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A study of attitude and interest in the student's lessons

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Abstract

This study intends to describe the attitudes, interests, and learning outcomes of students' science and also to find out the influence of students' attitudes and learning interests on student learning outcomes. The research method was in the form of mixed methods with explanatory design. By doing a comparison test or t test, the results show that there are differences in student interest in learning in the two classes; there are differences in student attitudes in the two classes; and student learning outcomes indicate that there are differences in learning outcomes in the two classes. The results of the regression test of student interest in learning, student attitudes, and student learning outcomes in science subjects in grades VIIA and VIIB have an effect on student interest in learning, student attitudes, and student learning outcomes. The novelty of this research lies in the variables used in this study, namely three variables that were studied directly consisting of students' interests, attitudes and science learning outcomes. The implications of this research function as a reference for teachers and students in improving students' science learning outcomes.

Keywords: Interests, attitudes, education, learning outcomes, science.

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1. Introduction

1.1. Conceptual or theoretical framework

One of the more advanced and sophisticated eras is influenced by quality education. Every country that wants to progress must pay attention to providing adequate education to its citizens, which is expected through education to form human beings who are intellectual, highly competent and have a noble character as measured by progress at the academic stage to get a degree (Cahya & Artini, 2020; Tanti, et al., 2021; Kamid, et al., 2021; Oluremi, 2014). Education is the most important aspect of world civilisation, namely with a conscious and planned effort to create a learning atmosphere and an active learning process where if learning goes well, then education follows (Kamid, et al., 2021; Maison et al., 2021; Utami & Rohaeti, 2019; Yasa et al., 2020). Thus, education goes hand in hand with learning activities.

Learning is carried out with a reciprocal relationship between students and teachers. In dominant learning, the teacher uses a conventional learning model and a teacher is required to make basic decisions based on appropriate assessments by having learning principles as a result of the concept of learning in school (Sari et al., 2019; Takaoğlu, 2018; Tanti et al., 2020; Tiwow et al., 2020). Good learning requires the use of appropriate technology and integrating learning with daily life processes with various student activities such as visual activities, oral activities, listening activities, writing activities and so on (Asrial et al., 2021; Darmaji et al., 2022; Desriadi, 2017; Sagala et al., 2019). In the 2013 curriculum, student-centred learning and learning using a scientific approach in the learning process, students' attitudes greatly affect learning outcomes, especially in natural science lessons (Maison et al., 2022; Nurrahman & Irawan, 2019; Syarifudin, 2020; Utami & Wutsqa, 2017). Students' attitudes towards learning are often less of a concern.

The attitude of students in teaching and learning activities is very important to be developed in a positive direction. The natural science learning process produces attitudes and skills according to the learning objectives and are influenced by negative and positive attitudes; with this, students become responsive with feelings of stability and responsibility intensity (Alrawili et al., 2022; Astalini Astalini et al., 2018; Putra et al., 2018). Changes in student behavior in the science learning process either directly or indirectly through observation, experience and the learning environment that is influenced by the facility factor to experiment with science learning activities (Astalini & Kurniawan, 2019; Musengimana et al., 2021; Zulfikar et al., 2019). Attitudes are important to educated people from elementary school to tertiary education, and teachers can assess student attitudes when students respond to scientific learning with signs of acceptance or rejection (Astalini et al., 2019; Huang et al., 2019; Jufrida et al., 2019). With students showing a good attitude towards science learning, it will show students' interest in participating in natural science learning.

Interest is defined as a high liking that arises from within the individual. Appropriate use of technology can foster students' interest in learning. It is divided into two types: situational and individual (Jagu & Boti, 2018; Kurniawan et al., 2022; Toli & Kallery, 2021). Interest in learning in the form of feelings of pleasure, interest, attention and high curiosity that makes students want to be involved in learning a science which is an important factor in successful learning (Khasanah & Nugraheni, 2022; Setiana & Amelia, 2022; Yunitasari & Hanifah, 2020). The lack of student interest in learning will cause other problems in education because when students are interested in certain fields it will make students have perseverance, special attention, observing, memorising, thinking carefully, good and active (Li, 2011; Pratiwi et al., 2018; Walkington et al., 2016). According to Permatasari et al. (2019), interest can affect the quality of student achievement in a particular field of study because he will focus more on that field than other students.

