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THE EFFECT OF GUIDE NOTE TAKING INSTRUCTIONAL MODEL TOWARDS PHYSICS LEARNING OUTCOMES ON HARMONIOUS VIBRATIONS

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ABSTRACT

This study aimed to investigate the effect of Guide Note Taking instructional model on student learning outcomes. This study used a quantitative approach with a quasi-experimental method. This research was conducted at SMA Negeri 1 Fanayama. The sample of this study was class X-1 as an experimental class with 32 students and class X-2 as a control class with 34 students. The instrument used in this study was an essay test consisting of 5 questions referring to the indicators of physics learning outcome. The results revealed that the average learning outcomes in the experimental class was 81.41, and the average learning outcomes in the control class was 67.5. Meanwhile, the hypothesis test obtained tcount = 5.94 and ttable = 1.99. This shows that tcount> ttable, therefore Ha is accepted and Ho is rejected. Based on data analysis and hypothesis testing, it is concluded that Guide Note Taking instructional model affects students' cognitive learning outcomes since it makes students interested in obtaining information or mastering skills to complete the given tasks.

***Keywords*: *Guide Note Taking* Instructional Model, Learning Outcomes, Physics**

1. INTRODUCTION

Physics education has a very important role because physics is the basic science for the growth and development of technology. This is because mastery of physics requires students to think rationally, critically, systematically, and the ability to reason logically and consistently. According to Harefa (2018), "Physics is not a solitary knowledge that can be perfect because of itself, but the existence of physics is mainly to help humans in understanding and mastering social, economic, and natural problems." Ruwanto (2006) said that physics is part of the basic science and one of the fundamental sciences. Physics is one of the subjects that plays an important role in education. This can be seen from the lesson hours which are longer than other subjects. Physics lesson in education is taught to all levels of education from elementary school to tertiary education (Harefa, 2017).

Instructional model is a creation that has been planned by a teacher before starting the learning process. It can also be used as a guide for carrying out learning in the classroom with the aim that students do not feel bored with the monotonous learning model. What is meant by monotonous learning is when students are passive while teachers are more active. According to Suprijono (2009) instructional model is a pattern that is used as a guide in planning learning in class and tutorial. Guide Note Taking contains 3 words namely Guide, Note, Taking. Etymologically, guide comes from the word guide as a noun which means guidebook and guide, while as a verb it means guiding. Then, guide as an adjective means control. Note means writing, and taking as a noun derived from take means catching. Suprijono (2010) explains that Guide Note Taking is learning process that begins with providing teaching materials, for example in the form of handouts of the material presented by using lecture method. Teachers can empty some important points so that there are missing parts in the handout. Some of the ways that can be done are to leave the term or definition blank and omit some keywords.

Silberman (2009) states, "Guide Note Taking is an instructional model that uses a worksheet as a medium that can help students take notes when a teacher is delivering a

lesson with an interactive lecture method so that the teacher gets more attention from students. Furthermore, Silberman (2009) argues that that the advantage of Guide Note Taking is that it makes students interested in obtaining information or mastering skills to complete the tasks given to them.

Zainal (2012) suggests that Guide Note Taking is an instructional model that prepares a chart or scheme or something else that can help students take notes when preparing learning materials. Based on the above opinion, it can be concluded that Guide Note Taking is a model that uses a scheme (handout) as a medium that can help students take notes when a teacher is delivering lessons using the lecture method.

Therefore, the researcher will try to apply an active learning model which is expected to improve student learning outcomes. The active learning model that is applied is Guide Note Taking learning model. Suprijono (2010) explains that Guide Note Taking is "learning process that begins with providing teaching materials, for example in the form of handouts of the material presented by the lecture method to." Some techniques that can be performed are to leave the term or definition blank and omit some keywords. (Silberman, 2009) states that “Guide Note Taking is an instructional model that uses a worksheet as a medium that can help students take notes when a teacher is delivering lessons using an interactive lecture method so that the teacher gets more attention from students. The advantage of Guide Note Taking is that it make students interested in learning or mastering skills to complete the given tasks.

2. METHOD

The type of this research is a quasi-experimental study, which requires treatment to the research sample, created and arranged by the researcher (Arikunto, 2006). In this study, Guide Note Taking was applied in the experimental class, and conventional learning was implemented in the control class.

