

## Teaching the Material on Work and Energy Using an Integrated Flipbook Emodule with the Qur'an to Improve Spiritual Attitudes and Learning Outcomes of Students at SMA Muhammadiyah 1 Pontianak

Ardi\*, Tomo Djudin, Ray Cinthya Habellia

Universitas Tanjungpura, Indonesia

Email: [ardidyy@gmail.com](mailto:ardidyy@gmail.com)\*

### ABSTRACT

#### KEYWORDS

*E-module Flipbook  
Integrated with the  
Qur'an; Spiritual  
Attitudes and Learning  
Outcomes; Effort and  
Energy*

This study aims to test how learning business materials and energy assisted by the integrated flipbook e-module of the Qur'an to improve the spiritual attitude and learning outcomes of students at SMA Muhammadiyah 1 Pontianak. This study used a nonequivalent control group design, with a sample of 38 students of class X of MIPA 1 and 38 students of class X of MIPA 2. The instruments used in this study are tests and questionnaires of spiritual attitudes, using measurement techniques and questionnaire filling techniques. Data analysis was carried out to determine the influence of learning business materials and energy assisted by the Qur'an's integrated flipbook e-module on students' spiritual attitudes and learning outcomes. The results of the study showed that there were differences in spiritual attitudes and learning outcomes before and after learning business and energy materials assisted by the Qur'an-integrated flipbook e-module. The average spiritual attitude score of the experimental class before treatment was 37.26 increased to 65.92 after treatment. The average pretest score of 30.52 increased to 73.87 in the posttest. Furthermore, the effect size score of spiritual attitudes is 5.21 and learning outcomes are 1.56 so that learning of business and energy materials assisted by the integrated flipbook e-module of the Qur'an affects the spiritual attitude and learning outcomes of students. Thus, the integrated physics learning of the Qur'an must be applied in learning at school because it can arouse students' enthusiasm in learning.

### INTRODUCTION

Physics is a learning material that cannot be separated from the environment because it discusses natural phenomena that are systematically arranged and have the basis of the results of experiments and observations made by a person (Samatowa, 2011). Chandra et al., (2021), physics learning will be more meaningful if the sources, objects, and teaching materials used are something that exists and has a relationship with the needs of students and has a relationship with daily life. Through physics learning, students can grow the ability to communicate, think critically, and be able to solve a problem in their daily lives Yulicahyani et al, (2017). In addition, students are expected to be aware of the greatness of Allah SWT so that they can increase their faith and piety.

The Indonesian nation is a religious nation. This is stated in the Preamble and article 29 paragraph 1 of the 1945 Constitution (Asy'ari et al., 2024; Budi, 2022; Ibrahim, 2022; Rofii, 2023). This constitutional document can be described in all aspects of state and community life, including in the field of education (Belete et al., 2022; Tohri et al., 2022). Science education or science in Indonesia has the goal of making students have a belief in the majesty and order of God's creation Almighty (Ministry of National Education, 2001). The purpose of learning science is very rational. Because, many verses of the Qur'an command us as humans to think about some of the signs of the greatness and majesty of Allah as the creator through the creation of the heavens and the earth and natural phenomena. (Chandra et al., 2021)

In the Qur'an, it has been explained that the attitude that a person must develop towards his physical environment, which of course must be implemented in education, especially in physics subjects (Atika et al., 2025; Chandra & Lizelwati, 2022; Kadir et al., 2024). In the Qur'an surah Al-Ghasiyah (88:17-20) Allah SWT explains that there are natural phenomena that are very amazing and must be understood by humans because they provide benefits and so that humans are aware of the greatness of Allah as the creator and account for their lives to God (Muhaimin, 2010).

The essence of science which contains divine and social values has a very important role in preparing the next generation of the nation who are ready to live in society and have quality and have the ability to master good science and technology. This is in accordance with the explanation in the 2013 curriculum that basic competencies (KD) and core competencies I (KI 1) and core competencies 2 (KI 2) contain the development of attitude skills that are related to divine (spiritual) values and social attitudes (Ariantini, 2014). The 2013 curriculum divides attitude competencies into two parts, namely spiritual attitudes related to the formation of students who have faith and piety, and social attitudes related to the formation of students with noble, responsible and democratic character (Ariantini, 2014). In addition to improving students' spirituality, physics learning is also expected to improve student learning outcomes.

