TEFL Overseas Journal

**Teaching English as a Foreign Language Journal**
ISSN 2461-0240 (Print), 2828-9544 (Online)
Volume 10 Number 3 December 2022

# THE INFLUENCE OF THE APPLICATION OF THE PROBLEM-BASED LEARNING MODEL ON THE LEARNING OUTCOMES AT SMPN 2 KOTAGAJAH

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## ABSTRACT

The main problem in this study is whether the application of the problem-based learning model affects the English studies learning outcomes of grade VIII students of SMPN 2 Kotagajah. This study aims to determine the influence of the application of the problem-based learning model on social science learning outcomes in grade VIII students of SMPN 2 Kotagajah. This type of research is a true experimental study of the Posttest Only Control Group Design form involving two classes. The subjects in this study were grade VIII students of SMPN 2 Kotagajah which consisted of two groups, namely the control group of 32 students and the experimental group of 32 students. The control group is a conventionally taught group while the experimental group is a group taught with a problem-based learning (PBL) model. The results of descriptive statistical analysis of the use of problem-based learning models on student Social Science learning outcomes have a positive effect, student Social Science learning outcomes using problem-based learning models show better learning outcomes than before the problem-based learning model was applied. The results of inferential statistical analysis using the t-test formula, it is known that the calculated value of t-Count is 9.01 with a frequency of db = 32–1 = 31, at a significance level of 5% obtained t-Table = 2.04. So, t Calculate > t table or null hypothesis (H0) is rejected and alternative hypothesis (H1) is accepted. This proves that there is an influence in applying the problem-based learning model to the learning outcomes of English students in grade VIII SMPN 2 Kotagajah.

***Keywords:*** *Problem Based Learning Model, student learning outcomes*

## INTRODUCTION

Education is a conscious effort to develop and foster the potential of human resources through various learning activities. Education in schools aims to develop the potential of students so that they can have knowledge, skills, and learning attitudes as a form of stable behavior change in learning and can develop their potential to have religious spiritual power, self-control, personality, intelligence, noble character, as well as the skills needed for themselves, society, nation, and state.

Education is very necessary to build people's lives and change people's mindsets so that Indonesia can advance. In this case, it is necessary to improve the

**Teaching English as a Foreign Language Journal**
ISSN 2461-0240 (Print), 2828-9544 (Online)
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quality of human resources through the learning process in schools. So that teachers must be able to present meaningful learning so that the expected educational goals can be achieved.

The quality of human resources who are able to compete at the global level, always wants changes that lead to improving the quality and ability of competitiveness. One of the fundamental things is the achievement of competencies for students through the learning process and the use of effective methods. The accuracy of teachers in applying learning methods will produce optimal learning objectives, while teachers who are unable to apply learning methods will result in a failure in achieving learning objectives.

Teachers in applying the learning model emphasize more on models that emphasize teacher activities or teacher-centered learning, not on student activities. The learning carried out by teachers is less varied. For example, teachers use the lecture method more and even tell students to sit down, take notes and listen.

As for the problem of the results of learning English is a classic problem that will continue to occur in educational institutions. One of these problems is the low learning outcomes, this is because the learning model used by teachers is a conventional model. Conventional learning is learning whose emphasis is only on the completion of tasks, social skills are often not directly taught, and monitoring is often not carried out by the teacher at the time when group learning is underway (Trianto, 2007: 43).

Based on the results of special observations made by the author regarding the implementation of learning in grade VIII SMPN 2 Kotagajah, it shows the lack of enthusiasm and enthusiasm of students in learning. This is because in the learning process the teacher still uses the lecture method, students just sit, take notes, and listen to what the teacher says and give students little opportunity to ask questions. In this case, the learning atmosphere becomes boring for students where students only receive less active material, so students are less interested in the learning material presented. Teachers also do not give students the opportunity to solve problems in groups, but after learning students are only given evaluation questions to do individually.

Related to this problem, a learning process must be given an alternative that allows the development of students' thinking skills (reasoning, communication, and connection), and can create a more pleasant, active learning atmosphere and can arouse students' interest in social science lessons and affect student learning outcomes. One of them is by using the Problem Based Learning (PBL) learning model.

