



## Analysis of 21<sup>st</sup>-century skills through science literacy in fifth grade science teaching at SDN Lebbek 1

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### ABSTRACT

The purpose of this research to obtain information on the extent to which 21st century skills are improved through scientific literacy. The problem in this research is "is there an increase in the scientific literacy ability of fifth grade students in science learning at SDN LEBBEK 1". The subjects in this study were teachers and students of class V SDN LEBBEK 1 for the academic year 2022/2023 which collected 17 students, consisting of 6 male students and 11 female students. The data collection techniques used in this study were observation, interviews and questionnaires. The data analysis technique used is quantitative technical, quantitative technique to process quantitative data from test results. The instruments used are student and teacher activity observation sheets, interview question sheets and questionnaires for students.



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## INTRODUCTION

The era of the 21st century has made world developments faster and more complex. These changes are basically aimed at improving the quality of life in modern society. The twenty-first century can also be described as a century marked by a massive transition from an agrarian to an industrial to a knowledge society. In responding to the demands of 21st century learning, education providers are required to provide 21st century skills to students, namely 4C, which includes: (i) communication; (ii) collaboration; (iii) critical thinking and problem solving; and (iv) creativity and innovation. The changes that have occurred have changed the way we view learning from the original teaching paradigm to a learning paradigm. In other words, when previously teacher-centered learning changes to student-centered learning, the teacher is not the main focus of learning resources, but the teacher is dominantly directed as a facilitator in the learning process.

The provision of quality science education will have an impact on a country's development. Science education depends on the learning methods used in each country. Through science education, students can be involved in the impact of science in everyday life and the role of students in society. By applying science concepts in science education, Indonesian students are expected to be able to solve real-life problems in the 21st century. Studying natural sciences aims to: believe in the existence of the Almighty God who is able to create the entire universe; be able to know and understand the basic concepts of science so that they can apply them in everyday life; deepen thoughts about the benefits of studying science and know that there is a reciprocal relationship between science and the surrounding environment and society; be able to use skills to investigate, solve problems, and be able to make decisions; have awareness of protecting, caring for, and preserving the surrounding natural environment as a form of respecting the creation of the Almighty God; so that the foundations found will be able to become provisions for continuing to the next level;

Students who have the knowledge to understand scientific facts and the relationship between science, technology, and society and are able to apply their knowledge to solve problems in real life are called scientifically literate people. Scientific literacy is one of the 16 skills needed in the 21st century identified by the World Economic Forum. Given the importance of scientific literacy, educating people

to have scientific literacy is the main goal of any science education reform. Scientific literacy emphasizes the importance of thinking and acting skills, which include mastering thinking and applying scientific thinking to recognize and address social issues. Scientific literacy is important for students to understand the environment, health, economy, modern social issues, and technology. Therefore, measuring scientific literacy is important to determine the level of scientific literacy of students in order to achieve high or good scientific literacy so that the quality of education in Indonesia can improve and be able to compete with other countries.

Judging from the results of students' scientific literacy achievement in PISA (Program for International Student Assessment), Indonesia is included at a low level, namely the bottom 10 positions, when scientific literacy is a very important factor in determining the quality of education in a country (OFCD, 2014). The low level of achievement in scientific literacy in Indonesia is one of the empirical foundations for creating the 2013 curriculum. The 2013 curriculum clearly shows scientific literacy through scientific inquiry learning. In scientific inquiry, learning involves scientific processes and attitudes so that students can construct their own knowledge. Some common problems in science-related learning with low scientific literacy, a lack of connection between the content or material being studied and events in daily life. Several previous studies on scientific literacy found that knowledge and application of scientific literacy that relied solely on textbooks or texts did not fully touch students' souls. The lecture method used is also less relevant, which causes students to only be passive listeners. If this is continued, later students will not be able to compete in the 21st century. The scientific literacy approach will be ineffective because the nuances of learning that are present are not interactive, innovative, creative, and fun; in fact, the opposite is true. Based on the description above, the researcher is interested in conducting research with the title "Analysis of 21st century skills through Science Literacy in Science Learning for Students in Class V at SDN Lebbek 1."

