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ANALYSIS OF CRITICAL THINKING ABILITY OF FIFTH GRADE STUDENTS IN THE SUBJECT OF IPAS SDN 1 BANDUNG TULUNGAGUNG DISTRICT

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Abstrack - Education is a conscious and planned effort to create a learning atmosphere and process to enable students to actively develop their potential to possess strength, spirituality/religion, self-control, personality, intelligence, noble character, and the skills they possess for themselves, the community, the nation, and the state. Critical thinking is a cognitive process undertaken by students to systematically and thoroughly analyze a problem, carefully distinguish the problem, and identify and evaluate information in order to formulate problem-solving strategies. This study aims to analyze students' critical thinking abilities. The subjects of the research are fifth-grade students of SDN 1 Bandung, totaling 19 students. Data collection techniques include tests, interviews, and documentation. The data is analyzed using individual qualitative descriptive methods and per indicator. The research results show that students' critical thinking abilities are categorized into high, medium, and low levels. There are 47.38% of students in the high critical thinking category, 26.31% in the medium critical thinking category, and 26.31% in the low critical thinking category.

Keywords : Critical Thinking, IPAS, Elementary School.

I. INTRODUCTION

Education plays a crucial role in human life [1]. The advancement of the era in the globalization period has made education a fundamental need for humans as thinking beings with the potential for continuous development. Law Number 20 of 2003 concerning the National Education System states that education is a conscious and structured process to create a learning environment that supports the active involvement of students in developing their potential. The aim of education is to shape individuals with strong spiritual and religious values, self-control, good personality, intelligence, noble character, and skills that are beneficial for themselves, society, the nation, and the state [2].

Education is the key to achieving prosperity, development, and sustainability of a nation [3]. From the various opinions that have been expressed, it can be concluded that education significantly contributes to producing high-quality future generations. Critical thinking ability is an essential aspect that students must possess to develop knowledge. It promotes students' cognitive reasoning processes in understanding and acquiring knowledge. Serious efforts are needed to engage students actively in analyzing and solving problems as part of the learning process [2]. Critical thinking is essential because it helps in solving problems and serves as a foundation for making appropriate decisions.

Students use the critical thinking process to evaluate and break down problems in detail, distinguish elements of problems accurately, and analyze relevant information to formulate problem-solving steps [4]. In the learning process, especially at the elementary school level, critical thinking is a crucial competence students must develop. Students who think critically can formulate rational and structured conclusions from their knowledge, understand how to obtain information, use that information to solve problems, and identify highly relevant information that supports problem-solving [4].

Each individual needs to possess critical thinking skills as part of essential competencies for addressing various life problems [1]. With critical thinking abilities, individuals can regulate, adjust, and update their thought patterns, enabling them to make accurate and appropriate decisions. Critical thinking involves self-regulation in decision-making that includes processes such as interpretation, analysis, evaluation, and drawing conclusions—based on evidence, concepts, approaches, criteria, or contextual considerations to support accurate decisions [1].

Critical thinking plays a vital role, particularly in IPAS learning at the elementary level. Natural Sciences (IPA) or science is a systematic process aimed at acquiring knowledge through in-depth observation of phenomena and applying discovered theories to understand those observations [2]. The objective of science education is to develop skills, intellectual abilities, and attitudes that reflect scientific understanding, habits, and appreciation. Through science learning, individuals are expected to appreciate the environment as God's creation, which encourages students to preserve and protect it [2].

Science learning at the elementary school level has characteristics that include group learning systems based on hands-on and minds-on principles. The purpose of this learning process is to train students in implementing science process skills, especially with an emphasis on understanding

concepts, principles, laws, and theories. This can be carried out in both formal and non-formal learning environments. Learning activities are also designed to be more engaging and student-centered to promote active involvement [2].

Referring to the previous explanation, the researcher is encouraged to conduct a study entitled:

"An Analysis of Fifth Grade Students' Critical Thinking Skills in the IPAS Subject at SDN 1 Bandung, Tulungagung Regency", which aims to analyze the level of critical thinking competence among fifth-grade students at SDN 1 Bandung in Tulungagung Regency.

