

ANALYSIS OF STUDENTS' CRITICAL THINKING SKILLS IN FIFTH GRADE SCIENCE LEARNING AT SAWUNGGALING PUBLIC ELEMENTARY SCHOOL

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Abstract *Education is a deliberate process designed to create a learning environment that facilitates students' development. This study aims to describe the critical thinking skills of fifth grade students in science learning and the factors that influence them. Critical thinking skills are the ability to think using HOTS to analyze, interpret, evaluate, summarize, and combine various information to solve a problem wisely. Science is a scientific study that discusses living things and their interactions with the environment and the universe. The type of research used in this study is descriptive qualitative. The subjects of this study were seven students of Sawunggaling Public Elementary School. Data collection techniques in this study used test, observation, interview, and documentation methods. Data analysis techniques in this study used data analysis according to Milles and Huberman. The results showed that the subjects who were fifth grade students at Sawunggaling Public Elementary School were able to demonstrate critical thinking skills in the good category. Critical thinking skills in the very good category were achieved by subjects S1, S2, S3, S6, and S7. Critical thinking skills in the good category were achieved by subjects S5. Critical thinking skills in the sufficient category were achieved by subjects S4. Students' critical thinking abilities are influenced by several factors such as internal and external factors.*

Keyword: ability, critical thinking, science learning

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Abstrak Pendidikan adalah suatu proses yang dilakukan secara sengaja dan didesain untuk menciptakan lingkungan belajar yang bisa memfasilitasi peserta didik sehingga dapat mempertajam kemampuannya. Penelitian ini bertujuan untuk mendeskripsikan kemampuan berpikir kritis siswa kelas V pada pembelajaran IPAS dan faktor yang mempengaruhinya. Kemampuan berpikir kritis adalah kemampuan berpikir secara HOTS untuk menganalisis, menafsirkan, mengevaluasi, merangkum, dan menggabungkan berbagai informasi dalam memecahkan permasalahan secara bijak. IPAS adalah kajian ilmu pengetahuan yang membahas mengenai makhluk hidup beserta interaksinya dengan lingkungan dan alam semesta. Jenis penelitian yang digunakan dalam penelitian ini adalah kualitatif deskriptif. Subjek penelitian ini yaitu siswa SD Negeri Sawunggaling yang berjumlah tujuh siswa. Teknik pengumpulan data dalam penelitian ini menggunakan metode tes, observasi, wawancara, dan dokumentasi. Teknik analisis data dalam penelitian ini menggunakan analisis data menurut Milles and Huberman. Hasil penelitian menunjukkan bahwa subjek yang merupakan siswa kelas V di SD Negeri Sawunggaling mampu menunjukkan kemampuan berpikir kritis dengan kategori baik. Kemampuan berpikir kritis pada kategori sangat baik diraih oleh subjek S1, S2, S3, S6, dan S7. Kemampuan berpikir kritis pada kategori baik diraih oleh subjek S5. Kemampuan berpikir kritis pada kategori cukup diraih oleh subjek S4. Kemampuan berpikir kritis siswa dipengaruhi oleh beberapa faktor seperti faktor internal dan eksternal.

Kata Kunci: kemampuan, berpikir kritis, pembelajaran IPAS

A. INTRODUCTION

Education is a process that is carried out intentionally and designed to create a learning environment that can facilitate or accommodate students so that students can sharpen their abilities so that students have faith, discipline, moral character, and skills which are beneficial for themselves, the nation, or the country. According to Law Number 20 of 2003 concerning the National Education System, it states that education is a conscious and planned effort to create an atmosphere and learning process so that students are active in developing their potential so that they can have spiritual religious strength, self-control, personality, intelligence, noble morals, and skills that need to be possessed by themselves, society, and the country. In this it is explained that the purpose of education is to develop the potential that exists in students (Lessari, 2024) to become human beings who believe and fear God Almighty, have noble morals, are healthy, knowledgeable, capable, creative, independent, and responsible.

The father of education, Ki Hajar Dewantara coined three mottos in education: “*Ing Ngarso Sung Tulodho*” (in front setting an example), “*Ing Madya Mangun Karso*” (in the middle giving encouragement), and “*Tut Wuri Handayani*” (behind giving encouragement). Students who are equipped with education will grow into superior, qualified, and proud individuals. Therefore, with education a person will gain lifelong knowledge that can change attitudes or behavior, ways of thinking, personality, and play the role of human life appropriately.

Ability is the capacity to do something. A person is said to be capable if they can do something they are supposed to do with their existing abilities. Another opinion put forward by Utari (2023) states that ability is an inherent talent in a person to perform an activity, both physically and mentally, acquired from birth, learning, and through experience. This means that ability is a person’s foundation for carrying out an activity. According to Melinda (2024), ability is essential for students to be able to solve problems from learning. A person’s abilities can be developed through regular practice. By understanding and developing skills, individuals can be better prepared to face future challenges.