Table. 1. *Pretest-Posttest Control Group Disign*

Class	Pre-test	Treatment	Post-test
Experimental	Y_1	X	Y_2
Control (K)	Y_1	-	Y_2

Source: (Sukardi, 2009)

Description:

Y_1 : Pretest in the experimental and control classes

Y_2 : Posttest in the experimental and control classes

X : Treatment to the experimental class by applying *Guide Note Taking*

The population of this study were all students of class X semester 1 of SMA Negeri 1 Fanayama in the academic year 2017⁄2018, totaling 66 people. Table 2 shows the population of the studyThe state ofis as follows.

Table 2. Population of Class X of SMA Negeri 1 Fanayama

Class	**Number**		**Total**
	Male	**Female**	
X-1	19 people	13 people	32 people
X-2	20 people	14 people	34 people
Number	39 people	27 people	66 people

Source: Administration of SMA Negeri 1 Fanayama in the Academic Year 2017/2018.

In this study, the sample was selected by conducting total sampling technique. The data obtained by the researcher were student learning outcomes after carrying out the learning process using Guide Note Taking in the experimental class, and conventional method in the control class. There were two tests used in this study, namely pretest and posttest whose feasibility have been tested. Students involved in this study were class X-1 as the experimental class totaling 32 people, and class X-2 as the control class which amounted to 34 people. In this study, the two classes completed the pretest and then followed the learning process according to the steps contained in the lesson plan. At the end, posttest was conducted to both experimental and control classes to figure out the effect of the instructional model that had been implemented.

3. RESULT

The validity test aimed to measure the level of validity of each instrument item. The type of validity used by the researcher was item validity test, that is, to find out whether each test item is valid. The test of item validity of question number 1 can be seen in the following table

N	= 30	ΣXY	= 20363
ΣX	= 331	ΣX^2	= 4065
ΣY	= 1656	ΣY^2	= 105168

Then, the data was substituted in the product moment correlation formula:

$$r_{xy} = \frac{N\sum XY-(\sum X)(\sum Y)}{\sqrt{\{N\sum x^2-(\sum x)^2\}\{N\sum Y^2-(\sum Y)^2\}}}$$

$$= \frac{30\ (20363)-(331)(1656)}{\sqrt{\{30(4065)-(331)^2\}\{30(05168)-(1656)^2\}}} = \frac{62754}{71505{,}174} = 0{,}878$$

From the above calculation, it is obtained r_{xy} = 0.878, which is then compared with the product moment r table value at a significant level of 5% (α= 0.05) for N = 30. From this comparison, it is obtained r table = 0.3611. Thus r_{xy} > r table; therefore, item number 1 is declared valid. By following the steps of question number 1, question number 2-5 can be calculated. The complete results are listed in Table 3 as follows:

Table 3. The Results of Item Validity Test of Question Number 1-5

Item Number	ΣX	ΣY	$\sum XY$	$\sum X^2$	$\sum Y^2$	r_{hitung}	r_{tabel}	Criteria
1	331	1656	20363	4065	105168	0,878	0,361	Valid
2	336	1656	20776	4182	105168	0,929	0,361	Valid
3	362	1656	22721	5032	105168	0,906	0,361	Valid
4	361	1656	22776	5037	105168	0,923	0,361	Valid
5	266	1656	18532	3530	105168	0,959	0,361	Valid

Reliability Test. Referring to Table 3 above, the following data were obtained:
N = 30; ΣX_1^2 = 4065; ΣX_2^2 = 4182; ΣX_3^2 = 5032; ΣX_5^2 = 3530
Before calculating the reliability of the test, the researcher first looked for the variance of each test item by using the formula:

$$\partial i^2 = \frac{\sum X_i^2 - \frac{(\sum X_i)^2}{N}}{N}$$

Table 4. Variance Value

Nomor Item	∂i^2	∂_t^2
1	13,77	458,56
2	13,96	
3	22,13	
4	23,09	
5	39,05	
$\sum \partial i^2 =$	112	

Therefore, the reliability coefficient is calculated by using the formula:

$$r_{11} = \frac{k}{k-1}\left(1 - \frac{\sum \partial_t^2}{\partial_t^2}\right) = \frac{5}{5-1}\left(1 - \frac{112}{458,56}\right) = 0,945$$

After r_{11} was obtained, it was then compared to the product moment r table values at a significant level of 5% (= 0.05) with dk = n-1 = 30-1 = 29, resulting in r_{tabel} = 0.367. Since $r_{11} > r_{tabel}$, the test is declared reliable.

