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ANALYZING OF STUDENTS' ATTITUDES TOWARD SCIENCE ON JUNIOR HIGH SCHOOL: Case Study in Muaro Jambi, Indonesia

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ABSTRACT

Attitude is expressions of likes or dislikes and expressions of accepting or rejecting an object. This study aims to describe students' attitudes toward science based on three attitude indicators in junior high school in Muaro Jambi. This research study is survey research. The instrument used was a questionnaire that focused on three indicators consisting of 26 statements and also interviews. The sample in this study amounted to 2815 junior high schools in Muaro Jambi. The results of the study of three indicators' of attitude, which became the dominant focus of research on the good category. The social implication of science shows a very good category, with a percentage of 53.2%. Enjoyment of science lessons shows a good category with a percentage of 48.1%. Career interest in science is categorized as enough, with a percentage category of 41.8%. Research that has been carried out shows that the attitude of students in junior high school is categorized as good because the three indicators that are examined show good categories.

Keywords: Career interest, enjoyment learning, social implication, science, students' attitudes

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Introduction

Education is an essential aspect of the life of a nation. Successful education in a country shows the progress of a country. Because education should have a role in preparing quality human resources (HR). Quality human resources can be seen from the mastery of knowledge and character possessed. In fact, according to Suyitno (2012), education currently only emphasizes the mastery of the scientific aspects and intelligence of students. The updated curriculum in the world of education to respond to the challenges of the times. Likewise, in Indonesia, now applying the 2013 curriculum (Ningsih, 2017). The 2013 curriculum currently focuses on character education. One of the characters that need to be developed by educators is the attitude of students.

Basically, attitude is a tendency to behave and can be interpreted as a person's reaction to a stimulus (Sudjana, 2012). Attitudes are divided into positive or accepting and negative or rejecting attitudes. Their reaction can show the attitude towards students towards science subjects in school to science subjects. According to Liaghatdar, Soltani, & Abedi (2011), Attitudes towards science are seen as necessary because attitudes can improve students' educational achievement and affect their performance. Thus, The student attitude towards science is used to indicate an individual feels and thinks about science knowledge (Sethi, 2015).

Based on the area (2,096.50 Ha) in the Pamungkas, Subali, & Lunuwih (2017) say that natural science education is an effort or process of teaching students to understand the nature of science. Science is a collection of knowledge that is important for character development because of the thickness of the moral ethics so that students are relevant to the teachings of their ancestors (Astuti, Sunarno, & Sudarisman, 2012). Fatonah and Prasetyo (2014) state that science as a collection of knowledge, science is a systematic arrangement of findings made by scientists. Through student participation, science teachers are ready to improve the teaching of science and to learn in the classroom, and as Science Teachers Leaders (STLs) facilitate professional learning in secondary schools (Pringle, Mesa, & Hayes, 2017).

The social implications of science can be defined as the interrelationship between science and the social environment of students. It can influence students' positive attitudes toward science. On the other hand, the implications of students who tend to be unkind to science will affect negative attitudes.

Career decision-making skills are essential for every student because students are required to have maturity in their career choices (Zamroni, 2016). Career interests in the field of science can be defined that every student in the future has an interest in a career or continuing his education in the field of science. Career interests in science include an essential task for every parent to support. Halim et al. (2017) said that the positive perceptions and values of parents toward the subject of science propel parents to cultivate their children's interest in science and science-related careers. Encouraging students to pursue a career or continue their studies in science is very important. Natural Sciences are fundamental in everyday life to meet human needs in problem-solving, and the application of science is made wisely to maintain and maintain environmental sustainability (Rohmawati, 2012).

The purpose of my research is to find out how the attitude of junior high school students towards science subjects and how the effectiveness of the three

indicators is improving student attitudes towards science in junior high school Muaro Jambi. In this research, the questions of research are: 1) How are students' attitudes viewed from the social implications of science? 2) What is the attitude of students towards the pleasure in learning science ?; 3) What is the attitude of students in career interests in the field of Natural Sciences ?; and 4) What are the obstacles of the social implications of science, the pleasure in learning science and the interest in a career in science? The results of this study can contribute to further research as well as to the schools we study so that school teachers can improve student attitudes in learning science.