Thinking is a step in processing information both psychologically and cognitively (Putrianingsih, 2020). Furthermore, another definition of thinking is an effort to consider what we see, feel, touch, or discover, using the intellect given by God Almighty, with the aim of solving problems with good reason. The ability to think is crucial for survival in this rapidly developing era. Thinking can motivate someone to solve a problem.

Critical thinking is an individual’s ability to answer, respond to, or react to problems and draw structured conclusions to obtain needed information (Rachmadiansyah, 2022). Critical thinking involves inductive thinking skills such as recognizing relationships, analyzing open-ended problems, determining cause and effect, drawing conclusions, and calculating relevant data. Critical thinking skills can be influenced by several factors, including internal and external factors. Factors that influence critical thinking skills include a student’s physical condition. Students who are unhealthy and unmotivated in learning will have impaired concentration during learning, which can disrupt their critical thinking. The next factor is motivation. Motivated students tend to be more enthusiastic about

exploring and solving problems, thereby improving their critical thinking skills. The next factor is anxiety. High levels of anxiety can hinder critical thinking skills. Anxiety can make students hesitate, afraid of making mistakes, and reluctant to express their ideas. Another factor influencing critical thinking skills is the role of the teacher. Teachers, acting as facilitators, can help students develop their curiosity and provide feedback to build their critical thinking skills. The next factor is the learning model. Less interactive learning models and teacher-centered learning can hinder student's critical thinking skills. Meanwhile, learning methods that require students to be active, such as problem based learning and group discussions, can improve students' critical thinking skills.

With this critical thinking ability, it is hoped that it will improve students' ability to investigate existing problems by stimulating and asking new questions and answer to discover new information. Students with high critical thinking skills will differ from those with low critical thinking skills, especially in terms of understanding a subject matter, solving problems, and making decisions. Students with high critical thinking skills tend to be better able to understand the subject matter, identify and solve problems faced. Students' critical thinking potential needs to be developed to achieve optimal skills and be able to make decisions in a wise manner. Meanwhile, students with low critical thinking skills when receiving learning materials tend to memorize the material and lack in-depth understanding of concepts.

Therefore, this critical thinking ability is very important for every student to have so that students are accustomed to or able to solve problems that exist in the real world such as studying, understanding, and mastering science material through learning activities in the classroom, especially in this science learning. Science education is a crucial subject for students starting from elementary school because it emphasizes direct experience (Annisa, 2024). Suhelayanti et al., (2023) stated that science learning is a curriculum development that combines science and social studies materials into one theme in learning. Science is a scientific study that discusses living things and their interactions with the environment and the universe (Meylovvia et al., 2023). This study aims to analyze the critical thinking abilities of fifth grade students in science learning and the factors that influence students' critical thinking abilities.

B. METHOD

The method used in this study is a qualitative research method with a descriptive approach. Qualitative research is research presented descriptively or in the form of words sourced from collected data. This qualitative research method with a descriptive approach was used to describe students' critical thinking skills in science learning and the factors that influenced them.

The location of this research was conducted at Sawunggaling Public Elementary School, located at Jalan Mardiusodo No. 02, Kutoarjo Distric, Purworejo Regency, Central Java Province. The subjects in this study were seven fifth-grade students of Sawunggaling Public Elementary School who had the criteria for critical thinking skills and could communicate their ideas. The selection of this fifth-grade class was based on the recommendation of the class teacher and the consideration that fifth-grade students already use concrete thinking methods and also the learning process in this fifth-grade class the teacher has used problem based learning methods. The critical thinking indicators that will be examined in this research include indicators for providing simple explanations (clarification), building basic skills (basic support), concluding (inference), providing further explanations (advanced clarification), and arranging strategies and tactics (strategy and tactic).

The data collection techniques in this study used observation, interviews, tests, and documentation. Observation techniques were carried out to observe student behavior during the learning process and to obtain data regarding student involvement and reactions. The observation in this study was active participatory observation because during the learning process, the researcher was directly involved in observing the learning process taught by the teacher/observing the teacher's actions, student responses, and the situation during the learning process. An interview is a two person meeting between the interviewer and the informant that aims to exchange information and collect data throught a direct question and answer process between the interviewer and the informant. The interview subjects in this study were a fifth-grade teacher at Sawunggaling State Elementary School and seven fifth-grade students. A tests is a tool used to measure

student learning outcomes by providing a series of questions or assignments that must be completed by students (A'yun, 2022). The test method in this study used five descriptive questions, each of which contained critical thinking indicators. Documentation is evidence that the researcher has conducted research activities from beginning to end. Documentation is used as a supplement to data in the form of photos or videos.

