25 (4), 2024, 1648-1664

Jurnal Pendidikan MIPA

e-ISSN: 2685-5488 | p-ISSN: 1411-2531

http://jurnal.fkip.unila.ac.id/index.php/jpmipa/

Measuring Learners' Scientific Literacy Skills using Contextual Environmental Issues

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Abstract: Learners' science literacy skills in science learning activities become an important ability for learners to face the times. The ability of learners to respond to contextual topics can show the qualifications of their science literacy skills. The research conducted aims to describe the science literacy skills of students at the Islamic Junior High School level on environmental issues that occur around them. Through descriptive quantitative method, the researcher presents the results of students' science literacy ability in working on contextual questions based on environmental issues along with supporting and inhibiting factors in supporting learning activities. The study involved 25 students at one of the Islamic Junior High School in Jombang. Based on the analysis of the profile of students' science literacy skills at one of the Islamic Junior High School in Jombang, it was found that the general average score of science literacy skills of grade 7 students was 44.72 in the low category. There are several factors that cause the low science literacy skills of these students, including interest in learning, learning strategies, and learning facilities that still need to be optimised.

Keywords: science literacy, environmental, contextual issue.

▪ INTRODUCTION

Science literacy is an ability that must be mastered by people in the 21st century today (Shaffer, 2019). The relationship between the 21st century and scientific literacy has a very important relationship, given the complex nature of the problems faced by contemporary society in today's development (Albina et al., 2022). That way, students as a society will become the next generation of the nation who are easy to adapt, process, and are ready to face problems in the future (Rahmat et al., 2021).

Previous research conducted by Caponera (2016) et al, Sumarti (2017) et al, Pratiwi (2021) et al, and Sakti (2021) et al, showed that there are still many students who have low science literacy skills (Caponera et al., 2016, Sumarti et al., 2017, Pratiwi et al., 2021, Sakti et al., 2021). Many factors cause the low science literacy of students, including the learning process that has not been maximised. Many factors cause the low science literacy of students, including the learning process that has not been maximised (Rafi'y et al., 2023). The lack of teacher's role, students' low knowledge, and inadequate school facilities are factors in the low science literacy skills of students (Yusmar & Fadilah, 2023). In addition, low student interest in learning activities can be a trigger for low student enthusiasm in learning (Fuadi et al., 2020)

In addition, the factor of low science literacy skills of students can be caused by not introducing students to science-oriented or test-oriented questions such as PISA and TIMMS (The Third International Mathematics and Science Study) and not yet applying the learning process that leads to scientific problems and scientific questions (Widowati et al., 2019). The latest PISA research in 2022, quoted from the Organisation for

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DOI: http://dx.doi.org/10.23960/jpmipa/v25i4.pp1648-1664
Received: 19 December 2024
Accepted: 04 January 2025
Published: 09 January 2025

Economic Co-operation and Development, shows that the science literacy scores of Indonesian students from PISA 2018 to PISA 2022 have decreased by 13 points. One of the causes is the pandemic that occurred in 2019. Indonesian students ranked 68th and the average science literacy score was 398, below the average of OECD countries which is 495 (OECD, 2023a).

According to PISA, science literacy skills can help a person identify questions, acquire new knowledge, explain scientific phenomena, and draw conclusions based on evidence about issues related to science. Science literacy skills can influence a person's understanding of the characteristics of science as a form of knowledge and inquiry, awareness of science and technology shaping the material, intellectual and cultural environment, fostering a willingness to engage in science issues and ideas (Nur'Aini et al., 2018). The importance of science literacy skills for students can be useful for themselves and society (Bayu et al., 2023).

Science literacy skills can also support students' understanding of the importance of maintaining nature as a continuity of life for various types of living things (Abidin & Artauli Hasibuan, 2019). The topic of the environment is one of the topics that is close to the lives of students, the importance of knowledge about the environment can have an impact on one's character to have a sense of concern for the environment (Afriana et al., 2016). The environment is the space used by living things to interact in carrying out their survival. The environment is characterised as a form of unity of the components that make up the process of life that influence each other (Siregar & Nasution, 2020). Currently, there are many environmental problems caused by unwise human behaviour. The emergence of many environmental pollution events shows that the condition of the surrounding environment is not okay. Thus, education related to the environment is one form of effort to optimise environmental improvement and development for a healthy and balanced society (Miyasaka & Honda, 2024).

