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# The Effect of Scientific Attitude and Motivation to Learn the Creative Thinking Skills of SMA/MA Student in Montong Gading Lombok Timur

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Abstract The study air to describe the effect of (1) the scientific stance on creative thinking skills; (2) The motivation to learn to creative thinking skills; (3) The scientific stance and motivation to learn together towards the creative thinking skills of high school students in Montong Gading district. This type of research is a quantitative study of expost facto with the population is the entire grade XII students of MIPA SMA/MA in District of Montong Gading amounted to 225 students. Sampling using Multistage sampling received

facto with the population is the entire grade XII students of MIPA SMA/MA in District of Montong Gading amounted to 225 students. Sampling using Multistage sampling received a sample of 104 students, which was calculated using the Slovin formula. Collection of data by spreading scientific attitude, motivation to learn and about test of creative thinking skills. The results of the validity test shows a questionnaire and a valid test problem with a scientific attitude of the civility (0.822) very high, the learning motivation (0.81) is very high and the problem of creative thinking skills Test (0.57) is quite high. The results of data analysis using correlation and regression techniques indicate (1) there is a positive and significant the effect of scientific attitudes towards creative thinking skills with a rxy value of 0.5, a medium relationship category and an acquired value Fcount =  $32.24 \ge 6$  abel = 3.92 at 5% error level. (2) There is a positive and significant the effect of motivation to learn to creative thinking skills with the value of Rxy = 0.78, Catagori of

3.92 at 5% error level. (3) There is a positive and significant the effect of scientific attitudes and motivation to learn together towards the creative thinking skills of students with the value of Rxy = 0.786, obtained the value of Fcount =  $81.109 \ge \text{Ftabel} = 3.94$  at a significant level of 5%. Scientific attitude contributes 25% and motivation to learn 61.85% towards creative thinking skills.

Keywords: scientific attitude, learning motivation and creative thinking skill

strong relationship and value 8f Fcount =  $163.76 \ge Ftabel$  =

#### 1. Introduction

Global change is felt faster. The change has an impact on all development sectors including education. Education in the 21st century encourages the young generation to be able to develop its potential by continuously innovating and working so that it can remain survive in the face of the competition of Globalization [1-2]. So the young generation needs to develop the competence of 21st century. One of the 21st century competencies that needs to be possessed is creative thinking. The importance of developing students 'creativity because of the high level of thinking is not only needed in the learning process but also necessary for the application in daily life [3-4].

Chemistry as one of the subjects that need to be mastered by high school learners can be used as a platform to develop creative thinking skills. 24 ativity in chemical learning is necessary in resolving challenging problems, questions relating to the application of chemistry in daily life.

Based on the results of interviews with high school chemistry teacher in Montong Gading Subdistrict that teachers have done various of his reward to optimize the learning process and creative thinking skills of one of them by developing a learning model, but the results are not maximally. This statement is supported by the value of creative thinking skills of SMA/MA students in the sub-district of Montong Gading in June 2019 on several students by giving about creative thinking skills. Obtained the following values:

Table 1 The value of high school students' creative thinking skills in Montong Gading district

No	Scores The Value Of Students' Co Thinking Skills	Creative	
1	Highest Value	65	
2	Lowest Value	5	
	Rata-rata	42.5	

(Documentation)

The average value earned belongs to the low category. So it is worth noting that the efforts undertaken by the teacher will not mean if the learners have no attitude and motivation in learning.

Attitudes that students need to have in the science learning process are scientific attitudes. Scientific attitudes are one form of intelligence that is owned by each individual in science learning. More scientific attitudes lead to the attitude of students in the science process such as practicum. There are at least four types of attitudes that need to get noticed in the development of scientific attitudes of elementary school students: (1) attitudes towards work in school, (2) attitudes towards themselves as students, (3) attitudes towards the sciences Knowledge, especially science, and (4) attitudes towards objects and events in the surroun tipe environment [5].

Motivation is the change of energy within a person marked by the onset of feelings and reactions to achieve the goal. Learning Motivation is a student's tendency in conducting learning activities driven by the desire to achieve the best possible outcomes or learning results. Motivation-Learning traits as follows: (1) diligent; (2) Self-reliant; (3) may retain opinions; (4) Glad to solve the problem; (5) Resilient in the face of difficulties [6].

