

Relationship Between Interests and Attitudes: A Study of Junior High School in Batanghari City

Retni Sulistiyoning Budiarti¹, Dwi Agus Kurniawan², Rido Ilham Widodo³, Wahyu Adi Pratama⁴

¹ Faculty of Teaching and Education, Universitas Jambi, Jambi, Indonesia; retni.sulistiyoning@unja.ac.id

² Faculty of Teaching and Education, Universitas Jambi, Jambi, Indonesia; dwiagus.k@unja.ac.id

³ Faculty of Teaching and Education, Universitas Jambi, Jambi, Indonesia; rido172015@gmail.com

⁴ Faculty of Teaching and Education, Universitas Jambi, Jambi, Indonesia; wahyuadipratama157@gmail

ARTICLE INFO

Keywords:

Attitude;
Interest;
Science;
Students

Article history:

Received 2021-08-03

Revised 2021-12-13

Accepted 2022-11-21

ABSTRACT

The urgency of this research is that it is expected to be a reference for teachers to find out the interests and attitudes of students at the SMPN or MTSN level on the respiratory system material. This study aims to determine how the relationship between interests and attitudes of students at SMPN 35 Batanghari and MTSN 7 Batanghari on the respiratory system material. The instrument used was a questionnaire which was distributed to students using descriptive quantitative methods. The data analysis technique used is descriptive statistics and inferential statistics, using normality, homogeneity, and regression tests. In the study, it was found that there was a significant relationship between the variables of interest in learning and the attitudes of students in learning the respiratory system material for both students at SMPN 35 Batanghari and MTSN 7 Batanghari. This is indicated by the table of regression test results, which shows that the B value is positive, other evidence is also shown from the t-count value which is larger and has a positive value compared to the t-table value which indicates the interest variable has a relationship with the attitude variable. Therefore, it is very important to develop students' interest in the respiratory system material in order to improve students' learning attitudes, so that it can help improve their learning outcomes.

This is an open access article under the [CC BY-NC-SA](#) license.



Corresponding Author:

Retni Sulistiyoning Budiarti

Faculty of Teaching and Education, Universitas Jambi, Jambi, Indonesia; retni.sulistiyoning@unja.ac.id

1. INTRODUCTION

The 21st century is an era where humans are required to be able to do things quickly and precisely (Asrial et al., 2020; Barrot, 2019; Harrop et al., 2018). To be able to meet these demands, it is necessary to develop certain skills such as communication skills, problem solving, and so on (Laksana et al., 2020;

Sugito et al., 2017; Wei et al., 2020). With this skill development, it is hoped that everyone will be able and ready to face the era of the 21st century. However, in reality, there are still many Indonesian citizens who are late or even unable to develop the skills needed, resulting in the slow development of the country. These problems can be overcome by providing facilities to develop skills, one of these facilities is education (Carson, 2019; Howard et al., 2018; Siswono, 2017).

Education is an effort made to improve the quality and capacity of an individual, and can take place anywhere and anytime (Corsi, 2020; Musanna et al., 2017; Pozo-Armentia et al., 2020). Even so, the education system should not force students to master abilities. Education is actually only a place for students to develop the potential that is in them (Musanna et al., 2017; Osberg & Biesta, 2021; Sarid, 2018). There are a lot of student potentials that can be developed through education in schools, and some of them are very useful for the life of the nation and state. One of these potentials is science skills (Carson, 2019; Howard et al., 2018; Siswono, 2017).

Science is one of the keys for humans to be able to make developments like today (Bellová et al., 2018; Paterson, 2021; Yunus et al., 2017). Science is basically a way of thinking, which is then divided into two, namely social science and natural science (IPA). Science learning teaches students to be involved in finding answers scientifically (Cansiz & Cansiz, 2020; Fitria & Idriyeni, 2017; Kurniawan et al., 2019). With the development of students' potential in the field of science, it is hoped that students can become hope to make developments in a better direction. The respiratory system is one of the science materials that has a positive effect if it is developed (Kulish, 2006; Lipscombe & Mungan, 2020; Valipour et al., 2019). The level of student literacy greatly affects the success rate of the learning process.

Identifying a problem, and explaining it scientifically with concrete evidence is the meaning of scientific literacy. With good literacy skills, students can find answers to a problem, then convey the solutions to the problems they find both orally and in writing (Perdana et al., 2019; Vaughn et al., 2020; Windyariani, 2017). Unfortunately, the literacy level of Indonesian students according to PISA (Program for International Student Assessment) is very far behind other countries, this makes the ability of Indonesian students to process science far behind other countries (Akbar, 2018; Ives et al., 2020; Li et al., 2021). There are various ways to increase student literacy levels, including by giving attention and feedback to students or by forming student literacy groups. This will make students have their own desire to improve literacy, either because it is influenced by the attention of the teacher or environmental influences who are also accustomed to literacy (Carless & Winstone, 2020; Vaughn & Fisher, 2020; Warrican et al., 2019). In the end, literacy is a cognitive ability that is influenced by the affective domain. Which is the attitude, motivation, and interest from within the students themselves that determine the low and high level of student literacy.

The attitude of students in learning is very important, a positive attitude can have an impact on the success of a learning (Darmaji et al., 2019; Jufrida et al., 2019a; Kapici et al., 2020). Attitudes are included in the affective domain, which is influenced by students' feelings and emotions (Caldarella et al., 2019; Larson et al., 2018; Susilowati et al., 2017). Although influenced by this, attitudes are not necessarily influenced by students but can also be influenced by the environment. Therefore, student attitudes can be influenced in various ways, one of which is by increasing student interest (Deshpande & Chukhlomin, 2017; Marisa et al., 2018; Stamov Roßnagel et al., 2020). By guiding student interest in a positive direction towards science learning, it is hoped that it can increase the success of the science learning process.

Student interest is very important in the success of the learning process, because without interest students become lazy to be involved in the learning process (Fasasi, 2017; Füchslin et al., 2018; Hidayati et al., 2017). Interest is strongly influenced by the level of student motivation (Abbott, 2017; Bolkan & Griffin, 2018; Z. Luo et al., 2020). So that external influences are needed to influence motivation in learning. However, motivation is not the only aspect that influences student interest. One aspect that can influence student interest from outside is the attitude of the teacher (Cain, 2020; J. M. Luo et al., 2019; Sari & Sarwanto, 2018). The interests and interests of students differ from one another, therefore the guidance of students' interests is very much needed for the success of the learning process.

