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Using the Problem-Based Learning Model on Students' Argumentation Writing Motivation

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Abstract
This research is to find out how the use of the problem based learning models affects the motivation to write arguments at Indraprasta PGRI University students. The method use in the research is an experimental method with a research sample of 40 students. Divided into two classes, namely experimental class with 20 students in a each class. The results of the research are that there is a significant influence of the use on the problem based learning on the motivation to write argument at Indraprasta PGRI University students. This is based on the hypothesis testing with a significance level 5%, obtained $t_{count} > t_{table}$ (6,78 > 2,03), so H_1 is this rejected and H_1 is accepted. In this way, the hypothesis is the tested and significantly accepted. There for, it can be concluded that there is a influence of using the problem based learning model on the student motivation to write arguments and the average motivation to write argument using the problem based learning model is 78.8 higher than that using the conventional learning model of 69.

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Abstrak
Tujuan penelitian ini adalah ingin mengetahui bagaimana penggunaan model pembelajaran berbasis masalah terhadap motivasi menulis argumentasi mahasiswa Universitas Indraprasta PGRI. Metode yang digunakan dalam penelitian ini adalah metode eksperimen dengan sampel penelitian berjumlah 40 mahasiswa. Terbagi menjadi dua kelas, yaitu kelas eksperimen dan kelas kontrol dengan mahasiswa berjumah 20 pada masing-masing kelas. Hasil penelitian ini adalah terdapat pengaruh yang signifikan penggunaan model pembelajaran berbasis masalah (PBM) terhadap motivasi menulis argumentasi mahasiswa Universitas Indraprasta PGRI. Hal ini didasarkan pada pengujian hipotesis dengan taraf signifikan 5% diperoleh $t_{hitung} > t_{tabel}$ (6,78 > 2,03) maka H_0 ditolak dan H_1 diterima. Dengan demikian hipótesis teruji kebenarannya dan secara signifikan diterima. Maka dari itu dapat disimpulkan bahwa terdapat pengaruh penggunaan model pembelajaran berbasis masalah terhadap motivasi menulis argumentasi mahasiswa dan rata-rata motivasi menulis argumentasi dengan menggunakan model pembelajaran berbasis masalah (PBM) sebesar 78,8 lebih tinggi daripada yang menggunakan model pembelajaran konvensional sebesar 69.

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1. INTRODUCTION

The development of science and technology has brought about very significant changes in the field of education. Currently learning activities can be carried out offline or online, this is able to give students freedom in the learning process. This development has consequences in the form of an effective learning model, whether used in offline or online activities. According to Ahyar (2021) a learning model is a learning activity that is deliberately designed or engineered with the aim that teaching and learning activities can be carried out and accepted easily by students.

Through an effective learning model, it is hoped that it will be able to create pleasant learning conditions so that students do not feel burdened during the learning process. The learning model acts as a guide in the planning and implementation process of learning activities (Kurniawan, 2022). Before carrying out learning activities, a lecturer should analyze what models, methods and media will be used in learning activities. The selection of learning models is built

systematically to meet learning objectives. There are so many types of learning models that can be used, one of which is the problem-based learning model (PBM).

The problem-based learning model (PBM) is considered effective for use in learning activities. The problem-based learning model (PBM) is a student-centered learning approach, where learning focuses on solving problems that are relevant to the real world (Akbar, 2023). This PBM model will invite students to analyze and think critically to express their thoughts and ideas based on reliable data sources. Furthermore Suryadi (2022) explains that problem-based learning is learning that requires students to mentally understand a learning concept through situations and problems in everyday life. It is hoped that this PBM model can provide students with experience in developing thinking abilities, problem solving and intellectual skills which are expressed in writing activities.

Writing is a complex activity in expressing thoughts and ideas in written form, besides that writing activities really require space, time and energy. According to Rosmaya (2018) Writing is the process of conveying information in the form of graphic symbols that can be read and understood by the writer himself or by others. Through writing activities, students are expected to be able to convey thoughts, dreams and feelings in the form of meaningful written symbols (Aprelia, 2019). There are several types of writing that a student must master, one of which is argumentative writing. Argumentation is a type of writing that is at the highest level compared to other types of writing, because writing arguments really requires creative thinking and critical thinking skills in analyzing and solving a problem using relevant data sources.