From the results of the interview, information was obtained that the implementation of a curriculum that combines general and religious subject matter has not been implemented. In addition, the mastery of material and religious values related to business materials and energy is still relatively low. One of the reasons is the teacher's educational background, which generally comes from public educational institutions. Students have low learning outcomes. It was also obtained that learning information was still too focused on the teacher and students took more notes and became passive during learning. When learning takes place, students look less enthusiastic, not enthusiastic and do not pay attention to the learning process. Furthermore, the business and energy material test was carried out with an average score of 30.45, with the highest score of 57.5 and the lowest score of 4.5.

According to Djudin, (2011), in LKS books or physics books published by the Ministry of National Education and private publishers, it is very rare, maybe even non-existent, to find physics books that integrate the Qur'an. This is because the books that are compiled or published are used by all schools with different religious backgrounds. Of course, this has resulted in religious values related to physics rarely being applied. Therefore, this research, which integrates physics learning with the Qur'an with the help of flipbook e-modules, especially in Islamic-based schools, can improve students' spiritual attitudes and learning outcomes.

Flipbook-assisted e-modules or electronic modules can be defined as a teaching material using computers that display text, images, graphics, audio, animations, and videos in the learning process (Nugraha et al., 2015). In this study, the e-modules used in learning were made by the researcher himself by paying attention to and considering the state of the school. Muhammadiyah education has an Islamic background and has a distinctive characteristic, namely the existence of Al-Islam and Muhammadiyah (AIK) education, which makes Islam the main feature in education (Harianto, 2017). So that the use of the integrated e-module of the Qur'an in learning has continuity with the characteristics of education at SMA Muhammadiyah 1 Pontianak.

According to Nurokhmah, (2019), physics books based on Qur'anic verses that are presented in an attractive way can stimulate the will and awareness of students in reading and studying physics materials, both reading books as a source of learning and reading in believing in the signs of God's greatness in the universe. In the subject of business and energy, there are many events in daily life that apply this discussion of business and energy, as found in Q.S An-Najm verse 39 and Q.S An-Naml verse 88. In Q.S An-Najm verse 39 it discusses that man can only get something when he strives while in Q.S An-Naml verse 88 it is about mountains which are not stationary as we see but move like the movement of clouds because they have speed, this is related to kinetic energy.

Based on previous research, Qur'an-based physics learning has a great influence on students' spiritual attitudes and learning outcomes. Agustina's research (2013) concluded that Qur'an-based physics learning can improve students' spiritual attitudes and learning outcomes. Research by Ariatini et al. (2014), concluded that there is an implementation of integrating spiritual attitudes and social attitudes in the learning process. Fitriyawani's research, (2016), concluded that students have an interest in integrating Islamic-based learning in planning learning so that it can improve learning outcomes. Mustikarini's research, (2016), concluded that Qur'an-based physics learning can strengthen students' spiritual attitudes and learning motivation.

To make it more interesting, researchers use the help of flipbook e-modules in integrating the Qur'an in this study. According to Royanto (2011), flipbooks are three-dimensional digital book technology that until now have been in great demand in the learning process. Flipbooks are said to be three-dimensional because this electronic book is able to offer many interesting elements, such as the addition of videos that with one click can play videos, then can be filled with moving animations.

Other interesting values such as the feature of sheets that can be opened such as opening a sheet on a printed book where e-books can usually only be read by sliding the cursor. The thing that distinguishes this research from previous research is that from the use of this flipbook, the previous research only used e-modules in the form of pdfs given to students, then it was complemented by the Qur'an which makes learning more meaningful.

Based on the description that has been explained, this study was conducted to determine the influence of learning business materials and energy assisted by the integrated flipbook e-module of the Qur'an to improve the spiritual attitude and learning outcomes of students at SMA Muhammadiyah 1 Pontianak which is currently believed to be still not widely applied.

Based on the background that has been explained, the problem in this study is whether the learning of business materials and energy assisted by the integrated flipbook e-module of the Qur'an affects the spiritual attitude and learning outcomes of students at SMA Muhammadiyah 1 Pontianak. This problem can be further described in several problem formulations, namely: first, is there a difference in the spiritual attitude of students in the experimental and control classes before and after learning business materials and energy with the help of the Qur'an-integrated flipbook e-module and those who are not assisted by the flipbook e-module at SMA Muhammadiyah 1 Pontianak.