Attitudes will be defined after the motivation, so it is said that attitude is one of the internal factors that influence motivation. Motivation can be stimulated by outside factors but that motivation grows within one's self. It is often seen that high motivation will likely produce or form a positive attitude.

The development of child creativity can be influenced by physical environment and psychic environment. Psychic environment There are two kinds of intellectual and nonintellectual. Attitudes and

motivation are included into a non-intellectual psychic environment. Thus attitude and motivation are factors of non-intellectual psychic factors that can affect creativity [7].

The characteristics of talented children are mononjol in mental readiness, desire to learn, great self-concentration, high reasoning power, ability to ask good questions, show interest The highest, independent in providing consideration and can give an accurate and direct answer. From the features described can be concluded that among scientific attitudes, the motivation to learn with creative thinking skills has a relationship. This is evidenced by the characteristics of creative children according to the indicator of scientific attitudes and motiavsi belajat. So that it can be concluded if the students have a scientific attitude and a good motivation to learn then it can be said that the student has had the characteristics of creative children [8].

There is a difference in learning performance and creativity or learners who have a high and low scientific stance. Similarly, the research demonstrates a significant relationship between the motivation to learn by creative thinking mathematically in grade VII students with a strong level of relationship [9-10].

Based on the background that has been displayed about creative thinking skills, scientific attitudes, and learning motivation. Researchers are interested in conducting research by lifting the title, "influence of scientific attitude and motivation to learn to creative thinking skills in high school/MA students in District of Montong Gading East Lombok".

### 2. Research Methods

This type of research is an ex-post facto quantitative study. The sample floated technique in this study is multistage sampling or double gradual sample sampling. The first sampling stage with regional considerations is the city area and suburbs. Therefore, three schools are SMAN 1 Montong Gading, SMAS Ulil Albaab Lendang Jaran and MAS NW Perian. The research population is 225 students, after passing the consideration stage on the basis of the area so that taken 3 schools with the number of students 140. To get a sample of the proportion used the formula of Slovin and the error level 5%, so it obtained 104 Students.

The research variables used in this study are attribute variables and bound variables. The scientific stance and motivation learns as attribute variables and creative thinking skills as a bound variable. The research instruments used in this research include poll or questionnaire and test problems. Poll instruments are used to obtain data from scientific a judes and learning motivation while the test problem is used for variables of creative thinking skills. The Likert scale is a scale used to measure a person's attitudes, opinions and perceptions of a particular symptom or phenomenon.

The validity tests used in this study were expert validity and empirical validity tests. Results of empirical validity calculated using the correlation of product moment Pearson price 10 scientific stance poll statements, 10 expressions of motivational learning and a matter test of the creative thinking skills are valid. The results of instrument reliability test using an alpha formula of Cronbach obtained the value of realistic poll of scientific attitudes (0.822) with very high category, learning Motivation (0.812) very high category and problem Test creative thinking skills (0.57) Category quite high. Thus the instruments have been developed worthy to be used in this study.

The prerequisite test uses a test of normality, linearity and multicolinearity while the hypothesis test uses regression and correlation analysis [9]. Based on the results of scientific stance data calculation (X1) acquired  $\chi 2$  count = 9.978, Learning motivation (X2)  $\chi 2$  count = 4.78 and test Creative thinking Skills (Y) acquired  $\chi 2$  count = 12.25. The value of Chi-squared which is obtained from these three variables is smaller than the Chi-squared table i.e. 14.067, thus the data is normal distribution.

Results obtained from the test linearity at a significant level of 5% show the results of the test linearity X1 (scientific attitude) with Y (creative thinking skills) of Fcount = 1.11 and linearity X2 (learning motivation) with y of Fcount = 1.65. The test linearity results show the values of the Fcount are both smaller than Ftabel = 1.68, with so X1 with Y linear and X2 with Y linear.

Multicolinearity tests are used to determine whether the connection between the free variables occurs multicholinerity or not. Because, when there is a multicholinerity between the free variables, we cannot continue the correlation test and the double regersi. The result of this test is rx1x2 = 0.6 smaller 0.8 so that it can be inferred does not occur multicolinearity between free variables.

# 3. Results And Discussion

Data of the results of this study was obtained from 104 samples from 225 populations. Samples were taken from three schools in the district of Montong Gading namely SMAN 1 Montong Gading, SMAS Ulil Albaab Lendang Jaran and MAS NW Periat 21 he data collected includes scientific attitudes and learning motivation by using the questionnaire and the data of the students ' creative thinking skills by writing about the test.