Difficulty Level

To find out the difficulty level of the test according to the actual conditions at school, the calculation of difficulty level was carried out based on the results of the instrument trial.

Table 5. The Result of Difficulty Level Calculation

Item Number	Mean	Maximum Score	Difficulty Index	Difficulty Level
1	11,033	15	0,735	Easy
2	11,2	15	0,75	Easy
3	12,067	20	0,60	Moderate
4	12,033	20	0,60	Moderate
5	8,867	30	0,295	Difficult

Discriminatory Power Test

To find out whether each test item can distinguish high, medium and low-ability students, a discriminatory power test was conducted.
Based on the table above for item 1, the data revealed: Mean KA: 14.20, Mean KB: 7.87 and maximum score: 15. Then, the data were substituted by using the formula:

$$DP_1 = \frac{\text{Mean KA} - \text{Mean KB}}{\text{Skor maksimum}} = \frac{14,20-7,87}{15} = \frac{6,33}{15} = 0,422$$

Thus, item number 1 is acceptable.
By following the same steps done in the question number 1, item 2-5 can be calculated. The results of the calculation of all question items can be seen in Table 5 below:

Table 6. The Result of Discriminatory Power Test Calculation

Item Number	Mean of KA	Mean of KB	Maximum Score	Discriminatory Power	Discriminatory Power Classification
1	14,20	7,87	15	0,42	Accepted/Good
2	14,60	7,80	15	0,45	Accepted/Good
3	16,27	7,87	20	0,42	Accepted/Good
4	16,3	2,87	20	0,43	Accepted/Good
5	14,87	2,87	30	0,40	Accepted/Good

Pretest

Data Processing of Pretest Scores in the experimental class and control class

On Monday, March 28, 2016, the researcher conducted pretest in class X-1, namely on period 4-5 with 32 students. Then, the same test was conducted on period 6-7 in class X-2 with 34 students.

Experimental Class

Tabel. 7. The Result of Pretest in Class X-1 of SMA Negeri 1 Fanayama

Respondent Name	Item Number					Total Score
	1	2	3	4	5	
1.	5	9	20	16	20	80
2	10	10	15	11	4	50
3	15	15	20	16	10	76
4	15	15	10	0	0	40
5	15	15	20	13	0	63
6	15	15	20	20	12	82
7	12	10	15	10	8	55
8	15	15	20	17	15	82
9	13	12	10	7	5	47
10	10	15	12	7	6	50
11	15	12	10	20	24	81
12	15	15	20	15	0	65
13	15	15	16	12	25	83
14	15	15	20	17	12	79
15	10	15	10	10	5	50
16	12	15	18	14	16	75
17	15	10	18	17	10	70
18	10	15	10	6	4	45
19	15	15	18	15	18	81
20	10	8	11	6	5	40
21	15	15	0	6	8	81
22	15	10	8	6	8	47
23	15	12	20	15	13	75
24	12	15	9	7	2	45
25	10	12	11	8	4	45

26	15	13	15	12	10	65
27	15	15	16	18	16	80
28	15	12	18	14	21	80
29	10	15	13	17	20	75
30	12	13	16	14	10	65
31	15	10	20	18	18	81
32	15	15	13	20	12	75
Total						**2108**

Control Class

Table 8. The Result of Pretest in Class X-2 of SMA Negeri 1 Fanayama

Respondent Name	**Item Number**					**Total Score**
	1	**2**	**3**	**4**	**5**	
AP	12	15	17	16	5	65
1	13	15	20	15	6	69
2	8	12	20	15	6	61
3	12	10	15	15	5	57
4	15	15	13	20	18	81
5	15	15	20	14	10	74
6	13	10	17	18	22	80
7	10	12	15	12	6	55
8	15	15	20	18	13	81
9	15	15	15	20	18	83
10	15	15	20	18	15	83
11	12	15	19	16	14	76
12	12	15	20	18	10	75
13	10	12	8	10	5	45
14	9	10	7	18	6	50
15	10	12	13	12	6	53
16	6	13	15	10	4	48
17	13	15	20	14	18	80
18	15	13	20	19	15	82
19	7	12	14	13	2	48
20	12	13	14	10	6	55
21	8	10	13	12	2	45
22	15	15	17	18	15	80
23	10	13	18	17	12	70
24	8	12	14	15	6	55
25	15	13	15	20	18	81
26	12	13	18	16	6	65
27	15	12	20	13	20	80
28	10	15	20	15	8	68
29	15	25	18	20	10	75
30	11	10	20	16	8	65
31	9	15	15	8	6	53

32	10	15	14	12	4	55
33	15	12	8	13	2	50
Total					34	

Mean

Experimental Class. Based on the results of pretest in the experimental class, the following data was obtained:

N = 32; $\sum x_i$ = 2108, then, this data was substituted by using the formula:

$\bar{x} = \frac{\sum x_i}{N} = \frac{2108}{32}$ = 65,87

Therefore, the mean of student learning outcomes in the experimental class is classified as sufficient.