Second, is there a difference in the learning outcomes of students in the experimental and control classes before and after learning business materials and energy with the help of the Qur'an-integrated flipbook e-module and those without the help of the flipbook e-module at

SMA Muhammadiyah 1 Pontianak. Third, how effective is the learning of business materials and energy assisted by the Qur'an-integrated flipbook e-module on the spiritual attitude of students at SMA Muhammadiyah 1 Pontianak. And fourth, how effective is the learning of business materials and energy assisted by the Qur'an-integrated flipbook e-module on the learning outcomes of students at SMA Muhammadiyah 1 Pontianak.

The general purpose of this study is to find out whether the learning of business materials and energy assisted by the integrated flipbook e-module of the Qur'an affects the spiritual attitude and learning outcomes of students at SMA Muhammadiyah 1 Pontianak. In particular, the purpose of this study is to find out whether there is a difference in the spiritual attitude of students in the experimental class and the control class before and after learning business and energy materials assisted by the Qur'an-integrated flipbook e-module and those without the assistance of the flipbook e-module. In addition, this study also aims to find out whether there is a difference in the learning outcomes of students in the experimental class and the control class before and after the learning, as well as to find out the effectiveness of learning business materials and energy assisted by the integrated flipbook e-module of the Qur'an on the spiritual attitude and learning outcomes of students at SMA Muhammadiyah 1 Pontianak.

This research is expected to provide theoretical and practical benefits. Theoretically, this research is expected to provide information and references related to learning in the classroom by using an integrated e-module of the Qur'an, which can make physics learning more interesting and make it easier for students to understand the material. Practically, this research is useful for schools as input material to use the integrated e-module of the Qur'an in the learning process.

For teachers, the results of the research can be considered for using the integrated e-module of the Qur'an as a tool in the classroom. For students, this research can improve the learning experience and provide more varied learning references. For researchers, this research can increase insight into the integrated e-module of the Qur'an, as well as become the final project of the graduation requirements. In addition, for the Physics Education study program, the results of this research can be an additional reference in compiling the final project.

## **METHOD**

This research uses an experimental method with a "quasy experimental design" or pseudo-experiment. According to Sugiyono (2011), pseudo-experimental research is a type of experiment that has a control group, but cannot fully control external variables that affect the implementation of experiments. The research design used was a nonequivalent control group design (Sugiyono, 2011), with a pattern as shown in Table 3.1, where the experimental and control groups were given a pretest, then treatment was given to the experimental group in the form of learning integrated physics of the Qur'an, while the control group used conventional learning. Furthermore, posttests were carried out on both groups to measure learning outcomes and students' spiritual attitudes.

This study took samples from classes XI MIPA 1 (experimental class) and XI MIPA 2 (control class) of SMA Muhammadiyah 1 Pontianak, with a sampling technique using Simple Random Sampling, which was used because the research population was homogeneous (Sugiyono, 2017). The data collection technique is carried out in two ways, namely through

initial tests and filling out spiritual attitude questionnaires to obtain data on spiritual attitudes and student learning outcomes.

The research instruments used included a Learning Implementation Plan (RPP) that had been validated with a score of 0.85, a validated test question with a score of 0.88, and a spiritual attitude questionnaire that had been validated with a score of 0.95. The validity of the test content was carried out using Aiken's V (Azwar, 2012), which obtained a high score for all research instruments. In addition, the reliability of the instrument was tested with Alpha Cronbach and resulted in a score of 0.780, indicating that the research instrument was reliable.

The data analysis techniques used included the Independent T Test for normally distributed data and the Mann Whitney for non-normally distributed data. The normality test was carried out using Kolmogorov-Smirnov, and the effectiveness of learning was calculated using the effect size formula from Cohen (Sutrisno, 2011). The research schedule was carried out during the even semester of the 2023/2024 academic year at SMA Muhammadiyah 1 Pontianak, with activities that included pretests, spiritual attitude questionnaires, and experimental and control learning which took place in January 2024, followed by posttests and spiritual attitude questionnaires for the evaluation of final results.

## RESULT AND DISCUSSION

This research was carried out at SMA Muhammadiyah 1 Pontianak in the even semester of the 2023/2024 academic year which was carried out from January 16, 2024 to January 31, 2024. This research involved two classes at SMA Muhammadiyah 1 Pontianak, namely class X MIPA 1 as an experimental class with a total of 38 students and class X MIPA 2 as a control class with a total of 38 students. These two classes learn with the same material, namely effort and energy. In the experimental class, the integrated physics learning treatment of the Qur'an was given while the control class used conventional learning with lecture methods and demonstration methods.