Environmental pollution is the process of gathering energy, substances and other components that can damage the environment with the amount exceeding quality standards so that the quality of the environment has decreased which causes environmental damage and human health (Awewomom et al., 2024). The destruction of the human environment will certainly have an impact on the next life, so in this case it is necessary to make efforts to instil the character of protecting the environment in the next generation of the nation. Through working on contextual questions based on environmental issues, this study aims to determine the science literacy skills of students on environmental issues around them. The involvement of contextual things that are around them, then loaded in learning can have an impact on self efficacy behaviour and attitudes (Sokha, 2024).

▪ METHOD

Participants

The research was conducted at one of the Islamic Junior High School in Jombang with the sample being class VII students with a total of 25 students.

Research Design and Procedures

The research conducted used descriptive quantitative research methods, by combining and explaining facts, observational data, and literature review (Intan et al.,

2023). The research was conducted in one meeting, using contextual question instruments that refer to science literacy competencies in the PISA 2025 framework with the theme of environmental issues. The science literacy competencies include 1) explain phenomena scientifically, 2) compile, evaluate, and interpret scientific evidence, 3) research, evaluate, and use information to make decisions (OECD, 2023b).

Instrument

The determination of environmental themes in contextual questions as an instrument to measure science literacy skills was deliberately chosen because the phenomenon is closely related to the lives of students with their environment. The number of questions involved is 10 questions that have been adjusted to the competencies of science literacy. In detail, questions with competency 1) explain phenomena scientifically, totalling 3 questions. Questions with science literacy competency 2) compile, evaluate and interpret scientific evidence, totalled 3 questions. Questions with science literacy competency 3) research, evaluate and use information to make decisions, totalled 4 questions.

One of the questions in competency 1) explains the phenomenon scientifically, including "Environmental pollution such as water pollution can have an impact on human health. How can water pollution affect human health?". In competency 2) compile, evaluate and interpret scientific evidence, one of the questions asked was "Why do we need to protect the environment from environmental pollution?". Furthermore, in competency 3) researching, evaluating and using information to make decisions, one of the questions asked was "The use of motorised vehicles in urban areas can often cause air pollution. As we know, air pollution is one form of air pollution that can have a negative impact on health. What do you think is the solution to this problem?"

The questions used to measure the science literacy skills of Islamic Junior High School students were validated by three expert validations and construct validation with limited trials. Of the 10 fill-in questions given, there were 7 valid questions with a Cronbach's alpha value of 0.7168 with a reliable category. In addition to the use of these contextual questions, to support the data obtained, interviews were conducted with educators at the school. Through interviews, researchers can obtain additional information that can strengthen the findings from working on science literacy-based questions with the theme of environmental issues.

Data Analysis

The results of the questionnaires and interviews with educators at Islamic Junior High School were then analysed to determine the achievement of students' science literacy skills, obstacles, and supporting factors for learning activities. The achievement score of each competency on science literacy skills will be analysed by anova test if the data is normally distributed and Kruskal wallis test if the data is not normally distributed to find out significant differences in each competency. The category of score achievement of environmental issues-based questions is adjusted to the following categories (Dinata et al., 2024). The following is the interpretation of the science literacy score in Table 1.

Table 1. Interpretation of scores

Score	Level
$80 \leq N < 100$	Very good

66 ≤ N < 79	Good
56 ≤ N < 65	Enough
40 ≤ N < 55	Low
N ≤ 39	Very Low

▪ RESULT AND DISSCUSSION

The results of research on science literacy skills conducted at one of the Islamic Junior High School in Jombang show varying results. The questions worked on by students totalled 10 fill-in questions based on science literacy skills, 3 questions contained indicators of explaining phenomena scientifically, 3 questions contained indicators of compiling, evaluating, and interpreting scientific evidence, and 4 questions contained indicators of researching, evaluating, and using information to make decisions. In detail, students' ability to answer contextual questions based on environmental issues integrated with science literacy skills can be seen in Table 2 below.

Table 2. Student score results

Science Literacy Skills	Question Number	Average Score	Level	Average Score Competency
Explaining phenomena scientifically	1	40.8	Low	47.47
	2	46.2	Low	
	3	50	Low	
Collate, evaluate and interpret scientific evidence	4	42.3	Low	52.27
	5	56.9	Enough	
	6	51.5	Low	
Research, evaluate and use information to make decisions	7	40	Low	37
	8	43.1	Low	
	9	40	Low	
	10	19.2	Very low	
Total Score (Average)				44.72

Based on the data that has been obtained, in detail on the first science literacy competency 1) explaining phenomena scientifically, students get an average score of 47.47 with a low category, the second science literacy competency is 2) compiling, evaluating, and interpreting scientific evidence, getting an average ability of 52.27 with a low category, and the third science literacy competency is 3) researching, evaluating, and using information to make decisions getting an average ability of 37 very low.