Therefore, attitudes and interest in learning are very important in learning for students, especially on the material of the respiratory system. The respiratory system material is one of the science learning materials that is very important to be understood by students, especially at the intermediate level in order to understand learning at the next level (Anung Anidityas et al., 2012). In order for learning to take place smoothly and orderly, of course, a conducive atmosphere and good student attitudes are needed (Adinugraha, 2017; Firmansyah, 2021; Yu et al., 2020). Basically, there are many factors that influence student attitudes in learning, one of which is student interest (Ernawati et al., 2021; Guo et al., 2020). Thus, the researcher wants to focus on research to determine the relationship between the interests and attitudes of students, especially in science learning about the respiratory system.

The research conducted by (Cain, 2020), it can be seen that Cain only examines student attitudes in learning and relates it to student learning outcomes. Where, in his research, it is described that the attitude of students in learning has a positive impact on learning. Meanwhile, the research conducted by (Sari & Sarwanto, 2018) shows that there is a positive impact on learning caused by good student learning motivation. Where, the research shows that students who have good learning motivation will have good learning outcomes as well. And research conducted by (Anung Anidityas et al., 2012; Panjaitan et al., 2020; Reinoso Tapia et al., 2019) shows that the respiratory system learning materials require more attention, especially for teaching staff. Because the attitude of students towards learning is not enough, so it can have an impact on their learning outcomes during the learning process.

What distinguishes this research from previous research is that this research was conducted to see the effect of interest on students' attitudes. This is done to find out whether the attitudes of students at SMPN 35 Batanghari and MTSN 7 Batanghari can be improved by increasing the interest of students during the learning process? So that further action can be taken for educators to be able to improve students' attitudes in learning the respiratory system material.

2. METHODS

Research Type

This study uses a type of quantitative survey method. Quantitative research is a field of inquiry that stands alone, is scientific in nature and aims to understand social reality (Rukin, 2019; Suwendra, 2018; manzilati 2017). There are two data obtained, namely data on attitudes and data on student interest in learning science with respiratory system material. Data collection was carried out on February 17, 2021. The data obtained used numerical data with a Likers scale 5. This study obtained an understanding of a phenomenon from basic logic, usually including the perspective of the research population. (Hennik et al., 2020; Anggiato & Setiawan, 2018; Tolley et al., 2017). In essence, quantitative research observes people in the environment as well as in the social sciences (Aranda, 2020; Chandra & Shang, 2019; Rukajat. 2018).

Population and Sample

The sampling technique used in this study used simple random sampling. The sampling technique was adopted because it provides parameter estimates that cannot and is better if the population is homogeneous (Alhassan & Chen, 2019; Bankole & Nasir, 2020; Ning & Tao, 2020). Using random sampling can reduce the potential for bias in the selection of cases to be included in the sample. With the condition that random sampling is done because of the homogeneous population, the sampling frame is clear and general in nature.

The instrument used in this study was a questionnaire distributed in two classes at SMPN 35 Batanghari and two classes at MTSN 7 Batanghari. An instructive questionnaire used to measure knowledge that has not been systematically validated (Lee et al., 2020; Kara, 2019; Vansteensel, 2017). There is also school and class data that is used as a sample group in this study can be seen in the table below.

Tabel 1. Student Attitude Research Sample.

School Level	Class	Total Students
SMPN 35 BATANG HARI	8A	38
	8B	38
MTSN 7 BATANG HARI	8A	38
	8B	38
Total Students		152

Seen in the table above, the study used a sample group of 38 students each. The total number of students sampled in this study was 152 students.

In the next table, it can be seen that the school and class data were used as sample groups with student interest variables variabel

Tabel 2. Student Interest Research Sample.

School Level	Class	Total Students
SMPN 35 BATANG HARI	8A	38
	8B	38
MTSN 7 BATANG HARI	8A	38
	8B	38
Total Students		152

Seen in the table above, the study used a sample group of 38 students each. The total number of students sampled in this study was 152 students.

Research Intrument

The instrument in this study is an assessment with two variables, namely attitudes and interests. The assessment instrument is one of the most important assessment instruments for attitudes and interests (Caltagirone et al., n.d.; Purwanti et al., 2020). The Likers scale used in student interest research is: 1 (very bad), 2 (not good), 3 (quite good), 4 (good), 5 (very good) with 56 questions for the attitude questionnaire and 30 questions for the questionnaire. interest, This research was conducted as many as 4 samples, namely samples of class 8A and 8B at SMPN 35 Batanghari and classes 8A and 8B at MTSN 7 Batanghari with each class having 35 students. The sample consisted of two groups, namely the experimental group and the control group (Astuti et al., 2018; Fromowitz, 2017; Rati et al., 2017). So that the total number of respondents is 70 students. The population is the person who is the subject of research or the characteristics to be studied (Roflin et al., 2021(Banks et al., 2018).

Furthermore, the student attitude questionnaire on the respiratory system material can be seen in the table below:

Tabel 3. Grid of Students' Attitude Instruments on Respiratory System Material.

Variable	Indicator	Question Number
Students' attitudes towards the Respiratory System material	Social implications of IPA	1,2,3,4,5,6,7
	The normality of scientists	8,9,10,11,12,13,14,15
	Attitude towards IPA investigation	16,17,18,19,20,21,22
	Adopt scientific attitude	23,24,25,26,27,28,29,30
	Fun in learning science	31,32,33,34,35,36,37,38,39
	Interest in spending more time studying science	40,41,42,43,44,45,46,47,48,49
	Interested in a career in science	50,51,52,53,54,55,56
Total Question		56

The study of student attitudes on the respiratory system material was carried out using two school samples, namely SMPN 35 Batanghari and MTSN 7 Batanghari, each school consisting of class VIII A and class VIII B.

Furthermore, the questionnaire for students' interest in the respiratory system material can be seen in the table below:

Tabel 4. Grid of Students' Interest Instruments in Respiratory System Materials.

Variable	Indicator	Question Number
Students' interest in the Respiratory System material	Attention to study	1,2,3,4
	Student engagement	5,6,7,8,9
	Feeling happy	10,11,12,13,14
	Curiosity	15,16,17,18,19
	Learning Materials and Teacher Attitude	20,21,22,23,24,25
	Benefits of subjects	26,27,28,29,30
Total Question		30

Similar to attitude research, research on student interest in the respiratory system was carried out using two school samples, namely SMPN 35 Batanghari and MTSN 7 Batanghari, each school consisting of class VIII A and class VIII B.