Research Method

This research is survey research. Survey studies examine large and small populations by selecting and reviewing selected samples from the population (Kerlinger, 2014). According to Creswell (2017), researchers make generalizations or make claims about that population. Research subjects were all seventh and eighth-grade students at the junior high school level in Muaro Jambi Regency. This research uses the total sampling technique. The total number of junior high school students studied was 2815 students consisting of 1255 male students and 1560 female students.

Data collection was carried out through the provision of research instruments in the form of questionnaires. This questionnaire has 26 attitude statements, which are divided into positive statements totaling 14 items and negative statements totaling 12 items. Dimensions of student attitudes toward science subjects studied are based on predetermined indicators, namely the adoption of scientific attitudes, enjoyment of science lessons, and career interest in science. Student attitudes toward science subjects in research are measured using a Likert scale. Likert scale types of scale strongly agree (SA), Agree (A), not sure (NS), disagree (D), and strongly disagree (SD). Each positive item in the instrument has a value: SA = 5; A = 4; NS = 3, D = 2; and SD = 1 (Score reversed for negative items). This questionnaire data was given to students of class VII and VIII of junior high school in Muaro Jambi District.

This research data in the form of quantitative data and analyzed using descriptive statistics. The results of the questionnaire data were processed using the software. This processing aims to see the attitude of junior high school students towards science in Muaro Jambi District based on the predetermined attitude indicators. Attitude scale is used to see students' attitudes towards certain objects, the results of attitudes categories include; reject (negative), support (positive), and neutral (Sudjana, 2012). The results of this data were obtained from the spreading of the research questionnaire of students' attitudes towards science that had been carried out at 7 & 8-grade junior high school students in Muaro Jambi District, totaling 2815 students (1560 female students, and 1255 male students). The results of the attitude questionnaire data displayed in the data analysis below comprise two assessment sections. The first is an assessment based on intervals that have the following attitude categories: very bad, bad, enough, good, very good. This attitude category assessment is based on the frequency and percentage of all students who choose each attitude category. Second is based on the attitude scale; the attitude scale used is a Likert scale consisting of 5 different assessments. This attitude scale consists of 5 ratings (1 = very bad, 2 = bad, 3 = enough, 4 = good, 5 = very good). This

assessment is based on the total number of students who choose each attitude scale and produces the mean, mode, median, standard deviation. Both of these attitude assessments are obtained by using descriptive statistical analysis of data processing software.

Result and Discussion

The facts show that students' attitudes are one of the key factors in learning science (Liaghatdar, Soltani, & Abedi, 2011). An attitude is a form of expression or student response to the object of learning. The attitude in the form of expressions of like or dislike or accept or reject an object. Attitude measurement is done to see the ability of individuals towards an object. In this study, researchers measured students' attitudes towards science as their object. The essence of measuring attitude at school is useful for knowing students' feelings during the learning process of science in the form of both positive and negative attitudes, and the hope that every student's attitude towards science is positive. Because, if students have a positive attitude towards science will affect abilities related to the field of science (Usta & Akkanat, 2015). In this study, there are three dimensions of attitude measurement carried out, namely the social implications of science, the enjoyment of learning science, and electricity increase the hours of science lessons. The results of the research data shown below are based on three indicators of attitude, namely the social implications of science, enjoyment of science lessons, career interests in science.

The social implication of science

The results of descriptive data analysis using SPSS from the questionnaire data of students' attitudes towards science based on the indicators of the social implications of science can be seen in table 1.