Problem Based learning (PBL) or problem-based learning is a teaching method with a real problem-solving focus, the process by which students carry out group work, feedback, discussions, which can serve as a springboard for investigation and investigation and final report. Thus pupils are encouraged to more actively engage in the subject matter and develop critical thinking skills. According to Arif Rohman (2009: 189) stated, "The Problem Based Learning (PBL) learning model is a learning model that uses problems as a basis for learning materials for students". In line with this, the role of the teacher in this learning model is more of a guide and facilitator so that students learn to think and

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ISSN 2461-0240 (Print), 2828-9544 (Online)
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solve their own problems. The Problem Based Learning learning model is one of the teacher's strategies in teaching students by involving students as members of small groups with different abilities to carry out learning activities to improve the achievement of learning outcomes achieved by students.

According to the thoughts of Joyce and Weill (Agus Suprijono, 2009: 46) regarding the function of the learning model, it is stated that through the learning model the teacher can help students in obtaining information, ideas, skills, ways of thinking and expressing an opinion. For this reason, a learning model is needed that can improve students' abilities.

## METHODS

This type of research is quantifiable in the form of "True experimental" research using the Posttest Only Control Group Design design. The design of this study aims to measure the effect of treatment on the experimental group by comparing the group with the control group. In this study, there were 2 groups, each of which was selected randomly (R). The first group was given treatment (X) and the other group was not. The group that was given treatment was called the experimental group and the group that was not given treatment was called the control group. The effect of treatment is (O1:O2). In actual studies, the effect of treatment is analyzed by different tests using t-test statistics, for example, if there is a significant difference between the experimental group and the control group, then the treatment given has a significant effect. The population in this study was students of SMPN 2 Kotagajah. while the samples selected in this study were students of class VIII SMPN 2 Kotagajah.

## FINDINGS AND DISCUSSION

The results and analysis of research data are made based on data obtained from research activities on student learning outcomes through the application of problem-based learning learning models that have been implemented at SMPN 2 Kotagajah. This research was carried out during four meetings, where the first meeting was observed and divided into groups so that when applying problem-based learning, the time provided was sufficient.

### 1. Results of Descriptive Statistical Analysis

### a. Level of Student Social Science Learning Outcomes in the Control Group

To provide an initial overview of student learning outcomes in grade VIII which was chosen as a research unit. The following is presented the English studies learning outcomes scores of grade VIII students in the control class.

The English studies learning outcomes test scores of students in the control class are grouped into five categories, then the distribution of frequency and percentage scores shown in Table 1 follows is obtained:

Table 1 Distribution and Percentage of Control Class
English studies Learning Outcomes Scores

| No. | Score | Category | Frequency | Percentage (%) |
|---|---|---|---|---|
| 1 | 0-57 | Very Low | 9 | 28,12 |

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|---|---|---|---|---|
| 2 | 58-67 | Low | 14 | 43,75 |
| 3 | 68-77 | Keep | 10 | 31,25 |
| 4 | 78-87 | Tall | - | - |
| 5 | 88-100 | Very High | - | - |
| **Sum** | | | **32** | **100** |

Based on Table 1, it can be described that of the 32 grade VIII students of SMPN 2 Kotagajah who had Posttest results, generally had an educational learning outcome level in the lowest category with an average score of 61.66 out of an ideal score of 100.

Then to see the percentage of completion of students' English studies learning in the control class after the posttest can be seen in Table 2.2 below.

Table 2 Description of English studies Learning Completion of Grade VIII Students of SMPN 2 Kotagajah in Posttest

| Score | Category | Frequency | Persentage (%) |
|---|---|---|---|
| **≥ 68** | Tuntas | 10 | 31,25 % |
| **< 67** | Tidak Tuntas | 22 | 68,75 % |
| **Sum** | | **32** | **100** |

Based on Table 2.2 Posttest, it can be described that those who have achieved learning completion are 10 people out of a total of 32 students with a percentage of 31.25%, while those who have not reached learning completion are 22 people out of a total of 32 students with a percentage of 68.75%.

**b. English studies Learning Outcomes Level of Grade VIII Students in the Experimental Group After Being Given Treatment or Posttest**

To provide an initial overview of student learning outcomes in grade VIII which was chosen as a research unit. The following is presented the score of English studies learning outcomes of grade VIII students in the experimental class.