The data analysis technique in this study uses data analysis according to Milles and Huberman which consists of four steps, namely: data collection, data reduction, data presentation, and conclusion drawing. The data collected from this study are data from observations, tests, and interviews of students and teachers of grade V of Sawunggaling State Elementary School accompanied by documentation. Data reduction is collecting and simplifying or summarizing the data that has been collected. Data reduction aims to facilitate researchers in collecting research data. The data reduced in this study are the results of student tests and the results of interviews confirming students' answers related to indicators of critical thinking skills in science learning material CHAPTER 5 Topic A: How Does Breathing Help Me Do Daily Activities? grade V of Sawunggaling State Elementary School. Data presentation is an overall picture of the research results presented through a research matrix. Data presentation in this study includes data from observations, interviews, and tests. The process of drawing conclusions in this study is adjusted to the focus, formulation, and objectives of the problem. Verification in this research is the confirmation and certainty of data that is concluded to be correct from research data in the form of a comparison of data between observations of test results and interviews.

C. RESULT AND DISCUSSION

This study aims to describe and analyze students' critical thinking skills in working on the question How Does Breathing Help Me Do Daily Activities?. Data collection in this study was conducted on several subjects or fifth grade students of Sawunggaling State Elementary School. The subject of this study were students who had the criteria for critical thinking skills and could communicate their ideas in science learning in class with consideration from the fifth grade teacher. This was done because the teacher knew more about students' abilities in communicating their opinions so that when students worked on critical thinking test questions and were interviewed, students were able to communicate their opinions.

The results of the study indicate that the critical thinking skills of fifth-grade students of Sawunggaling State Elementary School are categorized as good. This is evident from the high enthusiasm of the research subjects during the learning process and the achievement of all established critical thinking indicators. This can be proven during learning observations that subjects TCA and RH during learning can name the parts of the respiratory organs found in the nose (identifying). Subject CKR is able to answer questions from the teacher about the function of fine hairs found in the nose correctly (giving simple questions). When subject CKR answers questions from the teacher, subject RH refutes or provides other arguments from subject CKR, namely about the function of fine hairs found in the respiratory organs, namely the nose (able to provide further explanation). When the teacher gives a trigger question, subject ASAM can explain the importance of oxygen to living things (building basic skills). Subject ALF can provide other arguments and develop strategies about the importance of oxygen for living things (providing further explanation). And finally, subject RJLV is able to conclude the learning activities that have been carried out (concluding). The results of this study can be seen in the following table:

Table 1. Results of Students' Critical Thinking Ability Test

Research Subjects	Score Obtained	Category
TCA	17	Very capable
ALF	19	Very capable
RH	20	Very capable
RJV	9	Capable
FZA	14	Capable
ASAM	20	Very capable
CKR	20	Very capable

Based on the table, it can be seen that students' critical thinking skills in learning science grade fifth at SD Negeri Sawunggaling with critical thinking skills are in the capable category, which fulfills the indicators of critical thinking skills. This is indicated by students being able to formulate questions or problems in questions correctly and completely and being able to provide explanations of problems that lead to questions logically and systematically, students being able to provide reasons for opinions expressed with reasons that have led to questions and being able to solve problems with relevant evidence to support arguments, students being able to analyze questions and being able to draw conclusions from problem questions properly and correctly, students being able to analyze and provide explanations of questions presented correctly, students being able to analyze and organize appropriate strategies for questions presented. This is in line with the research conducted by Diatmika (2024) entitled Analysis of Students' Critical Thinking Skills in Science Learning in Elementary School Grade fifth SDN 2 Batur. This can be seen from both studies with the same results where students are able to formulate questions correctly, students are able to provide correct reasons for the opinions expressed, students are able to make good and correct conclusions from the problems in the questions, and students are able to provide explanations on problems that lead to questions well and correctly.

CONCLUSION

Based on the results of the data analysis of the subjects who are fifth grade students of Sawunggaling State Elementary School, they are able to demonstrate critical thinking skills in science learning with critical thinking skills in the good category. From the results of research and discussions, data obtained that the critical thinking skills of S1 subjects are in the very good critical thinking category. The critical thinking skills of S2 subjects are in the very good critical thinking ability category. The critical thinking skills of S3 subject are in the very good critical thinking ability category. The critical thinking skills of S4 subjects are in the sufficient critical thinking ability category. The critical thinking skills of S5 subjects are in the good critical thinking ability category. The critical thinking skills of S6 subjects are in the very good critical thinking ability category. The critical thinking skills of S7 subjects are in the very good critical thinking ability category.

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