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Analysis of Scientific Literacy in Grade IXth Junior High School of Rantau Utara Regency in Science Learning

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Abstract

Science literacy is a very important thing for students where with scientific literacy students can have an ability in writing and reading, as well as knowing the things they learn and can give conclusions in a lesson learned and can explain the phenomena around in this case science literacy is very important for everyone, This study aims to be able to know and see how Science Literacy Abilities in Class XI Students in Science Learning at North Rantau Junior High School, Labuhanbatu Regency, The method in the research used is descriptive qualitative. The sample in this study was 30 students and 4 teachers at North Rantau Junior High School, Labuhanbatu Regency. The data collection technique was carried out by giving questionnaires, observations and interviews. The results in the study showed that on the indicators of science literacy in class IX students of North Rantau Junior High School in science learning, namely 1). Insight Knowledge of science literacy obtained a value of 65.23%, 2.) Implementation of the Science Literacy Process obtained a value of 53.99%, 3.) Attitude in science literacy obtained a value of 61.24%, 4.) Understanding and motivation in science literacy obtained a value of 42.15%.in this case that science literacy greatly supports learning for students and can improve student learning outcomes

Keywords: *Students, Science Learning, Science Literacy*

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INTRODUCTION

Education is currently also known by a term, namely the era of industrial revolution 5.0, which is characterized by very rapid developments in science and technology. In today's education, the goal is to encourage students to have skills that can support them and students also have an attitude that is responsive to changes along with the times. Scientific literacy is very important for students because they not only understand science

as a concept, but they can also apply science in activities in their daily lives (Sutrisna, 2021) .

With the existence of education for students, they can develop skills and attitudes as well as knowledge and learning that will be obtained for students, Formal education is a very important element in both educating and training a child. Education nowadays requires every student to be able to learn using media that can be utilized as a source of technology to fulfill learning (Noviana & Solichin, 2021).

Science education has a good relationship in developing good skills and abilities in understanding the use of knowledge that has been obtained effectively in everyday life, so that understanding of science is not only limited to theory but also in terms of implementation (Irwan et al., 2020). Implementation of education for students is one of the things that must be stated in the school system. At school, students are also facilitated to become excellent students in the learning process that supports student progress (Tasdik &, Risma 2021).

Scientific literacy is the ability to use scientific knowledge to identify questions, acquire new knowledge, explain scientific phenomena and draw conclusions based on scientific evidence. The major dimensions of scientific literacy in its measurement are the science process, science content and the context of science application (Fuadi et al., 2020). Scientific literacy is something that is very important and must be achieved by students in the learning process. However, in this case there are still many causes of problems in scientific literacy because many students lack interest and knowledge in literacy. However, with the existence of scientific literacy, students can have an ability in both writing and reading, as well as knowing the things they are studying and being able to provide conclusions in a lesson learned and being able to explain phenomena that exist around them, in this case scientific literacy is very important for everyone. One of the lesson content at Rantau Utara Junior High School which plays an important role is Natural Sciences or science, in this case a teacher can know Students' achievements in scientific literacy in science learning in grade IXth of Rantau Utara Junior High School.

In the era of globalization, challenges can be faced by equipping students with science. Natural Sciences or science can be integrated with other learning content at school, The science learning that has been implemented is a general activity that has an impact on the low level of scientific literacy skills and abilities of students. This condition also requires a change or improvement in the science learning process so that meaningful learning can be realized for students who prioritize achievement in aspects of attitudes, actions and processes and content aspects, context aspects, and process aspects (Dwisetiarezi & Fitria , 2021) .

In this case, a skill or ability in literacy has become a skill whose urgency is quite good and very high for students to master and to be able to face consequences in the development of information technology which can encourage the emergence of many changes. For this reason, literacy competency can be increased which must be a projection for priority education at the educational level (Harahap et al., 2022). Science learning is a core competency that must be achieved by a student. One of them is that students must be able to explain knowledge and be able to apply procedural knowledge in specific fields of study according to their talents and interests to be able to solve a problem (Sukowati et al., 2017) .

