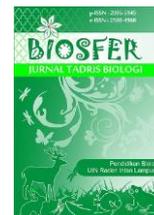




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The Influence of Resource-based Learning Model based on Flashcard toward Students' Problem-Solving Abilities

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ABSTRACT

Abstract: The purpose of this research was to determine the influence of the Resource-based learning model (RBL) based on flashcards on students' problem-solving abilities and motivation. The design of this research quasi-experimental with a posttest only control group design. The data analysis techniques employed in this research were the normality test using the Lilifors test and the MANOVA test to determine the hypothesis. Based on the analysis, the MANOVA test to determine the average score difference of students' problem-solving abilities in the experimental class and the control class obtained a sig value of 0.00 so that sig. 2 (tailed) ≤ 0.05 which indicated that H_0 was rejected and H_1 was accepted. Therefore, it can be concluded that the Resource-based learning model (RBL) based on flashcards influenced the students' problem-solving abilities and learning motivation.

Pengaruh Model Resource-based learning Berbasis Media Flash Card Terhadap Kemampuan Pemecahan Masalah

Abstrak: Tujuan dari penelitian ini yaitu untuk mengetahui apakah ada pengaruh dan untuk melihat besarnya pengaruh model pembelajaran Resource-based learning (RBL) berbasis media flash card terhadap kemampuan pemecahan masalah dan motivasi belajar. Penelitian ini merupakan jenis penelitian Quasy Experimental Design, dengan desain penelitian berupa Control Group Design. Teknik analisis data penelitian ini dengan menggunakan uji normalitas dengan uji Lilifors dan uji Manova untuk menentukan hipotesisnya. Berdasarkan data hasil penelitian diketahui bahwa hasil Uji Manova untuk perbedaan rata-rata nilai kemampuan pemecahan masalah kelas eksperimen dan kelas kontrol diperoleh nilai sig 0,00 sehingga sig. 2(tailed) $\leq 0,05$. Sesuai kriteria Uji Manova bahwa H_0 ditolak dan H_1 diterima, maka dapat disimpulkan bahwa hipotesis ada perbedaan antara model Resource-based learning (RBL) berbasis media flash card terhadap kemampuan pemecahan masalah dan motivasi belajar.

INTRODUCTION

A more advanced national civilization is needed to build potential (Sinambela, L. P, 2017) so that every human being could have a better life, able to face challenges, and able to take advantage of existing opportunities (Hadi, A., 2013; Marwiyah, S., 2012). In this 4.0 era, education is developed continuously so that it can improve problem-solving abilities to find solutions to a problem (Agustiana dkk., 2019; HASANAH, U. N., Thahir, A., Komaruddin, K., & Rahmahwaty, R., 2019; Raharja, H. Y, 2019).

To be more active and independent, it is necessary to develop learning motivation through social activities to improve problem-solving abilities in everyday life (Huda, M., 2015; Insyasiska, D., Zubaidah, S., & Susilo, H, 2017). Problem-solving abilities are very useful to build a logical, targeted, and systematic view of making decisions from various points of view (Fanani, M. Z., 2018). In the learning process, students must also possess motivation, encouragement, and enthusiasm to take action in the problem-solving process (Balqis, P., Ibrahim, N. U., & Ibrahim, S., 2014; Daud, F., 2012).

Motivation is characterized by the emergence of curiosity about something (Emda, A., 2018; Makmur, A., & Aspia, A., 2015; Susanti, M. D., 2015), In this case, motivation is related to psychology and emotions that can determine human behavior (Cleopatra, M., 2015; Daud, F., 2012; Suardana, A. A. P. C. P., & Simarmata, N., 2013). Thus, motivation is needed to encourage humans to determine the direction of the actions to be carried out (Emda, A., 2018; Suprihatin, S, 2015). Motivation to learn will rise if the learning activities

are appropriate with the limit of abilities (Munib, A., 207M). Thus, motivation or encouragement can improve problem-solving abilities in everyday life (Amri, M. S., & Abadi, A. M., 2013; Setiawan, I. G. A. N., & Nyoman, G. A., 2018).

The most important factor that affects problem-solving abilities is learning motivation (Nurfitriyanti, M, 2016; Suprihatin, S, 2015). Changes or innovations in the learning process need to be made. One of the learning models that invite students to be active in the learning process is the Resource-based learning model (RBL) based on flashcards. This model can help the students to explore their knowledge so that they can be more active. The flashcard can be used because its contents are very simple and fun (Nurseto, T, 2011; Rifqiawan, R. A, 2017).

