Gender Analysis in terms of Attitudes and Self-Efficacy of Science Subjects for Junior High School Students

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Abstract: The purpose of this study was to determine the comparison of students' attitudes and self-efficacy based on gender, and to determine the relationship between students' attitudes and self-efficacy towards science subjects. This research uses quantitative research with survey method. The sample in this study was 74 students from SMPN 1 Muaro Jambi in Muaro Jambi district. The sampling technique used is purposive sampling. There are two instruments in this study, namely attitudes towards science and self-efficacy. The results of the T-test of student attitudes towards science subjects obtained were sig. (2-tailed) < 0.05, so there were differences in student attitudes towards science subjects, both female and male students in class VIII A and class VIII B. The results of the T-test of students' self-efficacy on science subjects obtained a value of sig.(2-tailed) < 0.05, so there are differences in student self-efficacy on science subjects, both female students and male students in class VIII A and class VIII B. While the results of the correlation test between attitudes and students' self-efficacy towards science subjects class VIII A and VIII B showed a value of sig. (2-tailed) < 0.05, then there was a relationship between students' attitudes and self-efficacy towards subjects' science lessons, both female students and male students in class VIII A and class VIII B.

Keywords: Attitude; Self-Efficacy; Gender.

Introduction

Education can be interpreted as a process of increasing one's intelligence so that with this increase it can form a quality person. Education is a very important and strategic factor in national development; besides that, it is also oriented towards improving the quality of human resources (Putri et al., 2020; Rogahang, 2019; Sukendar et al., 2019). Therefore, it has become a top priority for education to produce an intellectual generation and be able to combine knowledge and skills that are used as the basis for social life (Darmaji et al., 2019; Flores-Tena, 2020; Raharjo et al., 2019). In addition to combining skills, this can be combined with habituation of good behavior and the role of the teacher

which aims to increase the ability to develop self-potential, educate and shape the character of each individual (Hartini et al., 2018; Mithen et al., 2021; Sholahuddin et al., 2021). One of the combinations of this knowledge can be seen and applied in the field of science.

Science is a collection of theoretical knowledge as well as discussing real life. Science education is classified as abstract learning but is considered difficult (Anikarnisia & Wilujeng, 2020; Simaremare, 2010; Taştan et al., 2018). To learn and understand science, it is necessary to have a high reading ability or called scientific literacy (El Islami & Nuangchalerm, 2020; Rochman et al., 2019; Zulfa & Haryanto, 2021). Scientific literacy will affect scientific knowledge and caring

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attitudes towards the environment (Fattah, 2019; Wilson et al., 2020). The environment of everyday life and its phenomena have various problems that need to be solved, the solution can be done by studying physics.

Physics is classified as a science that prioritizes analysis to answer the phenomena of everyday life. Physics is assessed as an important process, product, and attitude that can be applied in everyday life, such as laboratory activities to solve scientific problems (Astuti et al., 2017; Sujarwanto & Putra, 2018). In solving problems, we need to use the right strategy. Many strategies can be used to improve the quality of physics learning, but this cannot be separated from the role of the teacher (Prabandaru et al., 2020; Wulandari et al., 2019; Pramudyawan et al., 2019). What is meant is a teacher who has tolerance, accepts criticism and is willing to provide encouragement to students to achieve a process and attitude to be achieved (Ayvaz-tuncel & Tuncel, 2019; Nurmayani et al., 2018).

Attitude is one of the important aspects and needs to be considered in the learning process (Jufrida et al., 2019; Kurniawati & Atmojo, 2017; Nugraha et al., 2020). The formation of the attitude of each individual becomes very important and becomes fundamental (Aithal & Aithal, 2019; Mauliza et al., 2021; Zaki, 2017). The attitude of each individual consists of a positive and a negative attitude. Students who study hard so that their learning outcomes are good, tend to have a positive attitude while students who are not active in learning have poor learning outcomes and tend to have more negative attitudes (Demİrtaş & Aksoy, 2016; Kurniawan et al., 2019; Tanti et al., 2021). With a positive attitude in a person, it will increase self-confidence or what is commonly called self-efficacy.