II. RESEARCH METHOD

1. Types of Approaches and Research

Qualitative research is an approach aimed at exploring an in-depth understanding of phenomena experienced by subjects, including behaviors, perceptions, motivations, and efforts in a holistic manner. This approach is conveyed through verbal descriptions in the form of narratives using natural language and is conducted in real-life settings using various naturalistic techniques [5]. This study employs a descriptive method with a qualitative approach [6]. The data collected consists of terminology and language use according to specific situations, which is then analyzed through various techniques to gain a comprehensive understanding [7].

The type of research used in this study is qualitative descriptive research. In general, qualitative descriptive research is a type of research that produces data in the form of words or narratives from the observed subjects, without using calculation methods or statistical analysis [8]. This study was conducted at SDN 1 Bandung during the even semester. The research subjects were 21 fifth-grade students and the classroom teacher at SDN 1 Bandung. The instruments used in this research were tests, interviews, and documentation. The data collection techniques were tests, interviews, and documentation. The data analysis techniques used in this study included 1) data reduction, 2) data display, 3) conclusion drawing and verification. The validity of the data was checked using technique triangulation.

Qualitative research is an approach based on the post-positivist paradigm, used to study objects in natural conditions. In this research, the researcher acts as the main instrument. Data collection is carried out through triangulation techniques or a combination of various methods, while the data analysis is inductive or qualitative in nature. The results of the research emphasize in-depth meaning rather than generalization [9].

2. Research Procedures

The research procedure provides a brief overview of the stages involved in conducting the study. This research adopts the procedure proposed by Moleong (2017), which consists of four stages: the pre-field stage, the fieldwork stage, the data analysis stage, and the report writing stage [10].

3. Subjects, Time, and Research Site

The subjects of this research involved 19 fifth-grade students from SD Negeri 1 Bandung. Grade V at SDN 1 Bandung was selected as the research subject for several reasons. First, fifth-grade students are undergoing a significant stage of cognitive development, where critical thinking skills begin to develop more substantially. Second, the curriculum in Grade V often emphasizes the development of higher-order cognitive skills, including analyzing, evaluating, and formulating problem-solving strategies. This research was conducted over the course of one month, beginning in April 2025, at SD Negeri 1 Bandung. The research was conducted in the fifth-grade classroom of SD Negeri 1 Bandung, located in the Bandung subdistrict, Tulungagung regency. This school was chosen because SDN 1 Bandung has a diverse student population in terms of social, economic, and cultural backgrounds.

4. Research Instruments

In research activities, instruments function as a means to obtain the necessary information [11]. Data collection in research generally uses instruments, as data is the main objective of the research itself. The research instruments used in this study included test questions, interviews, and documentation.

The data collection method can be carried out by administering questions or assignments to students with the aim of obtaining relevant and necessary information during the research process. This method is referred to as assessment, which includes oral tests conducted during lessons, written tests conducted through questions and written answers—including essay questions—and descriptive tests used to assess students' ability to apply critical thinking patterns. This test includes several question items, statements, or activities that require responses or actions from the students [12]. Test items offer significant benefits for students, as they allow them to measure their mastery of the subject matter. Consequently, students can determine their learning success and identify areas that need improvement. The test was administered to fifth-grade students at SDN 1 Bandung. In this study, the researcher chose an essay (subjective) test format to enable students to observe, question, analyze, explain, and draw conclusions. Therefore, the test instrument was designed based on a blueprint related to critical thinking indicators. To evaluate students' cognitive understanding, essay-

type tests were used before and after a given intervention [13].

III. RESULTS AND DISCUSSION

1. Tes Instrument Validation Results

Instrument validation plays a crucial role in qualitative research to ensure that the tools used can accurately represent the subject being studied. In this study, the researcher employed two main instruments in the data collection process: (1) a critical thinking skills test, and (2) a structured interview guide. Both instruments were validated by experts prior to their use in data collection. The test instrument used in this study aimed to assess the extent to which students understand the material and identify their level of mastery of critical thinking indicators. Before being used for data collection, the instruments were validated to ensure that the designed question items were of high quality and aligned with the objectives of the study.

The validation results of the measurement tool used to assess the critical thinking skills of fifth-grade students showed that Validator 1 gave a score of 3.7, indicating that the test instrument can be considered valid. Validator 2 gave a score of 3.3, also indicating the instrument can be considered valid. Validator 3 gave a score of 3.8, which likewise indicates the test instrument can be considered valid.

