The Relationship between Science Literacy Ability and Scientific Attitude with Biology Learning Outcomes through Scientific Approach and Student Retention Class XII MAN Tapanuli Selatan

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Abstract

This study aims to determine: The positive relationship between (1) scientific literacy skills and student learning outcomes (2) scientific attitudes and student learning outcomes (3) scientific literacy skills with student retention (4) scientific attitudes with student retention (5) scientific literacy skills and scientific attitudes with the learning outcomes of students' biology (6) scientific literacy abilities and scientific attitudes and retention of class XII students. This research was conducted at MAN Tapanuli Selatan in 2020. The research method is descriptive linear regression correlational research method with a research sample of 110 students who were determined by total sampling (total sample). The research instrument consisted of a scientific literacy ability test, a questionnaire on students' scientific attitudes, a test of student learning outcomes and retention. The instruments used had been tested for validity, reliability, difference power and degree of difficulty. The research data were analyzed using simple and multiple linear regression analysis techniques using the SPSS 21.0 for windows program. The results showed: There is a positive relationship between (1) scientific literacy skills and student learning outcomes with $r2 = 48.6\%$ (2) Scientific attitudes and student learning outcomes with $r2 = 11.6\%$ (3) Science literacy skills with student retention $r2 = 58.7\%$ (4) Scientific attitude with student retention with $r2 = 13.7\%$ (5) Scientific literacy ability and scientific attitude with student learning outcomes with $R2 = 49\%$ (6) Scientific literacy skills and attitudes scientific and student retention $R2 = 59.2\%$ in class XII MIA MAN Tapanuli Selatan.

I. Introduction

Currently, the position of the quality of Indonesian students in the international world in terms of scientific literacy skills is very low. This can be seen from the results of the mapping of Trends in International Mathematics and Science Studies (TIMSS) in 2011 in the field of scientific literacy, Indonesia is ranked 40th out of 42 countries. The results of the 2012 Program for International Student Assessment (PISA) mapping published by the Organization for Economic Co-Operation and Development (OECD) also show that Indonesia is ranked 64th out of 65 countries.

Along with the advancement of science and technology, there are also many approaches, strategies, methods, learning models that support learning biology to be better, one of the most basic and commonly applied in biology learning is the scientific approach. The scientific approach is a learning process in which students are left to build their own knowledge of a biological phenomenon through the stages of observing, proposing hypotheses, collecting data, drawing conclusions and relating them to existing theories. A scientific approach is highly recommended in the implementation of the 2013 curriculum. This is regulated in Permendikbud No. 65 of 2013 concerning Basic and Secondary Education Process Standards. The application of the 2013 Curriculum in learning with a scientific approach is a learning process designed in such a way that students actively construct concepts, laws or principles, because in learning, the scientific approach touches all aspects of developing student abilities, namely cognitive, attitude, and psychomotor aspects.

The development of attitudes and behavior in students is also important in learning. Scientific approach and scientific literacy skills are also closely related in shaping scientific attitudes in students. Through the scientific approach, students are expected to have an honest, critical, flexible, cooperative attitude and have high curiosity which are aspects of a scientific attitude. Scientific attitudes play an important role in students' decisions to further develop scientific knowledge, pursue careers in science, and use scientific concepts and methods in their lives. That way, PISA's view of scientific literacy abilities is not only proficiency in science, but also how they characterize science.

Based on preliminary observations the scientific attitude is quite low. This can be seen from the lack of enthusiasm of students in learning, it can be seen that students rarely ask questions, students are not serious in carrying out practicum, but there has not been an examiner to measure the level of students' scientific attitudes so that there is no quantitative data on scientific attitudes in class XII MIA students. at MAN Tapanuli Selatan.

Good retention power is one of the needs of every student to learn optimally. This is because student learning outcomes in schools are measured based on students' mastery of subject matter, the process is inseparable from remembering activities. So with a good memory, students will be able to learn easily and achieve optimal results. Learning the science approach makes students active in learning so that it is expected to increase student retention. For the retention power of students, measurements have not been made to see the extent of retention of class XII MIA students in MAN Tapanuli Selatan. However, if you look at the facts in the field, most students have forgotten when asked about lessons that have previously been studied.

