

# The Influence of High Order Thinking Skills and Project Based Learning Model Toward Students' Writing Skill

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## Abstract

This study aims to determine the influence of high order thinking skills and project based learning model toward students' writing skill. This type of research was a quasi-experiment study with the pretest-posttest control group design. The study subjects were students of the tenth grade of SMAN 4 Cilegon that selected as an experimental class with a total of 26 students and control class with a total of 26 students. In the process of experiment, one class has been taught by high order thinking skills and project based learning model and the control class taught by direct learning. The writing text was about narrative. The data analysis used descriptive and inferential parametric statistics with SPSS 22 for the Windows program. Based on the result of the research, the average value of writing in posttest for experimental class 84.54, while the control class 70.58. Both classes are normally distributed and have the same variances. Finally, the researcher concluded that: 1) there is a significant influence of using HOTS to the students' writing skill; 2) there is a significant influence of using PBL model to the students' writing skill; 3) there is a significant influence of using HOTS and PBL model to the students' writing skill.

**Keywords:** *High Order Thinking Skill, Project based learning, Writing*

## INTRODUCTION

The curriculum 2006 has been revised to curriculum 2013 requires a paradigm shift in education and learning, especially at the level of formal education. The learning before is teacher-centered turning into student-centered. Student-centered active learning is the learning process in which students are responsible in learning and the students are given an opportunity to make decisions about the various dimensions of the learning process and to make self-management.

One of the subjects given to high school student is English. One of the goals in curriculum 2013 is the notion of language dealing with functions of the language, the social-context and the text types. The ability to write types of texts has an important role for EFL students in Indonesia, especially in high level. Furthermore, because writing skill is difficult for EFL students, the

teacher must give them stimulus through picture, data, video or HOTS questions to train them to practice the writing process.

The researcher found many problems that students of 10th grade in SMAN 4 Cilegon have difficulty when they must write in English. The students got difficulties to apply the structure correctly so they always use Google translate in their writing. They are quite active on listening to the teacher's explanation but inactive in taking notes, answering questions and also in discussing. In addition, their formative test shows that most of them are not competent in English writing skill. It caused by the inactivity of students' participation in learning and also the lack of the mastery of material concepts because of less effective learning method. They are also lazy to open a dictionary as an aid for them.

Therefore, applying High Order Thinking Skills (HOTS) and Project Based Learning (PBL) model could be the ways for students to proficient in writing as EFL students. In this way, HOTS' questions and PBL is authentic activities to develop students' thinking and problem solving skills which are important in out-of-school contexts, and to foster learning to learn; Brown et al (1993). In this research, the researcher aimed to investigate whether or not Higher Order Thinking Skills (HOTS) and Project Based Learning (PBL) model have significant influence toward students' writing skill.

The following were the hypothesis of the research: Ho1) There was no significant influence of using HOTS towards students' writing skill; Ha1) there was a significant influence of using HOTS towards students' writing skill; Ho2) there was no significant influence of using PBL towards students' writing skill; Ha2) there was a significant influence of using PBL towards students' writing skill; Ho3) there was no significant influence of using HOTS and PBL towards students' writing skill; Ha3) there was significant influence of using HOTS and PBL towards students' writing skill;

## **LITERATURE REVIEW**

### **High Order Thinking Skills (HOTS)**

HOTS has been a hot issue in Indonesia's education system in 2013. The government thinks that High Order Thinking Skills can encourage students to think broadly and deeply about learning materials. It will help them to increase their thinking skill through the HOTS' questions. The researcher believes that HOTS can train the students to think out of the box and creative in their writing.

Limbach and Waugh (2009) describes five-steps process for the development of higher level thinking skills, which are relevant to our context and can be implemented in any teaching learning situation to create a more active learning environment and to move learners towards higher level thinking. These five-steps are: *determine learning objectives; teach*

*through questioning; practice before assessment; review, refine, improve; provide feedback and assessment of learning.*

### **Project Based Learning Model**

Many teachers already familiar with Project-based learning is known as an instructional strategy in empowering learners to pursue content knowledge on their own and demonstrate their new understanding through a variety of presentation modes by Stripling, Lovett, & Macko (2009). The reason of empowering here is project-based learning is relevant with the concept of fun learning and hands-on experiences. Fun in Project Based Learning means that this strategy is able to make students enjoy to learn and freely express their ideas.

In Indonesia, the implementation of Project Based Learning is related in Permendikbud No.63 in 2013. That regulation states the importance of assessing students' competence through performance assessments. In other words, teacher should not only focus on the importance competence, but also skills. In this case, students are required to demonstrate their competence by using the practice test, project and portfolio assessment which carried out within a specified period. Consequently, students' autonomous learning and critical thinking are assumed to be developed (Yam & Rossini, 2010) and students' interest and motivation in taking responsibility for their own learning could also be maintained (Worthy, 2000). According to Richards & Schimdt (2010), there are three stages to be underlined while conducting project based learning in classroom teaching, namely classroom planning, carrying out the project and monitoring.