Table 1. Description analyzing of the questionnaire about the social implication of science

Classification			%	Standard deviation	Mean	Mode	Median
Range	Attitude	Total					
5,00 – 9,00	Very bad	0	0				
9,01- 13,00	Bad	55	2,0				
13,01-17,00	Enough	511	18,2	0,724	4,05	4,0	4,0
17,01-21,00	Good	1497	53,2				
21,01-25,00	Very good	752	26,2				

Based on table 1, students' attitudes towards science-based on indicators Social implications of science in junior high school, the results of the data show that: the category of very poor student attitudes as much as 0% (no voters), students categorized as bad as much as 2% (55 out of 2815 students) , students with sufficient categories were 18.2% (511 out of 2815 students), students with good categories were 49.2% (1497 out of 2815 students), and students with very good attitudes were 26.2% (752 out of 2815 students) . While based on the attitude scale shows the data obtained is a mean value of 4.05, mode is 4, besides that from the analysis of the data obtained a standard deviation value (0.724) is smaller than the mean (4.05), this means

the mean value is a representation from all samples of research data or show valid research data. These results indicate that students' attitudes toward science on the indicators of the social implications of science, students have a positive attitude and in the good category. It is supported from the results of the data above which shows 49.2% of students or 1386 students out of 2815 total students are in good range and supported by the mode score, or attitude scale that is the most chosen is 4 "good"

Social implications of Sciences (table 1) reveals that students 'attitudes based on social implications of Natural Sciences have good categories with Mean 4.05 and Mode 4. The mean and mode reveal that students' attitudes towards indicators Social implications of Natural Sciences are included in both categories.

Furthermore, it is also supported by the results of data analysis in Table 1, showing that 53.2% or 1497 of 2815 students were in a good category, and 26.2% or 259 students were categorized as very good. The results of the interview below support it:

***Question**: apakah ilmu pengetahuan alam atau sains dapat bernanfaat bagi kehidupan bermasyarkat ?*

***Answer** : ya, menurut saya sangat bermanfaat karen aspek kehidupan bermasyarakat tidak bisa lepas dari IPTEK yang bersumber dari ilmu Sains*

The results of the interviews showed that students' attitudes were dominant, which meant that students could understand social activities towards science. It can be concluded that the indicators of the social implications of the Natural Sciences in this study indicate students' positive attitudes towards science are in the good category. The main factor also supports good attitude category from the results of data analysis, first students feel that in the social environment, science concepts are essential to apply. Supported by Kurniawan, Astalini, & Anggraini (2018) the social implications of science has benefits for every student, because it can form independence and cooperation in learning.

Enjoyment of science lessons

The results of the descriptive data analysis of students' attitudes towards science-based on indicators of learning pleasure in science can be seen from Table 2.

Table 2. Description analyzing of quesionare about e*njoyment of science lessons*

Range	Clasificaation Attitude	Total	%	Standard Deviation	Mean	Mode	Median
10,0-18,0	Very bad	8	0,3				
18,0-26,0	Bad	106	3,8				
26,0-34,0	Enough	835	29,7	0,78	3, 8	4,0	4,0
34,0-42,0	Good	1354	48,1				
42,0-35,0	Very good	512	18,2				

Based on table 2, the results of the assessment of students' attitudes towards science-based on indicators of the pleasure of learning science in science data shows that: the category of very poor student attitudes as much as 0.3% (8 out of 2815 students), students with bad categories as much as 3.8% (106 from

2815 students), students in the moderate category were 29.7% (835 out of 2815 students), students in the good category were 48.1% (1354 out of 2815 students), and students with very good attitudes were 18.2% (512 from 2815 students). While based on the attitude scale from the results of the data above shows the data obtained is a mean value of 3.8; the mode is 4. Besides that, the standard deviation (0.78) is smaller (<) than the mean (3.8), this means the mean value is a representation of all the sample data examined or shows valid research data. These results indicate students' attitudes toward science on the science of learning pleasure indicator show a positive attitude to science and seen from the results of data analysis that 48.1% of students or 1354 of a total of 2815 students in both categories. It is also supported by the results of the attitude scale on the questionnaire that most students choose is scale 4, which is "good."