Table I Instrument Test Validation Results

No.	Statement	Score Obtained V1	V2	V3	Expected Score
Language Assessment					
1.	The questions use words that are easy for students to understand.	4	4	4	4
2.	The questions do not lead to multiple interpretations.	4	3	4	4
3.	The questions are written using correct sentence structures.	4	3	3	4
4.	The language used follows proper and correct Indonesian language rules.	3	4	4	4
Assessment of Question Items					
5.	The questions are able to assess students' critical thinking skills in the observing stage.	4	3	4	4
6.	The questions are able to assess students' critical thinking skills in the questioning stage.	4	3	4	4
7.	The questions are able to assess students' critical thinking skills in the analyzing stage.	3	3	4	4
8.	The questions are able to assess students' critical thinking skills in the explaining stage.	4	3	4	4
9.	The questions are able to assess students' critical thinking skills in the drawing conclusions stage.	4	4	4	4
Assessment of Relevance to Research Objectives					
10.	The questions are aligned with the research problem formulation.	4	4	3	4
11.	The questions are aligned with the level of material provided to students.	3	3	4	4
Total		41	37	42	44
Score		3,7	3,3	3,8	
Criteria		Valid	Valid	Valid	

2. Interview Instrument Validation Results

The interview instrument was designed to gather in-depth qualitative data regarding the participants' perceptions, experiences, and views related to the phenomenon under study. The interviews were semi-structured, allowing flexibility in their implementation while still adhering to the main objectives of the research. The validator stated that most of the questions were appropriate and suitable for use; however, there were several notes indicating the need to refine certain questions to obtain more focused responses. As a follow-up, the researcher revised the interview questions. The validation results showed that the majority of the questions fell into the categories of "highly appropriate" and "appropriate." However, some parts of the validation still included notes and required minor improvements.

The feasibility assessment of the interview test instrument by expert validator 1 showed that the instrument is suitable for use with revisions. Validator 2 also indicated that the instrument can be used with revisions.

3. Student's Test Results

The study was conducted at SDN 1 Bandung using five questions related to the topic of environmental changes caused by forest fires. Based on the students' critical thinking capacity in solving IPAS problems, the researcher classified the critical thinking skills of fifth-grade students at SDN 1 Bandung as follows: 9 students, or 47.38%, were in the high critical thinking category; 5 students, or 26.31%, were in the moderate category; and 5 students, or 26.31%, were in the low critical thinking category.

Table II Categories of Critical Thinking Ability

Score Range	Category
80-100	High
65-79	Moderate
<65	Low

Source: Ministry of Education and Culture (KEMENDIKBUD), 2016

Based on Table II presented by the researcher regarding the score qualifications in critical thinking skills, the researcher was able to identify the students' levels of critical thinking ability based on three assessment levels: high, moderate, and low. The data used were obtained from the test results administered by the researcher to fifth-grade students, consisting of five questions. The students' responses were then used to identify their level of critical thinking skills.

Table III Research Subjects Based on Critical Thinking Ability

Group	Student Code	Score
High Group 80 – 100	P1	90
	P3	95
	P5	90
	P6	85
	P9	100
	P10	80
	P12	80
	P15	100
	P16	95
Moderate Group 65 – 79	P2	70
	P8	70
	P14	65
	P18	65
	P19	70
Low Group < 65	P4	55
	P7	50
	P11	40
	P13	40
	P17	30

Based on the table above, it can be seen that the research subjects classified as having a high level of critical thinking ability include P1, P3, P5, P6, P9, P10, P12, P15, and P16. Those categorized as having a moderate level of critical thinking include P2, P4, P8, P14, P18, and P19, while those in the low critical thinking category are P4, P7, P11, P13, and P17. The next step taken by the researcher is to present the results of the students' responses that have been completed.

Table IV Students Critical Thinking Skills Score Acquisition

No.	Students Critical Thinking Ability	Frequency	Percentage
1.	High (80-100)	9	47,38 %
2.	Moderate (65-79)	5	26,31 %
3.	Low (< 65)	5	26,31 %

Based on Table IV regarding the critical thinking skills of elementary school students in the fifth grade at SDN 1 Bandung, there are 9 students, or 47.38%, categorized as having high critical thinking ability. Meanwhile, 5 students, or 26.31%, fall into the moderate critical thinking category, and another 5 students, or 26.31%, are in the low critical thinking category.