### **Writing Skill**

Writing is one of four language skills that must be learnt by the students. Writing for language learning is essential not only for students' communicative purposes but also for academic purposes. Writing well is really a big challenge for EFL students. EFL learners' success in English writing brings them benefits not solely in their English learning but also in their life-long careers as Glazier (1994: 3). The writing achievement in this research is conceived as writing competence which are summarized in basic competency (KD), namely analyze social function, the structure of the text, and linguistic elements of narrative text about a topic. The process of writing, as Harmer (2004) offers, has four main elements consisting of planning, drafting, editing (reflecting and revising), and final version.

### **METHOD**

This study is a Quasi-Experimental Design with two group designs, they are pretest-posttest. In this research, there were two classes, experiments and control classes. The experimental class treated by using HOTS and PBL

model while control was taught by direct learning. Firstly, the researcher conducted pretest, then the treatment, and the last was posttest.

The sample in this research is all students in the tenth grade of High School, second semester in academic year 2019/2020. The samples in this research consists of two classes from six classes namely X MIA 1 as experiment class and X MIA 2 as control class, with total number of students are 52 students.

According to Brown (2007), to give a score of students writing paragraph should use assessment criteria of writing to score: the content, organization, grammar, vocabulary and mechanics. The number of the item is 5. The research focused on specific skill of students' writing skill. The data gathered from scoring of students' essay writing were analyzed to get brief understanding. This research used both of statistical procedures either descriptive statistic or inferential statistic. Descriptive statistic is used to explain mean and standard deviation of each treatment. On the other hand, inferential statistic is used to answer the significant influence of HOTS and PBL model toward students' writing skill.

## RESULTS AND DISCUSSION

### Results

**Table 1**  
*Student's 'Descriptive Statistics*

	<b>Learning Model</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>N</b>
WRITING NARRATIVE TEXT	High Order Thinking Skills (HOTS)	84.54	4.933	26
	Project Based Learning	84.54	4.150	26
	Total	169.08	9.083	52
	Direct Learning (1)	70.62	3.837	26
	Direct Learning (2)	70.54	3.265	26
	Total	141.16	7.102	52

Based on the table above, the explanations are:

- Teaching HOTS in students' writing narrative text of 26 students has an average value 84.54 with a standard deviation 4.933 .
- Teaching PBL in students' writing narrative text of 26 students has an average value 84.54 with a standard deviation 4.150 .
- The average of students' writing skill by using direct learning (1) is 70.62 with a standard deviation 3.837 and counts of data as many as 26 students.
- The average of students' writing skill by using direct learning (2) is 70.54 with a standard deviation 3.265 and counts of data as many as 26 students.

Table 2  
The Validity Result

No. Item	Rxy	Rtabel	Status
1.	0.771	0, 444	Valid
2.	0.756	0, 444	Valid
3.	0.587	0, 444	Valid
4.	0.831	0, 444	Valid
5.	0.815	0, 444	Valid

In this test, the researcher gave the written test to measure students' achievement in writing narrative text. The test is essay in writing. The researcher used a rubric to describe levels of quality for each of the criteria, according to Brown (2007). It was because  $r_{xy} > r_{table}$ . it could be concluded that all the results of students' writing test validity calculated by using the correlation product moment were valid.

Table 3  
The Reliability Result

Cronbach's alpha	N of Items
.795	5

The test was calculated by using Cronbach coefficient alpha in SPSS output. The result is 0.795. As Arikunto (2012: 89) states that the value 0.795 is between 06.00 – 0.80, the interpretation of validity is high.

Table 4  
Normality Distribution of Experimental Group on Pre-test and Post-Test

Grade		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk	
		Statistic	Df	Sig.	Statistic	df
writing skill	Pre-test in Experiment Class (PBL)	.158	26	.093	.947	26
	Pre-test in Experiment Class (HOTS)	.167	26	.061	.907	26
	Post-test in Experiment Class (PBL)	.129	26	.200*	.961	26
	Post-test in Experiment (HOTS)	.117	26	.200*	.939	26

Based on the table above, the probability (Asymp. Sig (2-tailed) of the experiment group pre-test score was 0.061 and the post-test was 0,200 (HOTS), the pre-test score was 0,093 and post- test was 0,200 (PBL). It means that the probability (Asymp. Sig (2-tailed) of pre-test and post-test for both of groups were higher than the level of significance (0,05). From the result above that the null hypothesis was accepted and the pre-test and post-test of experimental group were normally distributed.

Table 5  
Homogeneity of Variance of Experimental and Control Group on Pre-test

Levene Statistic	df1	df2	Sig.
.135	3	100	.939

Homogeneity test in this research was calculated by using SPSS v.22 for windows. After calculating the data, the significance value obtained in pre-test from experiment and control classes showed that significant value is 0.939, with the degree of freedom (df) in pre-test was 1, on a level of sig (a ) = 0.05. This means that the value of the significance of pre-test is 0.939 or > 0.05. So, it can be concluded that Ho is accepted, in which experimental and control classes derived from the same variants and there is no significant difference between two classes.

