

## Problem-Based Learning Method Using Comic As A Medium Toward Students' Learning Outcomes Of Economy Social Science in *Uang dan Lembaga Keuangan*

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### Article Info

#### Article History:

Received 12 January  
2018

Accepted 7 February  
2018

Published 2 June  
2018

#### Keywords:

Problem-Based Learning,  
Comic, media, learning  
outcomes

### Abstract

*Uang dan Lembaga Keuangan* are materials of Economy Social Science subject which mostly use lecture and memorization in its learning process. This leads to students' inability to develop their potential and makes students passive. Therefore, a learning method which can trigger students' activeness is needed. One of the learning methods that can improve the quality of learning is Problem-Based Learning Method and the use of comic as a medium in learning. The objective of this study is to determine whether there are different activities and learning outcomes between the students who learn using a Problem-Based method and comic as the learning medium and the students who learn using a conventional method in class IX SMP Nasima Semarang. This research used Quasi-Experimental Design design with Nonequivalent Control Group Design form. The population in the study was 108 students of class IX of SMP Nasima Semarang with two sample classes, which were class IX-A and IX-C with 28 students in each class. Initial data of the research used the result of pretest which showed the average score of the experimental class was 70,95 while the average score of control class was 70,83. Based on the statistically processed data by using "t" test, the t-count was 2,441, while the value of t-table was 2,004. Therefore, it could be concluded that  $t_{count} > t_{table}$ , then with this  $H_a$  was accepted while  $H_o$  was rejected. It showed that there were differences in students' learning outcomes between the experimental group and the control group after they were given different learning methods. The class which learned through problem-based learning method had better outcomes than the class which learned through a conventional method.

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[p-ISSN 2301-7341](#)

[e-ISSN 2502-4485](#)

## INTRODUCTION

One way teaching process does not support the learners' participation in learning process. Learners still tend to be passive, less critical and less creative during the learning activities. It affects the learning outcomes which are still under the Passing Grade (KKM).

Problem-Based Learning Method is a learning approach where the learners are guided to solve authentic problems in order to develop their knowledge, inquiry and high-level thinking skills, self-reliance and confidence (Arends in Trianto, 2007: 68).

Educational media are tools in the learning process which are used in both inside and outside the classroom, whose purpose is as communication and interaction tools between teachers and students in the learning process (Arsyad, 2011: 7). One example of textual education media is comic. According to Sudjana and Rivai (2010), comic as a medium in teaching and learning process draws students' interest, streamlines the teaching and learning process, and raise appreciation.

Another advantage of the comic as a medium is that it displays a strong visual and storytelling element. The visualized expression makes the reader emotionally involve and keep reading to completion. This becomes an inspiration of those comics whose contents are lesson materials. The problems is that the students do not really like textbooks especially those which do not have any interesting pictures and illustrations. Empirically, students tend to prefer books with colorful pictures which are visualized realistically or in cartoons. Comic as a learning medium is expected to increase students' interest in reading and eventually students' learning outcomes.

Based on those reasons, the writer is interested to conduct a research entitled problem-based learning method using comic as a medium toward students' learning outcomes of economy social science in money and financial institutions materials in Class IX SMP Nasima Semarang"

Based on the formula of the issues which have been presented, the objectives of this study are as follows:

Analyzing the Problem-Based Learning Method with Comic as a Medium on Students' Learning Outcomes Class IX SMP Nasima Semarang with Basic Competence Describing Uang dan Lembaga Keuangan.

Testing the effectiveness of Problem Based Learning (PBL) method with Comic as a Medium on Student Learning Outcomes Class IX SMP Nasima Semarang with Basic Competence Describing Uang dan Lembaga Keuangan.

The benefits of this research are:

Contributing a study about the results of Economy Social Science with money, banks and financial institutions materials.

financial institutions materials.

Developing a medium and learning materials of Economy Social Science materials about money and banks.

For Economy Social Science teachers, it can be used as an alternative in selecting a new effective learning method based on the materials.