Argumentative writing is a writing activity with a development pattern based on the arguments or reasons presented by the author. This type of argumentative writing includes data and facts that are searched for and analyzed, to obtain a correct and justifiable conclusion. However, in this case the activity of writing arguments really requires high motivation, because by having high motivation students will easily get the data and facts that are really needed in the writing process. According to Masni (2015)Motivation is an impulse that moves a person to act in achieving desired goals. Students must have high motivation in every learning activity, because with high motivation students are able to develop their cognitive, affective and psychomotor abilities. Furthermore Suprihatin (2015) explains that motivation is defined as a person's strength which can create a level of willingness to carry out an activity. This will comes from within the individual (internal motivation) or from outside the individual (external motivation).

Based on the results of observations and interviews with several lecturers in writing courses at Indraprasta PGRI University, students are still not motivated in argumentative writing activities. This causes students to still not achieve the expected completion score. One of the reasons is that the learning model used does not foster student learning motivation. Therefore, researchers are interested in analyzing how "the use of problem-based learning models affects students' argumentative writing motivation".

2. RESEARCH METHOD

This research is using experimental method, Sugiyono (2017) explains that experimental research can be interpreted as a research method used to find the effect of certain treatments on others under controlled conditions. The first group was used as an experimental group which was given treatment using the problem-based learning model (PBM), while the second group was used as a control group with conventional learning model treatment. This experimental research uses a static group comparison design, in this design there is another group as an external standard. The design is as follows:

X1	X2
Y1	Y2

Information:

X1 = Experimental group (Problem Based Learning Model)
X2= Control group (Conventional Learning Model)
Y1 = Motivation to write arguments in the experimental group
Y2 = Motivation to write arguments for the control group

The sample in the research consisted of 40 third semester students who took writing courses, namely classes R3A and R3B. The data collection techniques in this research are from literary documents, namely books, scientific journals, motivational instruments, and the results of writing arguments.

3. RESULTS AND DISCUSSION

From the research data, the results of the student argumentation writing test were obtained. The assessment is based on standards set by researchers. Therefore, the following data is obtained:

Table 1. Description of research data

N.M	Experiment	Control
1	85	67
2	84	77
3	84	80
4	87	75
5	82	73
6	80	71
7	78	63
8	76	64
9	70	65
10	73	64
11	74	66
12	80	70
13	80	66
14	78	66
15	80	65
16	79	72
17	77	69
18	75	65
19	72	68
20	83	74

A. Distribution of Motivational Data for Writing Experimental Class Argumentations

Table 2. Frequency Distribution of Experimental Classes

No	Skor	*f*	*Xi*	*f.Xi*	Xi^2	$f.Xi^2$
1	70 - 72	2	71	142	5041	10082
2	73 - 75	3	74	222	5476	16428
3	76 - 78	4	77	308	5929	23716
4	79 - 81	5	80	400	6400	32000
5	82 - 84	4	83	332	6889	27556
6	85 - 87	2	86	172	7396	14792
∑		**20**		**1576**		**124574**

1) Average = 78.8
2) Median = 79
3) Mode = 80

4) Variance = 20.27
5) Standard Deviation = 4.50

B. Distribution of Data on Motivation to Write Arguments in Control Class

Table 3. Frequency Distribution of Control Class

No	Skor	F	Xi	F.Xi	Xi^2	$F.Xi^2$
1	63 - 65	5	64	320	4096	20480
2	66 - 68	6	67	402	4489	26934
3	69 71	3	70	210	4900	14700
4	72 - 74	3	73	219	5329	15987
5	75 - 77	2	76	152	5776	11552
6	78 - 80	1	79	79	6241	6241
∑		**20**		**1382**		**95894**

1) Average = 69
2) Median = 68
3) Mode = 66.25
4) Variance = 20.93
5) Standard Deviation = 4.57

C. Experimental Class Normality Test

Table 4. Experimental Class Normality Test Results

Interval	*Fo*	*Tepi Kelas*	*Zi*	*F(Zi)*	*Li*	*Fe*	*χ^2hitung*
		69,5	-2,07	0,0192			
70 - 72	2				0,0616	1,23	0,48
		72,5	-1,40	0,0808			
73 - 75	3				0,1519	3,04	0,00
		75,5	-0,73	0,2327			
76 - 78	4				0,2394	4,79	0,13
		78,5	-0,07	0,4721			
79 - 81	5				0,2536	5,07	0,00
		81,5	0,60	0,7257			
82 - 84	4				0,1723	3,45	0,09
		84,5	1,27	0,898			
85 - 87	2				0,0752	1,50	0,16
		87,5	1,93	0,9732			
	20					∑	0,86

Based on the results of normality test calculations, the results obtained are χ^2count = 0.86, and χ^2table for $\alpha = 0.05$ and degrees of freedom (dk = 6 – 1 = 5) is 11.07. Because χ^2count ≤ χ^2table then H0 is accepted, and H1 is rejected. Thus it can be concluded that the data comes from a normally distributed population.