Data Analysis Technique

The results of students' answers to questionnaires regarding attitudes and interests were analyzed using descriptive statistics and inferential statistics. Descriptive statistics are often referred to as frequency distributions which provide an accurate measure of data ranging from the smallest to the largest. While inferential statistical analysis aims to estimate parameters and test the hypothesis of a study, so that it can be easier to draw conclusions (Al Mutairi, 2018). Descriptive statistics used in its presentation use estimated values and experimental values, from the two parameters such as mean, arithmetic, and standard deviation (Haj-Kacem et al., 2017; Khalil & Najm, 2018; Lapinova & Saichev, 2017). Descriptive statistics used in this study is a numerical approach method by presenting mean and median data. While the inferential statistics used are t test hypothesis testing and correlation test. Before testing the

hypothesis, the assumption test and linearity test are carried out first. The assumption test used is the normality test and homogeneity test. The normality test aims to determine whether a data can be said to be normal or not, while the homogeneous test aims to determine whether the data of the two samples is homogeneous or not. The first step in this research is to determine the normality and homogeneity of a data using normality test and homogeneity test. Normality test and homogeneity test if the result data in the population is normally distributed and homogeneous then the condition is that the sig value is greater than 0.05 (Subekti & Ariswan, 2016).

This research was initiated by distributing attitude and interest questionnaires to students at SMPN 5 Batanghari and MTSN 7 Batanghari. Furthermore, the questionnaire that has been filled in is collected which is then analyzed using the SPSS application. The analysis carried out was carried out by analyzing and testing hypotheses. The analysis test was carried out in the form of a normality test and a homogeneity test, where the normality test was carried out to determine the level of normality of the data distribution and a homogeneous test to determine the research sample used came from the same population (Jason & Glenwick, 2016; Sugiyono, 2013). While the hypothesis test is a regression test, the regression test is carried out with the aim of knowing the relationship between the interest and attitude variables that are the focus of this research. Furthermore, an overview of the research process will be shown in the chart below.

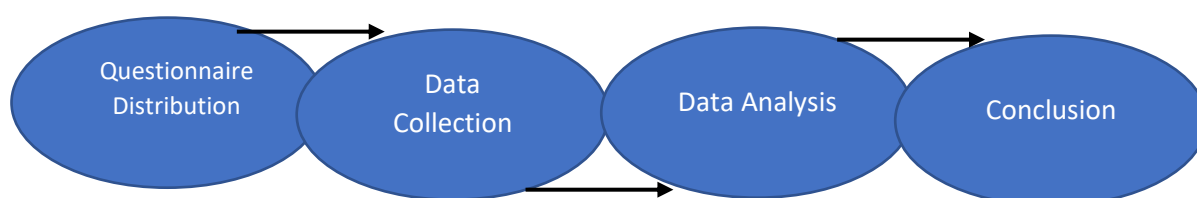


Figure 1. Research Procedure

3. FINDINGS AND DISCUSSION

Result

The data were obtained from two different schools, namely from SMPN 35 Batanghari and MTSN 7 Batanghari. This data was then analyzed using descriptive statistics using the SPSS application by school. The results of the descriptive statistical analysis of student attitudes with indicators of scientific normality can be seen in the following table.

Tabel 5. Descriptive Table of Student Attitudes with Scientific Normality Indicators.

School	F		Percentage (%)		Interval	Category	Mean		Median		Min		Max	
	VII I A	VII I B	VII I A	VII I B			VIII A	VII I B	VII I A	VII I B	VII I A	VII I B	VII I A	VII I B
SMPN 35 BATANG HARI	0	0	0	0	8.0 – 14.4	Very Not Good	3.53	3.40	3.5	3	2	2	5	5
	2	2	5.3	5.3	14.5 – 20.8	Not Good								
	17	21	44. 7	55. 3	20.9 – 27.2	Sufficient								
	16	13	42. 1	34. 2	27.3 – 33.6	Good								
	3	2	7.9	5.3	33.7 - 40	Very Good								

MTSN 7 BATANG HARI	0	0	0	0	8.0 – 14.4	Very Not Good	3.45	3.79	3	4	2	2	5	5
	1	1	2.6	2.6	14.5 – 20.8	Not Good								
	20	12	52. 6	31. 6	20.9 – 27.2	Sufficient								
	16	19	42. 1	50	27.3 – 33.6	Good								
	1	6	2.6	15. 8	33.7 - 40	Very Good								

In the table above, it can be seen that class VIII A students at SMPN 35 Batanghari have a better attitude level with scientific normality than class VIII B. However, at MTSN 7 Batanghari, students in class VIII B have a better attitude level with scientific normality. compared to other sample groups.

Furthermore, descriptive statistical analysis of student attitudes with indicators of adoption of scientific attitudes can be seen in the following table.

Tabel 6. Descriptive Table of Student Attitudes with Scientific Normality Indicators.

School	F		Percentage (%)		Interval	Category	Mean		Median		Min		Max	
	VII I A	VII I B	VII I A	VII I B			VIII A	VII I B	VII I A	VII I B	VII I A	VII I B	VII I A	VII I B
SMPN 35 BATANG HARI	0	0	0	0	9 – 16.2	Very Not Good	3.76	3.42	4	3	2	2	5	5
	1	4	2.6	10. 5	16.3 – 23.4	Not Good								
	9	16	23. 7	42. 1	23.5 – 30.6	Sufficient								
	26	16	68. 4	42. 1	30.7 – 37.8	Good								
	2	2	5.3	5.3	37.9 - 45	Very Good								
MTSN 7 BATANG HARI	0	0	0	0	9 – 16.2	Very Not Good	3.68	3.74	4	4	2	2	4	5
	1	1	2.6	2.6	16.3 – 23.4	Not Good								
	10	11	26. 3	28. 9	23.5 – 30.6	Sufficient								
	27	23	71. 1	60. 5	30.7 – 37.8	Good								
	0	3	0	7.9	37.9 - 45	Very Good								

In the table above, it can be seen that grade VIII A students at SMPN 35 Batanghari have a better adoption rate of scientific attitudes than grade VIII B. At MTSN 7, grade VIII B students have a better adoption rate of scientific attitudes.