For students, it adds a new and varied learning experience which is expected to improve students' learning results and participation.

For school, this research can be used as an input to increase the quality of learning process at school.

## METHODS

This research is a comparative research with an equivalent control group design approach. This experiment requires a control or comparison group which will be given a different treatment than the experimental group. The objective of this research design is to find the differences of pre test and post test between experiment class and control class.

The research design of this study is described as follows:

**Table 1.** Research Design

Class	<i>Pre test</i>	Treatment	<i>Post test</i>
Experimental Class	O <sub>1</sub>	X1, X2	O <sub>2</sub>
Control Class	O <sub>1</sub>		O <sub>2</sub>

Description:

O1: The experimental class and control class are given a pre-test

X1: Economic IPS lesson with Problem-Based Learning method

X2: Comic as a learning medium

O2: The experimental class and control class are given a post-test

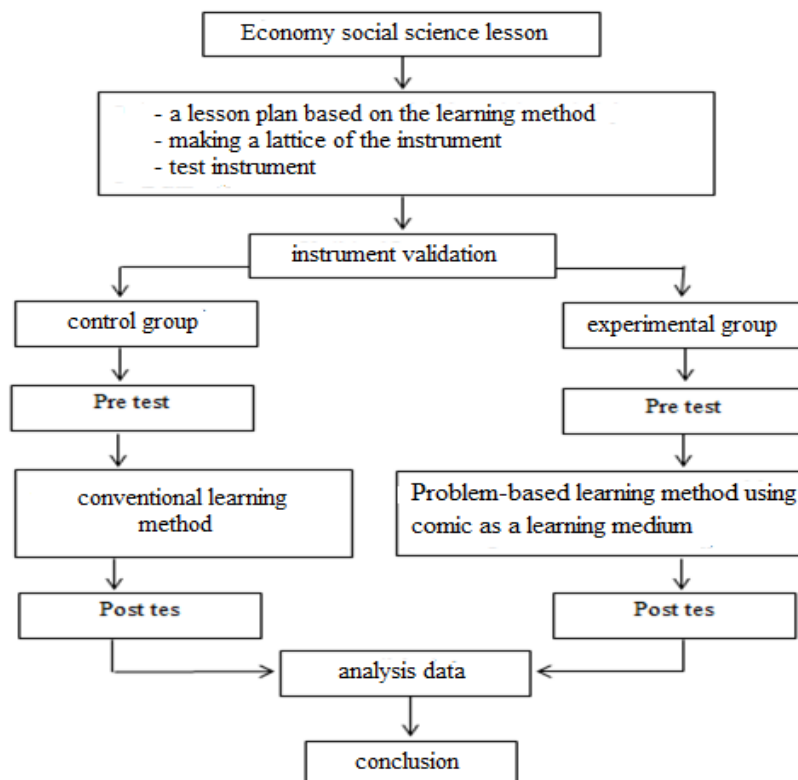
tools that was used during the learning process in the classroom, including Learning Implementation Plan (RPP), Student Worksheet (LKS), comic, and test instruments.

During the implementation stage, class IX-C and IX-A were given different treatments. Class IX-C was given a lesson using Problem-Based Learning (PBL) method and Comic as the learning medium, while class IX-A was given a lesson using a conventional learning method.

The procedure of the research implementation is depicted in the following chart:

### Research Implementation

The research implementation consisted of several stages, which were composing learning



**Picture 1.** Procedure of Research Implementation

**Data analysis technique**

Normality test is conducted to determine the appropriate statistical test in answering the research hypothesis:

Ho: samples which are normally distributed

H1: the sample which is not normally distributed

Kolmogorov Sminorv test, with 5% significance level, if the sig value in Kolmogorov Sminorv test is  $> 5\%$  test then Ho is accepted and if it is not sig  $< 5\%$  then Ho is rejected (Sukestarno, 2013).