According to Resien (2020) learning is the process of changing behavior due to interactions among individuals and the environment. Changes in behavior include changes in knowledge, understanding, attitudes, skills, motivation, interests, thinking abilities and so on. Suparman in Sitorus (2019), argues that "learning is a process of behavior change that can be observed by others including by teachers".

This research was conducted at MAN Tapanuli Selatan, which has implemented the 2013 curriculum and uses a scientific approach in learning biology, but only on certain biology materials and it seems that it has not been maximal and has not been able to describe the successful use of the scientific approach and it cannot be seen the changes that occur in relation to it. The scientific literacy skills of students and the scientific attitudes of South Tapanuli MAN students are also not known because a test has never been carried out to see the extent of the relationship between scientific literacy abilities and scientific attitudes with learning outcomes and student retention based on the description.

II. Review of Literatures

2.1 Science Literacy Ability

Literally, scientific literacy consists of words, namely literatus which means literacy and scientia which means to have knowledge. Scientific literacy is the ability to use scientific knowledge, identify questions, and draw conclusions based on evidence, in order to understand and make decisions regarding nature and changes made to nature through human activities (OECD, 2003).

National Science Teacher Association (Putri, 2013) argues that someone who has scientific literacy is one who uses scientific concepts, has science process skills to be able to assess and make daily decisions when dealing with other people, the environment, and understand the interactions between science, technology and society, including social and economic development. Scientific literacy is also defined as the capacity to use scientific knowledge, identify questions and draw conclusions based on facts and data to understand the universe and make decisions from changes that occur due to human activities.

Scientific literacy according to PISA is defined as "the capacity to use scientific knowledge, to identify questions and to draw evidence-based con- clusions in order to understand and help make decisions about the natural world and the changes made to it through huMAN activity". Based on this explanation, scientific literacy can be defined as the ability to use scientific knowledge, identify questions, and draw conclusions based on evidence, in order to understand and make decisions regarding nature and changes made to nature through human activities.

2.2 Scientific Attitude

A scientific attitude is an attitude that must be present in a scientist or academician when facing scientific problems. In learning activities, students' scientific attitudes are needed to encourage their abilities to achieve learning goals. Slameto (2010) states that the level of scientific attitudes students have can affect student learning outcomes. The scientific attitude is one of the factors that influence the study of science. Students' attitudes can be seen directly from the activities carried out in learning activities. Students who can receive learning will be enthusiastic in receiving lessons and vice versa. Positive student attitudes towards lessons have a high curiosity to understand a new concept.

The scientific attitude is a product of learning activities. Attitudes are acquired through processes such as experience, learning, identification, role behavior. Because attitudes are learned, attitudes can also be modified and changed. New experiences constantly influence attitudes, make attitudes change. To measure students' scientific attitudes, it can be based on grouping attitudes as dimensions, then attitude indicators are developed for each dimension to make it easier to arrange scientific attitude instrument items. These indicators can be developed independently so that they precisely support the dimensions of the attitude to be measured.

2.3 Biology Learning Outcomes through a Scientific Approach

The scientific approach is a learning approach that is highly recommended in the 2013 curriculum. Kemendikubud (2013) states that in terminology learning with a scientific approach is a learning process with a scientific method, which is designed in such a way that students actively construct concepts, laws or principles through observing stages (to identify or find problems), formulate problems, propose or formulate hypotheses, collect data with various techniques, analyze data, draw conclusions and

communicate concepts, laws or principles found in other words. Imitating scientist, because this approach imitates the steps of the scientific method used by scientists in discovering science.

The scientific approach aims to provide students with understanding in understanding various biology materials. Biology learning should be carried out through a process of observation, then an experiment is carried out to explain or prove the truth of a concept so that students have experience learning about the concept in a contextual manner. The scientific approach emphasizes that information can be obtained from anywhere, at any time, it does not depend on the information that is still in the same direction from the teacher. Thus the learning process is expected to be able to create conditions that encourage students to find out various information from various sources of information through scientific steps.