Table 6  
Normality Distribution of Control Group on Pre-test and Post-Test

Grade		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk	
		Statistic	Df	Sig.	Statistic	df
Writing Skills	Pre-Test in Control Class (Direct Learning)	.111	26	.200*	.967	26
	Post-Test in Control Class (Direct Learning)	.154	26	.117	.919	26

Based on the table above, the probability (Asymp. Sig (2-tailed)) of the control group's pre-test score was 0.200 and the post-test was 0.117. It means that the probability (Asymp. Sig (2-tailed)) of pre-test and post-test for both of groups were higher than the level of significance (0,05). From the result above that the null hypothesis was accepted and the pre-test and post-test of control group were normally distributed.

Table 7  
Homogeneity of Variance of Experimental and Control Group on Post-test

Levene Statistic	df1	df2	Sig.
1.055	3	100	.372

Homogeneity test in this research was calculated by using SPSS v.22 for windows. After calculating the data, the significance value obtained in pre-test from experiment and control classes showed that significant value is 0.372, with the degree of freedom (df) in post-test was 1, on a level of sig (a ) = 0.05. This means that the value of the significance of post-test is 0.372 or > 0.05. So, it can be concluded that Ho is accepted, in which experimental and control classes derived from the same variants and there is no significant difference between two classes.

Table 8

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.091	1.043		2.004	.057
PBL	.457	.052	.426	8.750	.000
HOTS	.520	.044	.577	11.851	.000

The table above showed that the value of HOTS was  $t_{count}$  is 11.851 and  $t_{table}$  2.06866 and the sig.  $0.000 < 0.05$ . It is because the value of  $t_{count} > t_{table}$ , it could be concluded that  $H_01$  was rejected and  $H_{a1}$  was accepted. Therefore, the value of PBL was  $t_{count}$  is 8.750 and  $t_{table}$  2.06866 and the sig.  $0.000 < 0.05$ . It is because the value of  $t_{count} > t_{table}$ , it can be said that  $H_02$  was rejected and  $H_{a2}$  was accepted.

Table 9  
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.999 <sup>a</sup>	.998	.998	.206

Table 10  
ANOVA<sup>a</sup>

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	492.912	2	246.456	5828.440	.000 <sup>b</sup>
Residual	.973	23	.042		
Total	493.885	25			

Table 8 and table 9 described the influence of independent variables towards dependent variable. The table showed that  $F_{obtain}$  was 5828.440 which was bigger than  $F_{table}$  ( $5828.440 > 3.40$ ) and the significant was smaller than the alpha level ( $0.000 < 0.05$ ). It means that  $H_03$  was rejected and  $H_{a3}$  was accepted.

## DISCUSSION

The significant influence of using HOTS toward students' writing skill has shown by the result in pretest and posttest. Scoring the data related to written essay test. The maximum score will be 100, while the minimum will be 0. In pretest result, the minimum score was 58 and the maximum score was 74. In posttest result, the minimum score was 78 and the maximum score was 94. Furthermore, in pretest result, the mean was 68.88 and in posttest result was 84.54. Based on the data, the score of posttest (after the treatment) was higher than the pretest (before the treatment). It can be

said that there is a significant influence of using HOTS toward students' writing skill.

The significant influence of using PBL model toward students' writing skill has shown by the result in pretest and posttest. Scoring the data related to written essay test. The maximum score will be 100, while the minimum will be 0. In pretest result, the minimum score was 60 and the maximum score was 75. In posttest result, the minimum score was 78 and the maximum score was 98. Furthermore, in pretest result, the mean was 69.08 and in posttest result was 84.54. Based on the data, the score of posttest (after the treatment) was higher than the pretest (before the treatment). It can be said that there is a significant influence of using PBL model toward students' writing skill.

## **CONCLUSION AND SUGGESTION**

### **Conclusion**

The research question in the study was to examine whether there was a significant influence between students in experimental class who was treated using HOTS and PBL in their writing skill compared with the students in control class who treated using direct learning model. Based on the results of the research that the alternative hypothesis was accepted. In other words, it can be said that HOTS and PBL can significant influence of students' writing skill.

### **Suggestions**

Based on the research results and conclusions that have been raised, the following are some suggestions that are expected to be input and consideration for further similar studies.

#### **1. For English teachers**

First, it is expected that future studies should consider the topic or issue will be done in a writing project. There are three things to consider in this regard. Topics to be written should be simple, attractive and be close to student life. It is considered important that due to the interesting topics, the students will be able to develop their idea for the text, Topics to write should also integrates with students ability such as technic, social, etc. This will encourage students to enrich their knowledge regarding to the topic or issue. Secondly, it is expected that English teachers can apply HOTS and Project based learning in order to make interesting learning model in classroom, especially in writing skills.



## 2. For students

In implementing HOTS and Project based learning model, students need to maximize their writing practices. Moreover, the writing practices should also be supported by efforts to look up English dictionary, internet sources, and their real life to help them to express their idea clearly.

## 3. For other researchers

It is expected that further studies analyze students' writing skill, such as in vocabulary achievement, grammatical, mechanics, and so on. While doing this, researchers need to ask students to collect writings continuously and individually. The researcher suggests for the next researcher to choose another learning model in classroom. However, sometimes that activity can make the students feel depressed and bored, which will have an impact on the quality of writing in the future.

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