Self-efficacy relates to a person's sense of trust to achieve something he wants. Self-efficacy is a crucial thing in a belief, it can be seen from the ability of someone who is persistent and confident in solving problems (Kırkıç & Fatma etinkaya, 2020; Riskiningtyas & Wangid, 2019; Tentama & Nur, 2021). In addition, self-efficacy is also a significant factor as a driver of each individual apart from expectations, because something is often positive to achieve a certain goal (Doğan et al., 2019; Kontaş & zcan, 2017; Tentama & Paputungan, 2019). Learner self-efficacy is often oriented towards effort and perseverance, besides those cognitive abilities also affect self-efficacy so that it is necessary to increase self-efficacy to improve each individual's achievement in the future (Fitriyana et al., 2020; Sudirman et al., 2020; Utami et al., 2020). There are several factors that influence self-efficacy both internally and externally, one of which is the influence of gender.

Gender is more familiar with a person's identity, both male and female, with reference to masculine and feminine traits. This is inseparable from gender inequality even after educational attainment, which is caused by unequal external influences between the two (Fraile & Gomez, 2017; Subašić et al., 2018). In addition to the influence of knowledge, age, and family factors, gender also affects the attitudes and behavior of each individual (Mardiani et al., 2021; Mengel et al., 2018; Syahrial et al., 2019). With these gender differences, it can affect academic achievement positively but not consistently (Indrahadi & Wardana, 2020; Turi et al., 2020). For this reason, so that academic achievement can develop consistently, there must be a willingness and commensurate effort from each individual.

Based on the explanation described above, the authors are interested in conducting research with the following research questions: (1) How is the comparison between female and male students' attitudes towards science subjects? (2) How is the self-efficacy of female and male students compared to science subjects? (3) How is the relationship between students' attitudes and self-efficacy towards science subjects?

Method

This research uses quantitative research with associative and comparative types of research. For this type of associative research, descriptive statistical tests are used, while for this type of comparative research, assumptions and hypothesis tests are used. Descriptive statistics relate to things that explain data and phenomena that are phenomenal (Nasution, 2017). Furthermore, those included in the assumption test are the normality test, the linearity test (Tentama & Yusantri, 2020). The test is used as a condition for testing the hypothesis (Fahruddin et al., 2016). The survey procedure of distributing questionnaires was used in data collection. In this case, a survey is a good procedure to use.

The sample in this study was 74 students from SMPN 1 Muaro Jambi in Muaro Jambi district. The sampling technique used is purposive sampling. This sampling includes the type of sampling in which a study has more cases selected by itself (Stommel & Wills, 2004). The reason for taking this technique is because not all samples have criteria that match the phenomenon being studied. Therefore, the authors chose a purposive sampling technique in order to consider certain criteria that must be met by the sample used in this study. The sample taken is class VIII A and VIII B consisting of 40 women and 34 men, while the detailed data can be seen in Table 1.

Table 1. Research Sample

School	Class	Attitude		Self-efficacy	
		M	F	M	F
SMPN 1 Muaro Jambi	VIII A	17	20	17	20
	VIII B	17	20	17	20
M : Male	F : Female				

There are two instruments in this study, namely attitudes towards science and self-efficacy. The assessment instrument is one of the most important assessment instruments for attitudes (Purwanti et al., 2020). The attitude instrument towards science is in the form of a questionnaire adopted from the research of Astalini and Kurniawan in (2019). The attitude and self-efficacy questionnaire grid in this study can be seen in Table 2.

Table 2. Grid of Student Attitude and Self-efficacy Questionnaire Instruments in Science Subjects

Students' attitudes towards science subjects	Student self-efficacy in science subjects
Social Implications of IPA	Task Difficulty Level
Scientist Normality	Behavior or Attitude Shown in the Face of Tasks.
Attitude Towards Science Investigation	Individual Expectations of Ability
Fun in Learning Science	

(Astalini & Kurniawan, 2019)

In this study the authors used a questionnaire with a Likert scale 5. The Likert scale used in this study were: 1 (very not good), 2 (not good), 3 (enough), 4 (good), 5 (very good) with 56 questions about attitudes and 28 questions about self-efficacy, while the attitude and self-efficacy category tables along with the Likert scale are listed in Table 3 and Table 4.

