Gender Analysis From a Review of Middle School Students' Attitudes and Self-efficacy

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A B S T R A K

Pendidikan penting untuk meningkatkan sumber daya manusia sehingga dalam pendidikan salah satunya diperlukan sikap dan efikasi diri pada diri siswa. Penelitian ini bertujuan untuk menganalisis perbedaan dan hubungan antara sikap dan efikasi diri siswa IPA. Penelitian ini menggunakan metode kuantitatif dengan tipe asosiatif dan komparatif. Instrumen yang digunakan adalah skala angket penghubung yang terdiri dari 5 kategori. Jumlah responden dalam penelitian ini adalah 160 siswa yang terdiri dari dua kelas yaitu: kelas VIIA dan VIIB. Uji statistik diferensial dilakukan dengan pengujian asumsi dan pengujian hipotesis. Berdasarkan hasil penelitian, uji-t sikap dan efikasi diri siswa kelas VII A dan VII B memiliki perbedaan yang signifikan, hal ini dibuktikan dengan nilai sig (2-tailed) < 0,05. Nilai uji korelasi siswa perempuan dan siswa laki-laki kelas VII A dan VIIB memiliki hubungan yang signifikan, hal ini dibuktikan dengan nilai sig (2-tailed) yaitu < 0,05. Dengan hasil yang diperoleh bahwa terdapat perbandingan antara siswa perempuan dan siswa laki-laki pada setiap indikator. Sikap dan efikasi diri siswa terhadap pembelajaran IPA dikategorikan cukup baik baik untuk siswa perempuan maupun laki-laki. Hasil tes yang telah dilakukan dalam penelitian ini juga menunjukkan bahwa terdapat perbedaan dan hubungan antara sikap dan efikasi diri pada jenis kelamin siswa. Namun sebagian besar sikap siswa memiliki kategori yang cenderung cukup baik.

A B S T R A C T

Education is important to increase human resources so that in education one of them needs attitude and self-efficacy in students. This study aims to analyze the differences and the relationship between attitudes and self-efficacy of science students. This study uses quantitative methods with associative and comparative types. The instrument used was a questionnaire linkers scale consisting of 5 categories. The numbers of respondents in this study were 160 students of two classes namely: class VIIA and VIIB. Differential statistical test is carried out by testing assumptions and testing hypotheses. Based on the results of the study, the attitude and self-efficacy t-test of class VII A and VII B students had significant differences. This was evidenced by the value of sig (2-tailed) < 0.05. And the correlation test scores of female students and male students of grades VII A and VIIB have a significant relationship, this is evidenced by the value of sig (2-tailed) which is <0.05. With the results obtained that there is a comparison between female students and male students on each indicator. Students' attitudes and self-efficacy towards science learning are categorized as good enough for both female and male students. The results of the tests that have been carried out in this study also show that there are differences and relationships between attitudes and self-efficacy on the gender of students. However, most of the students' attitudes have a category that tends to be quite good.

1. INTRODUCTION

Education is a very important form of learning. Ideally, education is very important in developing attitudes and skills (Hekmah et al., 2019; Mahendra, 2017; Mason, 2020). The educational process has a special purpose in compiling stimulation for students so that they can grow their potentials and good attitudes (Astalini et al., 2018). That way, education is like an antidote in a human resource in order to create skills, knowledge, and interests with better quality (Cai et al., 2020; Campbell et al., 2017). Learning in all

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fields has the same important factors, even though in this era of Natural science also prioritizes attitudes to be realized in everyday life (D. A. Kurniawan et al., 2019; Saregar et al., 2017). Attitude in science learning is an individual's assessment of an object attitude becomes an important point in determining a character in individual students (Astalini et al., 2021; Atmojo, 2021; Nurazizah et al., 2017). Attitude towards science is a set of affective behavior that contains aspects of knowledge attitude, scientific attitude, scientific investigation, predicting behavioral consequences in certain social norms so that character and attitude is an inseparable unit (Elvanisi et al., 2018; Joffe, 2017; Setiaji & Dinata, 2020; Sukmasari & Rosana, 2017).

