

Relationship Between Students Interests And Attitudes In Physical Subject

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ABSTRACT

The purpose of this study is to find out how attitudes and interests of students and analyze the relationship between attitudes and student interest in high school physics subjects in Jambi Province. This type of research is quantitative which uses survey research design as a research procedure. This study involved 463 high school students in Jambi Province. The instrument used was a questionnaire with data analysis techniques namely descriptive statistics and inferential statistics. The results of the dominant student attitude indicators discussed in this paper are attitude indicators towards good research in physics with a percentage of 58.5% with a total of 271 students. The results of indicators of dominant interest are indicators of learning attention with categories good a percentage of 74.3% with a total of 344 students. The results of the analysis of the relationship between attitudes and interests of students towards high school physics subjects in Jambi Province showed r value 0.725 and positive. Therefore it is said that the attitudes and interests of high school students in Indonesia in physics subjects are high.

Keywords: Attitude; Scientific Attitude; Physics; Science

INTRODUCTION

The world will respect and change its views on the country that can improve human resources well. Moreover, developed countries can be seen from the quality of their education. The quality of education is measured and assessed on student learning outcomes as well as student learning practices at school (Darmaji et al, 2018; Astalini et al, 2018). Assessment plays an important role in education because a quality assessment

system will improve the quality of the ability of students to be able to print good learning outcomes can be monitored when the learning process takes place at school (Kurniawan, Astalini, & Anggraini, 2018). In high school, there are many subjects that lead so that students focus on their fields and master the material. However, not all subjects can be conquered by students and have quite weak competitiveness such as physics.

Physics is the study of matter and energy in the universe. Physics is related to the

compatibility between concepts and symptoms that occur in the environment. For this reason, understanding concepts in physics is needed so that nothing happens to material misunderstanding. Physics is also a challenging subject in the learning process that involves the knowledge of students to handle various types of illustrations, such as formulas, calculations, graph representations, and theoretical understandings at the abstract level (Sitotaw, 2016). Students are required to think more when the physics learning process takes place. Students must be able to think of a good reason to be able to balance the development of an increasingly competitive world of education (Astalini et al, 2019). Physics lessons are considered difficult and are lessons to be avoided. Physics is considered a difficult program for students from high school to university and also for adults in postgraduate education. It is well known that middle school and college students find physics difficult (Olasimbo, 2012).

Many of the students don't like learning physics. Most are influenced by the lack of curiosity of students to study physics because they have assumed that physics is a difficult lesson. The lack of curiosity of students and pleasure while studying physics is a characteristic of the decline in interest in learning. Interest is a feeling of being more like and feeling attached to something or activity, without anyone telling. Interest will affect the attitude of students when learning physics takes place (Pintrich, 2004). Interest in learning physics is needed intensively to foster the desire of students to learn about physics. Someone who is interested in a subject will achieve optimal learning outcomes. If students are interested in learning, the attitude of students will be good. But if students are not interested in learning, then students' attitudes tend to be not good like ignoring lessons, cool themselves, lazing around doing assignments, and not being enthusiastic when studying (Astalini et al, 2019).

The social implications of physics describe the social life of the effects of learning physics. This can be in the form of attitudes towards social benefits and problems of progress and scientific research (Welch, 2011). The progress and development of science today is very useful and very needed in the millennium era. In the world of special education in schools, just take an example in the classroom and

laboratory. The social implications of physics can be seen from how the cooperation and independence of students in groups. Group work provides students with a more accurate picture of how others see themselves and get a better understanding of themselves so they can help evaluate students' interpersonal behavior (Burke, 2011). Primary and secondary school students' perceptions are based on findings from all studies that scientists generally consider stereotypical (Balcin, 2018). Students often describe scientists as bearded/bespectacled parents who always work in the laboratory, record new findings and read books (Christidou, 2011). The attitude is taken from scientists in solving problems and finding new discoveries that can be used as role models for students. Attitudes towards investigations in physics contain students' perceptions or views about physical problems that must be followed up or solved in a conceptual way. In studying physics, students usually conduct investigations, both in class and in the laboratory. Although it encompasses traditional scientific processes, the inquiry also refers to combining this process with scientific knowledge and reasoning and critical thinking (Lederman, 2013). Students develop confidence in school that to get conclusions it must be done step by step which must be followed in the scientific method, this is how scientists produce new knowledge (Moeed, 2013). The form of physical inquiry in class can be seen through the steps of how students answer a problem, namely by observing illustrated images of an event, collecting and classifying data that is known, and interpreting and analyzing it using the right formula for problem-solving. Starting from observing and deciding which tools need to be used, making hypotheses, taking/collecting data based on appropriate procedures to prove hypotheses, measuring objects, analyzing experimental data and then concluding the results and comparing data with theory.