So in this case there is a need for a solution on how to improve scientific literacy for students in Indonesia, one of which is by improving the learning system which should be directed towards developing literacy for students. One form of learning that can support scientific literacy for students is by implementing learning such as practice or practicum (Sumarni et al., 2021). With scientific literacy So students' achievements in the learning process in class IX of North Regional Junior High Schools will be better and superior for students. With scientific literacy, students will also be able to understand and have the ability in every lesson, especially in science learning.

Based on observations that have been made regarding students' achievements in scientific literacy, in this case students are influenced by all educational systems, including curricula that have not yet directed the development of scientific literacy, teachers who have not developed students' scientific literacy abilities both in learning activities and in evaluations, as well as The students themselves tend to memorize subject matter that they do not necessarily understand as well as the school facilities and infrastructure. In this case, this research aims to determine students' achievement in scientific literacy in science learning in class IX of Rantau Utara Junior High School.

METHOD

This type of research is qualitative research carried out from August to March 2023 at Rantau Utara Junior High School Labuhanbatu Regency, total of 30 students and 4 teachers at Rantau Utara Junior High School Labuhanbatu Regency. The sampling technique in this research is purposive sampling. The data *collection* technique was carried out by giving direct interviews and response questionnaires to students and teachers regarding Scientific Literacy on the results of students' science *learning* using *Google Form*. The questionnaire distribution technique *is carried* out by sharing the *Google Form link* by filling it in directly to students using 4 options. The indicators in this research are 1.) Insight into scientific literacy knowledge, 2.) implementation of the scientific literacy process, 3.) Attitudes in scientific literacy. 4.) Understanding and motivation in scientific literacy. This research is also supported by the results of interviews with information that has the capacity to suit research needs.

The initial preparation stage was carried out by observing and conducting observations as well as interviews with students and teachers regarding the results of scientific literacy in science learning for students and teachers. The next stage was making interview statement guidelines, as well as grids for online learning regarding students' science learning outcomes, then continued with create a question and continue with validating the instrument with an expert validator. The data collection instrument used is a questionnaire interview distributed via *Google*. As for the online learning instrument on student biology learning achievement results, it is a modification of (putri et al, 2022) (Pratiwi et al., 2019) , (Hasasiyah et al., 2019) , for instruments Analysis of student achievement in scientific literacy in science learning in class IX of Rantau Utara Junior High School Labuhanbatu Regency in science learning can be seen in table 1.

Table. 1. Questionnaire Grid on Student Achievement in Scientific Literacy in Science Learning in Class IX of Rantau Utara Junior High School

No	Indicator	Question No	Number of Statement Items
1.	Insight Knowledge of scientific literacy	1,2,3,4,5	5
2.	Implementation of the Scientific Literacy Process	6,7,8,9,10	5
3.	Attitudes towards scientific literacy	11,12,13,14,15	5
4.	Understanding and motivation in scientific literacy	21,22,23,24,25	5
	Amount		**20**

This research uses instruments in the form of questionnaires and questionnaires to obtain data. Questionnaires or questionnaires in this research are used as the main instrument to obtain data. Analysis of scientific literacy in science learning in IX Rantau Utara Junior High School, Labuhanbatu Regency. In this research, the data obtained from documentation is data from class IX students at Rantau Utara Junior High School in science learning in the form of scores on scientific literacy results for class IX students at Rantau Utara Junior High School in science learning. in Labuhanbatu Regency, then the data analysis technique uses descriptive analysis.

RESULTS AND DISCUSSION

Based on the research that has been carried out, the researchers have obtained value results regarding scientific literacy in class IX students at Rantau Utara Junior High School in science learning in Labuhanbatu Regency . The data given to respondents is in the form of questionnaires and observations which will be analyzed using descriptive analysis. From the results of the table above, the results of the indicators for scientific literacy in class IX students at Rantau Utara Junior High School in science learning in Labuhanbatu Regency. The data is as follows: Class IX students of Rantau Utara Junior High School have the ability and understand literacy in science learning. The results that have been carried out in research on indicators of scientific literacy in class IX students of Rantau Utara Junior High School in science learning are 1.) Insight into knowledge of scientific literacy obtained a result score of 65.23%. 2.) Implementation of the Scientific Literacy Process obtained a score of 53.99%, 3.) Attitude towards scientific literacy obtained a score of 61.24%. 4.) Understanding and motivation in scientific literacy obtained a score of 42.15%.

