

Research Article

The influence of problem-based learning model on students' learning outcomes

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Received: 27 July 2023

Revised: 25 August 2023

Accepted: 22 September 2023

Available online: 30 September 2023

ABSTRACT

This study is motivated by the importance of using various learning models in learning at school. In learning students tend to be passive and only act as recipients of information from the teacher. In addition, the learning model used by teachers is still conventional or teacher-centered. The purpose of this study was to explain the effect of the Problem-Based Learning model on students' learning outcomes. The method used in this study is a quantitative experiment. While the population of this study were MA class students. Mambaul Ulum Islamic Boarding School Malang, with a sampling technique that is saturated sampling. The data collection technique used is documentation of student scores and questionnaires. Based on the results of testing the hypothesis that the Problem Based Learning Model influences Aqidah Akhlaq Learning Outcomes at Madrasah Aliyah Miftahul Ulum, according to the records of the Aqidah Akhlaq subject teacher scores show an average value of 77.4 which is included in the very good category. So, it can be concluded that student learning outcomes in the Aqidah Akhlaq subject at Mambaul Ulum Islamic Boarding School Malang are influenced by one of the learning models, namely Problem Based Learning.

Keywords: Problem Based Learning; Students' Learning Outcomes; Teaching; Learning

1. INTRODUCTION

One indicator of the success of quality education is obtaining good grades from student learning outcomes. Student grades will be good and increase if learning takes place effectively and is supported using learning models used and adjusted by teachers to the material and learning objectives to be taught to students, of course, adapted to the characteristics of students as well (Suryani, Rustono, & Nugraha, 2018). The benchmark of learning success is learning achievement. The achievement of learning Aqidah Akhlaq at the Mambaul Ulum Islamic Boarding School Malang for some basic competencies generally shows low scores. The average score of student's evidences this is still below KKM 75. In general, the learning model used in learning Aqidah Akhlaq tends to still use conventional learning models without adjusting to the characteristics of Aqidah Akhlaq that should be (Asyafah, 2019). Finally, it results in students needing help understanding the material taught because students play a less active role in learning. The model can be understood as implementing a plan prepared through activities to achieve learning objectives (Maman & Rajab, 2016). If the model is right, the learning process will run well and achieve the desired goals. But on the contrary, learning can only run optimally if the model is right.

Based on the results of a questionnaire for teaching staff, learning in class X of the Mambaul Ulum Islamic Boarding School in Malang is still dominated by the old model, which is included in the Aqidah Akhlaq subject. The most used model lectures, where educators only deliver the subject matter to students while students listen to explanations from educators, so they need more critical thinking. Even though the subject of Aqidah Akhlaq is very important to be mastered properly by students because the material of science is applied in everyday life, for example, material about praiseworthy behavior, the values expected by educators are not following reality, in the sense that they are still below KKM. This can be seen from the UTS Aqidah Akhlaq scores, where 60% of 40 students of the Mambaul Ulum Islamic Boarding School Malang get scores below KKM, which is 75.

Teachers can use many learning models to improve student learning outcomes, one of which is Problem-Based Learning (Hasanah, Sarjono, & Hariyadi, 2021). This model can train students to think critically in solving problems contained in examples of images or videos following the purpose of the material taught by the teacher (Meutia, 2021). The Problem Based Learning learning model is expected to help students of the Mambaul Ulum Islamic Boarding School Malang in receiving Aqidah Akhlaq material well, because in this learning model students will be given several videos or pictures related to the Aqidah Akhlaq material. Students will have to observe carefully what the meaning of video displayed by the teacher can then conclude in the form of explanations, to be presented in front.

Based on the description above, it is necessary to research to find out how far the Problem-Based Learning learning model has influenced the learning outcomes of students' Aqidah Akhlaq subjects, especially in the Mambaul Ulum Islamic Boarding School Malang. The goal is to find out how far the influence of the Problem-Based Learning learning model is on student learning outcomes so that it can be taken into consideration to apply the learning model in teaching and learning activities. (Simamora, Sidabutar, & Surya, 2017) There have been several studies that raised the Problem Based Learning learning model, including research conducted by Rosalina Selfia (2014) in her thesis entitled Application of the Problem Based Learning Learning Model to Increase Motivation and Learning Outcomes of PKN Students Class VIII B SMPN 1 Malang which shows that the application of the Problem Based Learning learning model is very appropriate to increase the motivation and learning outcomes of PKN students (Mulyanto et al., 2018) This is mainly because students have more interest in learning that uses learning media. Another research was conducted by Gusti Ayudia Parmanita (2017) in her thesis entitled The Influence of the Problem Based Learning Model on the Learning Outcomes of Fiqh Class IV MIN 2 Bandar Lampung which concluded that the Problem Based Learning learning model has a strong effect on the fiqh learning outcomes of students in the institutions she studied (Huda et al., 2019)