Table 3. Categories of Student Attitudes in Science Subjects

Category	Indicator Interval			
	Social Implications of IPA	Scientist Normality	Attitude Towards Science Investigations	Fun In Learning Science
Very Not Good	7.00 – 12.60	8.00 – 14.40	7.00 – 12.60	9.00 – 16.20
Not good	12.70 – 18.20	14.50 – 20.80	12.70 – 18.20	16.30 – 23.40
Enough	18.30 – 23.80	20.90 – 27.20	18.30 – 23.80	23.50 – 30.60
Good	23.90 – 29.40	27.30 – 33.60	23.90 – 29.40	30.70 – 37.80
Very good	29.50 – 35.00	33.70 – 40.00	29.50 – 35.00	37.90 – 45.00

Tabel 4. Category of Self Efficacy in Science Subjects

Category	Indicator Interval		
	Task Difficulty Level	Behavior or Attitude Shown in Facing Tasks	Individual Expectations of Ability
Very Not Good	3.00 – 5.40	4.00 – 7.20	6.00 – 10.80
Not good	5.50 – 7.80	7.30 – 10.40	10.90 – 15.60
Enough	7.90 – 10.20	10.50 -13.60	15.70 – 20.40
Good	10.30 – 12.60	13.70 – 16.80	20.50 – 25.20
Very good	12.70 – 15.00	16.90 – 20.00	25.30 – 30.00

The data analysis technique in this study was carried out starting from distributing questionnaires or questionnaires, then quantitative data analysis was carried out. Next, identify the results for follow-up. At the data collection stage, questionnaires were given to 74 students at one SMPN 2 Muaro Jambi school in Muaro Jambi district. From the data, data analysis is then carried out, namely data coding, filtering appropriate data and analysis of the data. While the research procedure used in data collection is the attitude of the activities carried out using descriptive statistics based on the categories given by the researcher. Statistics is a science that studies how to collect, process, present, and analyze data and how to draw conclusions from survey results (Rasyad, 2003). In addition, descriptive statistics serve to reduce data to make it easier to interpret (Morissan, 2012). The data needed in this research were collected and obtained from SMPN 1 Muaro Jambi. The procedures for collecting data in this study are in accordance with the following diagram:
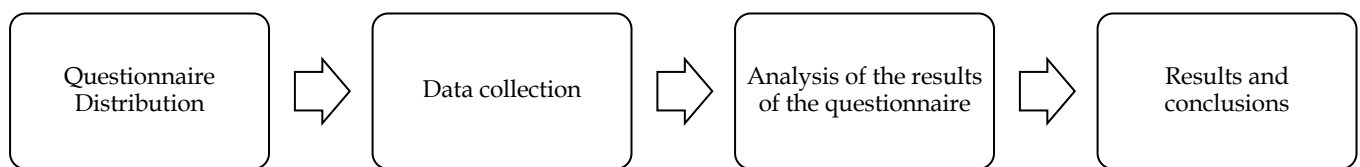
Questionnaire Distribution ⇨ Data collection ⇨ Analysis of the results of the questionnaire ⇨ Results and conclusions

Figure 1. Research Procedure

Result and Discussion

Results

From the research that has been done, it can be explained the results of descriptive statistics on students' attitudes and self-efficacy variables in science subjects. With question indicators on attitudes: Social implications of science, normality of scientists, attitudes towards science investigations, pleasure in learning science. Question indicators on self-efficacy: level of task difficulty, behavior or attitudes shown in dealing with

tasks, individual expectations of abilities. Where the results obtained from the distribution of questionnaires to SMPN 1 Muaro Jambi from the two classes, namely class VIII A and VIII B.

Descriptive statistical test

The results of the descriptive statistical test for the student's attitude variable according to the question indicators for science subjects at SMPN 1 Muaro Jambi are shown in Table 5.