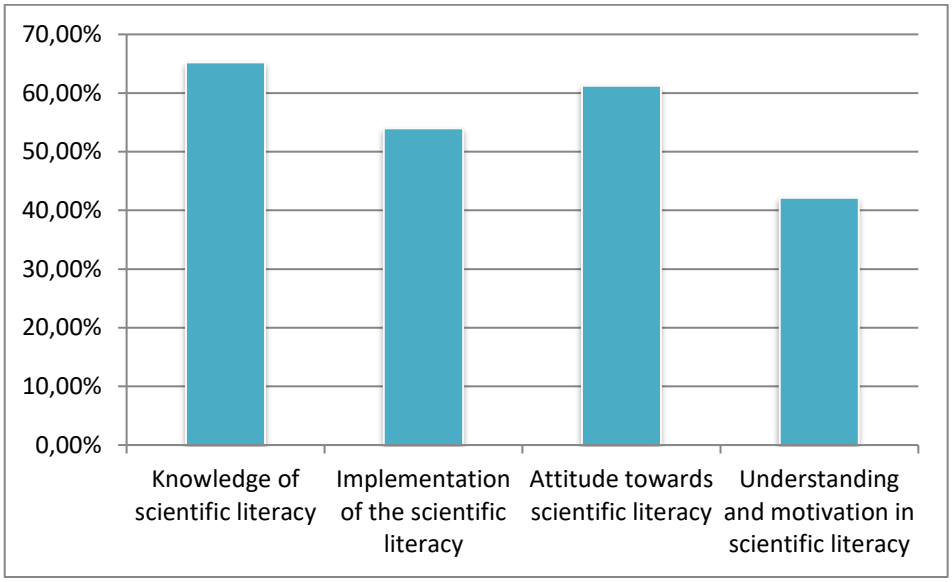

Figure 1. Diagram of the student achievement scores in literacy science in science learning

In this case, class science learning and there are still students who lack interest in reading. In this case, literacy in the world of education and in learning, both in science learning and in other learning, in this case literacy is a very important thing in learning so that students can master it (Sumarni et al., 2021). Because of this, literacy for students can have a positive impact on students' academic achievement. Students who are accustomed to being introduced to the world of literacy have the ability to communicate well in their environment. in this case One way to improve scientific literacy for students in Indonesia is by improving a learning system which should be directed towards developing literacy for students, in this case one of which is learning that can support students' scientific literacy, namely with learning such as practicum (Sumarni et al., 2021).

In this case , students in class regarding analysis Student achievement in scientific literacy in science learning in class IX of Rantau Utara Junior High School that research results have been obtained on indicators of insight into scientific literacy knowledge and have obtained results in the form of 65.23%. However, there are still students who lack sufficient insight into scientific literacy knowledge. obtained a result of 34.77%. Scientific literacy skills are very important in the era of globalization, where science and technology are developing very quickly, especially in developed countries. Science and technology in particular have a very large role in improving the quality of a country's education (Novita et al., 2021).

Mastery of scientific literacy skills is influenced by several factors, including the science learning approach or method used by teachers in developing learning concepts. Learning, the average scientific literacy ability in the overall knowledge and competency aspect is 66.45% with a very satisfactory achievement category (Wulandari Nisa, 2020). It is important to develop scientific literacy for students so that they have the ability to explain phenomena scientifically, evaluate scientific investigation designs and interpret and prove data scientifically (Haerani et al, 2020).

Then it can be seen from the presentation results that have been obtained through the results of the questionnaire responses that have been carried out on the second indicator that the percentage value results on the Implementation of the Scientific Literacy Process indicator obtained presentation results in the form of 53.99% However, there are still students who lack the ability to implement a scientific literacy process in science learning, achieving results of 46.01%. Scientific literacy is the ability to use scientific knowledge to identify questions, acquire new knowledge, explain scientific phenomena and draw conclusions based on scientific evidence. The major dimensions of scientific literacy in its measurement are the science process, science content and the context of science application The results of data analysis found that the factors that cause students' low scientific literacy include the choice of textbooks, misconceptions, non-contextual learning, and students' reading abilities. This condition requires Indonesian education experts and practitioners to improve more in designing and implementing science education (Fuadi et al., 2020).