Students who care about learning will concentrate when the teacher explains the lesson. The student's focus on the lesson will make it easier for students to understand the lesson quickly so that there will be fewer obstacles for students to solve problems, especially in physics (Astalini et al, 2019). If students' interest in learning is high, then their attention will be devoted to the full lesson. If there is interference, he will not ignore the interference and stay focused listening to the

teacher's explanation. Students will regret losing the knowledge taught if they do not pay full attention to learning (Mukhopadhyay, 2014). Therefore attention in learning will increase student interest in learning.

A person's interest is closely related to feelings of happiness. People who are interested in something will be happy and subconsciously will always pay attention to something. Identified as a multidimensional structure that includes the meaning of life, positive relationships, responsibilities, positive feelings, and success (Sezer, & Ertug, 2019). Students who enjoy learning will be interested in learning and paying attention as a form of interpreting life when the learning process takes place. Students who are happy with the lesson have positive feelings in their learning process and believe in their success, in other words, students are sure to achieve their goals and benefits while learning (Asealini et al, 2019). For that by itself, student achievement in physics lessons will increase without a sense of burden on students. Therefore, interest can be seen from whether students are happy or not when studying physics. One indicator of interest that strongly supports students' academic success is curiosity. People who have a high curiosity explore information, willingness to explore information, adventure with information and dare to ask. The courage to investigate something to get information such as a new discovery of students' high curiosity in physics. Activities and assignments used in teaching must help spark the interest of new students and offer more challenges and autonomy to develop student interests that develop in certain directions (Laine et al, 2017). If with curiosity in carrying out the task, students will be encouraged to study harder.

Something that is known to be of benefit and purpose will be easily accepted by anyone. Likewise, physics lessons, if students understand the concept and then apply it in life, so students will feel lucky to learn it. The attitude and interest of a student can not only be seen from its characteristics but can also be seen from feelings of pleasure or mediocrity towards something (Astalini et al, 2019). The renewal of this study uses social indicators implications for physics, scientific normality, attitudes toward inquiry in physics, while for students' interest using indicators of Attention in Learning Feeling Happy, and Curiosity. This research will help the teacher to know the attitudes and

interests of students in physics learning which will help the teacher to apply to learn in accordance with the attitudes and interests possessed by students. In this study there is a hypothesis, namely, there is a relationship between attitudes and students' interest in senior high school.

METHOD

This research is quantitative research. The subjects of this study were 463 high school students in Indonesia. sampling technique uses purposive sampling. Purposive sampling is a technique sampling based on the criteria of the researcher (Kerlinger, 2014). In this study, there were two variables, namely the independent variable and the dependent variable. The dependent variable in this study is requested, and the independent variable is the attitude. The variable is measured using instruments. The instrument used in this study is a questionnaire/questionnaire. The attitude questionnaire was adopted from Darmawangsa (2018) which has 54 valid statement items. this instrument has a Likert scale 5, Strongly agree worth 5, agree worth 4, neutral value is worth 3, value disagrees 2 and strongly disagrees worth 1. The focus of attitude indicators in this study is the social implications of physics, the normality of scientists, and attitudes towards physical inquiry. The interest questionnaire adopted from Christidou (2011) has 19 valid statements with a Likert scale 4, Strongly agree worth 4, agree worth 3, value disagrees 2 and strongly disagree worth 1. The focus of interest indicators in this study is attention in learning, feeling happy, and curiosity. The application of this research design is based on the purpose of the research, which is to know the description of students' attitudes and interests and the relationship between students' attitudes and interests in physics in Indonesia. Data was collected by distributing questionnaires to high schools in Jambi Province, then students filled out the score column checklist on the attitude and interest points. All data is inputted into Microsoft Excel and calculated using SPSS. The interviews were used to strengthen the results of the questionnaire. Interviews use the type of open interview, namely students answer according to the questions asked.

This research describes the data in the form of attitudes and interests of students, as well as the relationship between students

attitude and students' interests in physics. therefore the statistics used are descriptive statistics and inferential statistics.