The teacher's role in learning biology with a scientific approach is to act as a facilitator, organize / direct biology learning activities, provide feedback, provide explanations and confirm. The teacher does not just let students acquire / construct their own knowledge, but the teacher provides the assistance needed by the students. Learning with a scientific approach is able to apply values by providing exemplary (ing ngarsa sung tuladha), building will (ing madya mangun karsa), and developing student creativity in the learning process (tut wuri handayani). Learning activities do not only occur in the classroom.

2.4 Student Retention

Student retention is the ability of students to save the results of their efforts to gain intelligence. Student retention is the amount of performance that students are still able to display after a certain period of time and are able to be re-expressed by students. Dahar (1989) defines retention as the addition of learned material in memory (which is not forgotten), meaning that retention refers to the storage of information obtained in memory. Retention or memory is the recall of information that was previously obtained (Slameto, 2010). Information received may be stored for: (1) a short period of time, (2) a period of time, (3) an indefinite period of time. back things that were obtained before.
Good retention power is one of the needs of every student to learn optimally. This is because student learning outcomes in schools are measured based on students' mastery of subject matter, the process is inseparable from remembering activities. So with a good memory, students will be able to learn easily and achieve optimal results. However, the facts that occur in the field show that not every student has a good memory.

2.5 Growth and Development in Plants

One of the characteristics of living things is growth and development. Growth is a process of increasing the size or volume and number of cells where this growth is irreversible. Development is a process towards maturity. Growth and development go hand in hand.

Processes in growth and germination in plants
1. Germination
   The process of growth and development of the embryo is changing where the plumules grow and develop into stems and the radicles grow into roots.
   Based on the location of the cotyledons when germinating, there are two types of germination, namely:

- Hypogeal Germination
  The elongated growth of the epicotyl causing the plumules to emerge through the seed coat and appear on the ground. The cotyledons and endosperm are in the soil. Example: Corn, kidney beans
- Epigeal Germination
  The growth is elongated as the cotyledons and plumules are pushed to the surface of the soil. The cotyledons are above ground level.
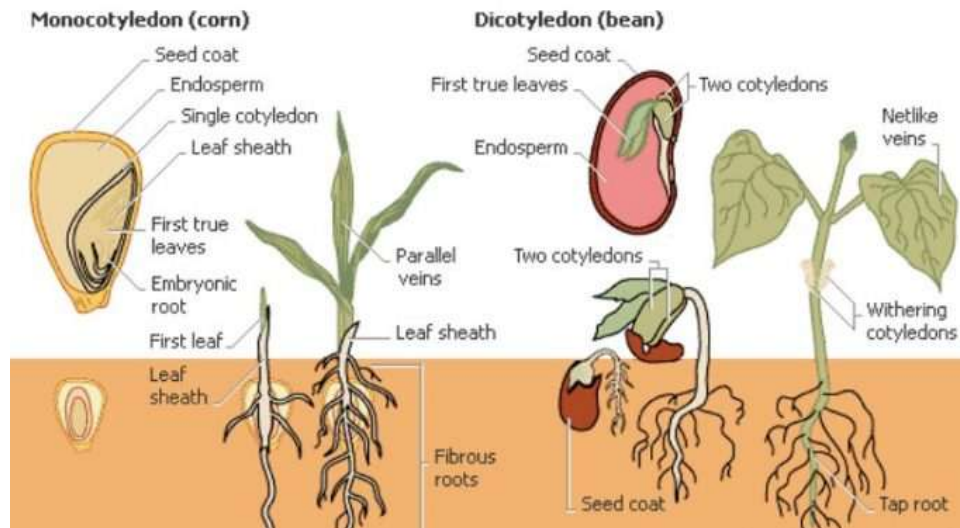
Figure 1. Difference between Hypogeal and Epigeal

The growing embryo does not have chlorophyll, so the embryo cannot make its own food. Germination begins with the process of absorbing water in an imbibition manner into the cells which causes the hydrolysis enzymes to work to break down food substances in the form of maltose and then converted into glucose. Glucose is broken down into energy, amino acids are assembled to form new enzymes. Fatty acids are used to make up cell membranes.