Self-efficacy in students who do not like science, but they must have high self-efficacy in order to be able to do something (Ulfa, 2016). The success of a person's learning is determined by the affective domain that has low self-efficacy and will easily give up and tend not to solve problems (H. Hendriana & Kadarisma, 2019; Mafaza et al., 2018; Nurani et al., 2021). By having high self-efficacy students can go through difficulties in learning easily. This means that the higher a person's self-efficacy for his abilities both in formulating concepts, conveying ideas, and sharpening ideas (Cahyo, 2017; Jannah et al., 2019; Kiel et al., 2020). Self-efficacy plays an important role in stimulating students to increase their sense of enthusiasm in learning (Gundel et al., 2019; Sökmen, 2021; Zysberg & Schwabsky, 2021).

This study is in line with previous research on attitudes. However, in previous studies there were differences in the measurement of variables. The research discusses about strengthening the character of attitudes in science, followed by strengthening the character of disciplines in science (D. A. Kurniawan et al., 2019). In this study, the variables measured were attitude and discipline, where the indicators used were 4 attitudes, namely adoption of scientific attitudes, pleasure in learning in science, interest in spending time and interest in a career in science. Then previous research also discussed the differences that were seen from the increase in attitudes towards science students in the experimental class and control class with scientific project-based learning. The study measured attitudes with the experimental class and the control class so that the attitude indicators tested were only normal attitudes towards scientists, Attitudes like scientific inquiry, Adoption of scientific attitudes, Career interest in science, Interest in scientific activities, Attitudes towards the social implications of science, and happy attitude in science lesson.

Then there are also previous research on self-efficacy discussed the effect of self-efficacy on the communication skills of junior high school students (H. Hendriana & Kadarisma, 2019). With this research, the variables measured are only self-efficacy so that the indicators used are optimistic views in doing lessons and assignments, how much interest in lessons and assignments, developing mathematical abilities, making plans in completing assignments. In addition, other studies discuss the effectiveness of the visualization auditory kinesthetic (VAK) learning model on understanding mathematical concepts based on self-efficacy classification (Jannah et al., 2019). This study measures the extent of the learning model with self-efficacy variables. This study uses indicators developed from the self-efficacy dimension.

With high self-efficacy in this technological age, students can get to know the world from pays more attention to the differences and relationships between variables from the way students learn on a daily basis. In this study, the indicators used in the attitude variable are the social implications of science, attitudes towards science investigations, adoption of scientific attitudes, and interest in a career in science. Question indicators on self-efficacy consists of level of task difficulty, behavior or attitude shown in dealing with tasks, strength or weakness of belief, assuming experience is not an obstacle (Bolkan, 2015). However, this study has weaknesses that are not yet owned. This research does not yet measure the learning model by connecting attitudes and self-efficacy in students. The purpose of this study is to analyze the results of the attitude indicators and student self-efficacy between women and men along with the differences and the relationship of attitudes and self-efficacy of students between girls and boys.

2. METHOD

In this study, the method used is a quantitative method. Researcher uses associative and comparative types in the field of inquiry with the aim of being able to understand the reality in society. The data used uses numerical scale data with a Likers level of 5 (Simamora, 2005). With this study, we will gain an understanding of the variables used for the student population at the junior high school education level. In this study, the instrument used was a questionnaire which was distributed to two classes at SMP 7 Muaro Jambi, namely: class VIIA and VIIB. This questionnaire is used to measure the extent to which students' knowledge of interest and self-efficacy have not been systematically validated (Lee et al., 2021). The grid used in the questionnaire instrument of student attitudes and self-efficancy in science subjects is shown in Table 1 and Table 2.

Table 1. Grid of Student Attitude Questionnaire Instruments in Science Subjects

Variable	Indicator	Statement Item Number	
		(+)	**(-)**
Students' attitudes towards science subjects	Social Implications of natural	1, 14, 27, 39	7, 20, 32, 45, 53
	Scientist Normality	8, 21, 33, 46, 54	15, 40
	Attitude Towards Science Investigation	2, 41	9, 22, 34, 47, 55
	Adopt Scientific Attitude	3, 26, 28	10, 23, 35, 48
	Fun in Learning Science	4, 17, 29	11, 24, 36, 42, 49, 56
	Interest in increasing the time to study science	5, 18, 30	12, 25, 37, 43, 50
	Interest in a Career in Science	13, 19, 26, 38, 51	6, 31, 44, 52
Number of Statements		**25**	**31**

