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PROFILE OF CRITICAL THINKING ABILITY OF JUNIOR HIGH SCHOOL STUDENTS ON HUMAN BLOOD CIRCULATION SYSTEM MATERIALS IN SITUBONDO DISTRICT

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ABSTRACT

This study aims to describe the critical thinking skills of junior high school students on the subject of the Human Circulatory System in Situbondo Regency. This type of research is descriptive quantitative by using critical thinking test questions. The number of respondents in this study amounted to 236 students in 5 schools in Situbondo Regency. The critical thinking test questions on the material of the human circulatory system are in the form of multiple choices and consist of five questions according to the critical thinking indicators according to Ennis. The results of the critical thinking test of junior high school students in Situbondo Regency with the material of the human circulatory system showed an average score of 47%, for the indicator of the ability to provide simple explanations an average of 54%, the indicator of ability to build basic skills an average of 48%, the indicator of ability to conclude an average of 48%, the indicator of ability to provide further explanation an average of 49%, and the indicator of ability to set strategy and tactics an average of 37%.

KEYWORDS Ability, Critical Thinking, Human Circulatory System

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INTRODUCTION

The development of science and technology today changes all aspects of human life. This condition has a great influence in all fields, one of which is education (Wijaya, Sudjimat, Nyoto, & Malang, 2016). In the 21st century, the challenge in the field of education is to improve the quality of Human Resources (HR) so that humans are able to compete globally (Lestari, 2014). Improving the quality of human resources through education is focused on higher order thinking skills (HOTS) (Abosalem, 2016). HOTS is one of the skills needed to prepare graduates who are able to compete and adapt to changing times. Critical thinking ability is one manifestation of HOTS.

Based on the Regulation of the Minister of National Education Number 22 of 2006, it is stated that the scope of learning in the science and technology subject group is intended to acquire advanced competence in science and technology as well as cultivate scientific thinking critically, creatively and independently. Therefore, in learning, students need to be equipped with critical thinking skills that can be used to analyze and solve problems they will face in everyday life, one of which is in science learning (Agustyaningrum, 2015).

The ability to think critically is an important thing, but the reality on the ground is not as expected (Liberna, 2015). The critical thinking ability of junior high school students in Indonesia is still relatively low. This is based on the four-year International Trends in International Mathematics and Science Study (TIMSS) study conducted on junior high school students with the characteristics of high-cognitive level questions that can measure students' critical thinking skills, showing that Indonesian students consistently fall in the lower ranks.

TIMSS is an international assessment of mathematics and science in grades 4 and 8 that has been and is still being held since 1995. In general, TIMSS aims to monitor educational system outcomes related to student achievement in Mathematics and Science (Mahmuzah, 2015). Indonesia is one of the countries that became the object of TIMSS in the last four periods. Talking about scientific achievements, Indonesia's position is still below the international level, as reported by TIMSS. The results of the 2003 TIMSS study, Indonesia is ranked 35 out of 46 participating countries with an average score of 411, while the international average score is 467. The results of the 2007 TIMSS study, Indonesia is ranked 36 out of 49 participating countries with an average score of 397, the results of the 2011 TIMSS study, Indonesia is ranked 38 out of 42 participating countries with an average score of 386, while the international average score is 500. The latest results, namely TIMSS 2015 Indonesia is ranked 44th out of 49 countries (Noordyana, 2016).

Critical thinking is the ability to analyze and evaluate information obtained from observations, experience, reasoning and communication to decide whether the information can be trusted so that it can provide rational and correct conclusions. Critical thinking skills require high-level reasoning, namely high logical thinking. High logical thinking is needed by students (Savitri, 2013). This is done especially in answering questions, because students need to use their knowledge, understanding, and skills and relate them to new situations (Ratnasari & Widjajanti, 2015). Students can think critically if they are involved in creative thinking on the information obtained (Roets & Maritz, 2017). Students' critical thinking ability can be described with 5 indicators according to

Ennis, including the following; provide simple explanations, build basic skills, conclude, provide further explanations, set strategies and tactics.

