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ANALYSIS OF SCIENCE CONTENT IN CLASS IV PRIMARY TEXTBOOKS

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ABSTRACT

Science education is one of the scientific disciplines that must be possessed by students at the elementary school education unit level. Textbooks have an important role in science learning. This research was carried out at SDN Trans Despot, Leungah Village, Seulimum District, Aceh Besar Regency, Aceh Province, Indonesia. The aim of this research is to find out the science content contained in the textbooks used in class IV of Trans Despot Leungah State Elementary School. The research method was used descriptive qualitative method. The results of observations of teachers on average obtained very good results, where learning was carried out using textbooks as one of the learning tools. As a result of interviews conducted with teachers, information was obtained that the science content in the textbooks used was appropriate to the students' level of understanding. Based on the research that has been carried out, the recommendation from researchers is to increase the coverage of scientific literacy indicators used so far in the learning process, so that textbooks can be used optimally to accommodate all the science content being taught.

INTRODUCTION

Science education has an important role in preparing children to enter the world of life. Science education develops students to think in understanding natural phenomena using scientific methods. The government has done this so that the younger generation can compete. If the human resources produced are low, it will certainly affect the nation's competition in the 4.0 era. Therefore, the role of teachers is very necessary to improve the quality of superior human resources. The government has prepared this through education as stated in article 3 of Law No. 20 of 2003. Science is part of the 2013 curriculum which is designed to develop students' knowledge, skills and attitudes. The implementation of the

2013 curriculum can be supported by various learning processes in honing students' abilities.

Based on initial observations at SD Negeri Trans Despot Leungah, students have not been active in the learning process and most students still do not understand the science lessons they have received. Some teachers still use teacher and student textbooks in the learning process. The teaching and learning process using media is very rarely used. Therefore, students are less interested in participating in the learning process. So that choosing teaching materials can help students participate in the learning process and be active. One of the factors thought to be causing the low scientific literacy of Indonesian children related to the educational process is textbooks. Textbooks have an important role in science learning (Chiappetta et al., 1991). Textbooks are used by teachers to convey information to students. Scientific literacy is 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 (OECD, 2003).

Textbooks are a very important educational component in the learning process. The availability of quality textbooks will support the success of the learning process. However, existing textbooks emphasize the content dimension rather than the process and context dimensions as required by the Program for International Student Assessment (PISA). This condition is thought to cause the low level of scientific literacy of Indonesian children. PISA is an international assessment that measures the reading, mathematics and science literacy skills of 15-year-old students every three years. First implemented in 2000, the core learning areas alternate between reading, math, and science in each cycle. PISA also includes measures of general or general skills, such as collaborative problem solving. By design, PISA emphasizes the functional skills that students acquire as they approach the end of their compulsory education. Therefore, through choosing the right textbooks, it is hoped that there will be an increase in understanding of science which will ultimately increase students' scientific literacy, where science learning activities in elementary schools should emphasize observation, collection and data collection.

The Importance of Textbooks in Learning: Textbooks are one of the main sources in the learning process in elementary schools (SD). Textbooks are used by teachers and students as a guide to understanding lesson material. Therefore, the quality of textbooks is very important in determining the effectiveness of learning in the classroom. 2013 Curriculum: In many countries, including Indonesia, the education curriculum has undergone significant changes. The 2013 curriculum (K-13) in Indonesia, for example,

emphasizes a scientific approach in science learning. Therefore, textbooks must be in accordance with this curriculum in order to support effective teaching. Limitations of Previous Research: Even though textbooks have an important role in education, there is still little research that comprehensively analyzes the science content in 4th grade elementary school textbooks. Therefore, this research aims to fill this knowledge gap and provide a deeper understanding of the science content in these textbooks.

Textbooks are textbooks in a particular field of study which are standard books, prepared by experts in that field with instructional aims and objectives, equipped with teaching tools that are harmonious and easy to understand by users in schools and universities so that they can support a teaching program (Tarigan & Tarigan, 2009). This textbook is analyzed according to the content of scientific literacy.

An important factor to support learning at school is teaching materials. Teaching materials are a set of learning tools that contain learning materials so that teaching materials are expected to be able to encourage students to learn competencies in a systematic, complete and integrated manner. According to Prastowo (2017), teaching materials are all materials (whether information, tools, or texts) that are arranged systematically, which display a complete figure of competencies that students will master and use in the learning process.

Textbooks that contain elements of scientific literacy have a big influence on students' scientific literacy abilities, so student books are needed as learning resources that contain elements of scientific literacy. Ummah's research results (2018) show that the increase in scientific literacy skills of students who use scientific literacy-based teaching materials is higher than students who do not use scientific literacy-based teaching materials.