Source: (Dwi Agus Kurniawan et al., 2019)

Table 2. Self-Efficacy In Science Subjects

Variable	Indicator	Statement Item Number
Student self-efficacy in science subjects	Task Difficulty Level	1,2,3
	Bhavior or Attitude Shown in the Face of Tasks.	4,5,6,7
	Strong Weak Faith	8,9,10,11,12
	Individual Expectations of Ability	13,14,15,16,17,18
	Taking Experience Not as an Obstacle	19,20,21,22,23
	Making Inner Experience The Basis To Increase Confidence	24,25,26,27,28
Number of Statements		**28**

Source :(Hairida, 2017)

Because the student attitude questionnaire in science subjects uses a linkers scale consisting of 5 categories, there is an interval in each category. Intervals in each category can be seen in Table 3 and Table 4.

Table 3. Categories of Student Attitudes

Category	Interval Indicator			
	Social implications of natural sciences	Attitude towards natural sciences investigation	Adoption of scientific attitude	Interested in a career in natural sciences
Very Not Good	7.0 – 12.6	7.0 – 12.6	7.0 – 12.6	6.0-10.8
Not good	12.7-18.2	12.7 – 18.2	12.7 – 18.2	10.9-15.6
Enough	18.3-23.8	18.3 – 23.8	18.3 – 23.8	15.7-20.4
Good	23.9-29.4	23.9 – 29.4	23.9 – 29.4	20.5-25.2
Very good	29.5-35.0	29.5 – 35.0	29.5 – 35.0	25.3-30.0

Source : (Dwi Agus Kurniawan et al., 2019)

Table 4. Category of Student Self-Efficacy

Category	Interval Indicator		
	Behavior or attitude that is shown in the face of a task	Strong or weak belief	Assuming experience is not an obstacle
Very Not Good	4.0-7.2	5.0-9.0	5.0-9.0
Not good	7.3-10.4	10.0-13.0	10.0-13.0
Enough	10.5-13.6	14.0-17.0	14.0-17.0
Good	13.7-16.8	18.0-21.0	18.0-21.0
Very good	16.9-20.0	22.0-25.0	22.0-25.0

Source : (Hairida, 2017)

The numbers of respondents in this study were 160 students. At the time of testing to be taken are male samples and female samples. The population is the research subject as a whole which is studied in the same characteristics and place (Tegeh et al., 2020). The samples used in this study are listed in Table 5.

Table 5. Research Sample

Attitude				Self-efficacy			
VII A		VII B		VII A		VII B	
M	F	M	F	M	F	M	F
20	20	20	20	20	20	20	20

M: Male; F: Female

This study used a random sample sampling technique. Where the technique provides estimates in the form of unbiased parameters and is better used in a homogeneous population (Ning & Tao, 2020). By using this sample, the conditions that must be met in this study are random sampling because the population is homogeneous so that the sampling framework will be clearer and general in nature. So that in this test differential statistical test was carried out by testing assumptions and testing hypotheses. The assumption test used three tests, among others; the normality test is useful to find out whether the data used is normal or not, the homogeneity test is useful to find out whether the data used have the same characteristics. In the hypothesis test used there were two tests, among others. The T-test was useful in determining whether a data has an influence on the variables used and the correlation test is useful for determining whether a data has a relationship in the variables used. The first step in testing was to determine whether a data were normally distributed and homogeneous. if the data were normally distributed and homogeneous with the condition that the sig value is greater than 0.05 then it can proceed to the hypothesis testing stage (Dehadri & Dehdari, 2022).

3. RESULT AND DISCUSSION

Result

The following describes the results of descriptive statistics on students' attitudes and self-efficacy variables in science subjects. Question indicator on attitudes including social implications of science, attitudes towards science investigations, adoption of scientific attitudes, and interest in a career in science. Meanwhile the question indicators on self-efficacy including, the level of difficulty of the task, behavior or attitude shown in dealing with the task, strong or weak belief, assuming experience is not an obstacle. Where the results obtained from the distribution of questionnaires to SMP N 7 Muaro Jambi to two classes, namely class VII A and VII B.