Table 5. Description of Students' Attitudes towards Science Subjects for Classes VIII A and VIII B on the Indicators of Social Implications of Science

Class	Interval	Category	Freq.		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII A	7.00 – 12.60	Very Not Good	0	0	0.0	0.0								
	12.70 – 18.20	Not good	0	1	0.0	5.0								
	18.30 – 23.80	Enough	7	5	41.2	25.0	3.76	3.75	4.0	4.0	3.0	2.0	5.0	5.0
	23.90 – 29.40	Good	7	12	41.2	60.0								
	29.50 – 35.00	Very good	3	2	17.6	10.0								
VIII B	7.00 – 12.60	Very Not Good	1	0	5.9	0.0								
	12.70 – 18.20	Not good	2	0	11.8	0.0								
	18.30 – 23.80	Enough	6	6	35.3	30.0	3.29	3.70	3.0	4.0	1.0	3.0	5.0	4.0
	23.90 – 29.40	Good	7	14	41.2	70.0								
	29.50 – 35.00	Very good	1	0	5.9	0.0								

Based on Table 5, the attitude of class VIII A students with indicators of social implications is found that female students are more dominant in the good category with a percentage of 60% and male students are more dominant in the moderate and good category with a percentage of 41.2%. So, it can be concluded that female students are more dominant than male students on this indicator. The attitudes of class VIII B students with indicators of social implications found that female

students were more dominant in the good category with a percentage of 70% and male students were more dominant in the good category with a percentage of 41.2 %. So, it can be concluded that female students are more dominant than male students on this indicator. Furthermore, students' attitudes towards science subjects with the normality indicator of scientists in class VIII A and VIII B, are shown in Table 6.

Table 6. Description of Students' Attitudes towards Science Subjects for Class VIII A and VIII B on Scientific Normality Indicators

Class	Interval	Category	Freq.		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII A	8.00 – 14.40	Very Not Good	0	0	0.0	0.0								
	14.50 – 20.80	Not good	0	0	0.0	0.0								
	20.90 – 27.20	Enough	6	12	35.3	60.0	3.64	3.55	4.0	3.0	3.0	3.0	3.0	5.0
	27.30 – 33.60	Good	11	5	64.7	25.0								
	33.70 – 40.00	Very good	0	3	0.0	15.0								
VIII B	8.00 – 14.40	Very Not Good	0	0	0.0	0.0								
	14.50 – 20.80	Not good	0	0	0.0	0.0								
	20.90 – 27.20	Enough	7	12	41.20	60.0	3.64	3.40	4.0	3.0	3.0	3.0	5.0	4.0
	27.30 – 33.60	Good	9	8	52.90	40.0								
	33.70 – 40.00	Very good	1	0	5.90	0.0								

Based on Table 6, the attitude of class VIII A students with the Scientific Normality Indicator found that female students were more dominant in the moderate category with a percentage of 60% and male students were more dominant in the good category with a percentage of 64.7%. So, it can be concluded that male

students are more dominant than female students on this indicator. The attitude of class VIII B students with the indicator of normality of scientists found that female students were more dominant in the sufficient category, 60% were obtained and for male students were more dominant in the good category with a percentage of

52.9%. So, it can be concluded that female students are more dominant than male students on this indicator. Furthermore, students' attitudes towards science subjects with indicators of attitudes towards science

investigations in class VIII A and VIII B, are shown in Table 7.

Table 7. Description of Students' Attitudes towards Science Subjects for Class VIII A and VIII B on Attitude Indicators towards Science Investigation

Class	Interval	Category	Freq.		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII A	7.00 - 12.60	Very Not Good	0	0	0.0	0.0								
	12.70 - 18.20	Not good	1	1	5.90	5.0								
	18.30 - 23.80	Enough	7	3	41.20	15.0	3.47	3.80	4.0	4.0	2.0	2.0	4.0	5.0
	23.90 - 29.40	Good	9	15	52.90	75.0								
	29.50 - 35.00	Very good	0	1	0.0	5.0								
VIII B	7.00 - 12.60	Very Not Good	0	0	0.0	0.0								
	12.70 - 18.20	Not good	1	0	5.90	0.0								
	18.30 - 23.80	Enough	7	7	41.20	35.0	3.47	3.70	4.0	4.0	2.0	3.0	4.0	5.0
	23.90 - 29.40	Good	9	12	52.90	6.0								
	29.50 - 35.00	Very good	0	1	0.0	5.0								