If the English studies learning outcomes test scores of the students taught are grouped into five categories, the distribution of frequency and percentage scores shown in Table 2.3 follows is obtained:

Table 3 Distribution and Percentage of English studies Learning Outcomes Scores in Class VIII Experimental Groups after Treatment or Posttest

| No. | Score | Category | Freuency | Persentage (%) |
|---|---|---|---|---|
| 1 | 0-57 | Very Low | 0 | 0 |
| 2 | 58-67 | Low | 3 | 9,52 |
| 3 | 68-77 | Keep | 11 | 33,33 |
| 4 | 78-87 | Tall | 12 | 38,10 |
| 5 | 88-100 | Very High | 6 | 19,05 |
| **Sum** | | | **32** | **100** |

Based on tables 2 and 3 above, it can be described that of the 32 grade VIII students of SMPN 2 Kotagajah who were used as posttest research samples, generally had a level of student learning outcomes in the High category with an average score of 79.41 out of an ideal score of 100.

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Then to see the percentage of completion of students' English studies learning after treatment (Posttest) with a problem-based learning learning model can be seen in Table 2.4 below.

Table 4 Description of English studies Learning Completion of Grade VIII Experimental Group Students after Treatment.

| Score | Category | Freuency | Persentage (%) |
|---|---|---|---|
| ≥ 68 | Complete | 29 | 90,63 |
| < 67 | Incomplete | 3 | 9,37 |
| **Sum** | | 32 | 100 |

Based on Table 3 of the Experimental Class after treatment (Posttest) with the Problem Based Learning model, it can be described that those who have achieved learning completion are 29 people from a total of 32 people with a percentage of 90.63%, while those who did not achieve learning completion were 3 people out of a total of 32 students with a percentage of 9.37%. If table 2.6 is related to indicators of the completeness of student learning outcomes, it can be concluded that the English studies learning outcomes of grade VIII students of SMPN 2 Kotagajah after applying the Problem Based Learning model have met the indicators of completeness of classical learning outcomes.

**2. Description of Student Activities in Learning**

The results of observations of student activities in participating in learning using the PBL learning model for 3 meetings are expressed in the following percentages:

Table 5 Results of Analysis of Student Activity Observation Data

| No. | Student Activities | Number of Active Students at the second meetings | | | Aver age | % | Category |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | | | |
| 1. | Students present at the time of learning | 32 | 32 | **P** | 32 | 100 | Active |
| 2. | Students who are not paying attention at the moment when the teacher explains the material. | 20 | 26 | **O** | 23 | 71,87 | Inactive |
| 3. | Pupils who pay attention at the moment when the teacher explains the material. | 23 | 21 | **S** **T** | 22 | 68,75 | Inactive |
| 4. | Students who answer the teacher's questions both orally and in writing. | 20 | 20 | **E** | 20 | 62,5 | Active |
| 5. | Pupils who provide assistance to group mates who are having difficulties | 10 | 15 | **S** | 12,5 | 39,06 | Inactive |
| 6. | Students who ask questions during the learning process. | 20 | 28 | | 24 | 75 | Active |

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| 7. | Students who volunteered to do questions on the board | 15 | 20 | **T** | 17,5 | 54,68 | Inactive |
| 8. | Students who submit responses during discussion of questions | 26 | 30 | | 28 | 87,5 | Active |
| 9. | Students who are able to deduce the learning material at the end of the lesson | 3 | 8 | | 5,5 | 17,18 | Inactive |
| | **Average** | | | | | **64,06** | **Inactive** |

In accordance with the criteria for student activity that has been determined by the researcher, namely students are said to be active in the learning process if the number of active students ≥75% for both student activity and average student activity, from the results of observations the average percentage of students who are actively doing activities only reaches 64.06% so that it can be concluded that student activity in the learning process has not reached the active criteria.

**Table 6 Results of Analysis of Student Activity Observation Data**

| **No.** | **Student activities** | **Number of Active students at the 2nd Meeting** | | | **Aver age** | **%** | **Category** |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | | | |
| 1. | pupils present at the time of learning | 32 | 32 | **P** | 32 | 100 | Active |
| 2. | pupils who do not pay attention at the moment when the teacher explains the material. | 3 | 1 | **O** | 2 | 6,25 | Inactive |
| 3. | pupils who pay attention at the moment when the teacher explains the material. | 31 | 31 | **S** | 31 | 96,87 | Active |
| 4. | students who answer the teacher's questions both orally and in writing. | 27 | 30 | **T** | 28,5 | 89,06 | Active |
| 5. | students who provide assistance to group mates who are having difficulties | 21 | 24 | **E** | 22,5 | 70,31 | Active |
| 6. | students who ask questions during the learning process. | 27 | 28 | **S** | 27,5 | 85,93 | Active |
| 7. | students who volunteered to do questions on the board | 20 | 28 | **T** | 24 | 75 | Active |
| 8. | students who submit responses during discussion of questions | 30 | 32 | | 31 | 96,87 | Active |
| 9. | students who are able to deduce the learning material | 28 | 30 | | 29 | 90,62 | Active |

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| at the end of the lesson | | | |
| **Average** | | **76,77** | **Active** |

In accordance with the criteria for student activity that has been determined by the researcher, namely students are said to be active in the learning process if the number of active students ≥75% for both student activity and average student activity, from the results of observations the average percentage of students who are actively doing activities has reached 76.77% so that it can be concluded that student activity in the learning process has reached active criteria.