III. Research Methods

This research was conducted at MAN Tapanuli Selatan with the address Jl. Simangambat Kelurahan Bunga Bondar. The population of this study was all students of class XII MAN Tapanuli Selatan in the 2020/2021 Learning Year. The research sample was taken by total sampling technique, namely all students of class XII MIA MAN Tapanuli Selatan which consisted of 3 classes with a total of 110 students. This type of research is a regressive correlative research, which aims to see the relationship between scientific literacy skills and students' scientific attitudes towards learning outcomes through a scientific approach and student retention power of class XII MAN Tapanuli Selatan. To measure and analyze students' scientific literacy abilities, the research instrument used a test in the form of modified PISA scientific literacy questions. To measure the scientific attitude taken by non-test or questionnaire. To obtain data on student learning outcomes using tests with material growth and development in plants and for retention data students use the same test as learning outcomes which are carried out after 14 days of carrying out learning outcomes tests.

Scientific attitude is measured by a standard scientific attitude questionnaire (TOSRA) made by Fraser, BJ (1981). In the scientific attitude questionnaire there are statements with four answer choices, namely: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS) The questionnaire for this study used a score range of 1 to 4. The form of the test used was an essay. This test was taken from a test conducted by PISA which had been modified by the researcher and the validity of the instrument was carried out. The instrument used was in the form of learning outcome test data with the material of growth and development in class XII MIA students in MAN Tapanuli Selatan. The question instrument consisted of 25 items with C1- C6 cognitive levels.

The data homogeneity test is intended to determine the difference in data variance. Homogeneity was tested using Levene's Test at a significant level of 0.05. Data normality testing used the Kolmogrov Sminov statistical test with decision making based on a probability greater than the specified significance or $P > 0.05$. Linearity test uses the help of the SPSS 20 program. If the significance is greater than 0.05 (sig> 0.05), the form of the relationship between the independent variable and the dependent variable is linear. If Fh> Ft then the regression coefficient means at the significance level $\alpha = 0.05$. To test the research hypothesis between variables X1 and X2 with Y1, X1 and X2 with Y2 using the Pearson Product Moment formula.

IV. Results and Discussion

Based on the results of research conducted on 110 respondents consisting of 3 classes, namely XII MIA 1, XII MIA 2, and XII MIA 3 in MAN Tapanuli Selatan who were selected through total sampling, the following research data were obtained:

4.1 Data Prerequisite Test
The homogeneity test uses the Levene test with probability-based decision making. The results of the data homogeneity test show that the data distribution has the same variance (homogeneity), the significance of the calculation is greater than 0.05 (sig> 0.05). The results of the data linearity test show that the distribution of data has a linear pattern of $P > 0.05$, which means the calculation is greater than 0.05 (sig> 0.05), so the form of the relationship between the independent variable and the dependent variable is linear.

4.2 Description of Research Results
a. Students' Science Literacy Ability
The scientific literacy instrument used was taken from the modified and validated Take the test sample question from OECD's PISA assessment totaling 25 science questions consisting of 10 questions on context aspects, 8 questions on content aspects, and 7 questions on process aspects. The results of the research on scientific literacy skills at MAN Tapanuli Selatan in 3 classes on the scientific literacy abilities of class XII students of MAN Tapanuli Selatan in the science content aspect had a percentage of 60%, the context aspect had a percentage of 58%, and the process aspect had a percentage of 50%.

The scientific literacy abilities of the XII grade students of MAN Tapanuli Selatan fall into the sufficient category with the highest percentage in the aspect of science content and the lowest percentage in the aspect of the science process. In this case, it can be seen that students' scientific literacy skills are in the highest content dimension. This shows that during the biology learning process students focus more on biology materials available in books, where the answers are already available in the book so that the highest results are

obtained. The process dimension has the lowest percentage indicating that the student's ability to solve problems using the principles of the scientific method includes understanding the nature of science, scientific procedures, and the strengths and weaknesses of science. This can happen because in biology learning activities students rarely do practicum activities. The context dimension for students obtained the second lowest result, which means that in biology learning, students are still studying the concepts of biology in books, when given biology questions related to life, students still have difficulty this happens because students are not accustomed to being invited to think more critically and broadly, students are used to it. answer the questions whose answers are available in the textbook.

b. Student Scientific Attitude

The scientific attitude measured in this study is the scientific attitude proposed by Harlen (2000), namely the attitude of curiosity, respect for facts, critical and creative thinking, being able to work together, being diligent and caring about the environment and health. The number of items on the student questionnaire instrument was 40 where statements related to student scientific activities in the form of growth and development practicum. The scientific attitude questionnaire data collection was carried out after the students carried out learning activities through the scientific approach, namely in the form of practicum. The instrument used was a validated questionnaire.