Control class. Based on the results of pretest in the control class, the following data was obtained:

N = 34 ; $\sum x_i$ = 2243, then, this data was substituted by using the formula:

$\bar{x} = \frac{\sum x_i}{N} = \frac{2243}{34}$ = 65,97

Therefore, the mean of student learning outcomes in the control class is classified as sufficient.

Variance and Standard Deviation

Experimental Class. Based on the calculation of pretest results, the following data was obtained:

N = 32 ; $\sum x_i$ = 2108 ; $\sum x_i^2$ = 146060, then, this was substituted by using the formula:

$s^2 = \frac{n\sum x_i^2 - (\sum x_i)^2}{n(n-1)} = \frac{32(146060) - (2108)^2}{32\,(32-1)} = \frac{230256}{992}$; s^2 = 232,113

Simpangan baku (s)

$s = \sqrt{\frac{N\sum x_i - (\sum x_i)^2}{n(n-1)}} = \sqrt{232,113}$ = 15,24

Control Class. Based on the calculation of pretest results, the following data was obtained:

N = 34 ; $\sum x_i$ = 2243 ; $\sum x_i^2$ = 153593, then, this was substituted by using the formula:

$s^2 = \frac{n\sum x_i^2 - (\sum x_i)^2}{n(n-1)} = \frac{34\,(153593) - (2243)^2}{34\,(34-1)} = \frac{191113}{1122}$; s^2 = 170,332 ; S = 13,05

Normality Test

Experimental Class. Based on the results of pretest in the experimental class, it is obtained: n = 32; = 65.87; s = 15.24. Thus, the calculation of the normality test is showed in the following table:

Table 9. The Calculation of Normality Test of Pretest

x_i	F	F_x	$\bar{x}$	$x_i - \bar{x}$	S	z_i	F (z_i)	s (z_i)	F(z_i) – s (z_i)
40	2	2		-25,87		-1,69	0,0455	0,0625	0,017
45	3	5	65,87	-20,87	15,24	-1,37	0,0853	0,15625	0,07095
47	2	7		-18,87		-1,24	0,1075	0,21875	0,11125

50	3	10	-15,87	-1,04	0,1492	0,3125	0,1633
55	1	11	-10,87	-0,71	0,3288	0,34375	0,10495
63	1	12	-2,87	-0,19	0,4246	0,375	0,0496
65	3	15	-0,87	-0,06	0,4761	0,46875	0,00735
70	1	16	4,13	0,27	0,6064	0,5000	0,1064
75	4	20	9,13	0,59	0,7174	0,625	0,0970
76	1	21	10,13	0,66	0,7454	0,65625	0,08915
79	1	22	13,13	0,86	0,8051	0,6875	0,1176
80	3	25	14,13	0,93	0,8238	0,78125	0,04255
81	4	29	15,13	0,99	0,8389	0,90625	0,06735
82	2	31	15,13	1,06	0,8554	0,96875	0,11335
83	1	32	17,13	1,12	0,8686	1,0000	0,1314

Kelas Kontrol. Berdasarkan hasil perhitungan tes awal di kelas kontrol diperoleh n = 34; $\bar{x}$ = 65,97; s = 13,05, maka perhitungan uji normalitas seperti pada tabel berikut:

Based on the calculation of normality test, it is obtained L_o= 0.1633. However, n = 32, α = 0.01 is unlisted in the table. Therefore, the calculation was carried out by using the formula: by means: $\frac{1,031}{\sqrt{n}} = \frac{1,031}{\sqrt{32}}$ = 0,1823. Thus $L_o < L_{tabel}$, which means that the data are normally distributed.