Based on the scores obtained by students, the scores obtained by students are divided into four categories, namely very low, low, fair and high. Based on research results, the average scientific literacy ability of students is in the low category. The conclusion of this research is that junior high school students' scientific literacy skills are low in the aspect of understanding and interpreting basic statistics (Hasasiyah et al., 2019). The inhibiting factors in implementing science literacy in elementary schools are students abilities to apply them in everyday life. Research data also shows that libraries are one of the main supports for implementing literacy. Scientific literacy has an important role in science and technology. Scientific literacy is considered one of the main goals in science education. For this reason, the science learning process (Nuro et al, 2020).

Furthermore, it can be seen from the results of the presentation that has been obtained through the results of the questionnaire responses from students which have been carried out on the third indicator which shows the percentage value results on the indicator. Attitudes in science literacy obtained presentation results of 61.24%. However, there are still students who lack attitudes towards scientific literacy in science learning, in this case, the results were 38.76%. In this case, there is a need for learning that can train scientific process skills so that students are accustomed to doing things related to activities including: identifying scientific questions, providing scientific explanations of phenomena and using scientific evidence (Winata & Cacik, 2016).

The scientific literacy aspect of competency among students at Islamic boarding schools is still classified as low, in the very low category. This shows that the mastery of scientific literacy in the competency aspect of students at Islamic boarding schools needs to be trained well. Practicing scientific literacy in the competency aspect is also adjusted to aspects and indicators that are in line with the scientific literacy that will be measured. The importance of teaching students scientific literacy to develop students' potential, especially in the field of science (Rosidi, 2021).

Then it can be seen from the presentation results that have been obtained through the results of the questionnaire responses that have been carried out on the fourth indicator that the percentage value results for the Understanding and Motivation indicator in scientific literacy have obtained presentation results of 42.15%. However, there are still

students who lack understanding and motivation in scientific literacy in science learning, whose results are 57.85%.

Scientific literacy is the ability to use scientific knowledge to identify questions, explain scientific phenomena that occur using contextual facts, Based on the scores obtained by students, the scores obtained by students are divided into four categories, namely very low, low, fair and high. Based on research results, the average scientific literacy ability of students is in the low category. The conclusion of this research is that junior high school students' scientific literacy skills are low in the aspect of understanding and interpreting basic statistics (Hasasiyah et al., 2019).

Scientific literacy is multidimensional. Individuals who are "scientifically literate" are people who use scientific concepts, process skills and values in making daily decisions in relation to other people or their environment, and understand the interrelation between science, technology and society, including social and economic development. Low levels of one aspect of scientific literacy will affect other aspects of scientific literacy. Students' low conceptual understanding of scientific knowledge will have an impact on low science applications. The results of scientific literacy measurements carried out on junior high school students in the city of Purwokerto can be used as a reference in mapping science abilities (IPA) and the quality of science learning (IPA) of junior high school students in the city of Purwokerto (Mufida Nofiana1, 2017).

From the results of interviews conducted with students, when completing a questionnaire regarding environmental literacy, they felt that there were several obstacles in analyzing environmental problems and complained because there were many words they had never read or heard. Students think that questionnaires regarding environmental literacy are difficult to understand and difficult to complete (Santoso et al, 2021).

CONCLUSION

From the results in research regarding analysis scientific literacy in class IX students at Rantau Utara Junior High School, Labuhanbatu Regency, in learning science The results that have been carried out consist of the following indicators, the data obtained are in the form of: 1.) Knowledge and insight into scientific literacy obtained a value of 65.23% 2.) Implementation of the Scientific Literacy Process obtained a value of 53.99% 3.) Attitude towards scientific literacy obtained a score of 61.24% 4.) Understanding and motivation in scientific literacy obtained a score of 42.15%. In this case, scientific literacy really supports achievement in the learning process for students and can improve student learning outcomes. From the results obtained in research that has been carried out on class IX Junior High School students in Rantau Utara, Labuhanbatu Regency, they have very good categories in understanding and have the ability to scientific literacy in science learning.

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