Model lies in its impact on student learning outcomes. Previous studies have shown that using this model can improve conceptual understanding, application of knowledge in real situations, problem-solving skills, and student motivation. In this context, further research is needed to identify the factors that influence the effect of Problem-Based Learning Models on student learning outcomes. Factors such as the teacher's role, task design, technology support, and student characteristics can influence the effectiveness of this model in improving learning outcomes. In addition, research can also explore differences in the efficacy of Problem-Based Learning Models between certain subjects or fields of study. Some issues may be better suited to applying this model, whereas others may require a different learning approach.

2. RESEARCH METHOD

This research is a type of quantitative research, which is research that uses quantitative methods by showing its analysis on numerical data (numerical data) or qualitative data that is numbered/scoring (Sugiyono, 2019). The choice of quantitative research because this research aims to test a theory/hypothesis that explains the relationship in social phenomena. The research approach that researchers use consists of several stages, namely:

a. Determine the Research Problem.

In determining this research problem, the author studied the influence of the Problem Based Learning learning model on student learning outcomes.

b. Data Collection

This stage contains the research method that the researcher uses, which is divided into several stages:

- 1) determine the source of the data, namely; principal, Aqidah Akhlaq teachers and students;
- 2) Collect data, namely by using observation, documentation, and questionnaire methods.

c. Adata analysis using the product moment correlation formula;

d. The presentation of data in the form of writing this journal.

This study's research subjects or population are all students who take the education level at the Mambaul Ulum Islamic Boarding School Malang, totaling 40 students. A population is a collection of all that is the object of attention. So here, the population is researching people and other natural things. The population also includes all aspects of characteristics possessed by subjects and objects (Rafiola et al., 2020). The sample taken in this study follows Sugiyono's opinion that the model is one part of the amount owned by the population, or the selection is part of the population taken through certain methods. In determining the sample, if the subject is less than 100, it is better to take all (Arikunto, 2014). Because the respondents in this study were less than 100, this study used the entire population of 40 students.

Furthermore, the data is collected through questionnaires or questionnaires that are distributed and answered by respondents. The questionnaire is related to the Problem Based Learning learning model of the Mambaul Ulum Islamic Boarding School Malang. Angket consists of 10 question items, where each item/point is given three answer options. The next stage carried out to process the collected questionnaire is to provide a score for the answers given by respondents with the following conditions:

Alternative answer "a" scored 1 with less good category

Alternative answer "b" scored 2 in the good category

Alternative answer "c" scored 3 in the excellent category

Based on the presentation, problem formulation and research objectives to be achieved, research hypotheses can be formulated as follows:

Working Hypothesis (Ha):

"Implementing of the Problem-Based Learning learning model affects students' learning outcomes at the Mambaul Ulum Islamic Boarding School Malang."

Null hypothesis (H0):

"The implementation of the Problem-Based Learning learning model does not affect students' learning outcomes at the Mambaul Ulum Islamic Boarding School in Malang."

3. RESULTS AND DISCUSSION

Results

The model can be understood to implement a plan that has been prepared in the form of activities to be able to achieve learning objectives (Sueni, 2019). As stated in the hadith which reads "For everything there is a model, and the model of going to heaven is science (HR. Dailami). The hadith explains that to achieve something desired one must use a model (Ridho, 2019). In this case science is a learning model to achieve a goal correctly, as well as in the process of learning Islam there must be a model to determine the success or failure of an education and the achievement of goals (Syaikhu, 2022). If the model used is right, the learning process will run well and achieve the desired goals. But on the contrary, learning can only run optimally if the model is right. For example, suppose an educator needs a lesson plan to teach carelessly. In that case, it can make students less happy with the material presented. It will be lazy to listen to the lesson, even if the brain needs to receive the material delivered by the educators.