### 1. Spiritual Attitudes Before And After Integrated Physics Learning Qur'an Experiment Class and Control Class

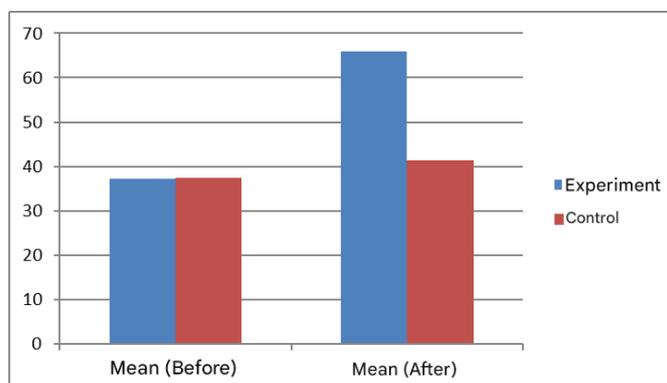
- a. Data Analysis of Spiritual Attitude Questionnaire Before and After Integrated Physics Learning of the Qur'an Experimental Class and Control Class.

**Table 1. Results of Analysis of Students' Spiritual Attitudes Data**

No	Statistics	Experimental Classes		Control Class	
		Before	After	Before	After
1	Red	37,26	65,92	37,47	41,47
2	Hours of deviation	4,409	5,164	4,273	4,864
3	Minimum	29	57	29	33
4	Maximum	46	77	45	58
5	Ideal	84			

Based on Table 1, it can be seen that the average spiritual attitude score before treatment was lower than that of the control class. However, the difference between the two is small, which is 0.21. Meanwhile, the average score after treatment is known to be much different with a difference of 24.45. In the experimental class there was a large increase compared to the control class. This is due to the different learning process between the two classes, the

experimental class uses the integrated physics learning of the Qur'an while the control class does not use the integrated physics learning of the Qur'an. Based on the analysis of data before and after the treatment of the experimental class and the control class in table 1, it is known that the comparison of spiritual attitudes before and after the treatment of the experimental class and the control class in figure 1 is known.



**Figure 1.** Comparison of Spiritual Attitudes Before and After Treatment of Experimental Class and Control Class Treatment

b. Differences in Spiritual Attitudes of Students in Experimental Classes and Control Classes Before and After Integrated Physics Learning of the Qur'an

To find out the difference in the spiritual attitude of students before and after learning the integrated physics of the Qur'an, a normality test was used, the normality test used was a pairing sample t-test.

1) Independent *T Test* Before Treatment

**Table 2.** Results of *Independent T Test* Before Treatment of Experimental Class and Control Class

		Independent Samples Test			
		Sig	Sig. (2-tailed)	Mean	Std. Error Difference
<b>Equal variances assumed</b>	<b>Equal variances</b>	0,674	0,833	-0,211	0,996
	<b>Equal variances not assumed</b>				

Based on Table 2, it is known that the sig value is 0.674 ( $0.674 > 0.05$ ) so that this data is normally distributed, then we see the Sig (2-tailed) value in *Equal variances not assumed* of  $0.996 > 0.05$ . Therefore, it can be concluded that there is no significant difference in the spiritual attitude of students before treatment.

2) Independent *T Test* After Treatment

**Table 3.** Results of *Independent T Test* After Treatment of Experimental Class and Control Class

Independent Samples Test				
	Sig	Sig. (2-tailed)	Mean	Std. Error Difference
<b>Equal variances assumed</b>	0,187	0,000	24,47	1,151
<b>Equal variances not assumed</b>				

Based on Table 3, it is known that the sig value is 0.187 ( $0.187 > 0.05$ ) so that this data is normally distributed, then we see the Sig (2-tailed) value in *Equal variances not assumed* of  $0.000 < 0.05$ . Therefore, it can be concluded that there is a significant difference in the spiritual attitude of the students after the treatment, the experimental class with the Qur'anic integrated physics learning treatment while the control class does not use the Qur'anic integrated physics learning treatment.