Furthermore, descriptive statistical analysis of student interest with indicators of student involvement can be seen in the following table.

Tabel 7. Descriptive Table of Student Interests With Involvement Indicators.

School	F		Percentage (%)		Interval	Category	Mean		Median		Min		Max	
	VII I A	VII I B	VII I A	VII I B			VIII A	VII I B	VII I A	VII I B	VII I A	VII I B	VII I A	VII I B
SMPN 35 BATANG HARI	0	1	0	2.6	5 – 9	Very Not Good	3.76	3.26	4	3	2	1	5	5
	4	10	10. 5	26. 3	9.1 – 13	Not Good								
	7	10	18. 4	26. 3	13.1 – 17	Sufficient								
	21	12	55. 3	31. 6	17.1 – 21	Good								
	6	5	15. 8	13. 2	21.1 – 25	Very Good								
MTSN 7 BATANG HARI	0	0	0	0	5 – 9	Very Not Good	3.63	3.87	4	4	2	3	5	5
	4	0	10. 5	0	9.1 – 13	Not Good								
	12	13	31. 6	34. 2	13.1 – 17	Sufficient								
	16	17	42. 1	44. 7	17.1 – 21	Good								
	6	8	15. 8	21. 1	21.1 – 25	Very Good								

In the table above, it can be seen that class VIII A students at SMPN 35 Batanghari have an interest in being involved in the learning process which is better than class VIII B students. However, students VIII B at MTSN 7 Batanghari have a higher level of interest in being involved. better than the other sample groups.

Furthermore, descriptive statistical analysis of student interest with indicators of curiosity can be seen in the following table.

Tabel 8. Descriptive Table of Student Interests With Involvement Indicators.

School	F		Percentage (%)		Interval	Category	Mean		Median		Min		Max	
	VII I A	VII I B	VII I A	VII I B			VIII A	VII I B	VII I A	VII I B	VII I A	VII I B	VII I A	VII I B
SMPN 35 BATANG HARI	0	0	0	0	5 – 9	Very Not Good	3.63	3.34	4	3.5	2	2	5	5
	1	11	2.6	28. 9	9.1 – 13	Not Good								
	17	8	44. 7	21. 1	13.1 – 17	Sufficient								
	15	14	39. 5	36. 8	17.1 – 21	Good								
	5	5	13. 2	13. 2	21.1 – 25	Very Good								

MTSN 7	0	0	0	0	5 – 9	Very Not	3.61	3.84	4	4	2	2	5	5
BATANG						Good								
HARI	3	1	7.9	2.6	9.1 – 13	Not Good								
	13	16	34.	42.	13.1 – 17	Sufficient								
			2	1										
	18	9	47.	23.	17.1 – 21	Good								
			4	7										
	4	12	10.	31.	21.1 – 25	Very Good								
			5	6										

In the table above, it can be seen that students of class VIII A at SMPN 35 Batanghari have a better level of curiosity than students in class VIII B. However, students of class VIII B at MTSN 7 Batanghari have a better level of curiosity. among other sample groups.

Furthermore, the normality test of students' attitudes towards learning with the respiratory system material can be seen in the following table.

Tabel 9. Normality Table.

Variable	School	Sig. value	Distribution
Attitude	SMPN 35 Batanghari	0.360	Normal
	MTSN 7 Batanghari	0.238	Normal
Interest	SMPN 35 Batanghari	0.590	Normal
	MTSN 7 Batanghari	0.752	Normal

In the normality test, students' attitudes at SMPN 35 Batanghari and students at MTSN 7 Batanghari have normally distributed data with a sig value greater than 0.05. Likewise, the student interest normality test, both students at SMPN 35 Batanghari and students at MTSN 7 Batanghari, had normally distributed data with a sig value greater than 0.05.

Furthermore, the linear test of the attitude and interest data of students at SMPN 35 Batanghari towards learning with the respiratory system material can be seen in the following table.

Tabel 10. Homogeneity Table.

Variable	School	Sig. value	Homohegeneity
Attitude	SMPN 35 Batanghari	0.250	Homogeneous
	MTSN 7 Batanghari	0.253	Homogeneous
Interest	SMPN 35 Batanghari	0.666	Homogeneous
	MTSN 7 Batanghari	0.661	Homogeneous

From the data described in the table above, it shows that the research subjects used came from the same population. This is evidenced by the tolerance value or significance value which is greater than 0.05.

Furthermore, the regression test of students' interest towards attitude with the respiratory system material can be seen in the following table.

School	Class	Regression Test			
		Variable	B	t-value	.Sig
SMPN 35 Batanghari	VIII A	(Constant)	16.710	9.318	0.000
		Interest	0.790	2.067	0.048
	VIII B	(Constant)	16.593	9.376	0.000

MTSN 7 Batanghari	VIII A	Interest	0.708	2.058	0.042
		(Constant)	17.268	9.904	0.000
	VIII B	Interest	0.721	2.059	0.031
		(Constant)	16.766	9.972	0.000
		Interest	0.739	2.054	0.042

a. Dependent variable: Student's Attitude

Seen in the data shown in the table above. It is illustrated that the value of B on the variable of student interest is positive. Therefore, every 1% addition of interest in students can increase students' attitudes in learning. Judging from the t-table value, it is known that the t-table value with 152 respondents as research subjects, was found to have a t-table worth 1.976. Seen in the value of t count is greater than the value of t table, thus it can be seen that the interest of students has a positive impact on the attitudes of students in learning. Finally, judging from the significance test value which looks lower than the tolerance or significance test value used, which is 0.05. This indicates that the interest of students has a significant relationship to the learning attitudes of students.

Discussion

Basically, public schools and madrasah schools differ only in their emphasis on religious studies. However, scientific literacy with a religious approach has become a common strategy in every Islamic school, especially madrasahs (Ma'arif & Rofiq, 2018; Nieminen et al., 2020; Syam, 2019). After testing the data as shown in the results table, we can see how the differences and the relationship between attitudes and interests of students are both at SMPN 35 Batanghari as a sample group of public schools, and at MTSN 7 Batanghari as a sample group of madrasah schools. It can be seen in table 5, that students at MTSN 7 Batanghari have a better attitude of scientific normality than students at SMPN 35 Batanghari. Not only that, if seen from table 6 students of MTSN 7 Batanghari also tend to have a better attitude of adoption of scientific attitudes than students of SMPN 7 Batanghari in this study. This proves that madrasah students can face the problems given in learning related to the respiratory system with a better scientific and scientific attitude than students of SMPN 7 Batanghari.