RESULTS AND DISCUSSION

Results

Table 1 The Result of Indicator Social Implication of Physics

Range	Classification		Mean	Median	Mode	Std. Deviation	Min	Max	%
	Attitude	Total							
11.0 - 13.8	Not Very Good	13							2.8
13.9 - 16.6	Not Good	79							17.1
16.7 - 19.4	Enough	160	18.9	19.0	20.0	2.79	11.0	25.0	34.6
19.5 - 22.2	Good	167							36.1
22.3 - 25.0	Very Good	44							9.5
Total		463							100

In the table, there are 5 classifications of attitude. very bad and not good included in the category of not good. nice and very good included in the good category. Based on table 1 there are 92 students to 463 students who fall into the not good category with a percentage of 19.9%. Students who are categorized as enough are 160 students for 463 with a percentage of 34.6 %. While of students Good categories had percentage 45.6% with a total of 211 students

Table 2 The Result of Indicator Normality of Scientists

Range	Classification		Mean	Median	Mode	Std. Deviation	Min	Max	%
	Attitude	Total							
10.0 - 12.8	Not Very Good	10							2.2
12.9 - 15.6	Not Good	84							18.1
15.7 - 18.4	Enough	236	17.3	17.0	17.0	2.22	10.0	24.0	51.0
18.5 - 21.2	Good	120							25.9
21.3 - 24.0	Very Good	13							2.8
Total		463							100

Based on table 2 there are 94 students for 463 students with a percentage of 20.3% categorized as not good. 236 students for 463 students with a percentage of 51.0% categorized as neutral and 133 students for 463 students with a percentage of 28.7% categorized as good. Of 463 students the Mean 17.3, Maximum Value

Social Implication of Physics

The attitude questionnaire about indicator social implication of physics were analyzed using the SPSS 21 application which can be seen in the table below:

out of 463 students. Of 463 students the Mean 18.9, Maximum Value 25, Minimum Value 11, Standar Deviation 2.79, Median 19.0, Mean 18.9 and Mode 20.0.

Normality of Scientists. The attitude questionnaire about indicator normality of scientists were analyzed using the SPSS 21 application which can be seen in the table below:

24, Minimum Value 10, Standar Deviation 2.22, Median 17.0, and Mode 17.3.

Attitude Towards Inquiry In Physics. The attitude questionnaire about indicator attitude towards inquiry in physics were analyzed using the SPSS 21 application which can be seen in the table below:

Table 3 The Result of Indicator Attitude Towards Inquiry In Physics

Range	Classification		Mean	Median	Mode	Std. Deviation	Min	Max	%
	Attitude	Total							
11.0 - 17.6	Not Very Good	1							0.2
17.7 - 24.2	Not Good	21							4.5
24.3 - 30.8	Enough	170	31.35	31.0	32.0	4.32	11.0	44.0	36.7
30.9 - 37.4	Good	237							51.2
37.5 - 44.0	Very Good	34							7.3
TOTAL		463							100

In table 3 explains that there are 22 students for 463 students with a percentage of 4.7 % not good category. 170 students for 463 students with a percentage of 36.7 % were neutral. 271 students for 463 students with a percentage of 58.5 % in the good category. Of 463 students the Mean 31.35, Maximum Value

44, Minimum Value 11, Standar Deviation 4.32, Median 31.0, and Mode 32.0.

Attention In Learning. The interest questionnaire about indicator attention in learning was analyzed using the SPSS 21 application which can be seen in the table below:

Table 4 The Result of Indicator Attention Learning in Physics

Range	Classification		Mean	Median	Mode	Std. Deviation	Min	Max	%
	Interest	Total							
5.0 - 6.7	Not very good	8							1.7
6.8 - 8.5	Not good	111							24.0
8.6 - 10.2	Good	246	9.31	9.00	9.00	1.41	5.0	12.0	53.1
10.3 - 12.0	Very good	98							21.2
Total		463							100

Based on Table 4 indicators gained attention in study 119 students with a percentage of 25.7% is categorized as good. While 344 students with a percentage of 74.3% were categorized as good. Of 463 students the Mean 9.31, Maximum Value 12.0, Minimum Value

5.0, Standar Deviation 1.41, Median 9.31, and Mode 9.00.

FeelingHappy. The interest questionnaire about indicator feeling happy were analyzed using the SPSS 21 application which can be seen in the table below:

Table 5 The Result of Indicator Feeling Happy in Physics

Range	Classification		Mean	Median	Mode	Std. Deviation	Min	Max	%
	Interest	Total							
4.0 - 6.0	Not very good	37							8.0
6.1 - 8.0	Not good	163							35.2
8.1 - 10.0	Good	224	8.66	9.00	9.00	1.56	4.00	12.00	48.4
10.1 - 12.0	Very good	39							8.4
TOTAL		463							100

Based on table 5 explains that there are 200 students with a percentage of 43.2% included in the category of not good. there is a good category of 263 students with a percentage

of 56.8%. Of 463 students the Mean 8.66, Maximum Value 12.0, Minimum Value 4.0, Standar Deviation 1.56, Median 9.00, and Mode 9.00.