Student achievement is a form of evaluation of the learning that has been carried out. Understanding the concept of learning can be described in various ways because different perspectives on learning and different goals for working with learning achievement are used during the assessment process (Holmes, 2019; Kristiyanto et al., 2020; Proitz, 2010). Learning outcomes

are one of the most important parts of the curriculum and the determination of correct and careful learning outcomes is an urgency to ensure formal education in schools is planned and implemented properly and to design and implement curriculum effectively (Bayrakc & Karacao, 2020; Levent, 2020; Ocak, 2021). The value of learning outcomes is used as an indicator that can affect the quality of human resources by maximising the use of time, with the higher the activities carried out by students, the higher the value of learning outcomes achievement (Kristiyanto et al., 2020; Purdiyanto et al., 2021; Sinaga & Simanjuntak, 2021). What needs to be considered in improving student learning outcomes is time management, learning activities and students' interests and attitudes.

1.2. Relevant research

In previous research studies, which are in consonance with the current research, namely by Prayekti (2018), it was found that the cognitive-dependent learning style has a great influence on learning outcomes and that the student learning independent variable has no significant effect on students' physical learning outcomes. This study is different from previous research, the difference lies in the variables that affect student learning outcomes. The current study uses the variables of students' interest in learning and students' attitudes to measure whether it affects student learning outcomes or notThis research is relevant to previous research conducted by Nugraha and Nugraha (2021), with the results of this study providing an overview of the motivation to learn in students and learning outcomes, especially on learning motivation that can affect learning outcomes in students' mathematics subject. The difference is in previous studies measuring students' learning motivation which affects student learning outcomes in mathematics lessons.

Prior research that is in consonance with the current research is by Permatasari et al. (2019). The purpose of the study was to determine the effect of problem-based interest in learning and learning in improving cognitive learning outcomes in the social sciences of fourth-grade elementary school students. The results showed that PBL and interest in learning had a significant impact on the outcomes of elementary school students' social studies. Therefore, this study is a generalization of previous studies. In other words, measuring student outcomes by measuring the impact of student interests and attitudes on student outcomes in junior high school science learning.

Previous research that is in line with the current research is by Kurniawan et al. (2018), who researched student attitudes in learning, and the results obtained were quite good on students' attitudes towards science learning. The difference is in previous studies measuring students' attitudes in physics lessons and at the high school level. Previous research also only described attitudes based on the indicators used. Therefore, the current research is carried out as a generalisation of previous research conducted at the junior high school level and also conducted hypothesis testing in the form of *t*-test and regression test. The current research also combines three variables at once.

In a research conducted by Kurniawan et al. (2019), The results showed good student attitudes towards science subjects which used attitude indicators: attitudes towards scientific research, adoption of scientific attitudes, and interest in a career in the scientific field. The difference is that current research uses attitude indicators of social impact from science. Then, in a research conducted by Kurniawan et al. (2019) only using descriptive statistics were used to describe students' attitudes towards science. The current study links the variables of students' attitudes towards science with learning interest and also student learning outcomes.

1.3. Purpose of the study

Research on student learning outcomes is very important to carry out considering that student learning outcomes are the output of the learning process that has taken place, whether or not educators are successful in conveying knowledge and educating students. So the researcher aims to test the attitudes of students' interests and learning outcomes considering that students' attitudes and interests are in line and affect student learning outcomes, especially in science lessons. The

formulations of the problems to be studied are as follows:

1. What are the differences in students' interest in learning, attitudes and learning outcomes in science subjects in grades seven A and seven B?

2. How do students' interest in learning and students' attitudes affect student learning outcomes in science subjects in grades VII A and VII B?

2. Research method

2.1. Research model

This research uses mixed methods model with explanatory design. The mixed method model is a combination method between quantitative research methods and qualitative research methods (Miller & Cameron, 2011). According to (Creswell, 2012) Explanatory design is done in several research steps, starting with data collection, data analysis, and formulation of quantitative analysis results. Then proceed to data collection, qualitative data analysis and formulation, and it ends with the interpretation of the research results. The study was conducted in August 2021. The researcher used a purposive sampling technique because not all samples met the criteria.

2.2. Participants

This research was conducted at a state junior high school in Muaro Jambi regency. The sampling method used is intentional sampling, as not all samples meet the criteria expected by researchers. The mentioned criteria are that students are studying science in classes VII A and VII B at SMP Negeri in Muaro Jambi regency. The sample used in this study comprised 80 middle school students.