Based on table 7, the attitudes of class VIII A students with Attitudes towards Science Investigations were found that female students were more dominant in the good category with a percentage of 75% and male students were more dominant in the good category with a percentage of 52.9%. So, it can be concluded that female students are more dominant than male students on this indicator. the attitudes of class VIII B students with Attitudes towards Science Investigations were found that female students were more dominant in the

good category with a percentage of 60% and male students were more dominant in the good category with a percentage of 52.9%. So, it can be concluded that female students are more dominant than male students on this indicator. Furthermore, students' attitudes towards science subjects with indicators of pleasure in learning science in class VIII A and VIII B, are shown in Table 8.

Table 8. Description of Students' Attitudes towards Science Subjects for Classes VIII A and VIII B towards Fun Indicators in Science Learning

Class	Interval	Category	Freq		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII A	9.00 – 16.20	Very Not Good	0	0	0.0	0.0								
	16.30 – 23.40	Not good	0	0	0.0	0.0								
	23.50 – 30.60	Enough	10	6	58.80	30.0	3.47	3.70	3.0	4.0	3.0	3.0	5.0	4.0
	30.70 – 37.80	Good	6	14	35.30	70.0								
	37.90 – 45.00	Very good	1	0	5.90	0.0								
VIII B	9.00 – 16.20	Very Not Good	0	1	0.0	5.0								
	16.30 – 23.40	Not good	0	0	0.0	0.0								
	23.50 – 30.60	Enough	4	5	23.50	25.0	3.88	3.65	4.0	4.0	3.0	1.0	5.0	5.0
	30.70 – 37.80	Good	11	13	64.70	65.0								
	37.90 – 45.00	Very good	2	1	11.80	5.0								

Based on Table 8, the attitudes of class VIII A students with indicators of enjoyment in learning science are found that female students are more dominant in the good category with a percentage of 70% and male students are more dominant in the moderate category with a percentage of 58.8%. So, it can be concluded that female students are more dominant than male students on this indicator. The attitude of class VIII B students with the Fun indicator in learning science, it

was found that female students were more dominant in the good category, the percentage was 65% and male students were more dominant in the good category with a percentage of 64.7%. So, it can be concluded that female students are more dominant than male students on this indicator. The results of the descriptive statistical test for the student's self-efficacy variable according to the question indicators for science subjects at SMPN 1 Muaro Jambi are shown in the following Table 9.

Table 9. Description of Students' Self-Efficacy against Science Subjects Class VIII A and VIII B on the Indicator of Task Difficulty Level

Class	Interval	Category	Freq.		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII A	3.00 – 5.40	Very Not Good	0	0	0.0	0.0								
	5.50 – 7.80	Not good	2	0	11.80	0.0								
	7.90 – 10.20	Enough	9	11	52.90	55.0	3.35	3.45	3.0	3.0	2.0	3.0	5.0	4.0
	10.30 – 12.60	Good	4	9	23.50	45.0								
	12.70 – 15.00	Very good	2	0	11.80	0.0								
VIII B	3.00 – 5.40	Very Not Good	0	0	0.0	0.0								
	5.50 – 7.80	Not good	1	1	5.90	5.0								
	7.90 – 10.20	Enough	13	13	76.50	65.0	3.11	3.30	3.0	3.0	2.0	2.0	4.0	5.0
	10.30 – 12.60	Good	3	5	17.60	25.0								
	12.70 – 15.00	Very good	0	1	0.0	5.0								

Based on Table 9, the results obtained are more dominant percentages for female students in the sufficient category of 55% and for male students in the sufficient category of 52.9%. So, it can be concluded that female students are more dominant than male students for this indicator in class VIII A. The results obtained that the percentage is more dominant for female students in the sufficient category of 65% and for male students in the sufficient category of 76.5%. So, it can be concluded that male students are more dominant than female students for this indicator in class VIII B. Furthermore, students' self-efficacy towards science subjects with indicators of behavior or attitudes shown in facing tasks in class VIII A and VIII B, are shown in Table 10.