Control Class. Based on the results of the calculation of pretest in the control class, it is obtained n = 34; = 65.97; s = 13.05. Thus, the calculation of the normality test is showed in the following table:

Table 10. The Calculation of Normality test of Pretest in the Control Class

x_i	F	F_x	$\bar{x}$	$x_i - \bar{x}$	s	z_i	F (z_i)	s (z_i)	F(z_i) – s (z_i)
45	2	2		-25,97		-1,61	0,0537	0,0588	0,0051
48	2	4		-17,97		-1,38	0,0838	0,1176	0,0338
50	2	6		-15,97		-1,22	0,1112	0,1764	0,0652
53	2	8		-12,97		-0,99	0,1611	0,2352	0,0741
55	4	12	65,97	-10,97	13,05	-0,84	0,2004	0,3529	0,1525
57	1	13		-8,97		-0,69	0,2451	0,3823	0,1372
61	1	14		-4,97		-0,38	0,352	0,4117	0,0597
65	3	17		-0,19		-0,07	0,4721	0,5	0,0279
68	1	18		2,03		0,16	0,5636	0,5294	0,0342

69	1	19	10,13	0,23	0,591	0,5588	0,0322
70	1	20	3,03	0,31	0,6217	0,5882	0,0335
74	1	21	4,03	0,62	0,7324	0,6176	0,1148
75	2	23	8,03	0,69	0,7549	0,6764	0,0785
76	1	24	9,03	0,77	0,7794	0,7058	0,0736
80	4	28	10,03	1,08	0,8599	0,8235	0,0364
81	3	31	15,03	1,15	0,8749	0,9117	0,0368
82	1	22	16,03	1,23	0,8907	0,9411	0,0504
83	2	34	17,03	1,30	0,9032	1,0000	0,0968

Based on the results of the normality test, it is obtained L_o = 0.1525. This value was consulted with the list of liliefors values at a significant level: α = 0.01. However, n = 34 is unlisted in the table. The alternative is to use $\frac{1,031}{\sqrt{n}} = \frac{1,031}{\sqrt{34}} = \frac{1,031}{5,83}$ = 0,1768. Thus: $L_0 < L_{tabel}$, indicating that the research data is normally distributed.

Homogeneity test. Based on the pretest data in the experimental class and the control class, it is obtained the variance of the experimental class = 232,113 and the variance of the control class = 170.332. Therefore, $F_{hitung} = \frac{\text{varians terbesar}}{\text{varians terkcil}} = \frac{232,113}{170,332}$ = 1,3627. This value was then consulted with F_{tabel} for dk (-1, -1) at a significant level of 0,05. From this, it is obtained dk = (31.33). This value is not found in the critical value of F table. Thus, to calculate the value of F_{tabel}, the following interpolation formula is used:
F_t (30.33) lies between F_t (30.32) = 1.82 and F_t (30.34) = 1.80. Therefore, from these data, F_{hitung} = 1.3627 and F_{hitung} = 1.804. In fact, $F_{hitung} < F_{tabel}$. It turns out that the class is homogeneous which means it represents the population as a research sample.

Data Processing of Posttest in the experimental class and control class

After the implementation of posttest in the experimental class (X-1), the results were corrected and processed into item values, and the calculation results were shown in the following table:

Table 11. Posttest Results of Class X-1 Students of SMA Negeri 1 Fanayama

Respondent Name	Item Number					Total Score	Criteria
	1	2	3	4	5		
1	12	13	20	15	20	80	Accomplished
2	13	15	20	18	8	74	Accomplished
3	15	15	18	17	15	80	Accomplished
4	12	8	20	20	13	76	Accomplished
5	15	15	20	20	24	94	Accomplished
6	15	13	18	20	8	74	Accomplished

7	13	15	20	18	18	84	Accomplished
8	15	15	20	20	15	85	Accomplished
9	15	15	18	20	17	85	Accomplished
10	15	15	20	15	10	75	Accomplished
11	15	0	20	20	19	74	Accomplished
12	15	15	20	20	16	86	Accomplished
13	15	12	20	17	12	76	Accomplished
14	15	15	20	18	20	88	Accomplished
15	13	15	20	19	18	85	Accomplished
16	15	13	18	17	18	81	Accomplished
17	15	15	20	18	17	85	Accomplished
18	15	15	20	18	18	86	Accomplished
19	15	15	17	20	24	91	Accomplished
20	15	5	20	20	0	60	Not Accomplished
21	15	12	20	18	10	75	Accomplished
22	15	15	20	20	26	96	Accomplished
23	15	12	17	20	14	78	Accomplished
24	10	13	18	17	12	70	Accomplished
25	15	15	18	20	22	90	Accomplished
26	12	15	20	17	12	76	Accomplished
27	15	15	20	20	16	86	Accomplished
28	15	15	17	18	15	80	Accomplished
29	15	15	18	16	17	81	Accomplished
30	15	15	18	17	13	78	Accomplished
31	15	15	20	18	18	86	Accomplished
32	15	15	20	20	20	90	Accomplished
Total						**2605**	