Learning is an effort to create a climate and service for diverse students' abilities, potentials, interests, talents, and needs so that optimal interaction occurs between teachers, students, and learning resources. The terms learning model, learning approach, learning strategy, learning method, and learning technique are sometimes mixed up when teachers prepare lesson plans (RPP) (Pratiwi & Makfiah, 2022). In this journal, we will only discuss some of the terms above but only focus on discussing learning models. The development of the times brings increasingly rapid technological developments and education. Education from time to time is also developing educators' thoughts to make students feel comfortable and calm in learning so that it is easy to receive the material. The model can also make learning outcomes good with the educator model can be creative in teaching and learning activities. In using the model, it is careful to choose a model depending on the material to be taught.

The Problem-Based Learning learning model is a learning model that uses videos and media for learning following the basic competencies that have been prepared. This Problem-Based Learning model is a technique that can be used to convey a learning concept. In this model, media use is arranged and designed conceptually so that later, students can observe or analyze the video into an explanation (Sukriyatun, Mujahidin, & Tanjung, 2023). This learning model is a cooperative learning model where students learn with small groups consisting of 3-4 students in one group, so that later students can be responsible for the parts of the material assigned to them. In this Problem-Based Learning model, educators need to explain the material at length; educators only prepare materials that can be presented using videos to facilitate students' discussion.

The Problem Based Learning model is also applied in the educational method of the Prophet as explained in the Qur'an Surah Al-Ahzab Verse 21:

لَقَدْ كَانَ لَكُمْ فِي رَسُولِ اللَّهِ أُسْوَةٌ حَسَنَةٌ لِّمَن كَانَ يَرْجُو اللَّهَ وَالْيَوْمَ الْآخِرَ وَذَكَرَ اللَّهَ كَثِيرًا

It means:

"Indeed, there has been in the Messenger of Allah a good example for you (that is) for those who hope for (the mercy) of Allah and (the coming) of the Day of Judgment and he mentions Allah a lot".

The above verse explains that educating by example is a learning model that is considered to have a great influence. Everything exemplified by the Prophet SAW in his life reflects the content of the Qur'an as a whole. This Problem-Based Learning learning model should make students more active and innovative and participate directly in learning in the classroom. So that students can later issue their arguments.

There are several steps in learning the Problem Based Learning model, namely (Sulistiyaratih, Adnan, & Sehalyana, 2021);

- a. Teacher prepares the drawings according to the learning objectives. The images used are certainly images that are relevant to the material discussed in accordance with the Basic Competencies;
- b. The teacher attaches the image on the board or displays it via LCD or OHP, if there is one can also use a projector. At this stage the teacher can also ask for student help to prepare the drawings that have been made and at the same time form student groups;
- c. The teacher gives instructions and allows students to pay attention or analyze the image. Let students see and study the presented picture carefully so that students can understand the details of the picture. In addition, the teacher also gives a clear description of the image that the student is observing;
- d. Through a group discussion of 2-3 students, the discussion results from the image analysis were recorded on paper. The paper used will be better if the teacher provides it;
- e. Each group was allowed to read the results of the discussion. Students are trained to explain the results of their meetings through representatives of their respective groups.
- f. Starting from the comments/results of student discussions, the teacher explains the material according to the goals to be achieved. After understanding the results of the analysis carried out by students, the teacher begins to explain the fabric according to the learning objectives to be achieved.

In addition to the steps above, several actions must be taken by teachers as a design used before the implementation of learning using the Problem Based Learning model begins, so that later when learning takes place there are no obstacles at all and learning runs smoothly, namely; 1) arrange how to implement learning using the Problem Based Learning model, 2) m Prepare everything needed, 3) prepare assessment instruments and 4) prepare student responsif sheets.

Each learning model must have its own advantages and disadvantages. One of the advantages of the Problem Based Learning model is that students are more critical in analyzing videos and are more sensitive to videos and understand more clearly about learning concepts, while the disadvantage is that not all material can be presented in the form of videos, it takes a long time and during learning will be dominated by students who have high courage (Munika, Marsitin, & Sesanti, 2021). The success or failure of a learning depends on the factors and learning conditions that influence it. To achieve educational success, it is necessary to pay attention to the factors and conditions that influence it. According to Abu Bakr, there are six educational factors that can shape interaction patterns, namely (Bakar, 2020):

- a. Destination factor
- b. Educator factors
- c. Learner factors
- d. Education material factors
- e. Factors of the educational model
- f. Environmental situation factors

If you look at the six factors above, of course, it will be separate from the goal because, with a purpose, results will be achieved or obtained. This objective describes what changes occur in learning. Furthermore, namely, students, when mentioning students, of course, there must be educators. Later students will obtain material or knowledge from an educator with planned goals.