METHOD

This research was conducted at SMA YP Unila Bandar Lampung. The research method applied was quasi-experimental with a posttest only control group design. The research was conducted by giving different treatments to two classes, namely the experimental class using the Resource-based learning model based on a flashcard and the control class using the direct learning model through lecturing and discussion. The independent variable in this study was the Resource-based learning model based on flashcards while the dependent variable was the students' problem-solving ability and learning motivation.

The cluster random sampling, technique, which is the technique of selecting a sample based on small groups or classes, was employed to determine the sample (Puspita dkk.,

2020). Based on the results of the sampling process, class MIPA 1 which consisted of 30 students was chosen as the experimental class and class MIPA 3 which consisted of 30 students was chosen as the control class. The data collecting techniques employed in this research were tests and questionnaires that had been validated by lecturers who were experts in their fields.

The instruments were tested using the validity test, reliability test, discrimination index, and the level of difficulty test. Before the hypothesis test was carried out, the prerequisite tests in the form of normality and homogeneity tests had been carried out using the MANOVA assisted by SPSS 17.

RESULTS AND DISCUSSION

The instruments which consisted of 16 questions had been declared as valid and reliable. The normality test using the Liliefors test discovered that the sample was normally distributed. It was proven by the results of the calculation where the value of $L_{observed} < L_{critical}$. The normality value of the experimental

class was 0.098 while the control class was 0.133 with the $L_{critical}$ value of 0.161. So, it can be concluded that H_0 for both classes was accepted.

The homogeneity test using the Barlett test, commonly called the Box' M test, had been done to see the distribution of two homogeneous data. The calculation was performed using SPSS.17. The sig value of was Box' M = 0.060 > 0.005, thus H_0 was accepted. It can be concluded that the two data group variances were homogeneous.

The hypothesis for the dependent variable on problem-solving abilities and student motivation can be seen in the table above. Based on the first hypothesis ($H_i: \mu_1 \neq \mu_3$), there was a difference in learning motivation between students who were taught using a flashcard-based RBL model and students who were taught using direct instruction. Based on the second hypothesis ($H_i: \mu_1 \neq \mu_3$), there was a difference in problem-solving ability between students who were taught using a flashcard-based RBL model and students who were taught using direct instruction. The data can be seen in the following table.

Tabel 1. Between-Subjects Effects Tests

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Problem-solving Ability	3526.667 ^a	1	3526.667	36.405	.000
	Motivation	46.817 ^b	1	46.817	1.110	.000
Intercept	Problem-solving Ability	358826.667	1	358826.667	3704.072	.000
	Motivation	397394.817	1	397394.817	9425.539	.000
Class	Problem-solving Ability	3526.667	1	3526.667	36.405	.000
	Motivation	46.817	1	46.817	1.110	.000
Error	Problem-solving Ability	5618.667	58	96.874		
	Motivation	2445.367	58	42.161		

Total	Problem-solving Ability	367972.000	60
	Motivation	399887.000	60
Corrected Total	Problem-solving Ability	9145.333	59
	Motivation	2492.183	59

Based on the MANOVA test analysis on the third hypothesis ($H_1: \mu_i \neq \mu_j$), H_0 was rejected. There were simultaneous differences in problem-solving abilities and learning motivation between students who

were taught using the flashcard-based RBL model and those who were taught using direct instruction. This data is supported by the following test result:

Table 2. Multivariate Test

	Effect	Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	4925,528	.994 ^a	2,000	57,000	.000
	Wilks' Lambda	4925,528	.006 ^a	2,000	57,000	.000
	Hotelling's Trace	172 826	4925.528 ^a	2,000	57,000	.000
	Roy's Largest Root	172 826	4925.528 ^A	2,000	57,000	.000
Class	Pillai's Trace	.386	17 894 ^a	2,000	57,000	.000
	Wilks' Lambda	.614	17,894 ^a	2,000	57,000	.000
	Hotelling's Trace	.628	17,894 ^a	2,000	57,000	.000
	Roy's Largest Root	.628	17,894 ^a	2,000	57,000	.000

Based on the analysis of the scores obtained in the posttest, the

summary of the data can be seen in the following figures:

