based Learning potentially promote students' critical thinking, communication, and creativity through collaborative work which benefit on students' writing skill. Project-based Learning creates a pathway for students to explore, inquire, and create [15]. Thus, Project-based Learning provides learning environment that fosters writing skill.

Conclusion

This research serves empirical evidence that Project-based Learning significantly improve junior high school students' writing skill in English as a Foreign Language. It implies that to promote writing skill, which is as part of productive skill, the students should participate actively in the teaching and learning process. It indicates that Project-based Learning is a suggested approach for the teacher to teach writing. As the scope of the research was limited in number of subject and coverage of instruction, it is recommended that further research to duplicate this study with bigger size of subject and more sophisticated method of research so that the result could be generalized.

Acknowledgement

References

1. H. Karaduman and M. Gültekin, "The effect of constructivist learning principles based learning materials to students' attitudes, success and retention in social studies," *Turkish Online J. Educ. Technol.*, vol. 6, no. 3, pp. 98–112, 2007.
2. L. Fears, "Comparison of Learning Theories: Behaviorism, Cognitivism and Constructivism," pp. 1–9, 2008.
3. N. H. Mvududu and J. Thiel-Burgess, "Constructivism in Practice: The Case for English Language Learners," *Int. J. Educ.*, vol. 4, no. 3, pp. 108–118, 2012.
4. D. H. Y. B. Harun, "Project-based learning handbook: educating the millennial learner," *Malaysia Educ. Technol. Div. Educ.*, 2006.
5. National Education Association, "Preparing 21st Century Students for a Global Society: An Educator ' s Guide to the ' Four Cs ,'" pp. 1–38, 2014.
6. J. W. Thomas, "a Review of Research on Project-Based Learning," 2000.
7. G. Solomon, "Project-Based Learning: A Primer," *Technol. Learn.*, 2003.
8. J. Defazio, J. Jones, F. Tennant, and S. A. Hook, "Academic Literacy: The Importance and Impact of Writing across the Curriculum-A Case Study," *J. Scholarsh. Teach. Learn.*, vol. 10, no. 2, pp. 34–47, 2010.
9. J. Harmer, *How to Teach Writing*. Malaysia: Pearson Education Limited, 2007.
10. L. P. Artini, "Establishing Rich Language Learning Environment at Schools: Preparing Children to Become Autonomous EFL Learners," 2014, pp. 378–386.
11. J. W. Creswell and V. L. Plano Clark, "Choosing a Mixed Method Design," *Des. Conduct. Mix. Methods Res.*, pp. 58–89, 2006.
12. G. Bas, "Investigating the effects of project-based learning on students ' academic achievement and attitudes towards english lesson," *Online J. New Horiz. Educ.*, vol. 1, no. 4, pp. 1–15, 2011.
13. T. S. Foulger and M. Jimenez-Silva, "Enhancing the Writing Development of English Language Learners: Teacher Perceptions of Common Technology in Project-Based Learning," *J. Res. Child. Educ.*, vol. 22, no. 2, pp. 109–124, 2007.
14. D. Thitivesa, "The Academic Achievement of Writing via," *Int. Sch. Sci. Res. Innov.*, vol. 8, no. 9, pp. 2986–2989, 2014.
15. T. Ralston, "Supporting Communication and Collaboration in Project-Based Learning Activities," *P21 Blogazine*, vol. 3, no. 2, 2016.