D. Control Class Normality Test

Table 5. Control Class Normality Test Results

Interval	*Fo*	*Tepi Kelas*	*Zi*	*F(Zi)*	*Li*	*Fe*	*χ^2hitung*
		62,5	-1,44	0,0749			
63 - 65	5				0,137	2,74	1,86
		65,5	0,21	0,2119			
66 - 68	6				0,2403	4,81	0,30
		68,5	-0,13	0,4522			
69 - 71	3				0,2463	4,93	0,75
		71,5	0,52	0,6985			
72 - 74	3				0,1825	3,65	0,12
		74,5	1,18	0,881			
75 - 77	2				0,0861	1,72	0,04
		77,5	1,84	0,9671			
78 - 80	1				0,0265	0,53	0,42
		80,5	2,49	0,9936			
	20					∑	3,49

Based on the results of normality test calculations, the results obtained were χ^2count = 3.49, and χ^2table for $\alpha = 0.05$ and degrees of freedom (dk = 6 – 1 = 5) was 11.07. Because χ^2count ≤ χ^2table then H0 is accepted, and H1 is rejected. Thus it can be concluded that the data comes from a normally distributed population.

E. Research Hypothesis Testing

The analysis technique for research hypothesis testing uses the average test as follows:

1. Create a frequency distribution table

Group	Experiment (A)	Control (B)
Average	78.8	69.1
Variance	20.27	20.93

2. Determine the combined variance

$$S = \sqrt{\frac{(n_A - 1)s_A^2 + (n_B - 1)s_B^2}{n_A + n_B - 2}}$$

$$Sgab = \sqrt{\frac{(20-1)*20{,}27 + (20-1)*20{,}93}{20 + 20 - 2}}$$

□4.538 □4.54

3. Determine the t value

$$t = \frac{XA}{s\sqrt{\left(\frac{1}{\nu_A} + \frac{1}{n_B}\right)}}$$

$$= \frac{78.8 - 69.1}{4.54\sqrt{\frac{1}{20} + \frac{1}{20}}} = 6.78$$

Test Criteria:

If t count > t table: then it can be concluded that there is an influence of the PBM Model on Student Argumentation Writing Motivation.

If t count < t table: then it can be concluded that there is no influence of the PBM model on student argumentation writing motivation.

Determining the t distribution t table value for α=0.05 and dk = n1 + n2 – 2 = 38, the t table value is 2.03. Because t count > t table, it can be concluded that there is an influence of the problem-based learning model (PBM) on students' motivation to write arguments.

F. Discussion of Research Results

Based on the research results and hypothesis testing results, it is proven that there is an influence of the use of the problem-based learning model (PBM) on students' motivation to write arguments. Learning activities that are influenced by the problem-based learning model can increase students' motivation to write arguments, this is based on the results of research hypothesis testing.

In testing the hypothesis at a significance level of 5%, t count > t table (6.78 > 2.03), then H0 is rejected and H1 is accepted. In this way, the hypothesis is tested and significantly accepted. So it can be concluded that there is an influence of using the PBM model on motivation to write arguments and the average motivation to write arguments using the PBM model is 78.8 higher than those using the conventional learning model of 69.

Based on the findings in this research, a lecturer must be able to use an effective learning model according to the expected goals. The results of this research show that in general the use of the problem-based learning model (PBM) contributes to gaining motivation to write better arguments. Thus, the problem-based learning model is a strategy that cannot be ignored in fostering motivation to write good arguments.

4. CONCLUSION

In this conclusion section, the researcher briefly describes the research results obtained. After conducting research and data analysis regarding the problem-based learning model (PBM) on motivation to write arguments, it can be concluded that there is a significant influence of the use of the problem-based learning model (PBM) on the motivation to write arguments at Indraprasta PGRI University students. This is based on hypothesis testing with a significance level of 5%, obtained t count > t table (6.78 > 2.03), so H0 is rejected and H1 is accepted. In this way, the hypothesis is tested and significantly accepted. Therefore, it can be concluded that there is an influence of using the problem-based learning model on students' motivation to write arguments and the average motivation to write arguments using the problem-based learning model (PBM) is 78.8 higher than that using the conventional learning model of 69.

5. SUGGESTION

Based on the results of the research above, it is recommended that lecturers or teaching staff always choose the right learning model in learning activities and adapt it to the expected goals. Because using an effective learning model will foster learning motivation for students.

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