Table 10. Description of Students' Self-Efficacy Against Science Subjects Class VIII A and VIII B On Behavioral Indicators or Attitudes Shown in Facing Tasks

Class	Interval	Category	Freq		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII A	4.0 – 7.2	Very Not Good	0	0	0.0	0.0								
	7.3 – 10.4	Not good	1	3	5.90	15.0								
	10.5 – 13.6	Enough	7	9	41.20	45.0	3.52	3.25	4.0	3.0	2.0	2.0	5.0	4.0
	13.7 – 16.8	Good	8	8	47.10	40.0								
	16.9 – 20.0	Very good	1	0	5.90	0.0								
VIII B	4.0 – 7.2	Very Not Good	0	0	0.0	0.0								
	7.3 – 10.4	Not good	1	3	5.90	15.0								
	10.5 – 13.6	Enough	9	7	52.90	35.0	3.41	3.35	3.0	3.0	2.0	2.0	5.0	4.0
	13.7 – 16.8	Good	6	10	35.30	50.0								
	16.9 – 20.0	Very good	1	0	5.90	0.0								

Based on Table 10, the results obtained are more dominant percentages for female students in the sufficient category of 45% and for male students in the good category of 47.1%. So, it can be concluded that female students are more dominant than male students for this indicator in class VIII A. The results obtained are more dominant percentages for female students in the good category by 50% and for male students in the sufficient category by 52.9%. So, it can be concluded that female students are more dominant than male students for this indicator in class VIII B. Furthermore, students' self-efficacy towards science subjects with indicators of individual ability expectations in class VIII A and VIII B students, are shown in Table 11.

Table 11. Description of Students' Self-Efficacy against Science Subjects Class VIII A and VIII B on Individual Ability Expectation Indicators

Class	Interval	Category	Freq		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII A	4.0 – 7.2	Very Not Good	0	0	0.0	0.0								
	7.3 – 10.4	Not good	0	1	0.0	5.0								
	10.5 – 13.6	Enough	11	14	64.70	70.0	3.35	3.20	3.0	3.0	3.0	2.0	4.0	4.0
	13.7 – 16.8	Good	6	5	35.30	25.0								
	16.9 – 20.0	Very good	0	0	0.0	0.0								

Class	Interval	Category	Freq		%		Mean		Median		Min		Max	
			M	F	M	F	M	F	M	F	M	F	M	F
VIII B	4.0 – 7.2	Very Not Good	0	0	0.0	0.0								
	7.3 – 10.4	Not good	0	1	0.0	5.0								
	10.5 – 13.6	Enough	4	9	23.50	45.0	3.82	3.50	4.0	3.0	3.0	2.0	5.0	5.0
	13.7 – 16.8	Good	12	9	70.60	45.0								
	16.9 – 20.0	Very good	1	1	5.90	5.0								

Based on Table 11. the results obtained are more dominant percentages for female students in the sufficient category of 70% and for male students in the sufficient category of 64.7%. So, it can be concluded that female students are more dominant than male students for this indicator in class VIII A. The results obtained are more dominant percentages for female students in the sufficient and good categories of 45% and for male students in the good category of 70.6%. So, it can be concluded that male students are more dominant than female students for this indicator in class VIII B.

Assumption Test
a. Normality test

Furthermore, the normality test is a test used to determine whether or not the data that has been collected is normal. Data can be said to be normally distributed if the value of sig. > 0.05. The results of the normality test in this study are shown in Table 12. The description of the Normality Test of Students' Attitudes and Self-Efficacy against Science Learning Classes VIII A and VIII B can be seen in Table 12.

Table 12. Description of the Normality Test of Students' Attitudes and Self-Efficacy Against Science Learning Classes VIII A and VIII B

Variable	Class	Sig.	Distributed
Attitude	VIII A	.200	Normal
	VIII B	.200	Normal
Self-Efficacy	VIII A	.200	Normal
	VIII B	.200	Normal

Based on the results of Table 12, the normality test was obtained with the Kolmogorov-Smirnov test with a significance value of > 0.05, it can be concluded that the data is normally distributed.

b. Linearity test

Furthermore, linearity test is a test used to determine whether the data used has a significant linear relationship or not. The data can be said to have a significant linear relationship if the value of sig. < 0.05. The description of the linearity test of students' attitudes and self-efficacy towards science learning in grades VIII A and VIII B can be seen in Table 13.