2.3. Data collection

The means of this survey consisted of a statement questionnaire, a multiple-choice questionnaire, and an interview, and the questionnaire used was taken from the research (Astalini & Kurniawan, 2019) and interviews were conducted by teachers. As for the indicators used for the statement questionnaires of interest, they were curiosity, learning materials and teacher attitudes and the benefits of subjects. Meanwhile, the indicators used for the attitude questionnaire are attitudes towards science investigations and the social implications of science.

2.4. Data collection process

The research procedure consisted of compiling a questionnaire of interests, attitudes and multiple choice questions along with preparing interview questions for the teacher in charge of the subject to be studied. Followed by permission to make observations in the target schools, it was continued to distribute questionnaires to measure the variables studied which are strengthened by interviews conducted with subject teachers. From the acquisition of data collection carried out, namely quantitative data in the form of questionnaires and quantitative data in the form of interviews, data analysis was carried out, then qualitative data in the form of interviews were analysed to strengthen the results of the quantitative data analysis.

2.5. Data analysis

This study uses quantitative data analysis supported by SPSS 26 and data analysis using statistical science, namely descriptive and inferential statistics. In this case, a descriptive statistical explanation or representation in the form of a summary of frequencies such as mean, median, maximum, minimum (Kamid et al., 2021). Then, interviews were conducted in order to strengthen the results of quantitative data. To test the hypothesis, there are several conditions (assumption tests) that must be met, namely for the *t*-test and correlation, the data must be normally distributed and homogeneous with a significant value >0.05 and the data are linear with a significant value <0.05 (Alfauzan et al., 2022; Amin et al., 2021). If the assumption test is fulfilled, then parametric tests can be carried out in the form of *t*-test and correlation test (Janie, 2012). The collection and analysis of qualitative data are carried out interactively based on the Miles and Huberman model starting with

data reduction, sorting the data into certain data concept units and certain themes and summing up. After obtaining the results of quantitative and qualitative data analysis, the two are combined for thorough discussion and conclusions.

3. Results

In the results section, a description of quantitative and qualitative data analysis will be presented on the variables of student interest, student learning attitudes and student learning outcomes in science subjects.

The first quantitative data analysis in the form of descriptive statistics on student learning interest in science lessons is shown in table 1 below:

Table 1. Descriptive statistics of students' interest in science subjects with indicators of curiosity

Class	Interval	*F*	%	Category	Mean	Median	Min	Max
	5–9	0	0	Very not good				
	10–13	0	0	Not good				
VII A	14–17	18	45.0	Enough	17.9750	18.0	14.0	24.0
	18–21	15	37.5	Good				
	22–25	7	17.5	Very good				
	5–9	0	0	Very not good				
	10 - 13	6	15.0	Not good				
VII B	14 - 17	11	27.5	Enough	17.9	18.0	13.0	23.0
	18 - 21	18	45.0	Good				
	22 - 25	5	12.5	Very good				

Based on Table 1, which shows the description of students' learning interest in science subjects with indicators of curiosity, class VII A had a percentage of 45.0% in the sufficient category, while class VII B had a percentage of 45.0% in the good category.

The description of students' interest in learning science subjects with indicators of learning materials and teacher attitudes is presented in Table 2.

Table 2. Descriptive statistics of students' interest in science subjects with indicators of learning materials and teacher attitudes

Class	Interval	*F*	%	Category	Mean	Median	Min	Max
	6–10.8	0	0	Very not good				
	10.9–15.6	2	5.0	Not good				
VII A	15.7–20.4	21	52.5	Enough	20.525	20.0	25.0	30.0
	20.5–25.2	12	30.0	Good				
	25.3–30	5	12.5	Very good				
	6–10.8	0	0	Very not good				
	10.9–15.6	3	7.5	Not good				
VII B	15.7–20.4	18	45.0	Enough	20.675	20.0	14.0	29.0
	20.5–25.2	17	42.5	Good				
	25.3–30	2	5.0	Very good				

Based on Table 2, which shows the description of students' interest in learning science with

indicators of learning materials and teachers' attitudes, class VII A has a rate of 52.5% in the satisfactory category and class VII B has a rate of 45.0% in the sufficient category.

