

THE EFFECT OF USING PROBLEM-BASED LEARNING (PBL) METHOD ON SPEAKING ABILITY OF THE FIRST YEAR EXACT SCIENCE STUDENTS OF SMAN 8 PEKANBARU

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Abstract: *The research was aimed to investigate whether problem-based learning (PBL) method can affect students' speaking ability. The research was conducted at the first year exact science students of SMA Negeri 8 Pekanbaru. The number of the students was 324 in 9 classes. Due to the large population, the cluster random sampling was used to determine the sample, then lottery taking is applied with the result that X MIPA 7 and X MIPA 8 were selected. In conducting the research, a quasi-experimental method was applied in which X MIPA 7 as the experimental class and X MIPA 8 as the control class. There were 72 students as the sample of this research. This research design used one group pre-test post-test. Experimental class was taught by using PBL method and control class was taught by using conventional method. The pre-test at the beginning and the post test at the end of the treatment were administered. The collected data were analyzed by using independent sample t-test. From the calculation, it was found that Sig. (2-tailed) was $0.000 < 0.05$. Since Sig. (2-tailed) was lower than $\alpha = 0.05$, H_0 was accepted. It means that there is significant effect in using problem-based learning (PBL) method on students' speaking ability. The implication of the findings was the control group should be enhanced by the similar method to increase their speaking ability.*

Key Words: *Speaking, Speaking Ability, Problem-Based Learning (PBL) Method*

SEBUAH PENGARUH DARI PENGGUNAAN METODE *PROBLEM-BASED LEARNING* PADA KEMAMPUAN BERBICARA SISWA MIPA TAHUN PERTAMA DARI SMA NEGERI 8 PEKANBARU

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Abstrak: Penelitian ini bertujuan untuk menyelidiki apakah Metode problem-based learning (PBL) dapat memengaruhi kemampuan berbicara siswa. Penelitian ini dilakukan pada siswa MIPA tahun pertama SMA Negeri 8 Pekanbaru. Jumlah siswa adalah 324 dalam 9 kelas. Karena banyaknya populasi, *cluster random sampling* digunakan untuk menentukan sampel, pengambilan lotre diterapkan sehingga X MIPA 7 dan X MIPA 8 terpilih. Dalam melakukan penelitian, metode kuasi-eksperimental diterapkan di X MIPA 7 sebagai kelas eksperimental dan X MIPA 8 sebagai kelas kontrol. Ada 72 siswa sebagai sampel penelitian ini. Desain penelitian ini menggunakan one-group pre-test post-test. Kelas eksperimental diajar dengan menggunakan metode PBL dan kelas kontrol diajar dengan menggunakan metode konvensional. Pre-test di awal, post-test di akhir treatment diberikan. Data dianalisis dengan menggunakan independent sample t-test. Dari perhitungan, ditemukan bahwa Sig. (2-tailed) adalah $0.000 < 0.05$. Karena Sig. (2-tailed) lebih rendah dari $\alpha = 0.05$, H_0 diterima. Ini berarti bahwa ada pengaruh yang signifikan dalam menggunakan Metode problem-based learning (PBL) pada kemampuan berbicara siswa. Implikasi dari hasil penelitian adalah kelompok pembandingan hendaknya diperkuat dengan metode serupa untuk meningkatkan kemampuan berbicara siswa.

Kata Kunci: Berbicara, Kemampuan Berbicara, Metode *Problem-Based Learning* (PBL)

INTRODUCTION

One of the language skills that English foreign learners should learn is speaking. According to Hornby (2005), “speaking is used to convey the ideas, and to have a conversation with somebody about something.” Florez (1999) defines “speaking as an interactive process of constructing meaning that involves producing and receiving and processing information.” It means that speaking is a main language skill that process of generating the sentences and utterances to enable students to communicate their ideas appropriately that concerns information, and makes conversation with people.

In addition, speaking is the most important basic skills in English language because it is a productive skill. The students start learning to communicate through spoken form as they begin to interact with others at school level. Richards (2008) states that the mastery of speaking skill in English is a priority for many second-language or foreign-language learners. Besides, it is necessary to develop students’ speaking skills for enriching their own knowledge.

Considering the importance of speaking, students of foreign language learners should master this skill fully, not only the theory but also they can speak fluently. Speaking can be assessed by looking at grammar, vocabulary, comprehension, fluency, and pronunciation. In terms of grammar, it is about the rules of language that shows meaning and relation in every single word.