Students' Attitudes towards Science Subjects in Grades VII A and VII B

The description of the results for the student attitude variable in accordance with the question indicators for science subjects at SMPN 7 Muaro Jambi. The description of students' attitudes towards science with indicators social implications of science and interest in a career in science is shown in Table 6.

Table 6. Description of Student Attitudes Towards Science on Indicators Social Implications of Science and Interest in a Career in Science

Student response to physics			Interval	F	Persentase	Category	Mean	Median	Min	Max
social implications of science			7.0-12.6		0%	Very Not Good				
			12.7-18.2	0	0%	Not good				
			18.3-23.8	10	50%	Enough				
		F	23.9-29.4	9	45%	Good	3.55	3.50	3.0	5.00
			29.5-35.0	1	5%	Very good			0	
	V									
	II		7.0-12.6	0	0%	Very Not Good				
	A		12.7-18.2	1	5.9%	Not good				
			18.3-23.8	5	29.4%	Enough				
		M	23.9-29.4	10	58.8%	Good	3.64	4.00	2.0	5.00
			29.5-35.0	1	5.9%	Very good			0	
			7.0-12.6	0	0%	Very Not Good				

Student response to physics			Interval	F	Persentase	Category	Mean	Median	Min	Max
			12.7-18.2	0	0%	Not good				
			18.3-23.8	10	50%	Enough				
		F	23.9-29.4	9	45%	Good	3.55	3.50	3.00	5.00
	V II B		29.5-35.0	1	5%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5.9%	Not good				
			18.3-23.8	0	0%	Enough				
		M	23.9-29.4	15	88.2%	Good	3.64	4.00	2.00	5.00
			29.5-35.0	1	5.9%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5%	Not good				
			18.3-23.8	8	40%	Enough				
		F	23.9-29.4	8	40%	Good	3.65	4.00	2.00	5.00
Attitude towards science investigations	V II A		29.5-35.0	3	15%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5.9%	Not good				
			18.3-23.8	6	35.3%	Enough				
		M	23.9-29.4	10	58.8%	Good	3.52	4.00	2.00	4.00
			29.5-35.0	0	0%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	0	0%	Not good				
			18.3-23.8	10	50%	Enough				
		F	23.9-29.4	9	45%	Good	3.55	3.50	3.00	5.00
	V II B		29.5-35.0	1	5%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5.9%	Not good				
			18.3-23.8	15	88.2%	Enough				
		M	23.9-29.4	0	0%	Good	3.88	4.00	2.00	5.00
			29.5-35.0	1	5.9%	Very good				

From the results obtained that the indicators of the social implications of science that are superior are male students from class VII B with a percentage of 88.2% in the good category. Then the indicators of Attitude towards science investigations, which are superior to male students in class VII B with a percentage of 88.2% in the good category.The description of students' attitudes towards science in grades VII A and VII B with indicators adoption pf scientific attitude and Interest in a career in science is shown in Table 7.

Table 7. Description of Student Attitudes Towards Science on Indicators Adoption of Scientific Attitude And Interest in a Career in Science

Student response to physics			Interval	F	Persentase	Category	Mean	Median	Min	Max
			8.0-14.4	0	0%	Very Not Good				
			14.5-20.8	0	0%	Not good				
			20.9-27.2	11	55%	Enough				
		F	27.3-33.6	6	30%	Good	3.60	3.00	3.00	5.00
	V I I A		33.7-40.0	3	15%	Very good				
Adoption of scientific attitude			8.0-14.4	0	0%	Very Not Good				
			14.5-20.8	0	0%	Not good				
			20.9-27.2	3	27.6%	Enough				
		M	27.3-33.6	14	82.4 %	Good	3.80	4.00	3.00	4.00
			33.7-40.0	0	0%	Very good				
			8.0-14.4	0	0%	Very Not Good				