Based on the analysis of differences in the Kruskal Wallis test on each competency shows an asymp value with a significance value of 0.00 which indicates < 0.05 with the provision that there is a significant difference in each competency. The Kruskal wallis test is a non-parametric test performed because the data is not normally distributed. There is one competency, namely the competency of "researching, evaluating, and using information to make decisions" with the lowest average. Through interviews with educators at the school, it is known that students are still confused in making the most appropriate decisions or actions when faced with environmental problems around them. The educator said *"Grade 7 students are students who have just experienced the transition of education from elementary school education to junior high school, this is a challenge*

for teachers to provide knowledge and understanding in determining policies related to scientific attitudes in preserving the environment".

The low level of the third science literacy competency shows that the results of working on contextual questions based on environmental issues that are integrated with science literacy skills show a relationship with each other. If one of the science literacy competencies cannot be mastered properly, this can have an impact on other science literacy competencies. The average total score obtained by students at Islamic Junior High School is 44.72 which shows a low category.

The educator at the Islamic Junior High School said that *"In working on contextual questions, of course, students' knowledge is very influential on the results of the answers presented, in contextual questions some students still have difficulty representing their observations and understanding of the phenomena around them".* It is known that the use of questions that contain phenomena in everyday life can encourage students to read (Merta et al., 2020). Science is closely related to reading activities(Caponera et al., 2016), by reading learners will have the ability to think critically, creatively and constructively which can affect their understanding (Ayu et al., 2018).

As the PISA 2022 research shows the low science literacy skills of Indonesian students, the competency of "researching, evaluating, and using information to make decisions" is the competency with the lowest score for students in one of the schools in Jombang. According to the educator who teaches students at the school, *"The low ability to explain phenomena scientifically is related to students' understanding. If learners' understanding of a phenomenon is low, then it is not uncommon for learners to have difficulty in explaining phenomena scientifically, and it will have an impact on subsequent science literacy competencies".*

In detail, the achievement of the score of working on contextual questions based on environmental issues shows the qualifications of each different learner. There are 3 science literacy competencies that show the ability of students in each competency that varies. The results of each learner's achievement on each science literacy competency can be seen in Figure 1 below.

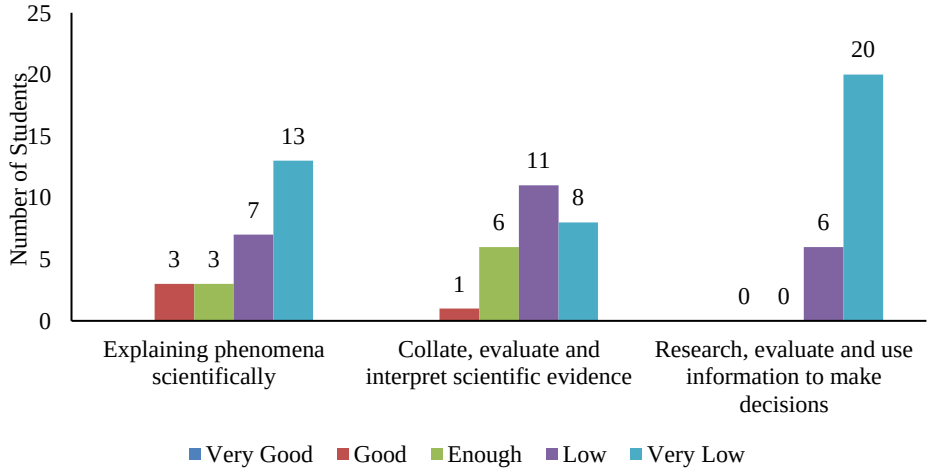


Figure 1. Graph of students' score achievement

Ability Science Literacy Explained Phenomenon In general Scientific

In detail, the ability of students for each competency in answering contextual questions based on environmental pollution issues that are integrated with science literacy skills can be seen in Figure 2 below.