Figure 1. The Percentages of Problem-Solving Indicators

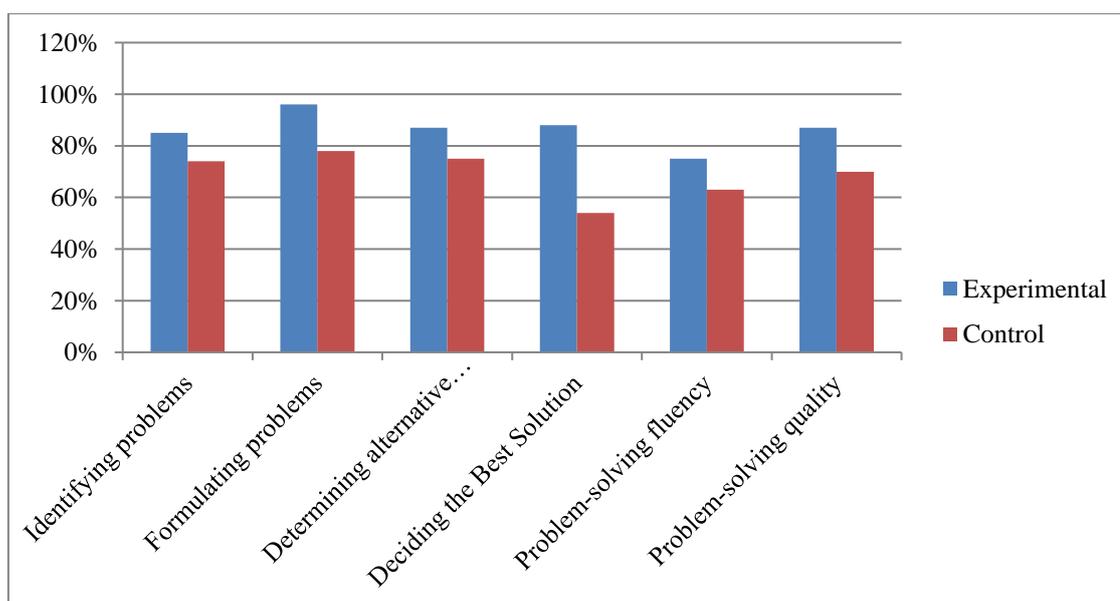
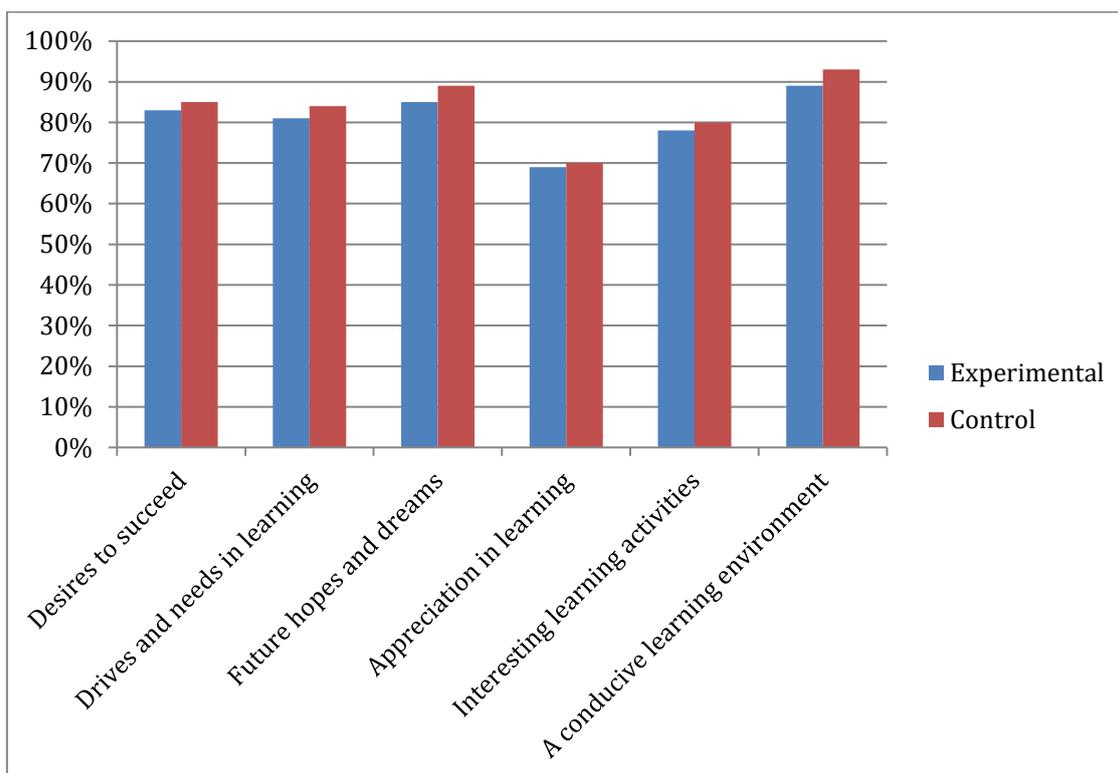