The description of students' interest in learning science subjects with indicators of the benefits of the subjects is shown in Table 3.

Table 3. Descriptive statistics of student interest in science subjects with indicators of subject benefits

Class	Interval	*F*	%	Category	Mean	Median	Min	Max
	5–9	3	7.5	Very not good				
	10–13	2	5.0	Not good				
VII A	14–17	19	47.5	Enough	16.325	17.0	9.0	22.0
	18–21	13	32.5	Good				
	22–25	3	7.5	Very good				
	5–9	4	10.0	Very not good				
	10–13	8	20.0	Not good				
VII B	14–17	15	37.5	Enough	15.125	15.5	7.0	23.0
	18–21	11	27.5	Good				
	22–25	2	5.0	Very good				

Based on Table 3, which shows the description of student learning interest in science subjects with indicators of subject benefits, class VII A had a percentage of 47.5% in the sufficient category, while class VII B had a percentage of 37.5% in the sufficient category. The description of students' attitudes in science subjects with indicators of attitudes towards science investigations is shown in Table 4.

Table 4. Descriptive statistics of students' attitudes in science subjects with indicators of attitudes towards science investigations

Class	Interval	*F*	%	Category	Mean	Median	Min	Max
	7–12.6	0	0	Very not good				
	12.7–18.2	0	0	Not good				
VII A	18.3–23.8	17	42.5	Enough	24.95	24.0	19.0	34.0
	23.9–29.4	17	42.5	Good				
	29.5–35	6	15.0	Very good				
	7–12.6	0	0	Very not good				
	12.7–18.2	0	0	Not good				
VII B	18.3–23.8	14	35.0	Enough	25.425	25.0	19.0	33.0
	23.9–29.4	17	42.5	Good				
	29.5–35	9	22.5	Very good				

Based on Table 4, which shows the description of students' attitudes in science subjects with indicators of attitudes towards science investigations, class VII A had a percentage of 42.5% in the good and sufficient categories, while class VII B had a percentage of 42.5% in the good category. The description of students' attitudes in science subjects with indicators of social implications of science is shown in Table 5.

Table 5. Descriptive statistics of students' attitudes in science subjects with indicators of social implications of science

Class	Interval	*F*	%	Category	Mean	Median	Min	Max
	7–12.6	0	0	Very Not Good				
VII A	12.7–18.2	0	0	Not Good	25.9	25.0	19.0	33.0
	18.3–23.8	9	22.5	Enough				
	23.9–29.4	21	52.5	Good				

	29.5–35	10	25.0	Very Good				
	7–12.6	0	0	Very Not Good				
	12.7 – 18.2	2	5.0	Not Good				
VII B	18.3 – 23.8	12	30.0	Enough	24.825	24.0	14.0	32.0
	23.9 – 29.4	22	55.0%	Good				
	29.5 - 35	4	10.0%	Very Good				

Based on Table 5, which shows the description of students' attitudes in science subjects with indicators of social implications of science, class VII A had a percentage of 52.5% in the good category, while class VII B had a percentage of 55.0% in the good category. The description of student learning outcomes in science subjects is presented in Table 6.

Table 6 *Descriptive statistics of student learning outcomes in science subjects*

Class	interval	F	%	Category	Mean	Median	Min	Max
	0 – 4	0	0%	Very Not Good				
	5 – 8	4	10.0%	Not Good				
VII A	9 – 12	8	20.0%	Enough	14.2	15.0	7.0	19.0
	13 – 16	15	37.5%	Good				
	17 - 20	13	32.5%	Very Good				
	0 – 4	0	0%	Very Not Good				
	5 – 8	3	7.5%	Not Good				
VII B	9 – 12	11	27.5%	Enough	13.8	14.0	7.0	19.0
	13 – 16	17	42.5%	Good				
	17 - 20	9	22.5%	Very Good				

Based on Table 6, which shows the description of student learning outcomes in science subjects, class VII A had a percentage of 37.5% in the good category, while class VII B had a percentage of 42.5% in the good category.

When analyzing a hypothesis, a difference test (t-test) and an effect test (simple linear regression) are used as tests. The t-test aims to determine the comparison of the variables investigated in each sample tested, and the regression test is a student interest in learning, student attitudes, learning outcomes, and student practice in science subjects. The purpose is to determine the impact. The descriptions of the results of the differences in student interest in learning in grades 7 A and 7 B, attitudes of students in grades 7 A and 7 B, and student learning outcomes in grades 7 A and 7 B are shown in Table 7.