Student response to physics			Interval	F	Persentase	Category	Mean	Median	Min	Max
			14.5-20.8	0	0%	Not good				
			20.9-27.2	12	60%	Enough				
		F	27.3-33.6	4	20%	Good	3.60	3.00	3.00	5.00
	V I I B		33.7-40.0	4	20%	Very good				
			8.0-14.4	0	0%	Very Not Good				
			14.5-20.8	0	0%	Not good				
			20.9-27.2	8	47.1%	Enough				
		M	27.3-33.6	9	52.9%	Good	3.52	4.00	3.00	4.00
			33.7-40.0	0	0%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5%	Not good				
			18.3-23.8	5	25%	Enough				
		F	23.9-29.4	14	70%	Good	3.6	4.00	2.00	4.00
			29.5-35.0	0	0%	Very good				
Interest in a career in science	V I I A		7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5.9%	Not good				
			18.3-23.8	9	52.9%	Enough				
		M	23.9-29.4	7	41.2%	Good	3.35	3.00	2.00	4.00
			29.5-35.0	0	0%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	2	10%	Not good				
			18.3-23.8	12	60%	Enough	3.20	4.00	3.00	4.00
		F	23.9-29.4	6	30%	Good				
	V I I B		29.5-35.0	0	0%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5.9%	Not good				
			18.3-23.8	5	29.4%	Enough				
		M	23.9-29.4	10	58.8%	Good	3.64	4.00	2.00	5.00
			29.5-35.0	1	5.9%	Very good				

Table 7 shows that the adoption indicator of scientific attitude and attitude is superior to male students in class VII A with a percentage of 82.4% in the good category. Meanwhile, from the indicators of Interest in a career in the field of Science, attitudes that are superior to female students in class VII A with a percentage of 70% good categories.

Student Self-Efficacy Against Science Subjects in Class VII A and VII B

The description of the results for the student self-efficacy variable according to the question indicators for science subjects at SMPN 7 Muaro Jambi. The description of students' self-efficacy towards science with indicators of behavior or attitudes shown in dealing with tasks and the strength and weakness of beliefs is shown in Table 8.

Table 8. Description of Students' Self-Efficacy Towards Science on Indicators of Behavior or Attitudes Shown in Dealing with Tasks and Strength and Weakness of Beliefs

Student response to physics			Interval	F	Persentase	Category	Mean	Median	Min	Max
			4.0-7.2	0	0%	Very Not Good				
			7.3-10.4	4	20%	Not good				
			10.5-13.6	11	55%	Enough				
		F	13.7-16.8	5	25%	Good	3.05	3.00	2.00	4.00
behavior or	V		16.9-20.0	0	0%	Very good				
			4.0-7.2	0	0%	Very Not Good				

Student response to physics			Interval	F	Persentase	Category	Mean	Median	Min	Max
attitudes shown in dealing with assignments	II A	M	7.3-10.4	0	0%	Not good				
			10.5-13.6	6	42.9%	Enough				
			13.7-16.8	7	50%	Good	3.64	4.00	3.00	5.00
			16.9-20.0	1	7.1%	Very good				
		F	4.0-7.2	0	0%	Very Not Good				
			7.3-10.4	1	5%	Not good				
			10.5-13.6	10	50%	Enough				
			13.7-16.8	8	40%	Good	3.45	3.00	2.00	5.00
	VII B		16.9-20.0	1	5%	Very good				
		M	4.0-7.2	0	0%	Very Not Good				
			7.3-10.4	2	14.3%	Not good				
			10.5-13.6	7	50%	Enough				
			13.7-16.8	5	35.7%	Good	3.21	3.00	2.00	4.00
			16.9-20.0	0	0%	Very good				
		F	7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5%	Not good				
			18.3-23.8	5	25%	Enough				
			23.9-29.4	14	70%	Good	3.6	4.00	2.00	4.00
			29.5-35.0	0	0%	Very good				
strong or weak belief	VII A	F	7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5.9%	Not good				
			18.3-23.8	9	52.9%	Enough				
			23.9-29.4	7	41.2%	Good	3.35	3.00	2.00	4.00
			29.5-35.0	0	0%	Very good				
		F	7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	2	10%	Not good	3.20	4.00	3.00	4.00
			18.3-23.8	12	60%	Enough				
			23.9-29.4	6	30%	Good				
	VII B		29.5-35.0	0	0%	Very good				
			7.0-12.6	0	0%	Very Not Good				
			12.7-18.2	1	5.9%	Not good				
			18.3-23.8	5	29.4%	Enough	3.64	4.00	2.00	5.00
		M	23.9-29.4	10	58.8%	Good				
			29.5-35.0	1	5.9%	Very good				