Interest is an important influence on students' attitudes towards learning (Fasasi, 2017; Fuchsli et al., 2018; Hidayati et al., 2017). The high scientific attitude of MTSN 7 Batanghari students is not without reason. This is because MTSN 7 Batanghari students have a very high interest in studying the material of the respiratory system. This can be seen in table 7 and table 8, where the table describes the level of student interest in studying the material of the respiratory system. It can also be seen in the table, that students at MTSN 7 Batanghari have an interest in being actively involved in learning and have a high curiosity about the respiratory system learning material. On the other hand, students at SMPN 7 Batanghari lack interest in studying the respiratory system material, which results in a low level of attitude towards learning in these students.

If seen in table 9, it can be seen that the attitude and interest data of both students of SMPN 35 Batanghari and students of MTSN 7 Batanghari are normally distributed. So the method used is a parametric statistical method involving population parameters (Haj-Kacem et al., 2017; Khalil & Najm, 2018; Lapinova & Saichev, 2017). Furthermore, in table 10, it can be seen that the data on students' attitudes and interests have a linear relationship. That is, if one data plus other data will also increase in value, and vice versa. Furthermore, in table 11 it can be seen that the attitude data and student interest data are homogeneous.

Students' interest in learning greatly influences students' attitudes in dealing with the learning (Deshpande & Chukhlomin, 2017; Marisa et al., 2018; Stamov Roßnagel et al., 2020). This is evidenced in this study in table 12, where there is a very significant difference between the attitudes and interests of students at SMPN 35 Batanghari and at MTSN 7 Batanghari. Not only that, if seen in table 10 and table 13. Where in table 10 proves the data of students' attitudes and interests which are linear and table 13 which proves that the attitude variable is related to the interest variable. Thus, with increasing student

interest in learning, these students will also have a positive attitude towards learning. Thus, the success of the learning process will increase.

Students' attitudes have been studied several times before, among the research related to student attitudes is research conducted by (Cain, 2020; Z. Luo et al., 2020; Sari & Sarwanto, 2018). However, these studies only discuss the attitude variable without relating it to other variables that can affect students' attitudes towards learning.

Not different from attitude research, research on student interest in learning has also been done before by (Jufrida et al., 2019b; Kurniawan et al., 2019; Tanti et al., 2021). However, the studies only used two sample groups at the same school. So that it becomes one of the shortcomings of the study related to student interest in learning.

Students' attitudes towards learning are closely related to students' interests (Fasasi, 2017; Füchslin et al., 2018; Hidayati et al., 2017). By studying the shortcomings of previous studies, the authors conducted a study to find out how the relationship between students' interest in learning. The advantage of this research is that the research was conducted in two schools, namely a public school and a madrasah school, where this study used four sample groups in two different schools. After doing research, it turns out that students of MTSN 7 Batanghari have a better interest in learning about respiratory system materials compared to students of SMPN 35 Batanghari. This makes the attitude of students at MTSN 7 Batanghari towards learning the respiratory system better than at SMPN 35 Batanghari.

What is lacking in this research is that it only uses the attitude variable and the interest variable. The research does not use variables that prove whether the level of student attitudes towards learning affects the achievement of learning objectives by adding other variables (Abbott, 2017; Bolkan & Griffin, 2018; Z. Luo et al., 2020). which can affect students' attitudes or interest in learning. This study also does not distinguish between the interests and attitudes of male and female students, so it is not known who is the most dominant among these students. By using only one public school and one madrasah in this study, the results of this study are less accurate, thus requiring further research.

From the data above, it can be seen that there is a relationship between the attitudes and interests of students both at SMPN 35 Batanghari and at MTSN 7 Batanghari. This can be proven by the value of sig (2-tailed) smaller than 0.05.

4. CONCLUSION

Based on the results of the research conducted, it was found that the interest of students in learning has a positive relationship to the attitudes of students in learning, especially on the material of the respiratory system. This is an important point for teaching staff in order to increase student interest in learning. There are many things that can be done to increase student interest, such as using interesting media or learning strategies that are suitable in the classroom and in accordance with the learning material. Thus, the attitude of students will be better with a positive interest in learning.

REFERENCES

- Abbott, A. L. (2017). Fostering student interest development: An engagement intervention. *Middle School Journal*, 48(3), 34–45. <https://doi.org/10.1080/00940771.2017.1297666>
- Adinugraha, F. (2017). Pengaruh Model Pembelajaran Dan Efikasi Diri Terhadap Sikap Ilmiah Siswa SMA Peminatan MIPA. *Jurnal Pro-Life*, 4(3), 441–455. <https://doi.org/https://doi.org/10.33541/jpvol6Iss2pp102>
- Akbar, R. (2018). Evaluating The Efficiency Of Indonesia ' s Secondary School Education. *Jurnal Pendidikan Indonesia*, 7(1), 1–9. <https://doi.org/10.23887/jpi-undiksha.v7i1.13163>
- Al Mutairi, A. O. (2018). The descriptive statistics for the generalized power function distribution. *Journal of Statistics and Management Systems*, 21(5), 775–785. <https://doi.org/10.1080/09720510.2018.1453680>