The first Test uses a simple correlation analysis. The results are simple correlation using the Pearson formula product moment.

Table 2. The Correlation Analysis Results Of Pearson Product Moment

Variable	Correlation coefficient of product moment	Correlation level
Scientific attitudes (X1) with creative thinking skills	0,5	Medium

Based on the correlation coefficient that has been obtained, obtained coefficient of determination by 25%. This means that, the student's scientific stance contributes by 25% to creative thinking skills and the remaining 75% is determined by another variable. Then test the significance of the correlation using T test which aims to look for the variable meaning of the scientific attitude to the variables of creative thinking skills.

Table 3 Analysis Results Test T

Variable	T <sub>count</sub>	$\mathbf{t_{table}}$	Information
Scientific attitudes (X1) with creative thinking skills	5.678	1.98	Ho rejected, significant meaning

Thus Ho is rejected which means there is a significant link between the scientific attitude with the students 'creative thinking skills. Scientific attitudes are important as one of the factors that support learners to achieve learning objectives, especially in scientific learning such as chemistry. Scientific attitudes in science learning are often associated with attitudes towards science. It is in accordance with chemical characteristics as part of natural science, chemical learning should reflect scientific attitudes, scientific thinking, and scientific working skills. So scientific attitudes can effect the creativity of learners

who are in line with educational objectives. The second Test uses a simple correlation analysis. The results are simple correlation using the Pearson formula product moment.

Table 4 Results Analysis of Pearson Product's correlation

Variable	Correlation coefficient of product moment	Correlation level
Motivational Learning (X2) with creative thinking skills	0.786	Strong

Based on the correlation coefficient obtained, a coefficient of determination amounted to 61.85%. This means that, the student's motivation for learning contributes 61.85% to creative thinking skills and the remaining 38.2% is determined by another variable. Then test the significance of the correlation using T test which aims to look for the variable meaning of the scientific attitude to the variables of creative thinking skills.

Table 5 Test analysis results t

Variable	$T_{count}$ $t_{table}$ Inform		Information
Learning Motivation (X2) with Creative Thinking Skills	12.796	1.98	Ho is rejected, meaning significant

So Ho rejected, which means there is a positive relationship (with the level of strong relationship) and significant between student motivation (X2) with creative thinking skills (Y) in high school / MA audents in Montong Gading District. Motivation and learning are two things that influence each other. Students who have strong to tivation will have a lot of energy to carry out learning activities. So that with high learning motivation will have an impact on optimal learning outcomes and skills. This statement is reinforced one of the factors that influence creative thinking is an internal state that drives a person to maintain a behalf or. The results of this study are also supported by research conducted. The results of the study indicate that there is a positive and significant relationship between creative thinking skills and learning motivation with learning outcomes of 0.616. The third test in this study uses a multiple correlation technique (Multiple Correlate). The table below presents the results of multiple correlation analysis (R).

Test the significance of the correlation using the F test thich aims to find the meaning of the relationship of the X1X2 variable together against the Y variable. The results of the analysis are presented in the following table:

Table 7 Test Analysis Results F

Variable	$\mathbf{F}_{\mathbf{count}}$	$\mathbf{F}_{table}$	Information
Scientific attitude (X1) and learning motivation (X2) with creative thinking skills	81.109	3.09	Ho is rejected, meaning significant

Frount> Ftable, then Ho is rejected, which means there is a positive relationship (with the level of strong relationship) and significant between scientific attitude variables (X1) and student motivation (X2) together with the creative thinking skills of students (Y) in high school students / MA in Montong Gading District.

The fourth test using simple regression analysis of scientific attitudes towards creative thining skills obtained the following equation:

$$Y = 2.204 + 1.68X1$$

From this equation it can be seen if the value of the scientific attitude variable is raised by 1 point, the value of creative thinking skills will increase by 1.68. Here is a graph of the equation of the regression line between scientific attitudes and creative thinking skills:

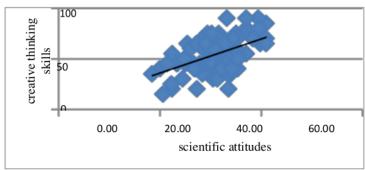


Figure 1 Equation Line Regression Scientific Attitudes with Creative Thinking Skills