**2. Learning Outcomes before and after learning the integrated physics of the Qur'an. Experimental Class and Control Class**

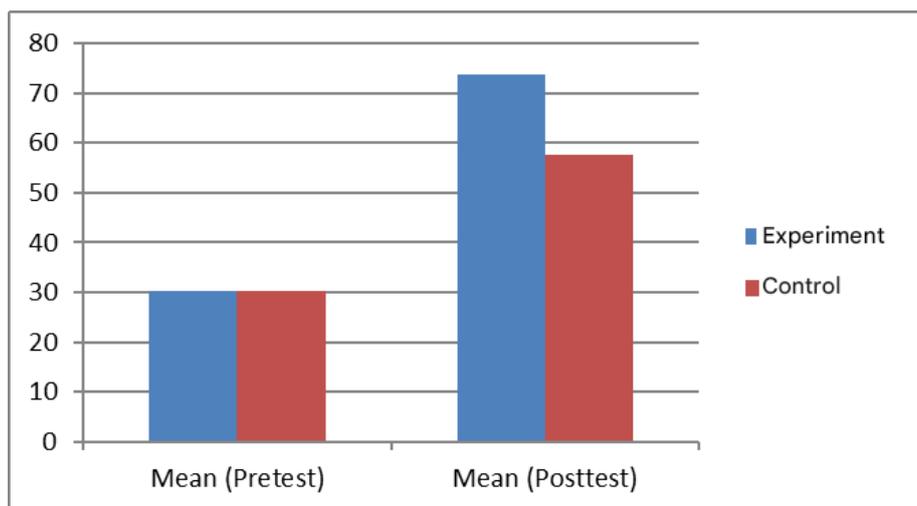
- a. Pretest and Posttest data analysis
- b.

**Table 4.** Results of Student Learning Outcome Data Analysis

No	Statistics	Experimental Classes		Control Class	
		Pretest	Posttest	Pretest	Posttest
1	Mean	30,32	73,87	30,42	57,58
2	Hours of deviation	10,893	11,511	7,975	10,415
3	Minimum	15	50	15	40
4	Maximum	65	90	45	75
5	Ideal	100			

Based on Table 4, it can be seen that the average pretest score of the experimental class is weaker than that of the control class. However, the difference between the two is small, which is 0.1. Meanwhile, the average posttest scores of the two are known to be much different with a difference of 16.29. In the experimental class, the increase in scores from *pretest* to *posttest* was greater than in the control class.

This is because the learning process of the two classes is different. In the experimental class, it is higher because the learning used is the integrated physics learning of the Qur'an which helps to foster students' enthusiasm in learning physics so that students can easily understand the material compared to control classes that use conventional learning. Based on the analysis of *pretest* and *posttest* data in table 4.4, the comparison of *pretest* and *posttest* in figure 2 is known



**Figure 2.** Difference in Pretest and Posttest Results of Experimental Class and Control Class

c. Differences in Student Learning Outcomes Before and After Integrated Physics Learning of the Qur'an

To find out the difference in students' learning outcomes before and after learning the integrated physics of the Qur'an, the normality test used was the *Shapiro wilk* normality test. This test aims to find out whether the initial test data and the final test are distributed normally or not. Assuming that if the probability (sig) is  $\geq 0.05$ , then the data is distributed normally, while if the probability value (sig) is  $< 0.05$ , then the data is not distributed normally.

1) Pre-Test Normality Test

The results of the pre-test normality test carried out were using *SPSS version 25.0 for windows*. The normality test used was the *Kolmoorov Smirnov* test because of the data used ( $>50$ ). The test results can be seen in table 5.

**Table 5.** *Kolmoorov Smirnov Normality Test Data Pretest* Experimental Class and Control Class

	Tests of Normality					
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
<b>Experimental Classes</b>	.161	38	.014	.925	38	.014
<b>Control Class</b>	.138	38	.065	.962	38	.215

Based on the calculation of the normality test, *the pretest score* of the experimental class was obtained with an Asymp value.  $\text{Sig} < 0.05$  ( $0.014 < 0.05$ ), so that *the pretest value of* the experimental class is not normally distributed. Meanwhile, the normality test of *the pretest* value of the control class  $\text{Sig} > 0.05$  ( $0.065 > 0.05$ ), so that *the pretest value* of the control class is distributed normally. Because one of the classes is not normally distributed, a nonparametric statistical test is used, namely using *the Wilcoxon Sign Rank Test*.