Mean. From the results of calculating the value of student learning outcomes obtained through posttest in the experimental class, the mean can be calculated using by the formula (Sugiyono, 2012):

$\bar{x} = \frac{\sum x_i}{N} = \frac{2605}{32}$ 81.41

Furthermore, the mean of the control class can be calculated using the by using the formula:

$\bar{x} = \frac{\sum x_i}{N} = \frac{2295}{34}$=67.5

Based on the results of the mean calculation from the experimental class, it is obtained a mean of 81.41 classified as good, while the mean obtained from the control class was 67.5 classified as sufficient.

Referrring to the calculation result of posttest in the experimental class, it is obtained: : n = 32; $\sum x_i$ = 2605; $\sum x_i^2$ = 213813. Subsequently, the variance value can be calculated by using the formula:

$s^2 = \frac{n\sum x_i^2 - (\sum xi)^2}{n(n-1)} = \frac{32(213813) - (2605)^2}{32\,(32-1)} = \frac{55991}{992}$; s^2 = 56,44

simpangan baku (s)

$s = \sqrt{\frac{n\sum x_i^2 - (\sum x_i)^2}{n(n-1)}} = \sqrt{56{,}44} = 7{,}51$

Furthermore, based on the calculation results of posttest in the control, it is obtained: n = 34 ; $\sum x_i$ = 2295 ; $\sum x_i^2$ = 158957. Then, the variance value can be calculated by using the formula:

$s^2 = \frac{n\sum x_i^2 - (\sum x_i)^2}{n(n-1)} = \frac{34(158957) - (2295)^2}{34\,(34-1)} = \frac{137513}{1122}$; $s^2 = 122{,}56$

Meanwhile, standard deviation is calculated by using the formula:

$s = \sqrt{\frac{n\sum x_i^2 - (\sum x_i)^2}{n(n-1)}} = \sqrt{122{,}56} = 11{,}07$

Uji Normalitas Tes Akhir. Berdasarkan perhitungan nilai tes akhir di kelas eksperimen diperoleh data : n = 32; $\bar{x}$ = 81,41; s = 7,51, maka dilakukan uji normalitas seperti pada tabel berikut:

Normality Test of Posttest. Based on the calculation of posttest scores in the experimental class, it is obtained: n = 32; $\bar{x}$ = 81,41; s = 7,51. Then, the normality test is carried out as showed in the following table:

Table 12. The Calculation of Normality Test of Posttest in the Experimental Class

x_i	F	F_x	$\bar{x}$	x_i - $\bar{x}$	s	z_i	F (z_i)	s (z_i)	$\lvert F(z_i) - s(z_i)\rvert$
60	1	1	81,41	-21,41	7,51	-2,85	0,0022	0,03125	0,02905
70	1	2		-11,41		-1,52	0,0643	0,0625	0,0018
74	3	5		-7,41		-0,99	0,1611	0,15625	0,00485
75	2	7		-6,41		-0,85	0,1977	0,21875	0,02105
76	3	10		-5,41		-0,72	0,2358	0,3725	0,0767
78	2	12		-3,41		-0,45	0,3264	0,375	0,0486
80	3	15		-1,41		-0,19	0,4246	0,46875	0,04415
81	2	17		-0,41		-0,05	0,4801	0,53125	0,05115
84	1	18		2,59		0,34	0,6331	0,5625	0,0706
85	4	22		3,59		0,48	0,6844	0,6875	0,0031
86	4	26		4,59		0,61	0,7291	0,8125	0,0834
88	1	27		6,59		0,88	0,8106	0,84375	0,03315
90	2	29		8,59		0,14	0,8729	0,90625	0,03335
91	1	30		9,59		0,28	0,8997	0,9375	0,0378
94	1	31		12,59		1,68	0,9535	0,96875	0,01525
96	1	32		14,59		1,94	0,9738	1,0000	0,0262