The purpose of this test is to see the meaning of the influence given by the variable X1 (scientific attitude) to the Y variable (creative thinking skills). The calculation results obtained by the F test results with a value of Fcount = 32.24 greater than Ftable = 3.92, then Ho 5 rejected, which means there is a positive and significant effect between scientific attitudes and creative thinking skills of high school / MA students in Montong Gading District. The fifth test using simple regression analysis of learning motivation towards creative thinking skills obtained the following equation:

$$Y = -19.8 + 2.598X2$$

From the equation it is known that if the value of learning motivation is increased by 1 point, the creative thinking skills will increase by 2,598. Here is a graph of the regression equation learning

motivation with creative thinking skills.

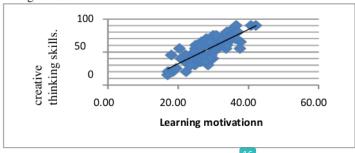


Figure 2 Equation of Learning Motivation Regression Lines with Creative Thinking Skills

Furthermore, the results of se significance of the regression coefficient show that Fcount = 163.76 is greater than Ftable = 3.92, so Ho is rejected. This means that there is a significant influence between learning motivation on students' creative thinking skills.

The sixth test uses a multiple regression analysis of scientific attitudes and learning motivation towards creative thinking skills obtained by the following equations:

$$Y = -19,18 - 4,77X1 + 2,62X2$$

From the equation it is known that if the value of scientific attitude is increased by 1 point, the creative thinking skills will decrease by 4.77 assuming the value of X2 remains. Whereas if the value of learning motivation is increased by 1 point, creative thinking skills will increase by 2.62. Next is a graph of the equation of the regression line of scientific attitudes and learning motivation towards students' creative thinking skills

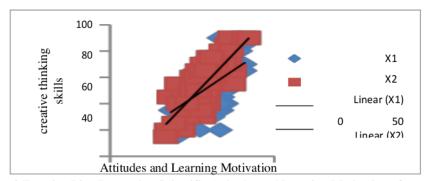


Figure 3 Equation Line Regression Scientific Attitudes and Learning Motivation of Students' Creative Thinking Skills

The regression equation obtained is used to test the significance of regression using the F test. The purpose of this test is to see the meaning of the influence given by the variables X1 (scientific attitude) and X2 (motivation to learn) on the variable Y (creative thinking skills). The 3 culation results obtained by the F test results with a value of Fcount = 81.10 greater than Ftable = 3.92, th 5 Ho is rejected, which means there is an effect and significant between scientific attitudes and creative thinking skills of high school / MA students in Montong Gading District.

The results of this study also obtained the percent contribution of the independent variable to the

dependent variable. The scientific attitude variable contributed 25% and learning motivation contributed 61.85% to creative thinking skills.

There are differences in the contributions contributed by the variables of scientific attitude and learning motivation towards creative thinking skills. Scientific attitude contributed 25% while learning motivation contributed 61.85%. The difference is based on how attitudes and motivations can be formed in the school environment or outside the school. According to Mar'at (1984) attitude is a product of the process of socialization in which a person reacts according to the stimuli he receives. While the scientific attitude is an attitude that must be legally owned by a practitioner, a scientist or an academic in the process of research or experiment.

Scientific attitude is an attitude obtained by an individual due to stimuli received in the research or experimental process. Based on interviews with chemistry subject teachers in SMA / MA in Montong Gading Subdistrict, teachers rarely do practical activities due to the unavailability of practical tools and materials, so the teacher only conducts the learning process using the demonstration method. This is the reason that scientific attitudes contribute less than learning motivation.

Student learning motivation arises due to encouragement from within the students themselves but can be stimulated by external factors. One of them is the outside factor is family. The family becomes one of the stimuli from outside that forms student traditivation. With the full support of the family to continue learning, students will have high motivation. Based on the results of interviews with high school / MA students in Montong Gading District, it can be seen that their motivation for schooling stems from their own desires, following friends and their parents' wishes.

Apart from family and friends motivation factors can also be formed 19m the learning process. The learning process carried out by the teacher will have good results if it is able to provide high learning motivation for students. The existence of high learning motivation in students will be an encouragement to continue learning and develop the potential that exists in him. The existence of high learning motivation in students is a requirement that students are motivated by their own willingness to overcome the various learning difficulties faced, and further students will be able to learn independently. That way, creativity can be shaped by high motivation to learn [11-12].