The results of research on scientific attitudes in MAN Tapanuli Selatan from the dimension of curiosity have a percentage of 67%, the dimension of respect for facts has a percentage of 54%, the dimension of critical thinking has a percentage of 51%, the creative dimension has a percentage of 52%, the dimension of cooperation has a percentage of 57%, diligent has a percentage of 54%, the dimension of caring for the environment has a percentage of 59%.

There are seven dimensions of scientific attitudes tested in class XII students of MAN Tapanuli Selatan. Of the seven dimensions tested, the highest result was in the dimension of curiosity, while the lowest was obtained on the dimension of critical thinking. Although the highest percentage of curiosity is obtained, it is still categorized as quite low. This can also be seen from students who rarely ask questions during biology learning activities. The critical thinking attitude of students is seen in the habit of looking for as much information as possible in learning, but this is rarely done by students, for example, in learning only a few students often ask the teacher. The scientific attitude needs to be improved so that later in learning biology students can play an active and creative role.

c. Student Biology Learning Outcomes through a Scientific Approach

This study was to see how student learning outcomes through a scientific approach through a test instrument in the form of questions about growth and development material consisting of cognitive levels from C1-C6.

Recapitulation of cognitive learning outcomes of South Tapanuli MAN students at the cognitive level C1 (knowledge) has a percentage of 67%, C2 (understanding) has a percentage of 65%, C3 (application) has a percentage of 61%, C4 (analysis) has a percentage of 54%, C5 (evaluation) has a percentage of 47%, and C6 (creation) has a percentage of 36%.

Based on the data on cognitive learning outcomes, it can be seen that class XII students of MAN Tapanuli Selatan have the highest scores at the cognitive level of C1 and C2. Meanwhile, the lowest cognitive aspect is C6. The higher the question of the cognitive level, the lower the student's ability to answer the questions. This shows that the students

of class XII MIA MAN Tapanuli Selatan master the questions at a low cognitive level. Meanwhile, the higher the cognitive level, the weaker the student's ability to answer the problem, especially questions with the C6 cognitive level. This shows that in learning, students tend to memorize more than explore the biology learning experience.

d. Student Retention

To see the retention power possessed by students of class XII MIA at MAN Tapanuli Selatan using the same test instrument, only random numbers were carried out with a test of student learning outcomes through a scientific approach. The retention power test was carried out after 14 days of the learning outcome test.

Comparison of student learning outcomes and student retention power at MAN Tapanuli Selatan at each cognitive level that the retest score score is 51.13 and the test score is 57.84. Based on the data from the student retention results, it can be seen that the student retention score is classified as moderate, the comparison of the scores between the retest and test scores is not that much different, this is because the retest time interval from the previous test is not that long and it has been announced that there will be retest so students prepare themselves. It is better in retest, especially if the teacher gives evaluation questions to students to discuss at home.

4.3 Hypothesis Test

To see the relationship between X and Y variables, namely scientific literacy skills and learning outcomes, scientific attitudes and learning outcomes, scientific literacy skills and retention, scientific attitudes and retention, regression analysis was used using the SPSS program as follows:

Table 1. Simple Regression Analysis Data

NO	Parameter	The Value of r	r^2	tcount	P
1	The relationship between scientific literacy skills (X1) and biology learning outcomes (Y1)	0.697	48.6%	10,097	0,000
2	The relationship between scientific attitude (X2) and biology learning outcomes (Y1)	0.341	11.6%	3,765	0,000
3	The relationship between scientific literacy skills (X1) and student retention (Y2)	0.766	58.7%	12,391	0,000
4	The relationship between scientific attitudes (X2) and student retention (Y2)	0.369	13.7%	4,132	0,000

a. The Relationship between Students' Science Literacy Ability and Student Learning Outcomes through a Scientific Approach

To see the relationship between students' scientific literacy skills and student learning outcomes through a scientific approach, a simple linearity regression test was used using SPSS. The results of the analysis can be seen in Table 1.