Quality education is the key to creating a skilled and knowledgeable generation. Therefore, ensuring that textbooks present science material that is correct, easy to understand, and appropriate to the cognitive development of grade 4 elementary school children is very important. The aim of this research is to find out the science content contained in the textbooks used in class IV of Trans Despot Leungah State Elementary School.

RESEARCH METHODOLOGY

The research is entitled Analysis of Science Content in Class IV Elementary School Textbooks (Case Study at SDN Trans Despot Leungah. This research is included in descriptive qualitative research. Descriptive qualitative is one of the characteristics of descriptive research, namely the data collected in the form of words- words, images, and

not numbers. Qualitative research is research that intends to understand phenomena about what is experienced by research subjects, for example behavior, perceptions, motivations, actions, etc. holistically, and by means of descriptions in the form of words and language. , in a special natural context and by utilizing various scientific methods. The results of descriptive research which aims to create a systematic, factual and accurate description or picture of the facts, properties and relationships between the phenomena being investigated , everything that is collected is likely to be the key to what has been researched. 1 This descriptive research aims to determine the suitability of the textbooks used in schools at SDN Trans Despot Leungah.

The textbooks whose use was analyzed in this research were all textbooks taught in class IV and used for learning at SD Negeri SDN Trans Despot Leungah. There are 3 books, namely I (Natural and social sciences, Ministry of Education and Culture), II (Natural sciences, Chairon Amin and Amin Priyono) and III (IPAS, Oky Dian et al., Yudhistira). Research instruments are tools that function to facilitate the implementation of research . The research instrument was used as a tool to collect data. The instrument used in this research was an interview sheet which was used during observations to collect information about the textbooks used at SDN Trans Despot Leungah and observation sheets.

Observation sheets are used to collect data related to teacher and student skills during classroom learning activities as well as students' understanding of the science content explained by the teacher. Interview sheets to strengthen information regarding the use of textbooks in class IV regarding science content and documentation were carried out to obtain data.

The data analysis technique used in this research is a descriptive-qualitative analysis technique including Data Reduction, Data Display and drawing conclusions and verifying data. Checking the validity of the data in this research uses a credibility test, namely by triangulation. Triangulation in credibility testing is defined as checking data from various sources in various ways, and at various times. In this case, the researcher uses triangulation of data collection techniques, namely by checking data from the same source with different techniques, the researcher uses documentation data, results data and data from questionnaires and interviews to be able to check the validity of the data.

RESULT AND DISCUSSION

The research results were obtained through interviews and observations carried out on teachers at SDN Despot Leunggah. Interviews involved 3 teachers, and observation activities were carried out in class IV during the learning process. Based on this activity,

information was obtained regarding the use of textbooks and analysis of the science content of these textbooks.

Based on the results of observations made during the learning process in class IV at SDN Despot Leungah, information was obtained that matters related to participation, student concentration and students' ability to understand the material were still not optimal, so the teacher had to repeat the material that had been taught previously. The explanations written in the textbook are very good, but the teacher's ability to convey the information contained in the textbook is needed so that students' understanding becomes better.

The results of observations of teachers and students at SDN Trans Despot Leungah are related to the science content contained in the teaching and learning process. On average, teachers get very good results. This can be seen from the textbooks used which present scientific concepts thoroughly and encourage students to think critically. and being scientific, there are exercises and ways to carry out scientific experiments in life as well as investigative activities and assignment activities that students can carry out.

Observation results show that the majority of 4th grade elementary school teachers have a positive view of the science textbooks they use. They see that this textbook is in accordance with the curriculum, presents material clearly, accurately, and is relevant to students' daily lives. However, there are some obstacles faced by some teachers in using textbooks, which indicates the need for more support and training in the use of this resource.

Several recommendations that can be given regarding the data above are based on research findings, several recommendations can be proposed:

1. Provide additional training to teachers in using textbooks, especially in overcoming the obstacles they experience.
2. Conduct regular monitoring of textbook content to ensure that the material remains relevant and accurate.
3. Develop science textbooks that are more interactive and based on student experience to increase student engagement and understanding.

Observation results show that the majority of teachers use textbooks well to explain science concepts to students. The material is presented clearly and in detail, allowing students to understand well. Teachers consistently refer to the curriculum (K-13) when teaching and link the material they teach to curriculum objectives. They try to ensure that textbooks comply with applicable curriculum guidelines.

Meanwhile, information obtained from interviews with 4th grade elementary school teachers provides a deeper understanding of their views and experiences in using science textbooks. The results of the interviews will be presented in Table 1 below.