2) Mann Whitney Test Pretest Score

Statistical tests are carried out after the prerequisite test is met. Based on the normality test, it is known that the data is not normally distributed, so a statistical test is carried out using the *Mann Whitney test*.

Test *Mann Whitney* with the help of *SPSS version 25.0 for windows*. The test is by using the *Analyze-Nonparametrics Test-2 Related Samples menu*. After the test results, the data obtained is as shown in table 6.

**Table 6. Mann Whitney Pretest Score Results**

Test Statistics <sup>a</sup>	
	Learning Outcomes
Mann-Whitney U	675.500
Wilcoxon W	1416.500
Z	-.487
Asymp. Sig. (2-tailed)	.626
<b>a. Grouping Variable: Kelas</b>	

Based on the results of Mann Whitney's calculations, the Z value obtained is -0.487 with a value (Asymp. Sig 2 tailed) by 0.626. Because the Asymp Sig value is greater than 0.05 ( $0.626 > 0.05$ ),  $H_0$  is accepted or  $H_a$  is rejected, this can be concluded that there is no difference in initial ability between the students of the experimental class and the control class. So that to see the difference in the learning outcomes of students in the experimental class and the control class can be determined using posttest scores.

### 3) Post-Test Normality Test

The results of the posttest normality test were carried out using *SPSS version 25.0 for windows*. The normality test used was the *Kolmogorov Smirnov* test because of the data used ( $>50$ ). The test results can be seen in table 7.

**Table 7. Kolmogorov Smirnov Normality Test Data Experimental Class and Control Class Posttest**

	Tests of Normality					
	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
<b>Experimental Classes</b>	.144	38	.044	.930	38	.021
<b>Control Class</b>	.145	38	.044	.929	38	.019

Based on the calculation of the normality test, the posttest score of the experimental class was obtained an Asymp value.  $Sig < 0.05$  ( $0.044 < 0.05$ ), so that the posttest value of the experimental class is not normally distributed. Meanwhile, the normality test of the posttest value of the control class  $Sig < 0.05$  ( $0.044 < 0.05$ ), so that the posttest value of the control class was also not distributed normally. Because the two classes are not normally distributed, a nonparametric statistical test is used, namely using the *Mann Whitney test*.

### 4) Mann Whitney Test Posttest Score

Statistical tests are carried out after the prerequisite test is met. Based on the normality test, it is known that the data is not normally distributed, so a statistical test is carried out using the *Mann Whitney test*.

Test *Mann Whitney* with the help of *SPSS version 25.0 for windows*. The test is by using the *Analyze-Nonparametrics Test-2 Related Samples* menu. After the test results, the data obtained is as in Table 8.

**Table 8. Mann Whitney Test Results Posttest Scores**

Test Statistics <sup>a</sup>	
	Learning Outcomes
Mann-Whitney U	219.500
Wilcoxon W	960.500
Z	-5.245
Asymp. Sig. (2-tailed)	.000
<b>a. Grouping Variable: Kelas</b>	

Based on the results of Mann Whitney's *calculations*, the *Z* value obtained is -5.245 with a value (*Asymp. Sig 2 tailed*) by 0.000. Since the value of *Asymp Sig* is less than 0.05 (0.000<0.05) then *H0* is rejected and *Ha* is accepted. Thus, there is an increase in student learning outcomes in learning business materials and energy assisted by the Al-Qur'an integrated *flipbook e-module* at SMA Muhammadiyah 1 Pontianak.

### 3. Calculation of Spiritual Attitude Effect Size

The calculation of *the effect size* was carried out to find out how effective the learning of business materials and energy with the integrated *flipbook e-mode* of the Qur'an on the spiritual attitude of students. The calculation of the *effect size* of students' spiritual attitudes can be seen below:

$$ES = \frac{\bar{Y}_E - \bar{Y}_C}{S_C}$$

$$ES = \frac{65,92 - 41,47}{4,684}$$

$$ES = \frac{24,45}{4,684}$$

$$ES = 5,21$$

Based on the calculation of *the effect size* above, a value of 5.21 was obtained, this value is included in the range of  $ES > 1.00$  so it is included in the high category. Thus, learning business materials and energy with the *integrated flipbook e-module* of the Qur'an is effective in improving students' spiritual attitudes.