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CONCLUSION

Based on the data obtained from tests and interviews in the IPAS subject at SDN 1 Bandung regarding the level of critical thinking among fifth-grade students, it can be concluded that students' critical thinking abilities, as reflected by their scores, fall into high, moderate, and low categories. The results of this study indicate that the majority of students are able to meet several critical thinking indicators, such as identifying problems and formulating questions. However, students still need improvement in skills such as analyzing, providing deeper explanations, and drawing conclusions. The findings revealed that 9 students demonstrated high-level critical thinking skills, while 5 students were categorized as moderate, and another 5 as low. Several factors influencing students' analytical skills include their active participation in classroom discussions and the availability of thinking stimuli such as open-ended questions or problem-solving-based tasks.

DISCUSSION

Critical thinking is a mental activity carried out by students to analyze problems in a structured and in-depth manner, to identify and distinguish elements of a problem carefully, and to evaluate information in order to design problem-solving strategies [4]. This chapter discusses the research findings on the critical thinking abilities of fifth-grade students during IPAS (Science and Social Studies Integration) learning at SDN 1 Bandung, Tulungagung Regency. The analysis is based on data obtained through test questions, interviews, and documentation, and is linked to relevant critical thinking theories.

This study uses five indicators of critical thinking skills: observing, questioning, analyzing, explaining, and drawing conclusions, which are developed based on the theories of Facione (2015) and Ennis (2011).

1) Observing Skills

According to Paul and Elder (2008), critical observation means being able to focus attention, filter information that is relevant or irrelevant to the context, and objectively record findings. However, there were still students who only observed surface-level phenomena and had not yet connected their observations to scientific concepts. Field findings showed that most students were able to observe objects or events presented in the IPAS lessons, especially those that were visual and concrete, such as pictures, real objects, or experimental demonstrations. Students were able to identify characteristics or changes occurring, although not all were able to observe deeply and systematically.

2) Questioning Skills

According to Costa and Kallick (2000), asking questions is an important indicator of critical thinking because it signifies an internal drive to explore new knowledge. The ability to ask questions reflects a high level of interest in knowledge or new phenomena and a motivation to understand a concept or phenomenon more deeply. Field results show that many of the questions raised were still simple and factual in nature, such as "Why do forest fires occur?" In reality, there were still students who had not yet developed the ability to formulate meaningful questions.

3) Analyzing Skills

Most students were able to identify information from the IPAS problems, but still struggled to connect one piece of information with another. Students could point out important parts of the information but were not yet optimal in evaluating cause-and-effect relationships. This aligns with Facione's (2015) theory, which states that analytical skills involve identifying ideas and the logical relationships between them.

4) Explaining Skills

Ennis (2011) explains that critical thinking involves not only understanding information but also being able to communicate one's thoughts clearly and logically. The ability to explain involves clarity in expressing ideas, opinions, or reasoning. Based on the test and interview results, students were able to explain IPAS concepts they had frequently learned, but their explanations tended to be brief, disorganized, and lacked supporting arguments.

5) Drawing Conclusions

Brookfield (2012) emphasizes that the ability to draw conclusions is a hallmark of a good critical thinker, as it shows that a student can process information into a comprehensive understanding. Field data showed that only some students were able to accurately conclude the results of learning activities.

The results of the critical thinking skills test for students in answering questions in the IPAS Grade V at SDN 1 Bandung were obtained by classifying students into three levels of critical thinking ability:

a. High Critical Thinking Ability
   Based on the critical thinking skills test conducted in Grade V at SDN 1 Bandung, the measurement results showed that 9 students were at a high level of critical thinking, with scores ranging from 80 to 100. The students classified under the high critical thinking category were P1, P3, P5, P6, P9, P10, P12, P15, and P16.
b. Moderate Critical Thinking Ability
   Students categorized as having a moderate level of critical thinking ability scored between 65 and 79. Meanwhile, those who reached scores above this range were classified as having high critical thinking ability. Students with moderate critical thinking levels were P2, P8, P14, P18, and P19.
c. Low Critical Thinking Ability
   Students classified as having low critical thinking ability scored below 65. The students in the low critical thinking group were P4, P7, P11, P13, and P17. Peter (2012) stated that one of the factors hindering the development of critical thinking ability is the lack of consistent practice, limited resources, biased perceptions, and time constraints in environments that support the promotion of critical thinking [14].

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