From the results obtained in Table 8, it is found that the indicators of behavior or attitudes shown in dealing with assignments are superior to male students in class VII A with a percentage of 50% in the good category. While the indicators of strong and weak beliefs are superior to female students. class VII A with a percentage of 70% good category. Furthermore, students' self-efficacy towards science with experience indicators is not a barrier in grades VII A and VII B as shown in Table 9.

Table 9. Description of Students' Self-Efficacy towards Science Assuming Experience

Student response to physics			Interval	F	Persentase	Category	Mean	Median	Min	Max
			5.0-9.0	0	0%	Very Not Good				
			10.0-13.0	1	5%	Not good				
			14.0-17.0	5	25%	Enough				
		F	18.0-21.0	14	70%	Good	3.10	3.00	2.00	4.00
Assuming experience	VII A		22.0-25.0	0	0%	Very good				
			5.0-9.0	1	7.1%	Very Not Good				
			10.0-13.0	1	7.1%	Not good				

Student response to physics		Interval	F	Persentase	Category	Mean	Median	Min	Max
e is not a barrier		14.0-17.0	8	57.1%	Enough				
	M	18.0-21.0	3	21.4%	Good	3.14	3.00	1.0	5.00
		22.0-25.0	1	7.1%	Very good			0	
		5.0-9.0	0	0%	Very Not Good				
		10.0-13.0	1	5%	Not good				
		14.0-17.0	11	55%	Enough	3.35	3.00	2.0	4.00
	F	18.0-21.0	8	40%	Good			0	
V		22.0-25.0	0	0%	Very good				
II		5.0-9.0	0	0%	Very Not Good				
B		10.0-13.0	1	7.1%	Not good				
		14.0-17.0	8	57.1%	Enough				
	M	18.0-21.0	5	35.7%	Good	3.28	3.00	2.0	4.00
		22.0-25.0	0	0%	Very good			0	

From the results of Table 9, it is shown that the experience indicator is not a barrier which is superior to the female students of class VII A with a percentage of 70% in the good category compared to other class students. The percentage is greater than the sufficient category.

Analysis Prerequisite Test
The data is normally distributed as seen from the significance value, if the significance value is > 0.05. The results of the normality test are shown in Table 10.

Table 10. Normality Test of Attitudes and Self-Efficacy of Class VII A and VII B Students

Tests of Normality						
	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
Data	**Statistic**	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Attitudes A	0.082	37	0.200	0.970	37	0.397
Attitudes B	0.127	37	0.137	0.959	37	0.185
Self-Efficacy A	0.128	34	0.172	0.944	34	0.083
Self-Efficacy B	0.122	34	0.200*	0.977	34	0.684

From the results obtained in Table 10, the data tested were normally distributed, it was found that the attitudes of students from class VIIA and VIIB were respectively tested for normality with the Kolmogorov-Smoniv test with a significance value of 0.200 > 0.05 and 0.137 > 0.05. While the self-efficacy of students from class VIIA and VIIB each Kolmogorov-Smirnov significant value is 172 > 0.05 and 200 > 0.05. Linearity test is done in order to see the linear relationship between two or more variables. The conditions for this test, if the significance value is > 0.05. The results obtained are shown in Table 11.

Table 11. Linearity Test of Attitudes and Self-Efficacy of Class VII A and VII B Students

Data			**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Self-Efficacy* Attitudes_ A	Between Groups	(Combined)	1551.167	19	81.640	3.045	0.998
		Linearity	319.504	1	319.504	11.918	0.315
		Deviation from Linearity	1231.663	18	68.426	2.552	0.980
	Within Groups		375.333	14	26.810		
	Total		**1926.500**	**33**			
Self-Efficacy* Attitudes_ B	Between Groups	(Combined)	696.363	18	38.687	1.652	0.165
		Linearity	3.471	1	3.471	0.148	0.706
		Deviation from Linearity	692.892	17	40.758	1.741	0.143
	Within Groups		351.167	15	23.411		
	Total		**1047.529**	**33**			

Based on Table 11, it is found that there is a linear relationship between attitudes and self-efficacy in grades VII A and VII B with each significant value of deviation from linearity of 0.980 > 0.05 and 0.143 > 0.05. This is in accordance with the conditions that have been determined. Homogeneity test is carried out in order to find out whether the x and y data are homohen or not. The requirement in this test is that if the significance value is > 0.05, it can be said that the x and y data are homogeneous (same). If the significance value is < 0.05 then the data is not homogeneous (not the same). The results obtained are shown in Table 12.