- Alhassan, A., & Chen, D. (2019). Investigating business EFL postgraduate student writing in a UK university : a qualitative study Investigating business EFL postgraduate student writing in a UK university : a qualitative study. *Cogent Education*, 6(1). <https://doi.org/10.1080/2331186X.2019.1699741>
- Anung Anidityas, N., Rahayu Utami, N., & Widiyaningrum, P. (2012). Unnes Science Education Journal PENGGUNAAN ALAT PERAGA SISTEM PERNAPASAN MANUSIA PADA KUALITAS BELAJAR SISWA SMP KELAS VIII. *Unnes Science Education Journal*, 1(2). <http://journal.unnes.ac.id/sju/index.php/usej>
- Asrial, A., Syahrial, S., Maison, M., Kurniawan, D. A., & Piyana, S. O. (2020). Ethnoconstructivism E-Module To Improve Perception, Interest, and Motivation of Students in Class V Elementary School. *JPI (Jurnal Pendidikan Indonesia)*, 9(1), 30. <https://doi.org/10.23887/jpi-undiksha.v9i1.19222>
- Astuti, S., Subagia, I. W., & Sudiana, I. K. (2018). Student' satisfaction toward chemistry learning process at SMA laboratorium undiksha. *Jurnal Pendidikan Indonesia (Denpasar)*, 6(2), 233–241. <https://doi.org/10.23887/jpi-undiksha.v6i2.11880>
- Bankole, Q. A., & Nasir, Z. (2020). Empirical Analysis of Undergraduate Students' Perception in the Use of Electronic Sources in Kwara State University Library. *International Information and Library Review*, 53(2), 131–141. <https://doi.org/10.1080/10572317.2020.1805274>
- Banks, H. T., Flores, K. B., Langlois, C. R., Serio, T. R., & Sindi, S. S. (2018). Estimating the rate of prion aggregate amplification in yeast with a generation and structured population model. *Inverse Problems in Science and Engineering*, 26(2), 257–279. <https://doi.org/10.1080/17415977.2017.1316498>
- Barrot, J. S. (2019). English curriculum reform in the philippines: Issues and challenges from a 21st century learning perspective. *Journal of Language, Identity and Education*, 18(3), 145–160. <https://doi.org/10.1080/15348458.2018.1528547>
- Bellová, R., Melicherčíková, D., & Tomčík, P. (2018). Possible reasons for low scientific literacy of Slovak students in some natural science subjects. *Research in Science and Technological Education*, 36(2), 226–242. <https://doi.org/10.1080/02635143.2017.1367656>
- Bolkan, S., & Griffin, D. J. (2018). Catch and hold: instructional interventions and their differential impact on student interest, attention, and autonomous motivation. *Communication Education*, 67(3), 269–286. <https://doi.org/10.1080/03634523.2018.1465193>
- Cain, J. P. (2020). A qualitative study on the effect of podcasting strategies (studycasts) to support 7th grade student motivation and learning outcomes. *Middle School Journal*, 51(3), 19–25. <https://doi.org/10.1080/00940771.2020.1735867>
- Caldarella, P., Wills, H. P., Anderson, D. H., & Williams, L. (2019). Managing Student Behavior in the Middle Grades Using Class-wide Function-Related Intervention Teams. *RMLE Online*, 42(7), 1–15. <https://doi.org/10.1080/19404476.2019.1654799>
- Caltagirone, C., Razzano, C., & Lucia, F. S. (n.d.). *M E T O D O L O G I E R I A B I L I T A T I V E I N L O G O P E D I A • V O L .*
- Cansiz, N., & Cansiz, M. (2020). Profiling preservice science teachers' early experiences, beliefs about teaching, and teaching practices. *Research in Science and Technological Education*. <https://doi.org/10.1080/02635143.2020.1780207>
- Carless, D., & Winstone, N. (2020). Teacher feedback literacy and its interplay with student feedback literacy. *Teaching in Higher Education*, 0(0), 1–14. <https://doi.org/10.1080/13562517.2020.1782372>
- Carson, J. T. (2019). Blueprints of distress?: Why quality assurance frameworks and disciplinary education cannot sustain a 21st-century education. *Teaching in Higher Education*, 24(8), 1014–1023. <https://doi.org/10.1080/13562517.2019.1602762>
- Corsi, G. (2020). 'Education has no end': Reconciling past and future through reforms in the education system. *Educational Philosophy and Theory*, 52(6), 688–697. <https://doi.org/10.1080/00131857.2019.1707658>
- Darmaji, D., Jambi, U., Astalini, A., Jambi, U., Kurniawan, D. A., Jambi, U., Perdana, R., Jambi, U., Putra, D. S., & Jambi, U. (2019). *International Journal of Learning and Teaching*. 11(3), 99–109.

- Deshpande, A., & Chukhlomin, V. (2017). What Makes a Good MOOC: A Field Study of Factors Impacting Student Motivation to Learn. *American Journal of Distance Education*, 31(4), 275–293. <https://doi.org/10.1080/08923647.2017.1377513>
- Ernawati, M. D. W., Asrial, A., Perdana, R., Septi, S. E., & Rahmi, R. (2021). Evaluation of Students' Attitudes and Science Process Skills toward Middle School Science Subject in Indonesia. *Jurnal Pendidikan Progresif*, 11(2), 258–274. <https://doi.org/10.23960/jpp.v11.i2.202110>
- Fasasi, R. A. (2017). Effects of ethnoscience instruction, school location, and parental educational status on learners' attitude towards science. *International Journal of Science Education*, 39(5), 548–564. <https://doi.org/10.1080/09500693.2017.1296599>
- Firmansyah, R. (2021). *Pengaruh Karakter Bersahabat/Komunikatif Siswa Terhadap Sikap Siswa Pada Mata Pelajaran IPA di SMP Negeri Se-Kecamatan Alam Barajo Kota Jambi*. Universitas Jambi.
- Fitria, Y., & Idriyeni, I. (2017). Development of Problem-Based Teaching Materials for the Fifth Graders of Primary School. *Ta'dib*, 20(2), 99. <https://doi.org/10.31958/jt.v20i2.747>
- Fromowitz, D. B. (2017). Batch and history sampling for fixed-source monte carlo problems. *Nuclear Science and Engineering*, 187(2), 142–153. <https://doi.org/10.1080/00295639.2017.1312944>
- Füchslin, T., Schäfer, M. S., & Metag, J. (2018). A Short Survey Instrument to Segment Populations According to Their Attitudes Toward Science. Scale Development, Optimization and Assessment. *Environmental Communication*, 12(8), 1095–1108. <https://doi.org/10.1080/17524032.2018.1461673>
- Guo, Y. M., Klein, B. D., & Ro, Y. K. (2020). On the effects of student interest, self-efficacy, and perceptions of the instructor on flow, satisfaction, and learning outcomes. *Studies in Higher Education*, 45(7), 1413–1430. <https://doi.org/10.1080/03075079.2019.1593348>
- Harrop, J. A., Casey, R., & Shelton, M. (2018). Knowles, Kolb, and Google: Prior Learning Assessment as a Model for 21st-Century Learning. *Journal of Continuing Higher Education*, 66(2), 129–133. <https://doi.org/10.1080/07377363.2018.1469079>
- Hidayati, N. A., Hendriati, N., Prasetyo, P., Putri, H. A., & Maimunah, S. (2017). Pengembangan Inovasi Pembelajaran Berbasis Proyek Ilmiah dalam Meningkatkan Sikap terhadap Ilmu Pengetahuan Siswa SMP Kota Malang. *Jurnal Konseling Dan Pendidikan*, 5(2), 85. <https://doi.org/10.29210/116600>
- Howard, P., Becker, C., Wiebe, S., Carter, M., Gouzouasis, P., McLarnon, M., Richardson, P., Ricketts, K., & Schuman, L. (2018). Creativity and pedagogical innovation: Exploring teachers' experiences of risk-taking. *Journal of Curriculum Studies*, 50(6), 850–864. <https://doi.org/10.1080/00220272.2018.1479451>
- Ives, S. T., Parsons, S. A., Parsons, A. W., Robertson, D. A., Daoud, N., Young, C., & Polk, L. (2020). Elementary Students' Motivation to Read and Genre Preferences. *Reading Psychology*, 0(0), 660–679. <https://doi.org/10.1080/02702711.2020.1783143>
- Jason, L. A., & Glenwick, D. (2016). *Handbook Of Methodological Approaches To Community-Based Research*. Oxford Universit Press.
- Jufrida, J., Kurniawan, W., Astalini, A., Darmaji, D., Kurniawan, D. A., & Maya, W. A. (2019a). Students' attitude and motivation in mathematical physics. *International Journal of Evaluation and Research in Education*, 8(3), 401–408. <https://doi.org/10.11591/ijere.v8i3.20253>
- Jufrida, J., Kurniawan, W., Astalini, A., Darmaji, D., Kurniawan, D. A., & Maya, W. A. (2019b). Students' attitude and motivation in mathematical physics. *International Journal of Evaluation and Research in Education*, 8(3), 401–408. <https://doi.org/10.11591/ijere.v8i3.20253>
- Kapici, H. O., Akcay, H., & de Jong, T. (2020). How do different laboratory environments influence students' attitudes toward science courses and laboratories? *Journal of Research on Technology in Education*, 52(4), 534–549. <https://doi.org/10.1080/15391523.2020.1750075>
- Kulish, V. (2006). *Human Respiration* (V. Kulish, Ed.). WIT Press. <https://doi.org/9781863129442>