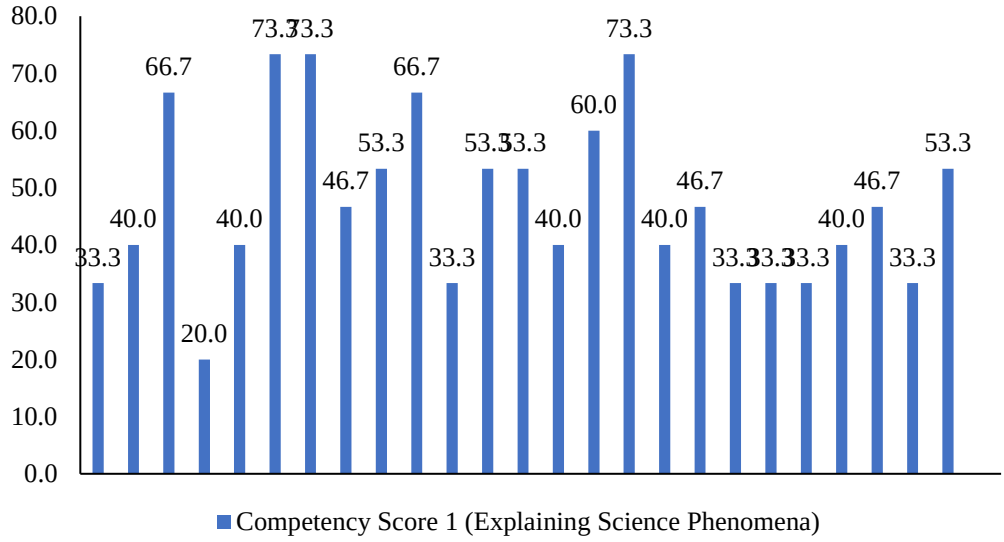


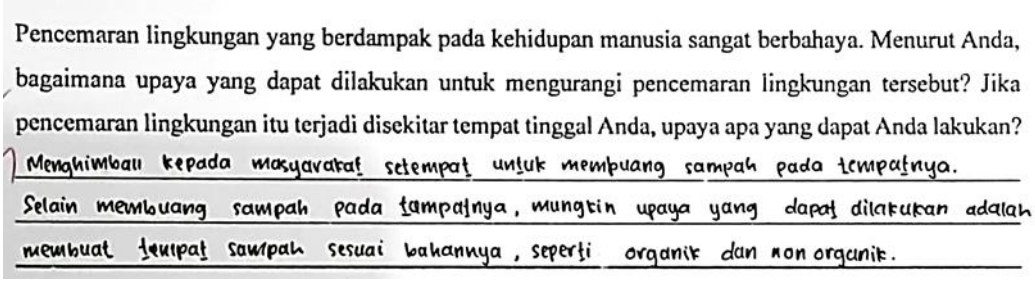
Figure 2. Graph of score achievement of competency 1 learners

There are 3 contextual questions based on environmental issues in this competency, the first question contains content knowledge with a local context. Learners are required to be able to identify the effect of environmental pollution on humans. The environment and humans are two things that cannot be separated. Environmental education is known to help humans understand their environment, the problems that occur in it, have the knowledge, skills, attitudes, motivation, and commitment to provide solutions to existing environmental problems (Miyasaka & Honda, 2024). However, to be able to instil environmental education in students often educators have difficulty, educators say that *"Environmental education for students is very important, this is a form of effort to deal with environmental pollution. However, life outside the school that students receive is a challenge in itself, not infrequently this can be found through the behaviour of students who still litter because they see around them many people littering without thinking about how it affects the phenomena of natural disasters due to these actions ".* The results of working on questions by students show that in question number 1 students get an average score of the ability to answer questions of 40.8 in the low category.

The second question contains epistemic knowledge with a personal context. Learners are required to understand the forms of environmental pollution. The results of working on questions by students show that in question number 2 students get an average score of the ability to answer questions of 46.2 in the low category. The educator said *"The forms of environmental pollution are actually very many and can be easily found by students, but the bad behaviour of damaging the environment that is normalised makes students not infrequently participate in doing so, such as throwing plastic waste from their snacks carelessly".* The personal context presented in the question, measures the

ability of learners to identify forms of environmental pollution that are around them. Environmental pollution that is closest to them includes waste from everyday items such as product packaging, cans, bottles, and others (Abegaz et al., 2021).

The third question contains content knowledge with a personal context. Learners are required to analyse the relationship of living things in environmental pollution. Analysis of the relationship between living things and the environment shows the relationship between one another. The relationship or interaction between humans and nature shows human attitudes or behaviour towards nature (Igayanti et al., 2019). The educator said *"Human interaction with the environment has a relationship with each other, as with the previous questions, relating to the relationship between living things and their environment has its own challenges, if the understanding of concern for the environment is low, then this greatly affects the ability of students to analyse the relationship between living things and their environment"*. The results of working on questions by students show that in question number 3 students get an average score of the ability to answer questions of 50 in the low category. One of the answers to students' questions on competency 1 can be seen in Figure 3 below.