Curiosity. The interest questionnaire about indicator Curiosity were analyzed using

the SPSS 21 application which can be seen in the table below:

Table 6 The Result of Indicator Curiosity In Physics

Range	Classification		Mean	Median	Mode	Std. Deviation	Min	Max	%
	Interest	Total							
4.0 – 6.0	Not very good	31							6.7
6.1 – 8.0	Not good	170	8.82	9.00	8.00	1.52	4.00	12.00	36.7
8.1 – 10.0	Good	191							41.3
10.1 – 12.0	Very good	71							15.3
TOTAL		463							100

Based on table explains that there are 201 students with a percentage of 43.4% including k in the category of not good. A good category has 262 students with a percentage of 56.6%. Of 463 students the Mean 8.82, Maximum Value 12.0, Minimum Value 4.0, Standar Deviation 1.52, Median 9.00, and Mode 8.00.

Relationship Between Students Interests And Attitudes

The results of the relationship between attitudes and student interest were analyzed using the SPSS 21 application which can be seen in the table below:

Table 7 The Result of Relationship Between Student interest and students attitude In Physics

Componen/Variabel	Mean	Attitude		Motivation	
		r	Sig. (2-tailed)	r	Sig. (2-tailed)
Attitude	78.5		1	.725	.035
Interest	81.0	.725	.035		1

From the table. 8 we can see the value is 0.035 small from 0.05, it can be seen that there is a relationship between motivation and attitudes of students in the r-value of 0.725 and positive. If the value of sig <0.05 then there is a relationship (Gall, 2003).

Discussion

The results of the questionnaire analysis in table 1 with indicators of social implications of physics in Batanghari District High School, showed that the students' dominance was categorized as good. Based on interviews show that physics is considered difficult by students should still apply their knowledge in life because it will bring convenience and benefits for day-to-day.

The concepts and principles of physics are widely applied to life and contribute a lot in the development and concordance of life in this

era (Veloo, 2015). Students who can appreciate the role of physics in everyday life are only students who excel in high school physics, are talented in science and are very good at mathematics (Guido, 2013). However, in instilling the concept, should be connected also with the problems that are often encountered in daily life so that students understand that physics is important to learn. Because (Kaniawati, 2016); explains the concept has an important role in learning as the foundation for studying natural phenomena.

The results of the questionnaire analysis in table 2 with indicators of scientific normality in Batanghari District High School showed that the students' dominance was in a good category. Students who agree on this mean that they have been able to place themselves like a scientist with all their lives and habits. Based on the results of interviews with students, some of

these students argued that all life scientists had a normal life like humans in general. They work, research and have a happy family.

From the interview, it seems that students can imagine the daily lives of scientists and assume that scientists also have a normal side of life. It shows that students think scientists are normal people, do not judge scientists as a quiet nerd and cannot socialize so that they are alienated from people's lives. Students begin to think of scientists as realistic people Leblebicioglu et al (2011), inventors and problem solvers, do many things, unique, work as thinkers (Balcin, 2018). Scientific normality, assessing how students see scientists and how to position themselves as science/scientist learners. Students are still often confused with professions related to science (Christidou, 2011).

The result questionnaire data analysis in Table 3 with the attitude indicator towards physics in high school Batanghari regency showed dominant students are in either category. Based on the results of the interview, the good category of students have an active attitude in doing, when finding things that are contrary to the experimental results, students respond critically, have high curiosity and never give up.

The results of interviews conducted, students like to do experiments, which indicates that the student likes to think critically, discover interesting new things from physics through the investigations that they do. Physics is based on concepts so that in learning abstract things there will be obstacles for students and (Civelek, 2014). By conducting experiments, abstract physics becomes easier to understand and attract students. Students who are still strong to seek answers to difficult problems in an investigation show students' confidence in their abilities. Students' confidence in their abilities in studying natural sciences and mathematics largely determines their involvement in investigative activities (Stefan & Ciamos, 2010). The attitude of students who like to ask after trying to find a solution or answer shows that the student's curiosity is very great about the investigation he did. Forms of appreciation and support for scientific inquiry from students show that they value the scientific way of gathering evidence, thinking creatively, thinking rationally, responding to and communicating, conclusions because they face life situations related to science (Bybee et al, 2009).