Tabel 1. Teacher Interview Results

No	Question	Interview result
1	How is the teaching process in the school environment, ladies and gentlemen?	Very conducive, the learning environment is calm, comfortable and very supportive of learning activities.
2	What difficulties do students experience in learning science?	Difficulty remembering material even though it has been read repeatedly and difficulty understanding lesson material
3	How do you organize learning activities so that students are active?	Introducing an interesting phenomenon by experimenting with educational game assessments with quizzes. Then distribute LKPD so that children are active in solving problems.
4	What obstacles do you face when teaching science lessons?	Learning media is limited and inadequate and science learning facilities and media are still limited
5	Do you often use the school environment or surrounding environment to improve science learning?	Often, so that students are more motivated to learn, the material studied is more factual, students are more active and rich in learning resources, then students will better understand the material being studied through direct observation in the environment.
6	Do you always relate it to everyday life when explaining science material?	Yes, so that students better understand the material being taught and so that students are more motivated in learning and so that they are more active in the work of learning resources
7	Have you ever taught your students to learn science outside the classroom?	Once, so that students can be more free to imagine when learning science. Then, students will be more active in learning, so student motivation will be higher. Besides that, students are more relaxed and free to be creative.
8	How do you organize learning materials in school learning activities?	Arrange material in detail consisting of knowledge of facts, concepts, principles, procedures and skills. Teachers also determine learning objectives, select appropriate materials and structure the teaching materials
9	Have you ever used group discussions in your science lessons?	Once, to make it easier to complete each task in learning. Students often increase student cooperation in learning science
10	Do you always use media in the learning process?	Always, to make it easier to understand the learning material and to attract students' interest in learning and so that it is easier for them to understand the learning material.
11	What difficulties do students experience in learning science?	Difficulty remembering material even though you have read it many times and difficulty understanding learning material. Then there is a lack of understanding of the material, there is no

		concrete media so that students still lack understanding of the material
12	Do you always evaluate students at the end of each activity?	Always, to find out the level of students' understanding of the learning material
13	Have student learning outcomes so far been good?	There are some who are good and there are also some students who are still lacking
14	How to improve student learning achievement in science learning?	Using media that is appropriate to the learning material and implementing ICT in learning. Then add learning videos and teaching aids to each science lesson

By analyzing the results of these interviews, it can be concluded that the school environment has a holistic and proactive approach to the teaching process, with a focus on student engagement, use of technology, and support for student diversity. Challenges are identified as opportunities for continuous growth and improvement. To overcome difficulties remembering material, memory techniques or visual reminders can be applied which can help students retain information. Efforts to increase interest in learning can involve curriculum adjustments, use of relevant teaching materials, and challenging project-based learning. Forming study groups through experiments can stimulate interaction between students, facilitate discussion, and increase understanding through sharing ideas. Collaborative learning can create an environment that supports the development of social skills and deeper understanding.

This can help achieve learning goals while increasing students' interest, motivation and understanding of teaching material. It is important to involve related parties, such as the government, community or private sector, to increase support and availability of science learning facilities. Collaboration can open up opportunities to obtain additional resources and expand the accessibility of learning media.

Through this discussion, it is hoped that schools, teachers and other stakeholders can identify concrete solutions and joint efforts to overcome the limitations of learning media and improve the quality of science learning. Often using the school environment or surrounding environment to improve learning aims to achieve quality educational processes and results. Through observation and optimal use of learning resources, it is hoped that students' achievement of understanding and skills can be optimized. Through consistent use of this method, it is hoped that learning will become more dynamic, interactive, and have a positive impact on students' understanding and interest in the subject matter. Frequently relating it to everyday life can also contribute to support for the

overall learning process. A consistent and integrated learning process can ensure that students not only understand the material, but can also apply and remember it well.

By prioritizing understanding the material and choosing appropriate learning methods, it is hoped that science learning can become more effective and meaningful for students. Using teaching students to carry out science learning outside the classroom which actively involves students can increase students' motivation towards learning. Active students tend to be more motivated to learn and participate in the learning process. Through understanding and applying methods that support student relaxation, creativity and involvement, it is hoped that science learning can become more interesting, effective and relevant for students.

The structure of textbooks includes arranging material, organizing information, and dividing material into structured learning units. A good structure can help students follow learning more easily. By preparing material carefully and structured, it is hoped that learning can take place more effectively and can achieve the desired learning objectives. Using group discussion methods to increase student collaboration shows a commitment to building social and collaborative skills. Student collaboration can enrich the learning process and the results achieved. By understanding the context and purpose of using certain methods, it is hoped that learning can be more effective, enjoyable and in accordance with students' needs.

Always using the group discussion method, learning success can also be influenced by supporting learning factors, such as technology, resources and class characteristics. Adjusting to these factors can ensure the continuity and success of learning. By considering students' understanding and interests, and with appropriate adjustments, the use of learning methods can always have a positive impact on learning effectiveness.