Table 12. Attitude Homogeneity Test and Self-Efficacy of Class VII A and VII B Students

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
ATTITUDES	Based on Mean	0.075	1	72	0.785
	Based on Median	0.146	1	72	0.704
	Based on Median and with adjusted df	0.146	1	71.991	0.704
	Based on trimmed mean	0.132	1	72	0.717
SELF-EFFICACY	Based on Mean	1.078	1	66	0.303
	Based on Median	0.998	1	66	0.321
	Based on Median and with adjusted df	0.998	1	56.868	0.322
	Based on trimmed mean	1.049	1	66	0.309

Based on Table 12, it can be concluded that the variance of the two variables is the same or homogeneous with the results obtained from the linearity test that the significance value based on the mean is 0.785 and 0.717 has met the requirements > 0.05.

Hypothesis Test

This test was carried out in order to be able to find out the difference between the variables in science subjects. The condition in this test is if the significance value is > 0.05, it can be said that the variable has differences. If the significance value is <0.05, then the variable does not have a significant difference. The T-test from the results of the attitude and self-efficacy questionnaires of students in grades VII A and VII B is described as shown in Table 13.

Table 13. T-Test Attitudes and Self-Efficacy of Class VII A and VII B Students

VARIABLE	Sig.	Sig. (2-tailed)
Attitudes A	0.789	0.008
Attitudes B	0.413	0.030
Self-Efficacy A	0.348	0.042
Self-Efficacy B	0.659	0.015

From Table 13, it is found that there are differences in the attitudes of female students and male students in grades VIIA and VII B towards science subjects. This is proven by each class with a value of sig (2-tailed) 0.008 < 0.05 and 0.030 < 0.05. Meanwhile, on self-efficacy, it was found that there were differences in self-efficacy between female students and male students in grades VIIA and VII B towards science subjects. This is proven from each class with a sig (2-tailed) value of 0.042 < 0.05 and 0.015 < 0.05. Correlation test it is carried out in order to determine the relationship of the variable to science subjects. The condition in this test is if the significance value is > 0.05, it can be said that the variable has no relationship. If the significance value is <0.05, then the variable has a significant relationship. The correlation test of attitudes and self-efficacy of students in grades VII A and VII B has been described as shown in Table 14.

Table 14. Attitude Correlation Test and Self-Efficacy for Class VII A and VII B

Gender	Class	N	Pearson Corelation	Sig. (2-failed)
Female	7A	20	0.690	0.022
Male		20	0.639	0.013
Female	7B	20	0.657	0.012
Male		20	0.651	0.003

In Table 14 it is found that there is a relationship between attitudes and self-efficacy of female and male students in class VII A towards science subjects. This is evidenced by the value of sig (2-failed) for each gender 0.022 < 0.05 and 0.013. While in class VII B there is a relationship between attitudes and self-efficacy of female and male students towards science subjects. This is evidenced by the sig (2-failed) score for each gender of 0.012 < 0.05 and 0.003 < 0.05.

Discussion

Descriptive statistics itself is the most basic data analysis process with a focus on data management, presentation and classification. From the results of the table that has been presented, it can be concluded that the social attitude indicators of science are superior to male students compared to female students' attitudes. The same applies to indicators of attitudes towards science inquiry and adoption of scientific attitudes. When it comes to the Interest in a career in science indicator, the results show that for class VIIA, female students are superior, while in class VII B, male students are superior to female students. From the results of the data obtained using descriptive statistics with self-efficacy variables on 3 question indicators. It is obtained that the indicators of behavior or attitudes shown in dealing with assignments in class VII A are superior to female students and for class VIIB are superior to male students. With strong and weak indicators of belief, the male students who are superior to self-efficacy are male students. As for the indicator that experience is not a barrier, it is female students.