Based on the data analysis, the results of students 'scientific literacy skills and learning outcomes through the scientific approach show that the price of r = 0.697, which

means that there is a relationship between students' scientific literacy abilities and student learning outcomes through a scientific approach. The coefficient of determination (r2X1Y1) is 48.6%, so the contribution of students' scientific literacy skills to learning outcomes through a scientific approach is 48.6%.

b. The Relationship between Students' Scientific Attitudes and Student Learning Outcomes through a Scientific Approach

Knowing the relationship between students' scientific attitudes and student learning outcomes through a positive approach used a simple linearity regression test using SPSS. The results of the analysis can be seen in Table 1.Based on the regression test results of students 'scientific attitudes and student learning outcomes of biology through the scientific approach, it is known that the price of r = 0.341 which means that there is a relationship between students' scientific attitudes towards student learning outcomes through a scientific approach. The value of the determinant coefficient (r2X1Y1) is 11.6%, so the contribution of students' scientific attitudes to learning outcomes through the scientific approach is only 11.6 %%.

c. The Relationship between Students' Science Literacy Ability and Student Retention

The relationship between students' scientific literacy skills and student retention was used a simple linearity regression test using SPSS. The results of the analysis can be seen in Table 1. Based on the regression test results, the results of scientific literacy skills on student retention, the price of r = 0.766, which means that there is a positive relationship between scientific literacy skills and student retention. This shows the relationship between scientific literacy skills and high student retention. The coefficient of determination (r2X1Y1) is 58.7% so that the contribution of students' scientific literacy skills to learning outcomes through scientific approaches is only 58.7%.

d. The Relationship between Students' Scientific Attitudes and Student Retention

The relationship between students' scientific attitudes and student retention was used a simple linearity regression test using SPSS. The results of the analysis can be seen in Table 1. Based on the regression test results, the results of students' scientific attitudes towards student retention, the price of r = 0.369 means that there is a positive relationship between scientific attitudes and student retention. This shows the relationship between scientific attitudes and low student retention. The coefficient of determination (r2X1Y1) is 13.7% so that the contribution of students' scientific literacy skills to learning outcomes through scientific approaches is only 13.7%.

e. The Relationship between Students' Science Literacy Ability and Students' Scientific Attitudes with Students' Biology Learning Outcomes through the Scientific Approach

Data analysis of the relationship between students' scientific literacy skills and students' scientific attitudes with students' learning outcomes of biology through a scientific approach was obtained by multiple linearity regression tests using SPSS. The results of the analysis can be seen in Table 2.

Table 2. The Relationship between Students' Science Literacy Ability and Students' Scientific Attitudes with Students' Biology Learning Outcomes through a Scientific Approach

Variable	Regression Coefficient	thitung	P
Constant	6,370		
X1 (Science Literacy Ability)	0.744	9,864	0,000
X2 (Scientific Attitude)	0.083	1,998	0,000
R = 0.700			
R2 = 49%			

Based on the results of the regression test analysis, the results of students' scientific literacy abilities and scientific attitudes towards student learning outcomes through the scientific approach obtained a price of R = 0.700, which means that there is a relationship between scientific literacy skills and scientific attitudes towards student learning outcomes including in the high category. Then the hypothesis is nil (H_0) which states that there is no relationship between students 'scientific literacy skills and students' scientific science on learning outcomes through a scientific approach in class XII students of MAN Tapanuli Selatan is rejected so that the alternative hypothesis (Ha) is accepted. The results of the contribution of scientific literacy abilities and scientific attitudes of students together on learning outcomes through the scientific approach are 49%.

In the results of the multiple linear regression tests, the equation is also obtained, namely:

$$Y = 6.370 + 0.744X1 + 0.083X2$$

The equation above shows the relationship between the independent variable and the dependent variable, from this equation it can be concluded that:

1 The constant value is 6.370, which means that if there is no change in the variable of students 'scientific literacy abilities and scientific attitudes (the values of X1 and X2 are 0) then the results of students' learning biology through a scientific approach in class XII MIA MAN Tapanuli Selatan is a shift of 6, 370 units.