Table 13. Description of the linearity test of students' attitudes and self-efficacy towards science learning in grades VIII A and VIII B

Variable	Class	Sig.	Distributed
Attitude * Self-Efficacy	VIII A	0.025	Linear
	VIII B	0.026	Linear

Based on table 14, the results of the linearity test were obtained with a significance value < 0.05, which means that there is a significant linear relationship between attitudes and self-efficacy in class VIII A and class VIII B.

Hypothesis Test
a. t-test

The results of the T-test of the attitudes of class VIII A and VIII B students can be seen in Table 14.

Table 14. Student Attitude T Test, Class VIII A and Class VIII B

Class	Gender	N	Mean	Sig. (2-tailed)
VIII A	F	20	163.80	0.032
	M	17	158.23	
VIII B	F	20	158.15	0.036
	M	17	160.11	

Based on Table 14, the results of the T test with the value of sig. (2-tailed) < 0.05, it can be concluded that there are differences in student attitudes towards science subjects, both female students and male students in class VIII A and class VIII B. The results of the self-efficacy T test of class VIII A and VIII B students can be seen in Table 15:

Table 15. Student Self-Efficacy T Test, Class VIII A and Class VIII B

Class	Gender	N	Mean	Sig. (2-tailed)
VIII A	F	20	90.50	0.022
	M	17	93.82	
VIII B	F	20	93.20	0.024
	M	17	93.88	

Based on Table 15, the results of the T test with a value of sig.(2-tailed) < 0.05, it can be concluded that there are differences in student self-efficacy towards science subjects, both female students and male students in class VIII A and class VIII B.

b.   Correlation test

The results of the correlation test between attitudes and self-efficacy of class VIII A and VIII B students to determine whether there is a relationship between the two can be seen in the following table:

Table 16. Attitude correlation test and self-efficacy of class VIII A

Class	Variable	N	Pearson correlation	Sig.(2-tailed)
VIII A	Attitude Self-efficacy	37	0.671	0.041
VIII B	Attitude Self-efficacy	37	0.653	0.034

Based on Table 16, the results of the correlation test between attitudes and self-efficacy with a value of sig.(2-tailed) < 0.05, it can be concluded that there is a relationship between attitudes and self-efficacy of students towards science subjects in class VIII A and class VIII B.

Discussion

The collection of data that can later be processed so that it is easy to read and understand is called descriptive statistics. In the attitude descriptive statistical test, the test results for indicators of social implications of science class VIII A female students are more dominant than male students with a percentage of 60% good, as well as class VIII B female students are more dominant than male students with a percentage of 70% good. In the scientist's normality indicator, the results for class VIII A male students are more dominant than female students with a percentage of 64.7% good, while for class VIII B female students are more dominant than male students with a percentage of 60% good enough. In the attitude indicator towards science investigations, it was found that for class VIII A female students were more dominant than male students with a good percentage of 75%, as well as for class VIII B female students were more dominant than male students with a percentage of 60% good. On the indicators of enjoyment in learning science, it was found that for class VIII A female students were more dominant than male students with a good percentage of 70%, as well as for class VIII B female students were more dominant than male students with a good percentage of 65%.

In the self-efficacy descriptive statistical test, it was found that the test results for the indicator of the difficulty level of assignments for class VIII A female students were more dominant than male students with a percentage of 55% quite good, while for class VIII B male students were more dominant than female students with a percentage of 76.5% is quite good. In the indicators of behavior or attitudes shown in dealing with assignments for class VIII A, male students are more

dominant than female students with a good percentage of 47.1%, while for class VIII B female students are more dominant than male students with a good percentage of 50%. In the indicator of individual expectations of the ability of class VIII A, female students are more dominant than male students with a percentage of 70% good enough, while for class VIII B male students are more dominant than female students with a good percentage of 70.6%.