The purpose of the curriculum 2013 is to prepare and build the students to be productive, creative, innovative, and also the students are expected to be able to participate in their daily social life. It means that students are expected to achieve speaking skills in communication and express their meaning or ideas. The objectives of the learning are the students will be able to speak fluently, they master all the components at least three components and creating English atmosphere in the classroom.

Based on writer’s personal experience, the exact science students of SMAN 8 Pekanbaru especially first-year students have some problems in speaking English such as students do not know how to talk or express their ideas in the classroom because they are worried about making mistakes, lose confidence, lack of vocabulary, lack of constructing sentences and utterances, and lack of motivation to participate in speaking activity. Perhaps not all of them, but most of the students do. Then, the school expects students are able to achieve English subject with the minimum criteria of mastery learning (KKM) about > 70 for the first year exact science students.

SMAN 8 Pekanbaru is developing an English learning program to increase the use of English in verbal context. However, English was still considered merely as a subject by the students, therefore, the school needs to create innovative situations that can improve the students’ speaking skill.

Based on the situation, Problem Based Learning (PBL) is one of the methods recommended to be used in teaching speaking. Yew (2009) explains that “Problem Based Learning is a learning approach that seeks to create a learning environment where students learn in the context of meaningful problems, activately constructing mental models in the process, costructing ideas with peers in a collaborative fashion and developing self-directed learning skills in the process.”

Based on the explanation above, the reasearcher decides to conduct a research entitled “The Effect of Using Problem-Based Learning (PBL) Method on Speaking Ability of the First Year Exact Science Students of SMAN 8 Pekanbaru.”

RESEARCH METHODOLOGY

The research was classified into quasi-experimental research with one group pretest-posttest design. Quasi-experimental called the non-equivalent control group design was used. Gay (2000:36) says that the non-equivalent control group design provides random assignment of group to treatment, not random assignment of individuals. This research gives a chance for each class to become object of the study. Furthermore, we need to take the sample randomly. According to Creswell (2008), quasi-experimental designs are experimental conditions in which the researcher works, but, grouping the participants randomly because the researcher cannot create artificial groups for their experiment. Quasi-experimental involves an experimental group and a control group which are followed by pre-test before treatment and post-test after treatment. The experimental was used PBL method and the control group was used conventional method.

There were two variables on this study. The Problem-Based Learning (PBL) Method was independent variable, while the students' speaking ability was dependent variable. It was conducted that Problem-Based Learning (PBL) Method can give significant effect on speaking ability of the first year exact science students at SMA Negeri 8 Pekanbaru. In conducting this research, the writer involved one group pre-test – post-test design. Where pre-test is the effect created on the second measurement by having a measurement before the experiment. The instrument of the research is speaking test in the form of brainstorming.

Population of the first year exact science students of SMAN 8 Pekanbaru are 324 students, there are divided into 9 classes. Due to the large population and random sampling of group, the writer was used cluster random sampling for taking the sample. According to Gay and Airasian (2000:129), cluster random sampling is the useful sampling technique when the population is very large.

In conducting this research, nine classes of the first year exact science students of SMAN 8 Pekanbaru was selected into two groups randomly. Margono (2003:126) explains that obtaining the sample from large populations, these techniques are used, either by lottery, ordinal, or random number tables. Furthermore, the group sample selection was used a lottery. The writer makes 9 lotteries which is two of nine lotteries named control group and experiment group, the others are blank. The writer asks the representative each class was taken one lottery. The representative who got control class, they was taught by using conventional method whereas the method of teaching was textbook centered and teacher dominant. Then, the representative who got experimental class was taught by using problem based learning (PBL) method. To make clearly enclosed a table below:

Table 1. The Sample of Quasi Experimental Research

CLASS	TOTAL OF STUDENTS
Experiment class selection	36
Control class selection	36
TOTAL	72

RESEARCH FINDINGS

In this research, Independent Sample T-Test was used to compare the pre-test and the posttest results in determining whether the hypothesis could be accepted and measuring whether the instruments in treatment could give an effect to the students or not.

The finding of this research shows the positive result of the use of Problem-Based Learning (PBL) Method in students' speaking ability. The improvement in the students' writing ability was shown through the experimental and control classes result. The comparison of the pre-test and post-test score in each classes can be seen in Table 2.

Table 2. The Comparison between Experimental Class and Control Class Result

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	
Pre-test Experimental	36	44	67	54,06	5,436	
Post-test Experiemtnal	36	43	77	64,14	7,999	
Pre-test Control	36	35	57	48,31	5,636	
Post-test Control	36	35	57	49,7222	5,24056	
Valid N (listwise)	36					

As shown in Table 2, the score of experimental class and control class were different. The highest score was in the mean of post-test experimental class (64.14). The lowest score was in the mean of post-test control class (49.72). These score differences proved that there is a significant effect of Problem-Based Learning (PBL) Method on the students' speaking ability.