- Kurniawan, D. A., Astalini, A., Darmaji, D., & Melsayanti, R. (2019). Students' attitude towards natural sciences. *International Journal of Evaluation and Research in Education*, 8(3), 455–460. <https://doi.org/10.11591/ijere.v8i3.16395>
- Laksana, D. N. L., Dhiu, K. D., Jau, M. Y., & Ngonu, M. R. (2020). Developing Early Childhood Cognitive Aspects Based on Anderson And Krathwohl's Taxonomy. *JPI (Jurnal Pendidikan Indonesia)*, 8(2), 219. <https://doi.org/10.23887/jpi-undiksha.v8i2.19481>
- Larson, K. E., Pas, E. T., Bradshaw, C. P., Rosenberg, M. S., & Day-Vines, N. L. (2018). Examining how proactive management and culturally responsive teaching relate to student behavior: Implications for measurement and practice. *School Psychology Review*, 47(2), 153–166. <https://doi.org/10.17105/SPR-2017-0070.V47-2>
- Li, T., Miller, E., Chen, I. C., Bartz, K., Codere, S., & Krajcik, J. (2021). The relationship between teacher's support of literacy development and elementary students' modelling proficiency in project-based learning science classrooms. *Education 3-13*, 49(3), 302–316. <https://doi.org/10.1080/03004279.2020.1854959>
- Lipscombe, T. C., & Mungan, C. E. (2020). Breathtaking Physics: Human Respiration as a Heat Engine. *The Physics Teacher*, 58(3), 150–151. <https://doi.org/10.1119/1.5145400>
- Luo, J. M., Chau, K. Y., Lam, C. F., & Cheng, M. (2019). The relationship of student's motivation, program evaluation, career attitudes and career aspirations in university–industry cooperation program. *Cogent Education*, 6(1). <https://doi.org/10.1080/2331186X.2019.1608686>
- Luo, Z., Jingying, C., Guangshuai, W., & Mengyi, L. (2020). A three-dimensional model of student interest during learning using multimodal fusion with natural sensing technology. *Interactive Learning Environments*, 0(0), 1–14. <https://doi.org/10.1080/10494820.2019.1710852>
- Ma'arif, M. A., & Rofiq, M. H. (2018). POLA PENGEMBANGAN KURIKULUM PENDIDIKAN PESANTREN BERKARAKTER: Studi Pondok Pesantren Nurul Ummah Mojokerto. *TADRIS: Jurnal Pendidikan Islam*, 13(1), 1. <https://doi.org/10.19105/tjpi.v13i1.1635>
- Marisa, C., Fitriyanti, E., & Utami, S. (2018). Hubungan Pola Asuh Orangtua dengan Motivasi Belajar Remaja. *Jurnal Konseling Dan Pendidikan*, 6(1), 25. <https://doi.org/10.29210/118700>
- Musanna, A., Wibowo, U. B., & Hastutiningsih, A. D. (2017). INDIGENISASI PENDIDIKAN: Rasionalitas Revitalisasi Praksis Pendidikan Ki Hadjar Dewantara. *Jurnal Pendidikan Dan Kebudayaan*, 2(1), 117. <https://doi.org/10.24832/jpnk.v2i1.529>
- Nieminen, P., Loikkanen, J., Ryökäs, E., & Mustonen, A. M. (2020). Nature of Evidence in Religion and Natural Science. *Theology and Science*, 448–474. <https://doi.org/10.1080/14746700.2020.1786221>
- Ning, J., & Tao, H. (2020). Randomized quasi-random sampling/importance resampling. *Communications in Statistics: Simulation and Computation*, 49(12), 3367–3379. <https://doi.org/10.1080/03610918.2018.1547398>
- Osberg, D., & Biesta, G. (2021). Beyond curriculum: Groundwork for a non-instrumental theory of education. *Educational Philosophy and Theory*, 53(1), 57–70. <https://doi.org/10.1080/00131857.2020.1750362>
- Panjaitan, R. G. P., Titin, T., & Putri, N. N. (2020). Multimedia Interaktif Berbasis Game Edukasi sebagai Media Pembelajaran Materi Sistem Pernapasan di Kelas XI SMA. *Jurnal Pendidikan Sains Indonesia*, 8(1), 141–151. <https://doi.org/10.24815/jpsi.v8i1.16062>
- Paterson, L. (2021). Participation in science in secondary and higher education in Scotland in the second half of the twentieth century. *Research Papers in Education*, 00(00), 1–25. <https://doi.org/10.1080/02671522.2021.1931951>
- Perdana, R., Yani, R., Jumadi, J., & Rosana, D. (2019). Assessing Students' Digital Literacy Skill in Senior High School Yogyakarta. *JPI (Jurnal Pendidikan Indonesia)*, 8(2), 169. <https://doi.org/10.23887/jpi-undiksha.v8i2.17168>
- Pozo-Armentia, A. del, Reyero, D., & Gil Cantero, F. (2020). The pedagogical limitations of inclusive education. *Educational Philosophy and Theory*, 52(10), 1064–1076. <https://doi.org/10.1080/00131857.2020.1723549>