## RESEARCH METHODS

This research method uses a descriptive qualitative approach. In accordance with the research subjects of the homeroom teacher of class V and students of class V, The instruments used in this study were student observation sheets, teacher observation sheets, and students' scientific literacy ability assessment sheets. For data collection techniques, researchers used two methods, namely interviews and observations with fifth grade teachers and fifth grade students. These observations were made to obtain information about students' scientific literacy skills in science subjects. The percentage formula was used as a data analysis technique to measure teacher and student activity:

### Teacher Activity

$$\text{Teacher Activity} = \frac{\text{Teacher Activity Frequency}}{\text{Maximum Score}} \times 100\% \quad (1)$$

Measurement of teacher activity, seen from the number of indicators of teacher activity, namely 5, with the measurement of each indicator being 1 to 4. Then the maximum score is 20 (5 x 4) and a minimum score of 5 (5 x 1).

### Student Activities

$$P = F/N \times 100 \% \quad (2)$$

To find out student activity, seen from the number of student activity indicators, namely 5 and given a measurement of each indicator 1 if it is implemented and 0 if it is not implemented. Then a maximum score of 5 (5 x 1) is obtained and the minimum score is 0 (5x 0).

## RESULTS AND DISCUSSION

**Table 1 Results of Analysis of Evaluation of Students' Scientific Literacy Ability**

NO	Name	The value of students' scientific literacy ability	Mastery learning	
			Complete	Not Completed
1	Bayu	90	✓	
2	Faiz	70		✓
3	Angga	60		✓
4	Anggun	50		✓
5	Itsbat	45		✓

NO	Name	The value of students' scientific literacy ability	Mastery learning	
			Complete	Not Completed
6	Fika	90	✓	
7	Yusril	65		✓
8	Alvian	90	✓	
9	Ifan	70		✓
10	Unzila	75		✓
11	Dya	80	✓	
12	Sela	70		✓
13	Nurul	70		✓
14	Yasila	65		✓
15	Syarifatul	50		✓
16	Zaskia	70		✓
17	Alifa	88	✓	

From the results of the analysis of the evaluation of students' scientific literacy skills, it shows that there are many students who do not complete; this shows that the scientific literacy skills of class V students at SDN LEBBEK 1 are still low.

Scientific literacy is an individual's ability to use their knowledge in the process of identifying problems, obtaining new knowledge, explaining scientific phenomena, and drawing conclusions based on evidence related to scientific issues. Based on the results of these data, students have not been able to use scientific literacy in science subjects, as seen from the observation that out of 17 students, only 4 (16%) met the completeness criteria, and 13 (84%) did not meet the completeness criteria. These results indicate that improvements must be made to improve students' scientific literacy skills in science subjects so that their scientific literacy is high. The low level of scientific literacy is caused by a lack of connection between the content or material being studied and things that happen in everyday life. Several previous studies on scientific literacy found that knowledge and application of scientific literacy that relied solely on textbooks or texts did not fully touch students' souls. The lecture method used is also less relevant, which causes students to only be passive listeners. If this is continued, later students will not be able to compete in the 21st century. The scientific literacy approach will be ineffective because the nuances of learning that are present are not interactive, innovative, creative, and fun; in fact, the opposite is true.

The success of students' scientific literacy in learning is determined by internal and external factors, detailing the factors that lead to students' scientific literacy abilities, namely interest in science, learning motivation, teacher strategies in learning, and school facilities. One of the parties that can help students have good scientific literacy is the teacher. Learning strategies, learning content, learning facilities, learning media, and conducive learning activities can be designed by teachers to optimize the development of students' scientific literacy.

## CONCLUSION

Based on the research conducted, it can be concluded that the scientific literacy abilities of class I students at SDN Lebbek 1 in science subjects are still under completeness or still low due to a lack of linkage between the content or material being taught and things that happen in everyday life. Today, the knowledge and application of scientific literacy that only relies on textbooks or texts has not fully touched the souls of students, the lecture method used is also less relevant which causes students to only be passive listeners, and there is no variety of scientific literacy reading materials available. So it is necessary to provide books related to science, both fiction, non-fiction, and references that are in line with the development of elementary school students, preparation and development of teaching materials in the form of learning process designs that contain the nature of science, scientific literacy, systems thinking. ), and work and think collaboratively; the use of traditional educational games about science that can enrich the learning experience of students, scientific literacy festival activities with various activities and increasing nature exploration activities around.

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