In accordance with the research hypothesis, namely "There is a positive influence on student learning outcomes using the Problem Based Learning model". So, the technique used to test the hypothesis is an inferential statistical technique using a t-test.

**Table 7 Results of Control Class Data Analysis**

| **Score ($x_i$)** | **Number of Disciples ($f_i$)** | $f_i \cdot x_i$ | $(x_{i-\bar{x}})$ | $(x_{i-\bar{x}})^2$ | $f_i(x_{i-\bar{x}})^2$ |
|---|---|---|---|---|---|
| 49 | 1 | 49 | -12,66 | 160,27 | 160,27 |
| 50 | 2 | 100 | -11,66 | 135,95 | 271,9 |
| 52 | 3 | 156 | -9,66 | 93,31 | 279,93 |
| 55 | 1 | 55 | -6,66 | 44,35 | 44,35 |
| 56 | 1 | 56 | -5,66 | 32,03 | 32,03 |
| 57 | 1 | 57 | -4,66 | 21,71 | 21,71 |
| 58 | 2 | 116 | -3,66 | 13,39 | 26,78 |
| 60 | 4 | 240 | -1,66 | 2,75 | 11 |
| 61 | 1 | 61 | -0,66 | 0,43 | 0,43 |
| 62 | 4 | 62 | 0,34 | 0,11 | 0,44 |
| 63 | 1 | 63 | 1,34 | 1,79 | 1,79 |
| 65 | 1 | 65 | 3,34 | 11,15 | 11,15 |
| 67 | 1 | 67 | 5,34 | 28,51 | 28,51 |
| 69 | 3 | 69 | 7,34 | 53,87 | 161,61 |
| 70 | 2 | 70 | 8,34 | 69,55 | 139,1 |
| 71 | 1 | 71 | 9,34 | 87,23 | 87,23 |
| 72 | 1 | 72 | 10,34 | 106,91 | 106,91 |
| 74 | 1 | 74 | 12,34 | 152,27 | 152,27 |
| 76 | 1 | 76 | 14,34 | 205,63 | 205,63 |
| **Sum** | **32** | **1973** | **129,34** | **1221,21** | **1743,04** |

Table 8 Results of Experimental Class Data Analysis

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| **Score ($x_i$)** | **Number of Disciples ($f_i$)** | $f_i \cdot x_i$ | $(x_{i-\bar{x}})$ | $(x_{i-\bar{x}})^2$ | $f_i(x_{i-\bar{x}})^2$ |
|---|---|---|---|---|---|
| 60 | 1 | 60 | -19,41 | 376,74 | 376,74 |
| 66 | 2 | 132 | -13,41 | 179,83 | 359,66 |
| 70 | 2 | 140 | -9,41 | 88,55 | 177,1 |
| 73 | 1 | 73 | -6,41 | 41,09 | 41,09 |
| 75 | 5 | 375 | -4,41 | 19,45 | 97,25 |
| 76 | 1 | 76 | -3,41 | 11,63 | 11,63 |
| 77 | 2 | 154 | -2,41 | 5,81 | 11,62 |
| 79 | 2 | 158 | -0,41 | 0,17 | 0,34 |
| 80 | 4 | 320 | 0,59 | 0,35 | 14 |
| 82 | 2 | 164 | 2,59 | 6,71 | 13,42 |
| 85 | 2 | 170 | 5,59 | 31,25 | 62,5 |
| 86 | 1 | 86 | 6,59 | 43,42 | 43,42 |
| 87 | 1 | 87 | 7,59 | 57,61 | 57,61 |
| 88 | 2 | 176 | 8,59 | 73,79 | 147,58 |
| 90 | 1 | 90 | 10,59 | 112,15 | 112,15 |
| 1 | **2** | **3** | **4** | **5** | **6** |
| 91 | 2 | 182 | 11,59 | 134,33 | 268,66 |
| 98 | 1 | 98 | 18,59 | 345,59 | 345,59 |
| **Sum** | **32** | **2541** | **127,18** | **1509,02** | **2140,36** |

To find t The researcher's table used a t distribution table with a significant degree of α=0.05 and d.b=N-1 = 32 – 1 = 31 then t 0.05 = 2.04 was obtained. After obtaining t-Count = 9.01 and t-Table = 2.04 then t-Calculate > t-Table or 9.01 > 2.04 is obtained. So, it can be concluded that H0 is rejected and H1 is accepted. This means that the use of the Problem Based Learning model positively affects student learning outcomes.