The results of analysis questionnaire data

in Table 4, the indicators studied at senior high school attention dominant showing good interest. More students give attention by giving the best for learning which in this case is a physics subject. Students want to fulfill the need to learn for the smooth learning process of physics. And students always pay attention when the teacher explains the lesson.

Based on the results of the interview, the attention of students in learning physics shows a good interest in the eyes of physics. Students who learn with interest when learning will be attentive with high enthusiasm because they motivate themselves to be interested in the material being studied so that their performance increases. With continued attention, it will increase students' interest in learning which will also improve their learning achievement.

The results of the questionnaire analysis in table 5, indicators of feeling happy at the high school Jambi Province have a good interest in physics subjects. The feeling of pleasure was expressed by students by diligently working on physics assignments, being ready to take physics lessons by completing the needs before learning, paying attention to the teacher teaching carefully and asking questions if they had difficulty learning because they had a high curiosity.

Based on the results of the interview, students are happy when learning physics because of the experiments and not often just learning in the classroom. Experiments are part of the physiology lessons that are favored by students. Elements of goods in terms of interest covering three broad things that interest, attention, and the thrust. The pleasure of learning in students is one of the main things that can increase student interest. This pleasure is derived from many factors such as clean, comfortable and beautiful classrooms so students have a free view of the classroom by not being bothered by dirty class Another thing is the teacher's skill in teaching using appropriate methods and media when delivering lessons so that students quickly understand the material and feel happy to learn it. With that, there is an interaction between students and teachers such as asking questions and students with friends in discussions. This will make students not bored when studying in class. Especially when conducting experiments, students interact more with nature and the people around them. The more interactions there are, the more things students know. then of the students would feel more pleasure in learning

physics and increase interest in deeper study physics.

The questionnaire analysis in table 6, an indicator of curiosity in Jambi Province has a good interest in physics subjects. Students' curiosity about physics is often a question of students during physics lessons, trying to make events as possible as possible in physics, often events, and like experiments.

Based on the results of these interviews, students have high enough curiosity. The students in their curiosity are to find out from various sources, namely books, and the internet, then if they have not found the answers to their friends who understand the material, this is where there is a discussion session to exchange thoughts to express opinions. But if all the efforts have been made and have not yet been found the answer, students will be directly to the teacher in order to provide instructions to analyze correctly, use the right formula and work according to the steps. This is the student to fulfill their curiosity. Students will be in the process of searching and finding. With the search process, students can choose challenges, innovation, and creativity in developing their learning process. Every challenge contained in physics demands to be solved, so students have the right to conduct experiments, testing, and learning from each step they do in order to prove the truth of the answer. Students will also innovate and involve creativity so that their knowledge grows and ways to get things more. The students will be satisfied to get what they find. Herein lies the high curiosity of students to achieve something and can not be separated from the learning process.

Based on table 7 shows the value of sig is 0.000, which means attitudes and interests have a relationship. While the r value indicates whether or not the relationship between the attitude and request is strong. Based on the results of research that has been done, it can be concluded that from the three indicators of attitude, and three indicators of interest students of senior high school. That there is a relationship between interest and attitudes of students with a r-value of 0.725 and positive.

It is known that high school students in Indonesia have a dominant attitude towards physics and good interest in physics. The attitude and interest of students who are dominantly good are directly proportional to the subjects of physics. Based on observational data and documentation that have been carried out by

researchers, students who are happy and interested in the eyes of physics will be good when the physics lesson takes place. This can be seen when students pay close attention when the lesson takes place, work on the task diligently, and have a high curiosity towards physics. All are based on pleasure students about physics subjects as one indicator of learning interest. Interest am closely related to feeling happy and interest can occur because of being happy with something. If student interest is high, then the attitude of students will be good (Kaya, 2011). However, if the student interest is low, the attitude of the students is not good. So from that student interest needs to be maintained by the teacher and the attitude of good students also need to be guided through appropriate teaching when physics subjects take place.

CONCLUSION AND SUGGESTION

From the results of the 4 attitude indicators, namely the social implications of physics, the normality of scientists, attitudes toward inquiry in physics, and indicators of adoption of scientific attitudes, the attitude of high school students to physics subjects is good. 4 indicators of interest, namely attention in learning, feelings of pleasure, curiosity, and the benefits of subjects can be concluded that the interest of high school students in physics subjects is categorized as good. The results of the analysis of the relationship between attitudes and interests of students towards high school physics subjects showed r-value 0.725 and positive. Therefore it is said that the attitudes and interests of high school students in Indonesia in physics subjects are high.

Suggestions from researchers, so that schools in Batanghari High School can improve the attitudes of students or students, in order to improve in terms of the affective domain of students.

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