There are two assumptions test analysis used, namely normality and linearity tests. Based on the results of the normality test for attitudes and self-efficacy of the two classes, the normality test was obtained with the Kolmogorov-Smirnov test with a significance value of > 0.05, so it can be concluded that the data is normally distributed. In the linearity test of students' attitudes and self-efficacy towards science subjects, the results of the linearity test were obtained with a significance value <0.05, which means that there is a significant linear relationship between attitudes and self-efficacy in the second class.

Analysis of hypothesis testing using t test and correlation test. Based on the results of the T test on students' attitudes, with a value of sig. (2-tailed) < 0.05, namely 0.032 for class VIII A and 0.036 for class VIII B, it can be concluded that there are differences in student attitudes towards science subjects, both female students and male students. boys in both classes. Based on the results of the T test on students' self-efficacy with a value of sig. (2-tailed) < 0.05, namely 0.022 for class VIII A and 0.024 for class VIII B, it can be concluded that there are differences in student self-efficacy on science subjects, both female and male students. male students in both classes. Based on the results of the correlation test between attitudes and self-efficacy with a value of sig.(2-tailed) <0.05, namely 0.041 for class VIII A and 0.034 for class VIII B, it can be concluded that there is a relationship between attitudes and students' self-efficacy towards the eyes. science lessons between the two classes.

Previously, research on student attitudes towards science subjects was conducted by Astalini, 2020. The purpose of the research was to analyze students' attitudes towards science objects (IPA). This study uses a quantitative approach with a survey method, while the results of the study are taken from 4 indicators of student attitudes towards science. These indicators include the social implications of science, attitudes towards scientific investigations, enjoyment in learning science, and interest in a career in science. The result of the implication of this research is that students have a positive assessment and character towards science. The weakness in this study is that it only discusses indicators with one variable, namely attitudes towards science objects.

Previously, research on student self-efficacy towards science was conducted by Fadhila, 2019 in his thesis. With the aim of the research, namely to analyze the achievement of literacy skills, implementation of learning, self-efficacy and student attitudes towards science. This research uses quantitative research. The results of the research or conclusions from this study are that there is a link between the implementation of learning, self-efficacy, and attitudes towards science with students' scientific literacy. The weakness in this study is that it only analyzes the achievement of literacy skills, implementation of learning, self-efficacy and student attitudes towards science.

In accordance with the research question, the purpose of this study was to determine the comparison of students' attitudes and self-efficacy based on gender, and to determine the relationship between students' attitudes and self-efficacy towards science subjects. In this study, there are 7 indicators, 4 of them are attitude indicators and 3 are self-efficacy indicators. Students' attitudes and self-efficacy are important to study because they will affect student achievement in science subjects, besides that with positive and negative student attitudes, one can assess how a student applies science learning in social life, thinks scientifically, and have the attitude and pleasure in learning science. Where encouragement from the teacher will be very useful to create a sense of confidence and a positive attitude of students in learning science.

The author realizes that this research has weaknesses and limitations. This happened because in this study still using a limited sample, namely class VIII A and class VIII B at SMPN 1 Muaro Jambi. So, the results obtained may make a difference if done on other samples. The data collection method used in this study only used questionnaire data through questionnaires distributed and filled in by the intended sample. The variables studied in this study were only the attitude and self-efficacy variables towards science subjects. With the limitations of the variables studied, the authors hope that there will be research with other variables such as student interest or motivation towards science subjects

Conclusion

Based on the results of research testing and data analysis, it can be concluded that there are differences in students' attitudes and self-efficacy towards science subjects, both female students and male students in class VIII A and class VIII B, this is evidenced by the significance value obtained from T test. There is a relationship between students' attitudes and self-efficacy towards science subjects, both female students and male students in class VIII A and class VIII B, as shown by the results of the correlation test. From the test

results, there is a significant comparison of attitudes between class VIII A and class VIII B SMPN 1 Muaro Jambi, this comparison refers to the superiority of attitudes of women compared to men. In addition, there is also a comparison of self-efficacy, this of course also affects science subjects. Apart from the comparison, there is also a relationship between attitude and self-efficacy, where self-efficacy encourages each individual to be more optimistic in science learning, with self-efficacy it can also provide a strong impetus to be able to improve attitudes to stay enthusiastic in science learning.

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