Based on the description that has been described, it is necessary to conduct research on the profile of the critical thinking ability of junior high school students in Situbondo on the material of the human circulatory system that is able to describe the critical thinking ability of junior high school students in Situbondo. In accordance with the Regulation of the Minister of National Education Number 22 of 2006 it is stated that the scope of learning in the science and technology subject group is intended to acquire advanced competence in science and technology as well as cultivate scientific thinking critically, creatively and independently. Therefore, in learning students need to be equipped with critical thinking skills that can be used to analyze and solve problems they will face in everyday life, one of which is in learning Natural Sciences. knowing the profile of the critical thinking ability of junior high school students in Situbondo Regency.

RESEARCH METHOD

The type of research used in this research is descriptive research with a quantitative approach. Thus, this study discusses the critical thinking skills of junior high school students in Situbondo Regency in solving problems of the human circulatory system. The research subjects were students of class IX SMP in Situbondo Regency 2021/2022 a total of 236 students from 5 schools in Situbondo Regency. Data on critical thinking skills were obtained through a research instrument, namely a critical thinking ability test consisting of multiple choice questions developed from five indicators of critical thinking ability according to Ennis.

This research begins by looking for valid critical thinking questions about the material of the human circulatory system. After that, make the test in the form of a Google Form so that respondents can do it online. The next step is to distribute critical thinking tests to grade IX students in 5 schools in Situbondo Regency. After the data is collected, the next step is to analyze it using descriptive analysis techniques in the form of calculating the overall average of students' critical thinking abilities and calculating the average of students' critical thinking abilities for each indicator.

To present the score of each indicator of critical thinking ability which is assessed using equation:

$$Cs = \frac{C}{N} \times \ 100\%$$

Information:
Cs = Percentage of students' critical thinking skills
C = Total scores obtained by students
N = Total score

The percentage of critical thinking skills obtained by students as a whole and each indicator, then grouped based on the criteria for critical thinking skills below [21].

Table 1. Criteria for Students' Critical Thinking Ability

Score (%)	Category
76 – 100	Very Good
51 – 75	Good
26 – 50	Enough
< 26	Not Enough

RESULT AND DISCUSSION

The results of the critical thinking ability of grade IX students in Situbondo Regency on the material of the human circulatory system can be seen from the results of the critical thinking ability test which is measured based on critical thinking indicators according to Ennis, namely: giving simple explanations, building basic skills, concluding, providing further explanations, and organizing strategy and technique. In addition, the results of the critical thinking ability test were measured based on the scoring guidelines for the critical thinking ability test. The average result of the achievement of critical thinking skills of class IX students is 47%. If seen in the table of criteria for critical thinking skills, it is classified in the sufficient category. The following is an overview of the average achievement of critical thinking skills for grade IX students in Situbondo Regency as a whole.

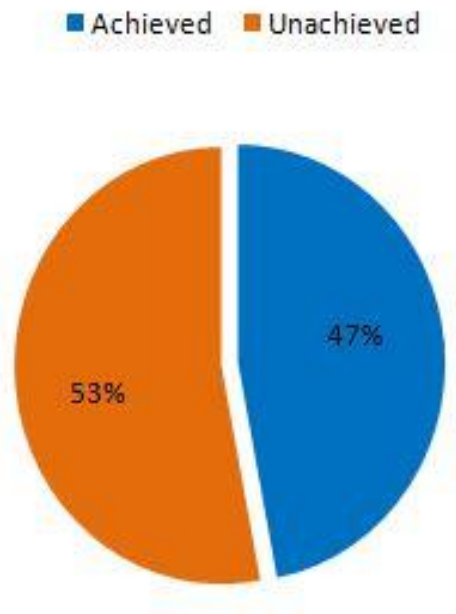

Figure 1. Average Critical Thinking Ability of Students Overall

Based on the results of the research that has been done, it can be seen that the critical thinking ability of each indicator is different. In the critical thinking ability test that has been given the first question is a question to determine critical thinking ability on indicators providing a simple explanation. The results of students' critical thinking skills for indicators providing a simple explanation can be seen in Figure 2 below.