Pencemaran lingkungan yang berdampak pada kehidupan manusia sangat berbahaya. Menurut Anda, bagaimana upaya yang dapat dilakukan untuk mengurangi pencemaran lingkungan tersebut? Jika pencemaran lingkungan itu terjadi disekitar tempat tinggal Anda, upaya apa yang dapat Anda lakukan?

Menghimbau kepada masyarakat setempat untuk membuang sampah pada tempatnya.

Selain membuang sampah pada tampatnya, mungtin upaya yang dapat dilakukan adalah membuat tempat sampah sesuai bahannya, seperti organik dan non organik.

Figure 3. Student answers for competency 1

Science Literacy Skills Compile, Evaluate and Interpret Scientific Evidence

In detail, the ability of students for each competency in answering contextual questions based on environmental pollution issues that are integrated with science literacy skills can be seen in Figure 4 below.

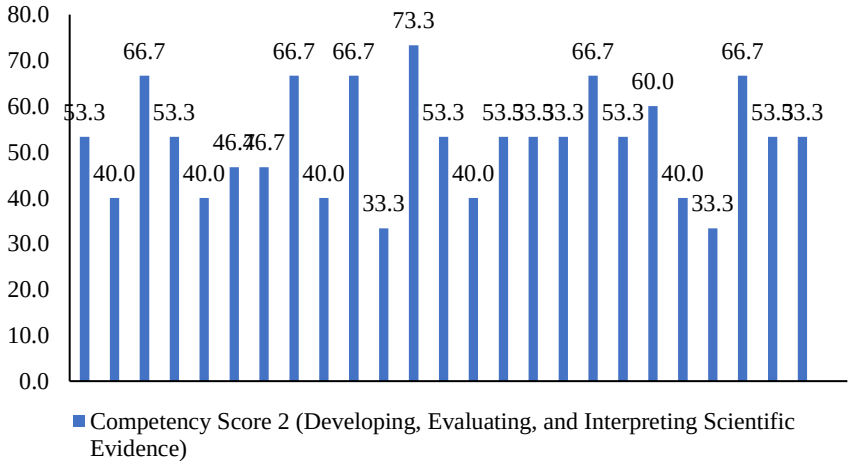


Figure 4. Graph of score achievement of competency 2 learners

There are 3 questions on this competency, the first question contains content knowledge with a global context. Learners are required to be able to analyse the importance of protecting the environment from environmental pollution. The attitude of protecting the environment is a basic aspect that every human being must have (Abidin & Artauli Hasibuan, 2019). The results of the score of working on questions by students show that in question number 4 students get an average score of the ability to answer questions of 42.3 in the low category. The educator said *"Learners' attitude towards their role in managing their waste is related to this question. Learners with low scores may have concern for the environment that has not been maximised, this is an evaluation for educators to further optimise learners' concern for the environment".*

The second question contains epistemic knowledge with a global context. Learners are required to be able to develop tips or solutions in protecting the environment from environmental pollution. The solution designed is a proenviromental effort which is an attitude or behaviour of paying attention to and protecting the environment to support current and future lifebehavior pay attention and take care environment for support life moment this and future (Anggereini, 2017). Educators said "The ability of students to show their concern for the environment around them is not optimal, educators always try to always guide students to protect the environment as a home that provides life". The results of the question processing score by students show that in question number 5 students get an average score of 56.9 in the ability to answer questions in the sufficient category.

The third question contains procedural knowledge with a global context. Learners are required to be able to interpret the impact of environmental pollution around them. Learners can find environmental pollution that comes from waste produced by humans. In the context of sustainable living and environmental protection, the problem of environmental pollution from waste is an important issue. Waste that is not managed properly can cause various negative impacts in terms of cleanliness, health, comfort, and beauty (aesthetics) (Utami et al., 2023).

The educator said *"In general, students understand what happens if waste is not processed properly, but some students still have difficulty in explaining it. This is possible because students do not have a good understanding of waste management".* The score of working on questions by students shows that in question number 6 students get an average score of the ability to answer questions of 51.5 in the low category. One of the answers to students' questions on the 2nd science literacy competency can be seen in Figure 5 below.