2 The regression coefficient value of students' scientific literacy abilities is 0.744, meaning that if the variable increases by 1% with the assumption that the X2 variable is scientific attitude and the constant is 0, then the student's biology learning outcomes through the scientific approach increase by 0.744. The regression coefficient value for scientific attitudes is 0.083, meaning that if the variable increases by 1% with the assumption that the X1 variable is the student's scientific literacy ability and the constant is 0, the student's biology learning outcomes through the scientific approach will increase by 0.083. From this, it shows that students 'scientific literacy skills contribute more to students' biology learning outcomes than scientific attitudes.

3 Based on the table above, it is obtained P <0.05 so that the result is that Ha is accepted and H0 is rejected, which means that there is a positive relationship between scientific literacy skills and scientific attitudes together on student learning outcomes through a scientific approach in class XII MIA in MAN South Tapanuli

f. The Relationship between Students 'Scientific Literacy Skills and Students' Scientific Attitudes with Student Retention

Data analysis of the relationship between students 'scientific literacy abilities and students' scientific attitudes with student retention was obtained by multiple linearity regression tests using SPSS. The data are presented in table 3.

Table 3. The Relationship between Students 'Scientific Literacy Abilities and Students' Scientific Attitudes with Student Retention

Variable	Regression Coefficient	tcount	P
Constant	6,729		
X1 (Science Literacy Ability)	0.945	10,929	0,000
X2 (Scientific Attitude)	0.096	1,316	0,000
R = 0.769			
R2 = 59.2%			

Based on the results of the regression test, the results of students' scientific literacy abilities and scientific attitudes towards student retention through the scientific approach obtained a price of R = 0.769, which means that there is a relationship between scientific literacy skills and scientific attitudes towards student retention with a scientific approach that is included in the high category. Then the hypothesis is nil (H_0) which states that there is no relationship between students 'scientific literacy abilities and students' scientific skills on student retention in class XII MIA in MAN Tapanuli selatan rejected so that the alternative hypothesis (Ha) is accepted. The results of the contribution of scientific literacy abilities and scientific attitudes of students together on student retention power were 59.2%.

In the results of the multiple linear regression test, the equation is also obtained, namely:

$$Y = 6.729 + 0.945X1 + 0.096X2$$

The equation above shows the relationship between the independent variable and the dependent variable, from this equation it can be concluded that:

- The constant value is 6.729, meaning that if there is no change in the variable of students' scientific literacy abilities and scientific attitudes (the values of X1 and X2 are 0) then the retention power of students in class XII MIA MAN Tapanuli Selatan is a shift of 6.729 units.
- The regression coefficient value of students' scientific literacy abilities is 0.945, meaning that if the variable increases by 1% with the assumption that the X2 variable is scientific attitude and the constant is 0, then the student's retention power increases by 0.945. The regression coefficient value for scientific attitudes is 0.096, meaning that if the variable increases by 1% with the assumption that the X1 variable is the student's scientific literacy ability and the constant is 0, the student's retention capacity increases by 0.096. This shows that students' scientific literacy skills contribute more to student learning outcomes than scientific attitudes.

Based on the table above, it is obtained P <0.05 so that the result is that Ha is accepted and H0 is rejected, which means that there is a positive relationship between scientific literacy

skills and scientific attitudes together on student retention through a scientific approach in class XII MIA in MAN South Tapanuli.

V. Conclusion

From the research results, it can be concluded that:

1. There is a high positive relationship between students 'scientific literacy skills and students' biology learning outcomes through a scientific approach in class XII MAN Tapanuli Selatan.
2. There is a low positive relationship between scientific attitudes and student learning outcomes of biology through a scientific approach in class XII M MAN Tapanuli Selatan.
3. There is a high positive relationship between students' scientific literacy skills and student retention in class XII MAN Tapanuli Selatan.
4. There is a low positive relationship between students' scientific attitudes and the retention power of class XII students of MAN Tapanuli Selatan.
5. There is a high positive relationship between students' scientific literacy abilities and scientific attitudes with student learning outcomes through the scientific approach of class XII MAN Tapanuli Selatan.
6. There is a high positive relationship between students' scientific literacy skills and scientific attitudes with the retention power of class XII students of MAN Tapanuli Selatan

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