Table 7. *Description of the t-test of students' interest in learning, students' attitudes and student learning outcomes in science subjects*

Class	Variable	N	Sig. (2-tailed)
	Students' Interests		0.047
VII A	Students' Attitude	40	0.033
	Student learning outcomes		0.044
	Students' Interests		0.032
VII B	Students' Attitude	40	0.044
	Student learning outcomes		0.033

Based on Table 7, the results of the difference test on student interest in learning, student attitudes, and student learning outcomes in science subjects show that grades VIIA and VIIB have significant values of less than 0.05. It can be concluded that there are differences in student interest in grade VIIA and grade VIIB learning, student attitudes, and student learning outcomes in middle school science subjects in the Muaro Jambi district.

The description of the results for the regression test of students' interest in learning, students'

attitudes and student learning outcomes in science subjects is shown in Table 8.

Table 8. *Description of the regression test of students' interest in learning, students' attitudes and student learning outcomes in science subjects*

Class	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
VII A	64.674	3.553		12,370	.021
	.052	.036	.043	.302	.0224
VII B	85.713	6.343		13,200	.022
	.084	.054	.056	.305	.0344

Based on Table 8, which shows the description of the regression test of students' interest in learning, students' attitudes and student learning outcomes in science subjects, classes VII A and VII B obtained a significance value of <0.05, so it can be concluded that there is an influence between students' interest in learning, students' attitudes and learning outcomes of students in grades VII A and VII B in science subjects in junior high schools in Muaro Jambi district.

Results of the interviews with teachers

Based on the results of the interview with teachers at the school, it was found that the cause of students' lack of interest in the learning process was because the lessons were difficult to understand and the learning process carried out was not interesting. As teachers, they apply learning methods or models and create a learning atmosphere that can make students active and interested to participate in the learning process. In addition, the attitudes of students in these schools are also diverse which can be influenced by the family environment, living environment and school environment. Students have a good attitude towards their teachers, especially teachers who are directly related to the class they teach. As educators, teachers must be able to be good examples for their students because teachers are inspirations and role models. In addition, teachers must also be patient and understanding towards their students. With students' learning interest and good attitude, the teaching and learning process will be smoother and more meaningful, thus students' interest in learning and students' attitudes will affect their learning outcomes.

4. Discussion

The statistical results described in Table 1 are a description of students' learning interest in science subjects with the curiosity index, where grade VII A had a sufficient rate of 45.0% and grade VII B had a rate of 45.0% in the correct directory. Then, Table 2 describes the students' interest in learning about science subjects with indicators of learning materials and teachers' attitudes, where grade VII A had a rate of 52.5% in the sufficient category and class VII B had a rate of 45.0% in the sufficient category. Table 3 describes the students' interest in learning about science subjects with the subject advantage indexes, and showed that grade VII A had a rate of 47.5% while grade VII B had a rate of 37.5% in full type. In addition, Table 4 describes the students' attitudes towards science subjects with indicators of attitude towards scientific investigation, wherein grade VII A had a rate of 42.5% in the good and sufficient categories and grade VII B had a rate of 42.5% in the good category. In Table 5, describes the behavior/attitudes of students towards science subjects with indicators of social implications of science, where class VII A has a score of 52.5% in the correct category, while class VII B has a score of 55.0% in the correct category. Finally, Table 6 shows a description of students' learning outcomes in science subjects, wherein class VII A had a percentage of 37.5% in the good category, while class VII B had a percentage of 42.5% in the good category.

The next step was to test the hypotheses. After testing the data assumptions, the data results were normally distributed, homogeneous and linear. Next was hypothesis testing using the *t*-test and regression test. As shown in Table 7, the first test was about students' interest in learning, attitudes, and learning outcomes for grade VIIA and VIIB science subjects that had the significance, It reached < 0.05; It can be concluded that there are differences in the learning interests, attitudes and outcomes

of students in grades VIA and VIIB in science subjects in the Muaro Jambi district. Regression testing results for grade VIIA and VIIB science subjects' willingness to learn, student attitudes, and student learning outcomes reached significant values < 0.05; From this we can conclude that there is an impact on student interest in learning, student attitudes, and grade VIIA and VIIB students' learning outcomes with respect to high school science subjects in the Muaro Jambi district.