Pleasure is considered an emotional variable and an important concept in learning because it illustrates the problem of education to students (Mohammad-Davoudi & Parpouchi, 2016). The pleasure of learning in science explains the responses of students' pleasure to science lessons. From the results of observations show in table 2, indicators of pleasure in learning science in general from the explanation of the results of the dominant questionnaire data towards a positive attitude with a good category, the Mean value of 3.8. Supported also from the results of interviews conducted that the attitude of students towards science is dominant good. This can be seen from the results of the interview below:

Question: *Apakah belajar IPA itu menyenangkan?*
Answer: *ya, menurut saya belajar IPA adalah suatu hal yang menarik.*

The results of the interviews conducted showed that the attitude of students towards natural science subjects was in a good category. In this case, it was concluded that students have a happy attitude. Meaning, students assume that science is one of the fun lessons. This positive attitude is proven by the average student who agrees that science is fun and is also one of the most exciting subjects. One example of students' enjoyment in science is that students are motivated to seek more knowledge in the field of science. Enjoyment is considered the mechanism that encourages the concentration of learners, helps the learning process, and builds the learning environment, or is defined. Fun is considered a mechanism that encourages the concentration of students, helps the learning process, and builds a learning environment (Lucardie, 2014). According to Bulunuz (2015) "The ejoy of teachers in science activities can also influence them to teach science in a fun way".

Career interest in science

The results of the descriptive analysis of students' attitudes towards science-based on leisure interest indicators in science can be seen in table 3.

Table 3. Description analyzing of questionnaire about career interest in science

Classification			%	Standard Deviation	Mean	Mode	Median
Range	Attitude	Total					
10,0-18,0	Very bad	10	0,4				
18,01-26,0	Bad	147	5,2				
26,01-34,0	Enough	1176	41,8	0,77196	3, 6	3,0	4,0
34,01-42,0	Good	1164	41,3				
42,01-35,0	Very good	318	11,3				

Based on the results of data analysis in table 3, shows the results of the assessment of students' attitudes towards science-based on indicators of career interest in the field of Science (Science) with the results of the data show that: the category of very poor student attitudes as much as 0.4% (10 out of 2815 students), students with the category is not good as much as 5.2% (147 out of 2815 students), students with enough categories are 41.8% (1176 out of 2815 students), students with good categories are 41.3% (1164 out of 2815 students), and students with very good attitude as much as 11.3% (318 out of 2815 students). While based on the attitude scale from the results of the data above shows the data obtained is a mean value of 3.6, and the mode is 3. Besides that, the value of the standard deviation (0.77196) is smaller than the mean value (3.6), so the conclusion is the mean obtained is a representation of all the sample data examined or indicates that the research data is valid.

The results of the questionnaire data on indicators of interest in career interest in science show the findings of several obstacles that lead to negative attitudes in students. This is indicated by the attitude of students who are categorized as sufficient (41.8%) having a higher value than the good category (1.34%) or very good (6.9%). Besides that, it is supported by questionnaire data based on attitude scale, the most scale chosen by respondents, or the mode score is three or "enough," and has a mean value of 3,4451 which means the average student answers enough.

Interest in learning science triggers and maintains practical components in the form of pleasures that are aligned between cognitive in the classroom, integration, and enhancement of science learning experiences (Jack & Lin, 2018). It can be concluded that the interest or interest in a career in the field of Natural Sciences has a significant influence on the growth of a positive attitude. Adolescence is a special and important period for career development (Korkmaz, 2015). This correlates with junior high school students, who are generally teenagers (Adolescence). Furthermore, table 3 shows the results of career interest indicators in the field of science, which results are quite good, which is shown by the results of Mean 3,4451 and Mode 3. Based on the Mean and Mode results, it is concluded that student attitudes tend to be negative.