### 4. Calculation of Effect Size of Student Learning Outcomes

The *effect size calculation* was carried out to find out how effective the learning of business materials and energy with the integrated *flipbook e-mode* of the Qur'an on student learning outcomes. The calculation of *the effect size* of student learning outcomes can be seen below:

$$ES = \frac{\bar{Y}_E - \bar{Y}_C}{S_C}$$

$$ES = \frac{73,87 - 57,58}{10,415}$$

$$ES = \frac{16,29}{10,415}$$

$$ES = 1,56$$

Based on the calculation of *the effect size* above, a value of 1.56 was obtained, this value is included in the range of  $ES > 1.00$  so it is included in the high category. Thus, learning business materials and energy with the integrated *flipbook e-module* of the Qur'an has the effect of improving student learning outcomes.

### **Differences in Spiritual Attitudes of Students in the Experimental Class and the Control Class Before and After Learning Business and Energy Materials Assisted by the Integrated Flipbook E-Module of the Qur'an.**

Based on the results of the questionnaire of students' spiritual attitudes before and after the implementation of learning business materials and energy assisted by the *integrated flipbook e-module* of the Qur'an, the average value of spiritual attitude before treatment for the experimental class was 37.26 and the control class was 37.47. The data shows that the spiritual attitude of students is still relatively low. After the application of Qur'anic integrated physics learning in the experimental class, the spiritual attitude of the students experienced a significant increase compared to the control class that did not use the integrated physics learning of the Qur'an, the average score of the spiritual attitude of the students of the experimental class after the treatment was 66.92 while the control class was 41.47.

Based on observations at the time of learning, students in the experimental class were more enthusiastic in participating in learning, this is because in the experimental class using the defense of the integrated physics of the Qur'an, according to one of the students of the integrated physics learning of the Qur'an opened his insight into physics learning, which at first he thought that the subject of physics less useful, but after learning integrated physics the Qur'an turns out that learning physics is also explained in the Qur'an.

In addition, the attitude of the students of the experimental class can also be seen from how they follow the learning, responsibility in doing assignments, and trying to be honest in doing the problems. Meanwhile, the control class looked indifferent to the learning process, made a fuss in class, and did problems by cheating. The increase in the spiritual attitude of students in the experimental class is inseparable from the advantages of learning integrated physics of the Qur'an.

According to Djudin (2011), by giving the meaning of the laws of physics based on religious values that have relevance to the material and teaching materials, it can increase faith and devotion to the creator. Meanwhile, according to Jannah (2018), the integrated physics learning of the Qur'an has a good influence on the spiritual attitude of students in learning, physics learning will be more meaningful if combined with the Qur'an as a guideline for life.

Because not only the cognitive aspect is assessed in learning, the affective aspect is more emphasized in the 2013 curriculum according to the curriculum at SMA Muhammadiyah 1 Pontianak. Jumini and Wahyudi (2015), religious science can be used as a counterbalance to science, because if science is not balanced with religious science, it will produce physical progress, in other words only the learning results increase but dry in spiritual aspects. Therefore, in addition to learning about the material, we are also encouraged to give back what we learn to the creator.

### **Differences in Learning Outcomes of Students in Experimental Classes and Control Classes Before and After Learning Business Materials and Energy Assisted by *Integrated Flipbook E-Module Al-Qur'an*.**

Based on the results of the test data of student learning outcomes before and after the implementation of business and energy material learning assisted by *the integrated flipbook e-module* of the Qur'an, the average test score of the experimental class was 30.32 while the control class was 30.42, from the data it shows that the learning outcomes of students are still low. After the application of the integrated physics learning of the Qur'an in the experimental class, the students' scores increased significantly compared to the control class, for the posttest score of the experimental class was 73.87, while the control class was 57.58.

Based on observations in the experimental class, it looks more active in the learning process, the curiosity of the students of the experimental class is higher than that of the control class, the students of the experiment ask a lot of questions if they do not understand the business material and energy and the discussion process runs effectively, while in this control class uses a conventional method where students feel bored and less motivated in participating in learning, Because the activities of students are oriented towards listening and taking notes. The increase in teaching results in the experimental class is not reflected in the advantages of learning integrated physics of the Qur'an.

According to Djudin (2011), by providing the meaning of the laws of physics based on religious values that have relevance to the material and teaching materials, it can increase students' understanding of science concepts, especially physics. Meanwhile, according to Husna (2020), integrated physics learning of the Qur'an can improve learning outcomes due to the emergence of curiosity and stimulus so that students will get greater attention in the learning process.