Based on the results of the hypothesis test, it shows that there is a difference between the English studies learning outcomes of students taught using the Problem Based Learning model and the results of conventionally taught students. This difference occurred due to differences in treatment in the two groups.

English studies learning with the Problem Based Learning model is carried out to develop students' abilities in overcoming problems related to the real world of students. This model, is believed to be the right model in working on English concepts, because English comes from things that are factual. Thus, learning activities can help students understand the English studies concepts learned. Because students are dealing with real concepts not just theory. In addition, learning using the Problem Based Learning model can create new experiences for students in learning. The Problem Based Learning model also provides opportunities for students to be actively involved in every learning activity and make the learning experience more meaningful.

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Meanwhile, learning activities carried out in a conventional way feel more boring. Because students passively receive learning materials (reading, listening, taking notes, memorizing) without contributing ideas in the learning process. Therefore, it can be understood that a model is a way that has strategic value in teaching and learning activities. It is said that because the model can affect the course of teaching and learning activities.

Based on the observations, conventional English studies learning is not able to grow students' overall abilities about the concept of the lesson. Conditions like this make the classroom atmosphere boring and it seems that the class only belongs to the teacher, because the learning activities that occur are the teacher actively providing information, while students are only passive listeners who must receive information from the teacher. This causes many students to have difficulty in doing the same practice questions as the questions given in classes that carry out English studies learning with the Problem Based Learning model.

This study mainly measures the differences in student learning outcomes using Problem Based Learning and Conventional models. Student learning outcomes are measured using written tests. Written tests conducted after posttest in the Problem Based Learning and control group.

Based on posttest data, the average score of student learning outcomes in the control class was 61.66% with categories of very low, namely 28.16%, low 31.25%, medium 0%, high 0% and very high at a percentage of 0%. Looking at the existing percentage results, it can be said that the level of students' ability to understand and master English studies subject matter in using conventional learning models is relatively low.

Furthermore, the average score of student learning outcomes in the experimental class was 79.41%. So English studies learning outcomes using the Problem Based Learning model have better learning outcomes than using conventional learning models. In addition, the percentage of student English studies learning outcomes category also increased, namely very high, namely 19.05%, high 38.10%, medium 33.3%, low 9.52%, and very low at a percentage of 0.00%.

Based on the results of inferential statistical analysis using the t-test formula, it can be known that the calculated value is 9.01. With a frequency (et al) of 32 - 1 = 31, at a significance level of 5% obtained t-table = 2.04. Because the calculation > t-table at a significance level of 0.05, the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted which means that the use of problem-based learning models affects student learning outcomes.

The results of the analysis above show the influence of using a problem-based learning model on student English studies learning outcomes, in line with the results of observations made. Based on the results of observations, there are differences in students where in the learning activity control class there are some students who do other activities or do not pay attention during learning. Meanwhile, in the experimental class, students are more active and pay attention to learning when the teacher gives an explanation.

Based on the results of descriptive statistical analysis and inferential statistics obtained as well as the results of observations that have been carried out,

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it can be concluded that the use of the Problem Based Learning model has an influence on the English studies learning outcomes of grade VIII students of SMPN 2 Kotagajah.

## CONCLUSION

Based on the results of research and data analysis, it can be concluded that the Problem Based Learning model affects student English studies learning outcomes. This can be seen from the average posttest results of the Problem Based Learning class is greater than the average posttest result of the control class, which is 79.41 for the Problem Based Learning class and 61.66 for the control class. Likewise, based on the results of the t-test calculation for posttest data, a calculated value of 9.01 was obtained, so that the calculation value is greater than the ttabel, which is 2.04, so it can be said that the t-table > calculation means that there is a positive influence on student learning outcomes using the PBL model. Which also means that the alternative hypothesis (H1) is accepted and the null hypothesis (H0) is rejected.

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