**Test homogeneity**

If the distribution is normal, then the next step is to test the homogeneity of variants (F test), which is:

$$F_{\text{count}} = \frac{\text{biggest } S^2}{\text{smallest } S^2}$$

Where

$$S^2 = \frac{n\sum x^2 - (\sum x)^2}{n(n-1)}$$

With homogeneous criterion sample if  $F_{\text{count}} < F_{\text{table}}$  ( $F_{\alpha} (dk1, dk2)$  with  $\alpha = 1\%$  (Sugiyono, 2012).

**Hypothesis testing**

T-test is used to test the hypothesis with significance condition  $\alpha = 0.05$  and a correlation test. The formulas are as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S_g \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}, \text{ with } S_g = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

Description :

$x_1$  = average score of the experiment group

$x_2$  = average score of the control group

$S_g$  = combined variance (experiment and control group)

$S_1$  = variance of the experimental group

$S_2$  = variance of the control group

$n_1$  = number of experimental group members

$n_2$  = number of control group members

With testing criteria:

Ho is rejected if  $t_{\text{count}} < t_{\text{table}}$

T-Test is done based on the table at significance level of 5% or 0.005, if t's value is smaller than t's value in table or t count  $< t_{\text{table}}$  then Ho is rejected, otherwise if the value is bigger than t value at table or t count  $> t_{\text{table}}$  then Ha is accepted

**Normal Gain Test**

To measure the effectiveness of Economy Social Science learning by applying problem-based learning method using comic as a medium toward students' learning outcomes, this research used N-Gain formula from pretest and posttest scores from both experiment class and control class.

**RESULT AND DISCUSSION****Description of Research Data**

The data used to perform the analysis of research data is the result of learning Economics grade IX students of Nasima Junior High School before and after given treatments using problem based learning with comic as the media in experimental group and student learning outcomes before and after being given Conventional learning on control group. General description the results of experimental group research data and control groups are presented in Table 4.3.

**Table 2.** Description of Research Data

Sources of Variation	<i>Pretest</i>		<i>Posttest</i>	
	Experimental Group	Control Group	Experimental Group	Control Group
Number of students	28.00	28.00	28	28
Mean	70.95	70.83	82.74	77.14
Standard Deviation	7.14	7.94	8.32	8.83
Highest score	83.33	83.33	100.00	93.33
Lowest score	50.00	53.33	70.00	56.67
Range	33.33	30.00	30.00	36.67

Source: primary data of 2017

Students' outcomes data obtained from pretest and posttest conducted in experiment group and control group. Pretest in the experimental group as well as in the control group was held on November 7, 2017, the post test was held on November 23, 2017. The learning outcomes data was then processed for hypothesis testing of student learning outcomes. Posttest was done after both classes get treatment.

Based on the above table obtained information on average student learning outcomes in the experimental group before being given problem based learning with comic as the media is 70.95 with standard deviation of 7.14 the lowest score is 50 while highest score is 83.33. Average of learning outcomes of students in the experimental group after being given

learning problem based learning with comic as the media is 82.74 with standard deviation 8.32 lowest score 70 highest value 100.

While the average of student learning outcomes in the control group before the conventional learning is 70.83 with standard deviation of 7.94 the lowest score is 53.33 while the highest score is 83.33. The average of the students' learning outcomes in the control group after the conventional learning is 77.14 with standard deviation 8.83, the lowest score is 56.67 and the highest score is 93.33.

### Normality test

Normality test is performed to determine what the appropriate statistical test used in answering the research hypothesis. Normality test results are presented in Table 3

**Table 3.** Result of Normality Test

	Group	$\chi^2_{hitung}$	dk	$\chi^2_{table}$	Criteria
Pre test	Experimental	6.14	3	7.81	Normal
	Control	4.94	3		Normal
Post test	Experimental	6.18	3	7.81	Normal
	Control	4.24	3		Normal

Source: Research Results of 2017

Based on calculations obtained sig value pretest data of experimental group is 6.14 < 7.81

so it can be concluded pretest of experimental is normally distributed. The sig value for the

control group preview data is  $4.94 < 7.81$  so it can be concluded the posttest data of the control group is normally distributed. The sig value for the experimental group posttest data is  $6.18 < 7.81$  so it can be concluded that the posttest data of the experimental group is normally distributed. The sig value for the control group posttest data is  $4.24 < 7.81$  so it can be concluded that the posttest data of the control group is normally distributed.