Table 3. Independent Sample T-Test

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
The Result of Learning	Equal variances assumed	9,153	,003	7,869	70	,000	14.417	1.832	10.763	18.071
	Equal variances not assumed			7,869	53,948	,000	14.417	1.832	10.743	18.090

Based on the table above, it answered the hypothesis of the research that H_0 was accepted because Sig. (2-tailed) was $0.000 < 0.05$. The next standard for analysis based on 'Equal variant assumed'. Independent sample t-test shows Levene's Test to know the same variance (Hartono, 2008).

H_0 = Variance population not identic

If probabilities > 0.05 , H_0 is rejected

If probabilities < 0.05 , H_0 is accepted.

Based on the table above, it could be identified the hypothesis of the research that Alternative Hypothesis (H_i) is accepted because Sig. (2-tailed) 0.000 was lower than $\alpha = 0.05$. So, it can be concluded that Problem-Based Learning (PBL) Method has a significant effect on speaking ability of the first year exact science students of SMA Negeri 8 Pekanbaru.

DISCUSSION

This Quasi-experimental design was conducted to find out whether Problem-Based Learning (PBL) Method has a significant effect when it was used in teaching speaking. The topic of the spoken test was a problem or a phenomenon adapted by the K13 English book 2016 revision for first-year students. The students chose one topic and giving their opinion or idea until the problem was solved. In this research, the students was observed and measured by using Brown's scale there are the scores of pronunciation, grammar, vocabulary, fluency, and comprehension. The test was given to the students for both pre-test before treatment and post-test after treatment.

This research involved three steps. The first step was administered a pre-test to measure the students' ability in speaking. Based on the findings, the mean score of the pre-test experimental class was (54.06) and the mean score of pre-test control class was (48.31).

Then, the next step was applying the treatment which is Problem-Based Learning (PBL) Method. The researcher taught the students by implementing Problem-Based Learning (PBL) Method in teaching speaking. The treatment was conducted in four meetings.

The last step was administered a post-test to measure the students' ability after the treatment. The mean score of the post-test experimental class was (64.14) and the mean score of post-test control class was (49.72). In line with the result, one of the suggested methods for increasing speaking achievement is problem based learning (PBL) method. Through this method, it focuses to seek an opportunity to communicate, work together, and participate to solve some problems.

Furthermore, PBL was acquire in order to trigger students, support them in seeing the relation of learning to their future, manage their motivation, and show the students to be reliable. It has been argued by Tai and Yuan (2007) that "problem based learning (PBL) uses a real world problems and tasks as the initiative objective in constructing knowledge and enhancing learning experience." It means that PBL gives a good effort for the students in acquiring a chance to communicate, increasing learning environment and triggering their knowledge.

The findings of this research has answered the research question: There is an effect of using problem based learning (PBL) method on speaking ability of the first year exact science students of SMAN 8 Pekanbaru. Because the data analysis showed that Alternative Hypothesis (H_i) is accepted because Sig. (2-tailed) 0.000 was lower than $\alpha = 0.05$. So, it can be stated that problem based learning (PBL) method is one valuable and effectively ways to improve speaking ability of the first year exact science students of SMAN 8 Pekanbaru.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the data analysis and data presentation that have been explained, it can be concluded that the students' speaking ability taught by using Problem Based Learning (PBL) method of the first year exact science students of SMAN 8 Pekanbaru was good. Then, the students' speaking ability taught by using Conventional method at the first year exact science students of SMAN 8 Pekanbaru was average.

Based on the research findings, the result shows that there was a difference score between pre-test and post-test between experimental and control class. It was found out that post-test experimental mean (64.14) was higher than the post-test control mean (49.72). Moreover, there is an effect of using Problem Based Learning (PBL) method on speaking ability of the first year exact science students of SMAN 8 Pekanbaru.

Recommendation

Related to the result of the research, the writer would like to offer three recommendations. These recommendations are expected to be beneficial for the teachers and students in teaching and learning English. They are as follows:

1. Problem Based Learning (PBL) has an effect on speaking ability. PBL method can be an alternative speaking activity to enhance the students' speaking ability.
2. The lowest score was in grammar component, it is recommended that the teacher must also concern about the use of grammar while teaching speaking.
3. The teacher provides students with opportunities to present and share the result of their work.

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