- Purwanti, E., Palupi, R. Z. P., Galuh, A., & Rianingsih, D. (2020). *Pengembangan Instrumen Penilaian Keterampilan Abad 21*.
- Rati, N. W., Kusmaryatni, N., & Rediani, N. (2017). Model Pembelajaran Berbasis Proyek, Kreativitas dan Hasil Belajar Mahasiswa. *JPI : Jurnal Pendidikan Indonesia*, 6(1), 60–71.
- Reinoso Tapia, R., Delgado-Iglesias, J., & Fernández, I. (2019). Learning difficulties, alternative conceptions and misconceptions of student teachers about respiratory physiology. *International Journal of Science Education*, 41(18), 2602–2625. <https://doi.org/10.1080/09500693.2019.1690177>
- Sari, N., & Sarwanto. (2018). The Analysis of Student Learning Motivation On Physics Learning in Senior Secondary School. *Jurnal Pendidikan Dan Kebudayaan*, 3(1), 17–32. 10.24832/jpnk.v3i1.591
- Sarid, A. (2018). A theory of education. *Cambridge Journal of Education*, 48(4), 479–494. <https://doi.org/10.1080/0305764X.2017.1356267>
- Siswono, H. (2017). Analisis Pengaruh Keterampilan Proses Sains Terhadap Penguasaan Konsep Fisika Siswa. *Momentum: Physics Education Journal*, 1(2), 83. <https://doi.org/10.21067/mpej.v1i2.1967>
- Stamov Roßnagel, C., Fitzallen, N., & Lo Baido, K. (2020). Constructive alignment and the learning experience: relationships with student motivation and perceived learning demands. *Higher Education Research and Development*, 0(0), 1–14. <https://doi.org/10.1080/07294360.2020.1787956>
- Subekti, Y., & Ariswan, A. (2016). Pembelajaran fisika dengan metode eksperimen untuk meningkatkan hasil belajar kognitif dan keterampilan proses sains. *Jurnal Inovasi Pendidikan IPA*, 2(2), 252. <https://doi.org/10.21831/jipi.v2i2.6278>
- Sugito, S., Susilowati, S. M. E., Hartono, H., & Supartono, S. (2017). Enhancing Students' Communication Skills through Problem Posing and Presentation. *International Journal of Evaluation and Research in Education (IJERE)*, 6(1), 17. <https://doi.org/10.11591/ijere.v6i1.6342>
- Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Susilowati, S., Ibnul, M., & Putra, Q. (2017). Pengembangan Bahan Ajar IPA Terintegrasi Nilai Islam untuk Meningkatkan Hasil Belajar IPA. *Jurnal Inovasi Pendidikan IPA*, 3(1), 78–88.
- Syam, A. R. (2019). Guru dan Pengembangan Kurikulum Pendidikan Agama Islam di Era Revolusi Industri 4.0. *TADRIS: Jurnal Pendidikan Islam*, 14(1), 1. <https://doi.org/10.19105/tjpi.v14i1.2147>
- Tanti, T., Kurniawan, D. A., Firmansyah, R., & Zain, M. S. (2021). Correlation Between Reading Fondness and Attitude Toward Science at Middle School. *JPI (Jurnal Pendidikan Indonesia)*, 10(1), 46. <https://doi.org/10.23887/jpi-undiksha.v10i1.24701>
- Valipour, A., Mayse, M. L., Peterson, A. D., Johnson, P. J., Rouw, K. T., Asadi, S., & Hummel, J. P. (2019). Respiratory Sinus Arrhythmia Attenuation via Targeted Lung Denervation in Sheep and Humans. *Respiration*, 98(5), 434–439. <https://doi.org/10.1159/000501623>
- Vaughn, M., & Fisher, D. (2020). Affective Dimensions of Student Literacy Learning: Issue 1. *Reading Psychology*, 41(6), 513–514. <https://doi.org/10.1080/02702711.2020.1783140>
- Vaughn, M., Premo, J., Erickson, D., & McManus, C. (2020). Student Agency in Literacy: Validation of the Student Agency Profile (StAP). *Reading Psychology*, 0(0), 533–558. <https://doi.org/10.1080/02702711.2020.1783147>
- Warrican, S. J., Alleyne, M. L., Smith, P., Cheema, J., & King, J. R. (2019). Peer Effects in the Individual and Group Literacy Achievement of High-School Students in a Bi-dialectal Context. *Reading Psychology*, 40(2), 117–148. <https://doi.org/10.1080/02702711.2019.1571545>
- Wei, B., Lin, J., Chen, S., & Chen, Y. (2020). Integrating 21st century competencies into a K-12 curriculum reform in Macau. *Asia Pacific Journal of Education*. <https://doi.org/10.1080/02188791.2020.1824893>
- Windyariani, S. (2017). *Biosfer: jurnal pendidikan biologi (biosferjpb)* 2017,. 10(1), 17–21.
- Yu, H., Glanzer, P. L., & Johnson, B. R. (2020). Examining the relationship between student attitude and academic cheating. *Ethics and Behavior*, 00(00), 1–13. <https://doi.org/10.1080/10508422.2020.1817746>

Yunus, M., Dewi, K., Andari, W., Islam, M. A., Pendidikan Guru, J., & Dasar, S. (2017). The Principal's Competences in Implementing Cultural and Environmental Management Of The School In SDN 033 Tarakan. *Jurnal Pendidikan Indonesia*, 6(2), 263–273. <https://doi.org/10.23887/jpi-undiksha.v6i2.11982>