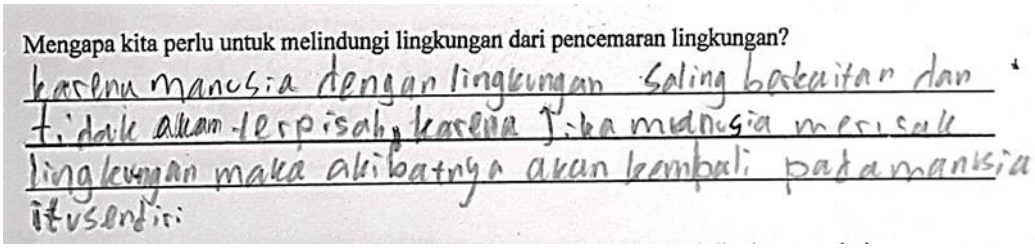

Mengapa kita perlu untuk melindungi lingkungan dari pencemaran lingkungan?
karena manusia dengan lingkungan saling berkaitan dan tidak akan terpisah, karena jika manusia merusak lingkungan maka akibatnya akan kembali pada manusia itu sendiri.

Figure 5. Student answers for competency 2

Science Literacy Skills Researching, Evaluating, and Using Information to Make Decisions

In detail, the ability of students for each competency in answering contextual questions based on environmental pollution issues that are integrated with science literacy skills can be seen in Figure 6 below.

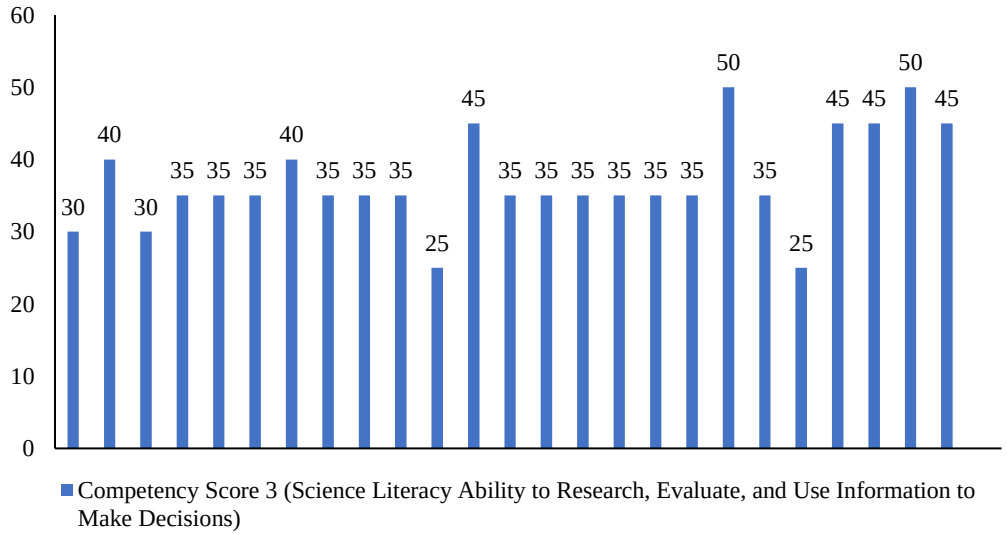


Figure 6. Graph of score achievement of competency 3 learners

There are 4 questions on this competency, the first question contains epistemic knowledge with a local context. Learners are required to be able to identify the causes of environmental pollution caused by humans. The existence of environmental pollution is inseparable from human activities or natural processes that cause changes in the composition of water, air, or soil that do not function as intended (Novindri et al., 2020). The educator says *"Learners know that the cause of environmental pollution is often caused by human behaviour. However, a tolerant attitude towards environmentally destructive behaviour and students' poor understanding can cause students' confusion in dealing with the phenomenon of the environment"*. The results of the question processing score by students show that in question number 7 students get an average score of the ability to answer questions of 40 in the low category.

The second question contains epistemic knowledge with a local context. Learners are required to be able to determine attitudes or decisions in dealing with environmental pollution case studies in the surrounding environment. Through attitudes, it can be seen how learners respond to scientific issues, which can support scientific inquiry activities (Ardianto & Rubini, 2016). The educator said *"Understanding and knowledge in waste management and protecting the environment has a huge impact on students' responses to the environmental phenomena they encounter"*. The results of the score question processing by students show that in question number 8 students get an average score of the ability to answer questions of 43.1 in the low category.

The third and fourth questions contain epistemic knowledge with a local context. Learners are required to be able to propose solutions or problem solving in case studies

of environmental pollution caused by humans. This solution aims to protect the environment from environmental pollution. The educator said *"Understanding of environmental pollution solutions starting from simple things, students already understand. However, as in the previous condition, there are still many things found in the form of environmental damage that make it difficult for students to determine the right solution"*. Environmental protection and management are efforts to preserve environmental functions and prevent pollution or damage to the environment(Handaiyani et al., 2019). The results of the question processing score by students show that in question number 9 students get an average score of the ability to answer questions of 40 in the low category and in question number 10 students get an average score of the ability to answer questions of 19.2 in the very low category. One of the answers to students' questions on the 3rd science literacy competency can be seen in Figure 7 below.