From the calculation of the normality test above, it is obtained: L_0= 0.0834. This value was then compared to the Liliefors test list with a significant level of α = 0.01. However, n = 32 is unlisted in the table. Thus, this formula was used to look for n> 32 = $\frac{1{,}031}{\sqrt{n}} = \frac{1{,}031}{\sqrt{32}}$ = 0,1823. This finding indicates that $L_0 < L_{tabel}$, so the data is normally distributed. Furthermore, referring to the calculation result of posttest in the control class, it is obtained: n = 34; x = 67,5; s = 11,07. Then, the normality test is calculated as showed in the following table (Sudjana, 2011):

Table 13. The Calculation of Normality Test of Posttest in the Control Class

x_i	F	F_x	$\bar{x}$	$x_i - \bar{x}$	s	z_i	F (z_i)	s (z_i)	$\lvert F(z_i) - s(z_i) \rvert$
47	1	1		-20,5		-1,85	0,0322	0,0294	0,0028
50	2	3		-17,5		-1,58	0,0571	0,0882	0,0311
52	1	4		-15,5		-1,40	0,0808	0,1176	0,0368
55	2	6		-12,5		-1,13	0,1292	0,1765	0,0473
56	2	8		-11,5		-1,04	0,1492	0,2353	0,0861
57	1	9		-10,5		-0,95	0,1711	0,2647	0,0936
60	3	12		-7,5		-0,68	0,2482	0,3529	0,1047
65	3	15		-2,5		-0,22	0,4129	0,4412	0,0283
66	1	16		-1,5		-0,14	0,44443	0,4706	0,0263
67	1	17	67,5	-0,5	11,07	-0,4	0,484	0,50000	0,016
68	1	18		0,5		0,04	0,5160	0,5294	0,0134
69	1	19		1,5		0,14	0,5557	0,5588	0,0031
70	1	20		2,5		0,22	0,5871	0,5882	0,0011
72	1	21		4,5		0,41	0,6591	0,6176	0,0415
75	3	24		7,5		0,68	0,7518	0,7059	0,0459
79	1	25		11,5		1,04	0,8508	0,7353	0,1155
80	4	29		12,5		1,13	0,8708	0,8529	0,0179
81	4	33		13,5		1,22	0,8888	0,9706	0,0818
82	1	34		14,5		1,31	0,9049	1,0000	0,0951

From the calculation of normality test above, it is obtained L_0 = 0.1155. Compared to the liliefors table with a significant level α = 0.01, n = 34 is unlisted in the table, so this formula is applied: $\frac{1,031}{\sqrt{34}}$ = 0,1768. Therefore, $L_0 < L_{tabel}$, indicating that the data is normally distributed.

Hypothesis Test

Based on the posttest data in the experimental class, it is obtained a mean of 81.41, and a variance of 56.44. Meanwhile, the mean of control class was 67.5, with a variance of 122.56. Furthermore, (Sukmadinata, 2012) these values are substituted in the parametric statistical hypothesis test formula, namely the two tailed t test. Previously, the combined variance was searched by using the formula:

$$s^2 = \frac{(n_1-1)S_1^2+(n_2-1)S_2^2}{(n_{1+n_{2-2}})} = \frac{(32-1)(56,44)+(34-1)122,56}{(32+34-2)} = \frac{5794,12}{64}$$

s^2 = 90,53; s = $\sqrt{90,53}$; s = 9,51

After obtaining the combined s value, the next step was calculating the value of t_{hitung} by using the formula:

$$t_{hitung} = \frac{\bar{x}_1-\bar{x}_2}{S\sqrt{\frac{1}{n_1}-\frac{1}{n_2}}} = \frac{81,41-67,5}{9,51\sqrt{\frac{1}{32}+\frac{1}{34}}} = \frac{13,91}{2,34}; \; t_{hitung} = 5,94$$

Furthermore, the value of t_{hitung} was compared with the value of the t distribution table at the significant level α = 0.05 with dk (n_1 + n_2-2). According to Supardi (2012), it turns out

that the t table value for n = 64 does not exist, so the researcher used the interpolation formula by assuming that $t_{(0,975)(64)}$ is in the interval of 60 and 120; the method is:

$t_{(0,975)(60)} = 2,00$

$t_{(0,975)(120)} = 1,98$

Therefore:

$$C = C_0 + \left(\frac{C_1 - C_0}{B_1 - B_0}\right) \text{ x } (B\text{-}B_0)$$

$$= 2,00 + \frac{(1,98-2,00)}{(120-60)} (64\text{-}60)$$

$$= 2,00 + \left(\frac{-0,02}{60}\right)\text{x}4$$

$$= 2,00 - 0,00133 = 1,99$$

From those calculations, it is obtained t_{count} = 5,94 dan t_{table} = 1,99867. The criteria to accept Ho is if: $t_{(1-1/2\alpha)} < t < t_{(1-1/2\alpha)}$. It turns out that the t_{count} value is not in the interval – 1,99 < t < 1,99867. Therefore, Ho is rejected, and Ha is accepted. This finding indicates that "There is an effect of Guide Note Taking (GNT) instructional model on student learning outcomes in Harmonious Vibration material in class X of SMA Negeri 1 Fanayama 2017/2018 academic year."

4. DISCUSSION

The learning process of harmonious vibrations by applying Guide Note Taking instructional model was held in class X-1 for four meetings.

Based on the calculation of the research data, it is known that: The mean of student learning outcomes of prestest in the experimental class was 65.87, classified as sufficient. After learning by using Guide Note Taking model, the mean of posttest in the experimental class was 81,41, classified as good. Meanwhile, the mean of student learning outcomes of pretest in the control class was 65.97, which was classified as sufficient. After experiencing conventional learning method, the mean of posttest in the control class was 67.5, which was classified as sufficient, too.

The results of the study showed that the percentage value of posttest in the cycle I was not in accordance with the established outcome criteria, which was only 64.51%. Furthermore, in posttest of cycle II, the percentage value of 83.87% was obtained so that the completeness value was met. Thus, based on the results of data analysis obtained from the study, it shows that Guided Note Taking instructional model is able to improve student learning outcomes.

Based on the finding, it can be stated that learning outcomes of physics as a result of applying Guide Note Taking model are different and better than conducting conventional method. Therefore, it can be concluded that Guide Note Taking model has an effect on the physics learning outcomes of SMA Negeri 1 Fanayama. To find out whether this influence is significant, statistical hypothesis testing is performed.

The calculation process obtained t_{count} = 5,94 and t_{tablel} = 1,99867. The criteria to accept Ho is if: $-t_{(1-1/2\alpha)} < t < t_{(1-1/2\alpha)}$. It turns out that the value of t_{count} is not in the interval of – 1,99867 < t < 1,99867. Therefore, Ho is rejected, and Ha is accepted which means: "There is an effect of Guide Note Taking (GNT) instructional model on student learning outcomes on Harmonious Vibration material in class X of SMA Negeri 1 Fanayama 2017/2018 academic year."

This study reveals that the use of Guide Note Taking model in physics learning

makes students more active in learning, have the courage to convey ideas, and have the motivation to find solutions to problems by themselves. Based on the description above, it can be concluded that the findings of this study support the theories that have been stated by previous researchers. Thus, it can be said that the theory has a truth value.

Based on the hypothesis test, it was found that the student learning outcomes on the subject matter of Harmonic Vibrations through Guide Note Taking model yields a mean of 81.41. The learning outcomes of the experimental class were obtained from posttest scores that each student obtained during the learning process.

In the control class, it was found that student learning outcomes on the subject matter of Harmonic Vibrations through conventional learning model produces a mean of 67.5. The learning outcomes in the control class were also obtained from posttest scores that each student received during the learning process. Learning process in the control class used a conventional learning model in which students only paid attention, noted the teacher's explanation, and worked on the questions. Only students with more abilities could properly solve the problems contained in the questions or assignments given by the teacher. There were still some students who had not been able to solve the questions given by the teacher properly.

After all, this study concludes that the application of Guide Note Taking model makes learning more student-centered in accordance with the demands of the KTSP Curriculum. The transformation occurs thanks to the positive changes, that is, students begin to be creative in filling the guidelines given by the teacher. In addition, student learning outcomes are also better, especially in the material of Harmonic Vibrations.

5. CONCLUSION

The findings of this study reveal that the mean of learning outcomes in the experimental class is 81.41, while in the control class is only 67.5. Meanwhile, the results of hypothesis test obtained t_{count} = 5,94 dan t_{table} = 1,99. From this finding, it can be concluded that Guide Note Taking learning model has an effect on students' cognitive learning outcomes because it makes students interested in obtaining information as well as mastering skills in completing assignments given to students.

6. SUGGESTION

Physics teachers should be able to apply this Guide Note Taking model in the learning process, especially in Harmonious vibration material because it can make students interested in exploring and obtaining information, as well as completing the assignments given to them.

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