Based on observations at the Mambaul Ulum Islamic Boarding School in Malang, there are still student learning outcomes in the Aqidah Akhlaq subject under KKM. In addition to low learning outcomes, using models is also inappropriate, so students are not interested in learning Aqidah Akhlaq and easily feel bored with the use of lecture models. In addition to the six factors above, there are other factors, namely students' attention to educators when the learning process is very low, students sleep a lot, some chat with their friends, and some even do other lesson assignments. So, there is no one question from students because they need more focus and interest in the learning model (Hassan et al., 2021). All the above greatly affect how learning outcomes will be obtained later.

Learning outcomes are abilities obtained by individuals after following the learning process, which can provide changes in the behavior of both knowledge, understanding, attitudes and skills of students to make them better individuals than before (Nurwadani et al., (2021). One index to see the success or failure of a learning is to look at the learning outcomes obtained by students. The learning outcomes here are also the realization of achieving educational goals. Learning activities can be carried out whenever and wherever humans are at school, at home, and in the community. Islam also has a concept in looking at learning outcomes. When a person has undergone the process of his life by studying or studying, God will raise his degree with this knowledge.

Allah says in the Qur'an surah An-Nahl verse 78:

وَاللَّهُ أَخْرَجَكُمْ مِنْ بُطُونِ أُمَّهَاتِكُمْ لَا تَعْلَمُونَ شَيْئًا وَجَعَلَ لَكُمُ السَّمْعَ وَالْأَبْصَارَ وَالْأَفْئِدَةَ ۗ لَعَلَّكُمْ تَشْكُرُونَ

That is to say:

"And God brought you out of your mother's belly knowing nothing, and He gave you hearing, sight, and heart, that you might be grateful."

Learning outcomes are patterns of actions, values, understandings, and attitudes, and skills. The results of learning have a very important role in learning, because by looking at the learning results later an educator will know the level of understanding of students in the learning that has been delivered (Albina & Aziz, 2022). The quality of teachers can also be assessed from student learning outcomes, if the student learning outcomes are good, it means that indirectly the teacher has a good ability to educate students.

Discussion

Implementation of the Problem Based Learning Model

The Problem Based Learning learning model is applied in learning Aqidah Akhlaq subjects at the Mambaul Ulum Islamic Boarding School Malang. To find out the extent of the application of the Problem Based Learning model in the Aqidah Akhlaq subject there, researchers have distributed questionnaire questionnaires to 40 students of the Mambaul Ulum Islamic Boarding School Malang who were sampled in this study. The questionnaire contains 10 statement items with three answer choices, namely; disagree (1 point), agree (2 points) and strongly agree (3 points).

The following are the results of a questionnaire on the implementation of the Problem Based Learning learning model filled by students of the Mambaul Ulum Islamic Boarding School Malang:

- I like that Aqidah Akhlaq subjects are delivered using the Problem Based Learning learning model. A total of 75% said they strongly agreed, 25% said they agreed and 0% said they disagreed;
- The Problem Based Learning learning model can eliminate boredom during the process of teaching and learning activities. A total of 70% said they strongly agreed, 30% said they agreed and 0% said they disagreed;
- The Problem Based Learning learning model makes me more active in learning. A total of 80% said they strongly agreed, 20% said they agreed and 0% said they disagreed;
- The Problem Based Learning learning model makes me more able to think critically. A total of 75% said they strongly agreed, 25% said they agreed and 0% said they disagreed;

- e. I am satisfied with the Problem Based Learning learning model. A total of 65% said strongly agreed, 35% said they agreed and 0% said they disagreed;
- f. The Problem-Based Learning learning model can improve learning outcomes. A total of 75% said they strongly agreed, 25% said they agreed and 0% said they disagreed;
- g. Applying of the Problem Based Learning learning model encourages me to find new ideas. A total of 60% said strongly agreed, 40% said they agreed and 0% said they disagreed;
- h. The Problem Based Learning learning model makes Aqidah Akhlaq lessons more interesting to learn. A total of 90% said strongly agreed, 10% said they agreed and 0% said they disagreed;
- i. Learning Aqidah Akhlaq using the Problem Based Learning learning model trained me to be able to express opinions. A total of 75% said they strongly agreed, 25% said they agreed and 0% said they disagreed;
- j. Learning Aqidah Akhlaq using the Problem Based Learning learning model made me better able to understand the material. As many as 80% said strongly agreed, 20% said they agreed and 0% said they disagreed.