### **The Effectiveness of Learning Business and Energy Materials Assisted by *the Integrated Flipbook E-Module of the Qur'an* on Spiritual Attitudes at SMA Muhammadiyah 1 Pontianak.**

Learning business materials and energy with the help of *an integrated flipbook e-module* of the Qur'an is effective in improving students' spiritual attitudes. This is evidenced from the results of the analyzed data Based on the calculation of *effect size*, a value of 5.21 was obtained, this value is included in the range of  $ES > 1.00$  so it is included in the high category. Thus, learning business materials and energy with the integrated *flipbook e-module* of the Qur'an is effective in improving students' spiritual attitudes.

The data is also strengthened by research conducted by Ariantini (2013), the spiritual attitude of students is greatly influenced by learning physics related to the Qur'an. Religious character education (spiritual attitudes) in science must be carried out in an integrated manner, the values that can be instilled through the science learning process in schools are not only limited to religious values in a narrow sense but also religious values in a broad sense such as honesty, tolerance, discipline, hard work, independence, respect for achievements, environmental care, and responsibility. This is in line with the scientific aspect in science that must be developed by students (Susiawati, 2012).

Through learning business and energy materials assisted by *the integrated flipbook e-module* of the Qur'an, students not only receive the presentation of the material delivered by the teacher, but also the process of character formation The character that exists in students is

not automatically obtained from the time the individual is born, but through a long process, one of which can be taken through the educational process. (Susiawati, 2012).

### **The Effectiveness of Learning Business and Energy Materials Assisted by the *Integrated Flipbook E-Module* of the Qur'an on Learning Outcomes at SMA Muhammadiyah 1 Pontianak.**

Learning business materials and energy assisted by *the Qur'an-integrated flipbook e-module* is effective in improving student learning outcomes. Based on the calculation of *the effect size*, a value of 1.56 was obtained, this value is included in the range of  $ES > 1.00$  so that it is included in the high category. Thus, learning business materials and energy with the *integrated flipbook e-module* of the Qur'an is effective in improving student learning outcomes.

Mustikarini (2016), shows that the use of integrated teaching materials of the Qur'an has an influence on improving student learning outcomes, this is because students are more motivated in learning. Furthermore, based on research conducted by Asfuriyah (2014), teaching materials that are integrated with the Qur'an have succeeded in influencing students' learning outcomes. Learning using integrated teaching materials of the Qur'an provides more attention and motivation to students.

Student learning outcomes are also influenced by several factors. One of the factors that support the learning outcomes of the experimental class is that the involvement of students in learning is very prominent, students in the experimental class tend to be more active compared to the control class. The teaching materials used in the experimental class also give more attention by using the *integrated flipbook e-module* of the Qur'an students are motivated in carrying out the learning process, in addition, the teaching materials used are also interesting, with an audio-visual display so that they can read the Qur'an together and there are pictures that certainly distract students so that they are not bored.

Based on the research activities carried out, there are the following limitations: 1) During the learning process of integrated physics of the Qur'an, the previously set time allocation turned out to be difficult to carry out properly from the time planned in the lesson plan. This is because students are not used to learning the integrated physics of the Qur'an so it takes more time in the process of implementation. 2) *The Flipbook E-Module* used in the learning process cannot be accessed for free if it is not *updated*. Because *.This Flipbook E-Module* if the creation time has been long, it is likely that it cannot be accessed for free.

## **CONCLUSION**

Based on the results of the study, it can be concluded that there is a difference in spiritual attitudes and learning outcomes of students in the experimental class and the control class before and after learning business and energy materials assisted by the Al-Qur'an integrated flipbook e-module at SMA Muhammadiyah 1 Pontianak, which is shown by the results of the analysis of spiritual attitude questionnaire data and the Pretest-Posttest test which showed a significant value ( $p < 0.05$ ).

Learning business and energy materials assisted by the Qur'an-integrated flipbook e-module proved to be effective in improving students' spiritual attitudes and learning outcomes, with effect size values of 5.21 and 1.56, respectively, which are included in the range of  $ES > 1.00$ . Based on these conclusions, some of the suggestions proposed are for teachers to implement integrated physics learning of the Qur'an to increase students' enthusiasm, as well

as for future researchers to streamline research time to be more valid and look for servers other than flipbooks that can be used continuously without the need for periodic updates.

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