The result of this analysis is used as consideration in subsequent analysis by using

parametric statistic, based on result of normality test, hence data analysis used to test hypothesis is independent test of t-test sample and paired sample t-test.

### Homogeneity Test

Homogeneity test is used to find out whether or not the data variance of student learning outcomes between experimental group and control group both pretest and posttest data. The results of the homogeneity test of the research data are presented in Table 4.5 below.

**Table 4.** Homogeneity Test

	Group	Var	Dk	F <sub>value</sub>	F <sub>table</sub>	Criteria
Pre test	Experimental	50.9	27	1.24	1.97	Homogeneous
	Control	63.1	27			
Post test	Experimental	69.2	27	1.13	1.97	Homogeneous
	Control	78.0	27			

Source: Research Results of 2017

Based on the calculation of homogeneity test above, for pretest data obtained value  $F_{count} = 1,24 < 1,97$  so it can be concluded pretest data between experimental group and homogenous control group. For data posttest obtained sig value =  $1,13 < 1,97$  so it can be concluded posttest data between experiment group and control homogeneous.

### Test of average (Pretest)

The test of difference of two mean of pretest data in this research is used to know whether there is difference of student learning result between experimental group and control group before given different learning. The results of the test calculation difference of two average pre test data can be presented in Table 5 below.

**Table 5.** Test of Pretest Data

Group	Mean	dk	t <sub>value</sub>	t <sub>table</sub>	Criteria
Experimental	71.0	27.0	0.06	2.004	There's no difference
Control	70.8	27.0			

Source: Research Results of 2017

Hypothesis used:

Ho: There is no difference in student learning outcomes between the experimental group and the control group before being given different treatment.

Ha: There is a difference in student learning outcomes between the experimental

and the control groups before being given different treatment.

Criterion of decision making:

With confidence level = 95% or 0,05. Number of samples for experimental group = 28 and number of samples for control = 28 obtained  $t_{table} = 1,992$ .

-t table < t value < t table,  $\alpha = 5\%$ ,  $H_0$  is rejected

-t value < -t table or t value > t table,  $\alpha = 5\%$ ,  $H_0$  is accepted

Based on the calculation results obtained t count = 0.06 < 2.004 so  $H_0$  accepted, in other words it can be concluded there is no difference in student learning outcomes between the experimental group and control group before

being given different learning on the students of Grade IX SMP Nasima Semarang.

#### Improvements of students learning outcomes

The analysis of students' learning outcomes done to find out how much the treatment in the Experimental group and in the control group can improve student learning outcomes. The results of the calculation of student learning outcomes can be seen in Table 4:11 below.