Furthermore, the mean/average of the results of student questionnaires about the Problem Based Learning model is determined using the mean formula:

Known:

$$F_x \text{ (Number of poll results)} = 1080N \text{ (Number of poll fillers)} = 40$$

$$M_x = (\sum x F_x) / N$$

$$M_x = 1080 / 40$$

$$M_x = 27$$

The mean result of the questionnaire on the application of the Problem Based Learning learning model at the Mambaul Ulum Islamic Boarding School in Malang is 27. Furthermore, the results of the calculation are consulted with the following standard criteria based on the maximum value is 30:

Grades 0-7 are ugly

Values 8-15 are medium

Grades 16-24 are good

Grades of 25-30 are excellent

Suppose it is concluded between the questionnaire results and the standard criteria. The application level of the Problem-Based Learning learning model at the Mambaul Ulum Islamic Boarding School in Malang is included in the very good category. Student learning outcomes are obtained from the list of Aqidah Akhlaq subject teachers' scores in learning evaluation after applying the Problem Based Learning learning model at the Mambaul Ulum Islamic Boarding School Malang. Furthermore, to find out the extent of student learning outcomes in the Aqidah Akhlaq subject at the Mambaul Ulum Islamic Boarding School Malang, the mean / average of student scores in the Aqidah Akhlaq subject is determined using the following formula:

Known:

$$F_x \text{ (Total marks of all students)} = 3099N \text{ (Number of students)} = 40$$

$$M_x = (\sum x F_x) / N$$

$$M_x = 3099 / 40$$

$$M_x = 77.4$$

The mean result of learning the Aqidah Akhlaq subject of Mambaul Ulum Islamic Boarding School Malang students is 77.4. Furthermore, the results of the calculation are consulted with the following standard criteria based on the maximum value is 100:

Grades 0-25 are ugly

Values of 26-50 are medium

Grades 51-75 are good

Grades of 76-100 are excellent

Suppose it is concluded between the average results of the scores and the standard of these criteria. In that case, the level of learning outcomes of the Aqidah Akhlaq subject of Mambaul Ulum Islamic Boarding School Malang students is included in the very good category.

The Effect of the Problem Based Learning Model on the Learning Outcomes

At this stage, to determine the presence and absence of the influence of the Problem Based Learning Model as a variable X Ton Student Learning Outcomes as a variable Y in the Mambaul Ulum Islamic Boarding School Malang, researchers use the Product Moment correlation;

Table 1. Working table calculates the value of "r" (Product Moment)

No	X	And	x ²	y ²	XY
1	26	76	676	5776	1976
2	28	75	784	5625	2100
3	28	78	784	6084	2184
4	25	75	625	5625	1875
5	26	80	676	6400	2080
6	28	78	784	6084	2184
7	30	80	900	6400	2400
8	28	75	784	5625	2100
9	26	85	676	7225	2210
10	28	75	784	5625	2100
11	26	82	676	6724	2132
12	30	75	900	5625	2250
13	28	83	784	6889	2324
14	22	73	484	5329	1606
15	25	73	625	5329	1825
16	26	78	676	6084	2028
17	23	72	529	5184	1656
18	26	75	676	5625	1950
19	25	75	625	5625	1875
20	27	73	729	5329	1971
21	30	85	900	7225	2550
22	26	76	676	5776	1976
23	29	82	841	6724	2378
24	23	75	529	5625	1725
25	28	80	784	6400	2240
26	30	83	900	6889	2490
27	28	75	784	5625	2100
28	28	78	784	6084	2184
29	28	80	784	6400	2240
30	25	72	625	5184	1800
31	27	80	729	6400	2160
32	30	78	900	6084	2340
33	25	73	625	5329	1825
34	26	75	676	5625	1950
35	28	78	784	6084	2184
36	25	75	625	5625	1875
37	26	80	676	6400	2080
38	30	85	900	7225	2550
39	29	78	841	6084	2262
40	28	75	784	5625	2100
N=40	1080	3099	29324	240625	83835