The results of this quantitative data analysis are strengthened by the results of qualitative data in the form of interviews with teachers, while the causes of students not enthusiastic about learning science are difficult or uninteresting lessons and less creative learning methods so that they feel bored and not interested in the lesson. As for how to overcome students who are less interested in learning, teachers can create methods or models of learning atmosphere that will be used so that students are interested in participating in the learning process. Then, the attitude or behaviour of today's students to their teachers is very diverse which is influenced by their environment, such as the family environment, home environment and also the school environment. Students have a good attitude towards their teachers, especially teachers who are directly related to the classes in which they teach how to overcome the attitude of students who are not good, patient and understanding towards their students. Teachers must be able to be good examples for students because the teacher provides inspiration and is imitated. Finally, the teacher in charge of natural science subjects said of course student interest in learning and student attitudes affect student learning outcomes because, without interest in learning and a good attitude the student will not get anything during the learning process. Then, with a good interest and attitude the teaching and learning processes will run smoothly and be more meaningful. S et al. (2021) state that the attitudes of teachers are useful for students to be stable in learning. Therefore, students' interests and attitudes in learning natural sciences must continue to be developed and fostered by making learning fun and easy to understand.

The study in agreement with the present study is the one conducted by Astalini et al. (2019), who examine the attitudes of junior high school students towards natural sciences; the research provides results on three indicators of popular attitudes in the appropriate category. The application of scientific opinion achieved good grade, with the rate of 58.4%. Eager to learn science is ranked well, with the rate of 66.3%. Meanwhile, science is classified as sufficient, with the rate of 41.8%. Therefore, in this study, as an update of previous research, different indicators were used, namely attitudes towards scientific research and the social significance of science. The advantage of the present study is that it not only describes the attitude variable but also tests the hypothesis in the form of a difference test (*t*-test) and a regression test (affect) on the results of students' natural science learning in elementary.

Previous research by Levent (2020) stated that, based on the results of the analysis, it was found that most learning outcomes occurred in the conceptual knowledge dimension, and most questions occurred in the factual knowledge dimension.. Nurhasanah and Sobandi (2016) By increasing students' interest in learning, they can improve their learning outcomes. This means that the more students who are interested in learning, the greater the impact on their learning outcomes.. This research is in line with current research. The difference is that this study uses three variables, wherein two variables are interrelated which affect students' learning outcomes in natural sciences. The current research not only analyses quantitative data with regression tests but also uses *t*-test, with indicators of interest, namely curiosity, learning materials and teacher attitudes and the benefits of subjects.

This research is an update of previous research and also complements previous research. The novelty of this research lies in the variables used in this study, namely three variables that were examined directly consisting of interests, attitudes and student learning outcomes of natural science. The indicators of interest and attitude used are indicators of interest in learning natural sciences, namely curiosity, learning materials and teacher attitudes and the benefits of subjects. The indicator attitude variable used is the attitude towards science investigations and the social implications of science by

measuring the differences in each variable in the test class and also the effect of the interest and attitude variables on student learning outcomes.

The limitations of this study are that the sample comparison uses only two classes and uses two attitude variables and three interest variables measured in natural science subjects, which are then linked to the learning outcomes of junior high school students. As we all know that natural science subjects is definite and the application in real life is very visible, thus good learning outcomes must be owned by students by paying attention to the interests and attitudes of students during teaching and learning activities. Therefore, this research has direct implications for educators or teachers to be a reference where students' attitudes and interests must be developed and fostered every time learning takes place.

5. Conclusion

The conclusion of this study is that students' interest in learning has an effect on students' attitudes in learning which then also affects student learning outcomes. The positive attitude and interest that students provide benefits for students to be stable in learning. Therefore, students' interests and attitudes in learning natural sciences must continue to be developed and fostered by making learning fun and easy to understand. The limitations of this study are that the sample comparison uses only two classes and uses two attitude variables and three interest variables measured in natural science subjects, which are then linked to the learning outcomes of junior high school students. The novelty of this research lies in the variables used in this study, namely three variables that were studied directly consisting of students' interests, attitudes and science learning outcomes. The implications of this research function as a reference for teachers and students in improving students' science learning outcomes. As we all know that natural science subjects are definite and the application in real life is very visible, thus good learning outcomes must be owned by students.

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