**Table 6.** Improvements of Students' Outcome

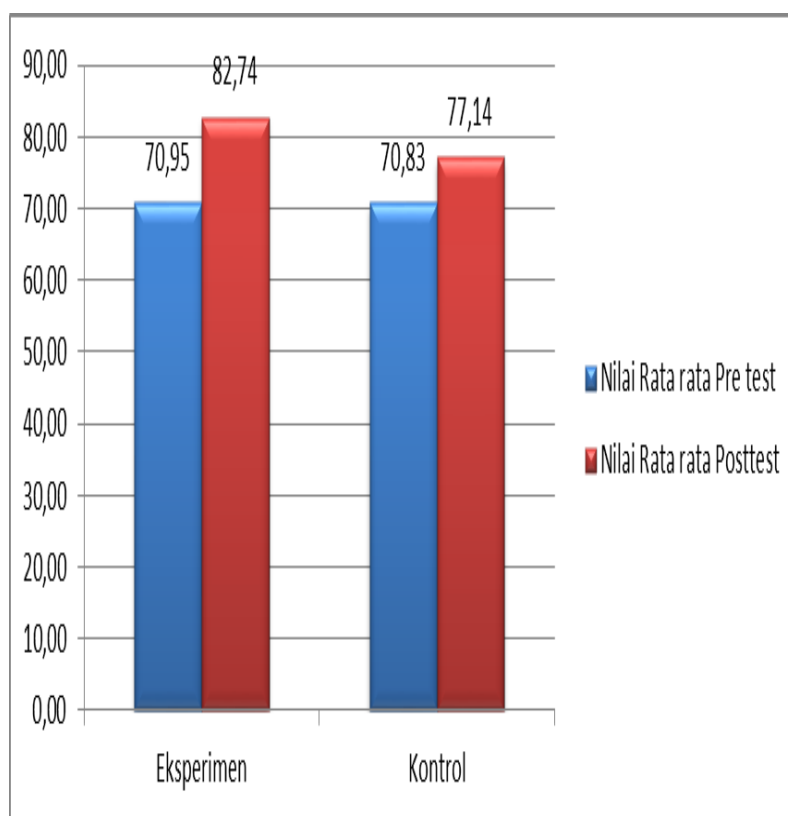
Group	Mean		Improvements	% Improvements	Normal Gain	Criteria	
	Pre test	Posttest	pretest - posttest	pretest - posttest	pretest posttest	- pretest posttest	-
Experimental	70.95	82.74	11.79	16.6	40.6%	Average	
Control	70.83	77.14	6.31	8.9	21.6%	Low	

Source: Research Results of 2017

Based on the table, the writers obtained information on the percentage improvement of student learning outcomes for the experimental group of 16.6% and the percentage increase in student learning outcomes for the control group of 8.9%. Improvement of student learning outcomes is showing improvement in learning outcomes of Grade IX SMP Nasima Semarang

was given a learning model with Problem Based Learning with comic as the media and conventional method.

For more details, the following picture shows the improvement of student learning outcomes both in the Experimental group and in the Control group.



**Figure 2.** Chart of Students' Outcomes Improvement

This study aims to determine the effectiveness of Problem Based Learning with comic as the media to improve students' achievement. Based on the research background, literature review and research results showed significant differences in learning outcomes between students taught using Problem Based Learning Model (PBL) with comic as the media with students who were given conventional learning in which students who were given Problem Based Learning (PBL) with Comic Media higher learning outcomes with students who were given conventional learning.

Based on the data of students posttest after the calculation shows there are changes in learning outcomes. This is evident from the average posttest of student learning outcomes with the application of problem based learning with comic as the media 82, 74 and average posttest with conventional method 77.14. This shows the students' economic learning outcomes on *Uang dan Lembaga Keuangan* taught by using problem based learning model with comic as the

media is better in providing student learning outcomes than using conventional learning model.

Based on the results of statistical data processing by using the t-test, the test obtained  $t_{value} = 2.441$ , while the value of  $t_{table} = 2,004$  so it can be concluded  $t_{value} > t_{table}$ , hence  $H_a$  accepted. This shows that there is effectiveness on the application of Problem Based Learning model with comic as the media on students' economic learning outcomes on *Uang dan Lembaga Keuangan*

This is in line with Trianto (2007), that this student-centered learning shows better results than conventional learning. This fact proves to be high-grade classes. The elevation of student learning outcomes is due to opportunities given to students to explore and develop problem-solving skills and build their cognitive.



## CONCLUSIONS

From the results of research, data analysis and discussion obtained the following conclusions.

The average learning outcomes of students using learning-based learning problems with comic media reached 82.74 and included in the category of due diligence. Average learning outcomes of students who use conventional learning reached 77.14 and included in the category of due diligence. Learning by using problem based learning with effective comic media is used to improve student learning outcomes in SMP Nasima Semarang. It is proven by learning result of students who are given learning using learning problem based learning higher than students who are given conventional learning.

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