Known:

N: 40

Σx: 1080

Σand: 3099

Σ: 29324x²

Σ: 240635y²

Σxy: 83835

Then we put it into the following formula:

$$r_{xy} = \frac{(N \sum xy - (\sum x)(\sum y))}{\sqrt{[N \sum x^2 - (\sum x)^2] [N \sum y^2 - (\sum y)^2]}}$$

$$r_{xy} = \frac{(40 \cdot 83835 - (1080)(3099))}{\sqrt{[40 \cdot 29324 - (1080)^2] \{40 \cdot 240625 - (3099)^2\}}}$$

$$r_{xy} = \frac{(3353400 - 3346920)}{\sqrt{[1172960 - 1166400] \{9625000 - 9603801\}}}$$

$$r_{xy} = \frac{6480}{\sqrt{(6560)(21199)}}$$

$$r_{xy} = \frac{6480}{\sqrt{139065440}}$$

$$r_{xy}=6480/11792,6$$

$$r_{xy}=0,549$$

By comparing the magnitude of r_{xy} with r table, it is obtained that r_{xy} is greater than r table both at the level of significance of 5% ($r_{xy} 0.549 > r$ table 0.304) and 1% ($r_{xy} 0.549 > r$ table 0.393). This means that (H_0) which reads "The implementation of the Problem Based Learning learning model has no effect on the learning outcomes of students at the Mambaul Ulum Islamic Boarding School Malang" is rejected. While (H_a) which reads "The implementation of the Problem Based Learning learning model affects the learning outcomes of students at the Mambaul Ulum Islamic Boarding School Malang" was accepted. Furthermore, the Determinant Coefficient technique is used to determine the magnitude of the degree of influence of variable X on variable Y. The calculation is done by squaring the value of the product moment correlation coefficient (r_{xy}) and multiplied by 100%.

$$KD=(r_{xy})^2 \times 100\%$$

Information:

KD = Coefficient of Determination

R_{xy} = Product Moment Correlation Coefficient

So, the calculation is carried out as follows:

$$KD=(r_{xy})^2 \times 100\%$$

$$KD=((0,549))^2 \times 100\%$$

$$KD=0,301 \times 100\%$$

$$KD=30,14\%$$

Based on the calculation of the coefficient of determination, a value of 30.14% is obtained. This shows that the effect of applying the Problem-Based Learning model on the learning outcomes of Aqidah Akhlaq students of the Mambaul Ulum Islamic Boarding School Malang is 30.14%. In comparison, the rest ($100\%-30.14\%$) = 69.86% of the learning outcomes of Aqidah Akhlaq students of the Mambaul Ulum Islamic Boarding School Malang are influenced by other variables that the author does not study.

4. CONCLUSION

Based on the results of the discussion, a conclusion was obtained that the influence of problem-based learning model on students' learning outcomes on the Aqidah Akhlaq at Madrasah Aliyah Miftahul Ulum, based on the records of the Aqidah Akhlaq subject teacher's scores showed an average value of 77.4 which was included in the very good category. By looking at the product moment value table "r" with N 40, it can be illustrated that at the 5% level, $r_{xy} > r_t$ is $0.549 > 0.304$. Meanwhile, at a significance level of 1% $r_{xy} > r_t = 0.549 > 0.3393$. Thus, the null hypothesis (H_0) is rejected, while the alternative view (H_a) is accepted. The effect of applying the Problem Based Learning learning model on the learning outcomes of Aqidah Akhlaq students at Mambaul Ulum Islamic Boarding School Malang is 30.14%. As a comparison, the rest ($100\% - 30.14\%$) = 69.86% of the learning outcomes of the students of Aqidah Akhlaq Pondok Pesantren Mambaul Ulum Malang are influenced by other variables not examined by the author. Future researchers can add new variables to add to the scientific treasures in the future. This research has limitations because the number of respondents is relatively small.

ACKNOWLEDGEMENTS

The author would like to thank all writers from various universities and institutions or institutions throughout Indonesia who have contributed independently and have collaborated to research and write this article to completion. We want to thank the publisher of this journal for providing convenience in reviewing and publishing this article.

CONFLICT OF INTEREST

There are no conflicts of interest declared by the authors.

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