Regarding difficulties in understanding the material, additional efforts are needed to provide further explanations, provide concrete examples, or involve students in more interactive learning activities. Tutoring, group discussions, or a project-based learning approach may be a solution. By identifying these obstacles, adapted learning approaches and remedial strategies can be implemented to help students overcome difficulties in remembering and understanding learning material. By continually assessing levels of understanding, teachers can maintain focus on continuous improvement and help students continue to improve their abilities. Through consistent evaluation of the level of understanding, learning can be adjusted, and students can be directed to achieve a deeper understanding of the learning material.

On going evaluation is necessary to monitor the development of student understanding over time. By understanding these variations, teachers can develop more effective learning plans. By recognizing the diversity of students' levels of understanding, teachers can create an inclusive learning environment and support the development of each student according to their needs.

The use of ICT in learning can also improve communication and collaboration between teachers and students. Online platforms enable information exchange, discussions and collaborative projects. By combining appropriate media, ICT implementation, and appropriate learning approach models, teachers can create a learning environment that is dynamic, motivating, and supports students' understanding of learning material.

Based on the results of interviews conducted with teachers regarding the teaching and learning process regarding science content. The learning process in the school environment is very conducive, the learning environment is calm, comfortable and very supportive of learning activities. The methods used in learning science content are the environmental approach model and the discovery method. Teachers organize learning activities so that students are active by introducing an interesting phenomenon with experiments, providing educational game assessments with quizzes. Often use the surrounding environment to improve students in science lessons so that students become more motivated to learn, the material studied is more factual, students are more active and have rich learning resources.

When explaining lessons, teachers always relate them to everyday life so that students can more easily understand the material being taught. And teachers often take students to study outside the classroom so that students are more relaxed and free to be creative. The teacher arranges detailed learning material consisting of knowledge of facts, concepts, principles, procedures and skills and makes group work to make it easier to complete learning tasks.

Based on the results of the interview, there are several obstacles or difficulties experienced in the teaching and learning process, one of which is difficulty in understanding and remembering the material that has been taught by the teacher and a lack of learning media so that it is difficult to explore the material to a more in-depth level. Natural and Social Sciences This book explains the parts of plants, the process by which photosynthesis occurs, the most important processes on earth and plant reproduction. Analysis of how to know the parts and processes that occur in plants. Natural science in this book explains the skeleton and how to care for it as well as the uses of the skeleton in

humans as well as the names of the skeletons found in humans. The function of the frame and disorders of the frame and how to prevent them.

In the textbook used, there is an explanation of the relationship between living things and the environment, which is the core of the science of ecology. It involves how organisms interact with their environment, adapt, contribute to ecosystems, and environmental change and preservation. This study is important for understanding and maintaining natural sustainability. In science learning, there is more emphasis on student activities, less on remembering knowledge in the form of facts, more emphasis on science process skills to obtain concepts, students learn actively and most of the students' time is spent in the laboratory or field work.

The textbooks used contain observation, measuring, predicting, guessing, classifying, recording, analyzing and concluding which are contained in learning science content. The textbooks used encourage students to explore and construct for themselves and contain scientific information such as articles and scientific journals. The teaching material taught displays a positive impact on society and scientific concepts in everyday life.

Science learning models that are predicted to contribute significantly to student character development are cooperative learning models, contextual learning models, problem-based learning models, problem solving models, inquiry learning models, community science-technology learning models, portfolio-based learning models, project-based learning models, and the learning cycle model (Sadia et al, 2013).

Most teachers stated that textbooks presented science material clearly and easily understood by students. They consider the explanations in textbooks to be sufficient to support effective teaching. Regarding data regarding the accuracy of information in textbooks, most teachers believe that the information and facts in science textbooks are accurate. They feel that textbooks provide a strong foundation for students' understanding of science concepts.

Regarding data regarding relevance to real-world situations, some teachers see that textbooks are successful in connecting science concepts with real-world situations or students' daily experiences. They consider this important to make the material more relevant to students. Regarding data regarding obstacles in using textbooks, a small number of teachers revealed several obstacles in using textbooks. These obstacles include the inaccessibility of some material in textbooks due to limited time and some difficulties in adapting the material to the needs of students with different levels of understanding.

CONCLUSIONS AND SUGGESTIONS

Based on the results of this research, it can be concluded that the majority of teachers say that the textbooks used are good, but teachers need strengthening in linking science concepts with real world situations or students' daily experiences. They argue that this can increase students' interest and understanding of science. Support should be increased such as socialization and technical guidance in the use of textbooks as an effective learning resource. There are several obstacles in using textbooks, such as the inability to achieve some material due to limited time in one school year and difficulties in adapting the material to students' varying levels of understanding.

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