# 4. Conclusion

## Based on the results of the research and discussion described, it can be concluded that:

- 1. There is a positive and significant effect between scientific attitude and creative thinking skills of high school / MA students in Montong Gading District. The value of rxy obtained was 0.5 which means a positive relationship and there was a correlation in the medium category. Where, scientific attitude variables contribute to students' creative thinking skills by 25% and the remaining 75% are influenced other variables not examined in this study
- 2. There is a positive and significant effect between learning motivation and creative thinking skills of high school / MA students in Montong Gading District. The value of rxy obtained was 0.786, which means a positive relationship and there was a correlation with the strong category. Where, the variable of learning motivation contributes to creative thinking skills by 61.86% and the remaining 38.14% is determined by other variables not examined in this study.
- 3. Shere is a significant effect between scientific attitude and learning motivation together on the creative thinking skills of high school / MA students in Montong Gading District. The value of rx1x2y obtained was 0.7865, which means a positive relationship and there was a correlation with the strong category

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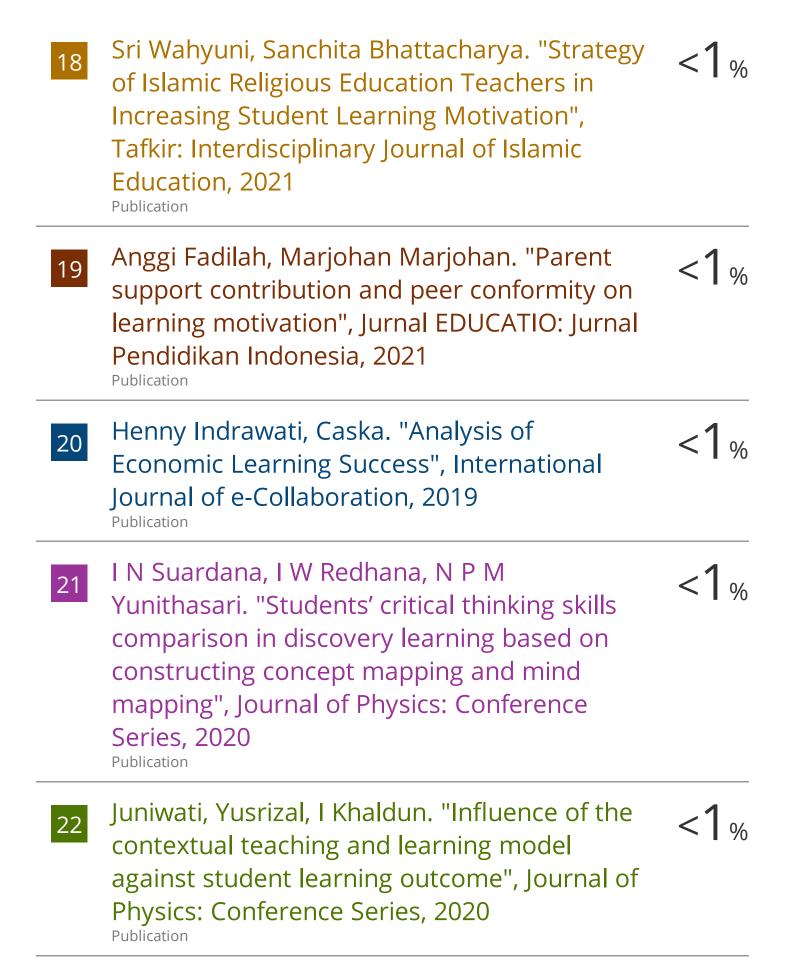
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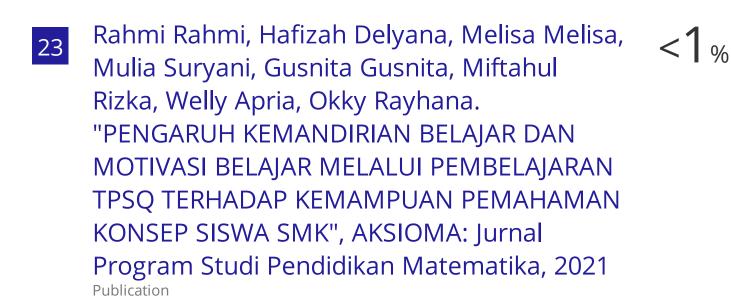
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