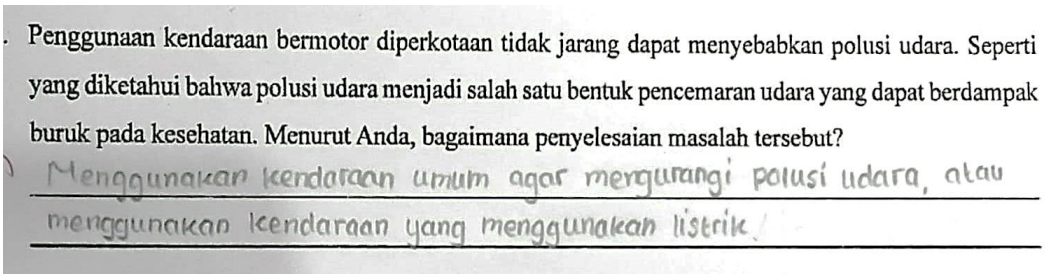


Figure 7. Student answers for competency 3

Low Factor Ability Islamic Junior High School Students Science Literacy

The low science literacy skills of students can be caused by many factors. Among them are the use of inappropriate learning resources(Kristyowati & Purwanto, 2019), the selection of inappropriate learning models, methods, or strategies, and inadequate school facilities (Novita et al., 2021). In addition, students who rarely work on questions in the form of planning for sustainable life can cause low science literacy of students (Merta et al., 2020).

Islamic Junior High School educators in Jombang explained *"Lack of interest in reading and involvement of students in learning activities are the fundamental causes of low science literacy skills"*. Interest in reading in learning can be the main capital to be able to optimise students' science literacy skills. Learners who have low interest in reading will find it difficult to have good science literacy skills (Suparya et al., 2022). He also added that *"Lack of learner involvement in learning activities causes learners to not focus on learning activities. It is often found that some learners are sleepy during learning activities"*. The aspect of learners' involvement in learning can affect learners' interest in learning, this is shown through activeness in learning (Latip, 2020).

Specifically, the analysis of the low science literacy skills of students based on interviews with Islamic Junior High School educators, several facts and factors that underlie the low science literacy skills of students measured by contextual questions based on the environment. The analysis found can be used as material for evaluating learning activities. The results of interviews on the causes of low science literacy skills in each competency are generally summarized in Figures 8 and 9 below.

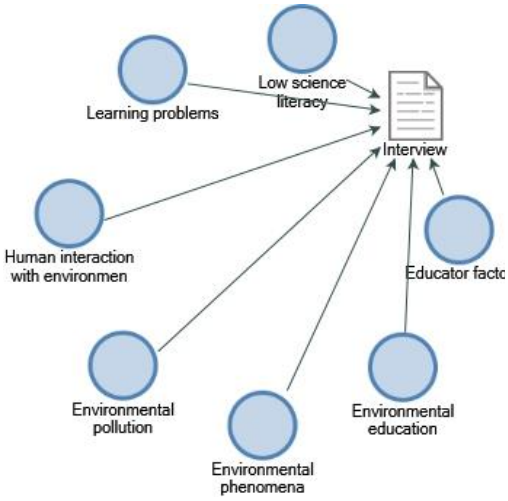


Figure 8. Analyze interview results

Figure 9. Analyze word interview results

Based on the interview results in Figure 8, educators conveyed many important things that can affect students' science literacy skills on environmental issues. Low science literacy skills can be caused by several factors, namely problems in learning related to the condition of students and the ability of educators to teach, knowledge of the relationship between humans and the environment. In addition, the low science literacy skills of students on environmental topics are caused by the phenomenon of environmental pollution actions that are still considered normal by some people, making students confused in determining the right actions in overcoming environmental problems.

The interview results in Figure 9 also show that educators realize the importance of environmental education for students. Educators said that the environment has a close relationship with humans. The ability of learners to understand the science phenomena around them can have an impact on their science literacy skills. Thus, the role of educators to improve science literacy skills needs to be optimized.

Science Learning Environment

Educators in preparing learning activities are required to provide active learning activities by involving students directly. The current orientation of education is to develop learners' skills through relevant complex experiences so that later, learners can solve problems in the real world (Widiyawati et al., 2021). Learning that is carried out later can have an impact on students' interest in learning.