Figure 2. The Percentages of Learning Motivation Indicators



The aspects assessed in the diagram above are based on indicators of learning motivation. The values obtained by the control class were greater than the experimental class. The average percentage obtained by the experimental class was 85% with an excellent category. It is relevant to the advantage of this model where, in the learning process, students are required to find information and solutions to improve problem-solving abilities. Students are expected to answer by finding existing problems. The average percentage obtained by the experimental class on the first indicator, the desire to succeed, was 83% and the average percentage of the first indicator obtained by the control class was 85%. In this indicator, students were able to do assignments not because of external encouragement, but from themselves as a desire to succeed.

The average percentage obtained by the experimental class on the indicator of the formulating problem was 96%. One of the syntaxes that support the model is gathering information. In the learning process, students are required to see what possible causes of a problem to occur and group the data obtained. In the drives and needs in learning indicators, the experimental class obtained an average percentage of 81% and the control class obtained 84%. This was caused by the students' efforts to avoid failure by achieving success in learning.

The average percentage obtained in determining alternative solutions indicator was 89%. Here, students are required to use the information that has been obtained by selecting and sorting the information obtained. The average percentages of the future hopes and aspirations indicator were 85% and 89%. In this indicator, students had a desire to become class

champions and get good grades by being diligent in studying and being active in studying so that they could get good results or achievements.

The indicator of deciding the best solution supports the syntax of synthesizing information. The students were able to answer and draw conclusions by selecting and sorting information so that they get the best idea or solution (HASANAH, U. N., Thahir, A., Komaruddin, K., & Rahmahwaty, R., 2019) The experimental class obtained an average percentage of 88% and as categorized as excellent. In the appreciation in learning indicators, there was an appreciation for the behavior of students to be more enthusiastic in achieving and getting good grades. This can be seen from the average percentage of 69% obtained by the experimental class and 70% obtained by the control class.

The indicators of fluency in solving problems support the syntax of synthesizing information, students can collect data on any facts or all existing problems (Munib, A., 2017). Students did the observations or answered the questions on time with an obtained average percentage of 75% which is included in the high category. In the interesting learning activities indicator, the experimental class obtained 78% and the control class obtained 80%. This indicator encouraged students to be able to raise students' focus and seriousness in learning. This is relevant to the resource-based learning model which is to improve students' attitudes and participation in the learning process properly.

The quality of the problem-solving indicator supports the evaluation syntax. Students were able to conclude and explain information

by connecting existing problems and finding good solutions. The obtained percentage was 87% which included in the excellent category. In the conducive learning environment indicator, the experimental class obtained 89% and the control class obtained 93%. This indicator was one of the driving forces so that students could be more enthusiastic. With a conducive or comfortable learning environment, students could be more focused on learning.

The high average percentage obtained in the formulating problem indicator was because students can identify possible problems and come out with several problem formulations. The lowest score was found in the indicator of problem-solving fluency. This happened because students were unfamiliar with the learning process, unfamiliar with the learning process that uses time in each learning process, and unfamiliar with combining several factors to create ideas and solutions that are appropriate with the problems.

Based on the data obtained, it was found that the students' learning motivation in the control class was higher than the experimental class. In the control class, the students' learning motivation was high, but there were no supporting resources to channel their drives in learning or achievement because the teacher applied the direct learning model. The students could not actively seek and develop their abilities.

It can be concluded that the students' problem-solving ability and learning motivation was improved through the Resource-based learning model based on flashcard (Rifqiawan, 2017). The class that applied the lecturing and discussion method (the control class) also experienced a

slight improvement, however the greater improvement was experienced by the experimental class. In conclusion, there was a significant difference in the results of problem-solving abilities and student motivation between the experimental class and the control class.

CONCLUSIONS AND SUGGESTIONS

Based on the result of research, the Resource-based learning model with flashcard media influenced the problem-solving ability and motivation of the tenth-grade students of SMA YP Unila Bandar Lampung.

It is suggested for further researchers to prepare carefully and understand the Resource-based learning model with flashcard media and prepare sufficient time to carry out the research.

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