The results of Table 3 also support this, showing the figure 41.8% or 1176 of 2815 students are in the sufficient category. Students' attitudes show a high enough category, thus inferring negative student attitudes. This high number is also supported by the results of data from students who have a bad or very bad attitude with a number of 5.6%. The reason is that students assume that science is a tricky subject, which causes their low interest to pursue a career or continue

their studies in the field of science. Strengthened Astuti, Sunarno, & Sudarisman (2012) stated that learning science in schools is still a difficult subject for some Indonesian students. The assumption of learning science is complicated, smart students can only do, and boring is firmly attached to the minds of many children. Also supported by the results of the interview below:

***Question**: Apa tanggapanmu jika kamu menjadi ilmuwan sains di masa depan?*

***Answer**: saya cukup senang belajar IPA, namun saya kurang beriminat atau pun kurang setuju jika saya nantinya menjadi ilmuwan sains (IPA).*

***Question:** Apakah kamu ingin menjadi pengajar IPA (sains) setelah lulus studi?*

***Answer:** iya, saya rasa menjadi pengajar IPA cukup menarik untuk dilakukan meskipun pelajaran sains lumayan sulit untuk saya.*

The results of the interview concluded that students were reluctant to pursue a career to be a science scientist, and there was an interest in students becoming science teachers even though students considered science lessons difficult. This result can be caused by students' interests being different from one student to another. Next is the task of educators to change new methods in teaching science in enhancing students' positive attitudes towards career interest in science.

Barriers in Student Attitudes

The measurement results of 2815 students were taken through a questionnaire. Three attitudes indicators measured were outlined with 26 statements, but there were still students with negative attitudes evidenced by their disapproval of the statement given (table 4).

Table 4. Percentage of barriers in students attitudes

Indicator	**1**	**2**	**3**
Barriers (%)	2%	4,2%	5,6%

Based on table 4, there are still obstacles to the three attitude indicators measured. These results indicate that the indicator of the social implications of natural science constraints is 2% (55 out of 2815 students). The indicator of learning pleasure in science shows an obstacle value of 4.2% (114 out of 2815 students). The indicator of career interest shows the value of the obstacles of 5.6% (157 of 2815 students). From these results, it appears that the biggest obstacle lies in the indicator of career interest in the Natural Sciences. Overall the results of the study showed a positive attitude towards the social implications of science, the pleasure of learning science, and a career interest in science. Although showing a positive attitude, there are still some obstacles. Constraints on the indicators of the social implications of the Natural Sciences are shown from the analysis of the results of the data in table 4, the results of the data show that 2% or 55 students showed a negative attitude. The reason is that students on indicators The social implications of science have problems if students consider community life to have no relation to the concept of science. one of the factors, according to Piht & Eisenschmidt (2008) students currently do not want to study science.

Table 4 shows that 4.1% or 114 out of 2815 students showed their discomfort in learning science. The figure concludes the number of students who showed a negative attitude on the indicators of enjoyment in learning science. The main

factor of student displeasure when studying science is based on student learning experiences. The results of Manasia's (2015) study stated that schooling was a bad period in their lives, and prevented them from doing more interesting things.

In the career interest indicator in the field of science is an indicator with the highest percentage of obstacles that is 5.6% or 157 students are negative. Supported by Jocz, Zhai, & Tan (2014) states that recent research reveals that students' interest in science in schools shows a decline. The high factor is the number of obstacles in career interest in science because students still have low interest in learning science. According to Najemi and Wijayanti (2014) revealed that to foster interest and interest in learning science, teachers must have the courage to use innovative learning models. That is because the school environment has an influence on career interest in the field of Natural Sciences for each student. Therefore, an effort is needed to encourage students to enjoy science and introduce careers in science.

Conclusion

Finally, based on the results and discussion, it can be seen that the indicators of the social implications of science are very good, the pleasure of learning science is relatively good, and the interest in a career in science is also quite good. Overall the attitude of students towards science in Muaro Jambi is quite good. Then it can be concluded that the attitude of junior high school students towards science in Muaro Jambi District has a positive attitude towards science.

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