Based on questionnaires related to student interest in learning, one of the Islamic Junior High School in Jombang has an interest in learning in learning activities of 72%. This learning interest is based on a questionnaire filled in directly by students which contains the activeness of students in asking questions, arguing, discussing, and a high sense of enthusiasm in learning activities. Based on the students' interest in learning, it can be seen that more than 50% of students have an interest in learning science. The

educator said that *"Based on the learning activities carried out, students have good interest. However, personal factors such as not focusing on learning activities cause learning outcomes to be less than optimal"*. It is known that learning interest is one of the factors that can affect the effectiveness of learning activities (Wijnker et al., 2021).

Interest in learning in students can be influenced by learning strategies used by educators. So that educators must be able to consider strategies that suit their needs by paying attention to the emphasis on science learning that emphasises experiences for students to be able to develop their potential, so that students can be helped to understand the surrounding nature with science (Yuliana & Atmojo, 2021). The learning strategy implemented at Islamic Junior High School shows the efforts of educators in supporting learning activities by actively involving students in presentation activities, discussions on science issues, group and project-based activities, and the use of learning media materials in clarifying the material.

When learners actively interact with their environment through direct object exploration or problem exploration activities and then work together in a group, this can affect science literacy skills (Tilamsari et al., 2023). The ability to collaborate between friends in learning activities, according to educators at Islamic Junior High School in Jombang, is known to encourage students to communicate environmental science phenomena into more scientific science phenomena. The educator said that, *"In science learning, collaboration between friends has the potential to influence knowledge and ability to work together between learners"*. Collaboration between learners and educators is an effective strategy to improve learners' scientific skills (Fung, 2024).

The selection of learning models is an important prerequisite for creating learning activities that have an impact on students. The selection of learning models is adjusted to the situation and conditions of students, this is useful for fostering student participation, interest so that learning achievement increases (Amalia & Budianto, 2019). The use of learning models is one of the keys in supporting learning activities. Limited learning facilities or teaching materials in supporting learning activities can be overcome if the selection of learning models from educators is appropriate.

In addition to the selection of learning models, through the use of technology that has progressed, educators can take advantage of this to support learning activities. The integration of technology in science learning activities is known to support better science learning outcomes (Ürek, 2024). The use of technology models and utilisation in learning will be easier to develop if the facilities at the educational institution are guaranteed.

Learners as recipients of learning activities provide an assessment of the facilities at their school. As many as 83% of learners agree that learning facilities in the form of classrooms, libraries, and laboratories as a place to study science have good quality. Learners agree that the classrooms they use in supporting learning activities are clean, bright, comfortable for learning, and equipped with projectors. Learning facilities as learning infrastructure are known to be a factor in supporting science literacy skills (Naturasari et al., 2017). So, this is a separate concern for educational institutions to optimise it.

The library as a place to read and a source of reference has good completeness in supporting learning activities. Optimising library management can influence students' reading interest which can have an impact on science literacy skills (Nurdiyanti et al., 2024). The laboratory as a place of experimentation has adequate equipment and

practicum materials, so that students will find it easier to explore their knowledge through the availability of existing facilities. Through existing facilities, of course, this can help educators to present learning activities that can influence students' knowledge.

Based on interest in learning and learning facilities, almost 50% more students believe that the learning activities carried out by educators are in accordance with the provisions and activities of science learning, but in fact the data on the science literacy skills of students in general are still below 50. The low science literacy skills in these schools can be one of the samples that the PISA 2022 research which shows the low science literacy skills in Indonesia is true. Of course, this needs to be improved, so that students' science literacy skills are better.

Through training, workshops or seminars, educators can optimise the presentation of appropriate learning activities. Educators at these schools also said that "The ability of educators in teaching is important for the creation of learning activities that are in accordance with the demands of the curriculum". Science educators at Islamic Junior High School in Jombang realise that the improvement of learning activities in science learning is still in the development stage.

▪ CONCLUSION

Based on the results of the study, the scientific literacy skills of students at one of the Islamic Junior High School in Jombang involving contextual questions based on environmental issues still got a low score. Through observation and interview activities with science educators who teach at the Islamic Junior High School, it is known that the ability of educators in presenting learning activities is an important factor in achieving good scientific literacy skills of students. The lessthan optimal implementation of learning activities can cause learning outcomes in improving scientific iteration skills to be less than optimal. Thus, educators are expected to be able to present learning activities that can improve students' scientific literacy skills, supported by existing facilities. Given the importance of scientific literacy skills in the 21st century. This research can be used by other researchers in scientific literacy research with environmental topics in everyday life. The small number of respondents involved in this research is a limitation of the research conducted. Thus, other researchers are expected to be able to increase respondents in similar research for more optimal results.

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