In the assumption test, there are normality tests, linearity tests, and homogeneity tests. From the three tests, it is known that the attitude and self-efficacy data are normal, linear and homogeneous data. Testing the hypothesis there is a T test and a correlation test to see the differences and relationships between variables. From the data generated in the test, it is known that the attitude variable has a significant difference in student attitudes between classes and there is a relationship between attitude and self-efficacy in class VII A. For the self-efficacy variable, the results show that there is a significant difference between students' self-efficacy with their eyes. science lessons between classes and the relationship between attitudes and self-efficacy of students in class VIIB. From this statement, it can be seen from the knowledge possessed by each student, the response or reaction to the lesson and the students' readiness to behave towards science subjects.

From the results described, this study is in accordance with the theory where students' attitudes are generally related to the beliefs/feelings of each individual which are stable and difficult to change (D. A. Kurniawan et al., 2019). Attitude makes students to think and express expressions about science. In addition, attitudes make students have a tendency to pattern in action against a certain stimulus which is always oriented to science (Saregar et al., 2017). Thus, attitude is one of the effects of students' self-efficacy in learning. Self-efficacy is generally a belief in ability which is a form of attitude so that it can trigger the achievement of optimal learning outcomes (H. Hendriana & Kadarisma, 2019). In previous research it is explained that self-efficacy is focused on belief in carrying out tasks well related to situational perspectives (Jannah et al., 2019). So it can be said that from the results of hypothesis testing that attitudes and self-efficacy have a relationship, the influence on students for science learning.

This study is in line with previous research on attitudes. However, previous studies have shortcomings in the variables tested. Such as showing the Development of Scientific Project-Based Learning Innovations in Improving Attitudes towards Science for Junior High School Students (Heris Hendriana & Kadarisma, 2019). In this regard, previous research has also developed a critical attitude. A critical attitude can be achieved if students have critical thinking skills which in the test there are still lacking aspects that need attention. Then this study is in line with previous research on self-efficacy. However, previous research has shown the importance of the quality of support provided rather than its quantity, such as the level of knowledge that the support provider has during the parenting process. In addition, parental limitations are not the main determinant of parenting self-efficacy (Mafaza et al., 2018). Previous research tested the relationship between self-efficacy and student achievement, the effect of self-efficacy on the mathematical communication skills of junior high school students (Jannah et al., 2019). So from previous studies, it can be summarized about the concept of self-efficacy for students between classes.

The essence of this research discusses the differences and relationships on attitudes and self-efficacy of students between genders and classes. In other words, these differences and relationships describe students' self-efficacy attitudes towards science subjects. It is known that there are differences and relationships of attitudes and self-efficacy that have been tested starting from between genders and classes. The drawback of this research is that it only measures attitudes and self-efficacy in students, yet testing with other variables such as interest, motivation and others has not been carried out. This study has limitations that the data studied are only from grade 7 and have not studied grades 8 to 9 and have not

measured in the cognitive and psychomotor fields So it is advisable to read other articles that contain other variables.

4. CONCLUSION

With the results obtained that there is a comparison between female students and male students on each indicator. Students' attitudes and self-efficacy towards science learning are categorized as good enough for both female and male students. The results of the tests that have been carried out in this study also show that there are differences and relationships between attitudes and self-efficacy on the gender of students. However, most of the students' attitudes have a category that tends to be quite good. Students who have high self-efficacy choose to try harder and are not easily discouraged. Meanwhile, students who have low self-efficacy tend to have difficulty in solving problems. In addition, a person's self-efficacy has a great influence on attitudes, meaning that the higher a person's self-efficacy towards his abilities, both in curiosity, critical thinking, perseverance and so on. In this study, there are limitations that have not been carried out by researchers such as the variables used are only attitudes and self-efficacy. Researchers have not tested the variables of motivation, interest and others. In addition, only students from class VII were tested and there was no test for students from class VIII and IX. Therefore, it is recommended for readers to read other studies related to this research in order to complete their insights.

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