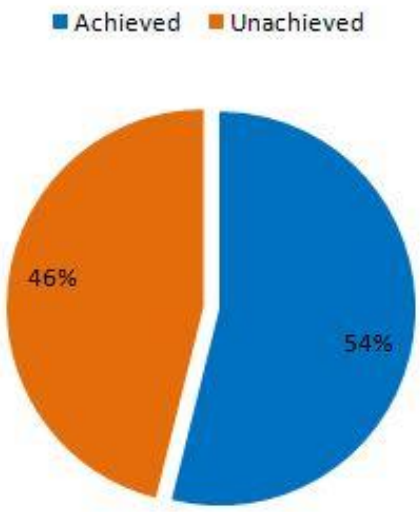

Figure 2. Critical Thinking Ability on Indicator
Giving a Simple Explanation

Figure 2 shows the achievement of the first indicator, which is to provide a simple explanation. The sub-indicators in the form of students' ability to focus questions, analyze questions, and ask and answer questions show an achievement rate of 54%. If we look at the table of criteria for students' critical thinking skills, the indicators provide a simple explanation, including in the good category**.**

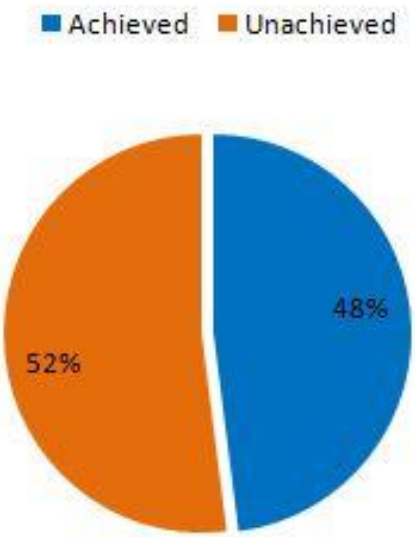

Figure 3. Critical Thinking Ability on Indicator
Building Basic Skills

Figure 3 shows the achievement of the second indicator, namely building basic skills. The sub-indicators are students' ability to consider whether the source is reliable or not, observe, and consider the observation report, showing 48% achievement. If we look at the table of criteria for students' critical thinking skills, the indicators for building basic skills are included in the sufficient category.

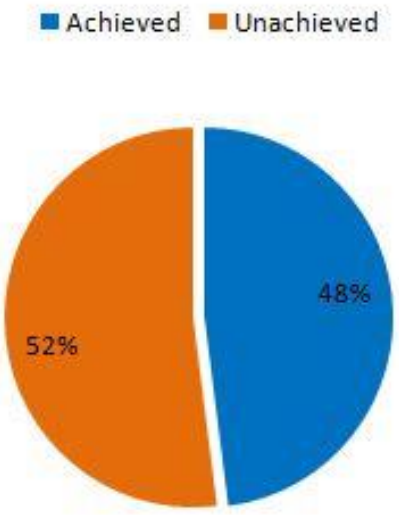

Figure 4. Critical Thinking Ability on Indicator Conclude

Figure 4 shows the achievement of the third indicator, namely concluding. The sub-indicators are the ability of students to carry out and consider the results of deduction, to carry out and consider the results of induction, and to make and determine the value of considerations showing 48% achievement. If we look at the table of criteria for students' critical thinking skills, the indicators conclude that they are included in the sufficient category.

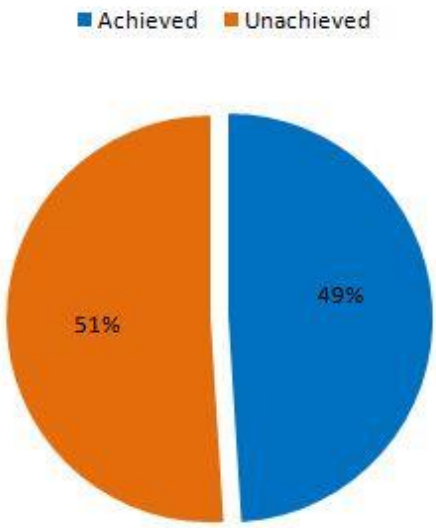

Figure 5. Critical Thinking Ability on Indicator
Provide Further Explanation

Figure 5 shows the achievement of the fourth indicator, which is to provide further explanation. The sub-indicators are the ability to define, consider a definition and identify assumptions, showing achievement1 49%. If we look at the table of criteria for students' critical thinking skills, the indicators provide further explanation, including in the "enough" category.

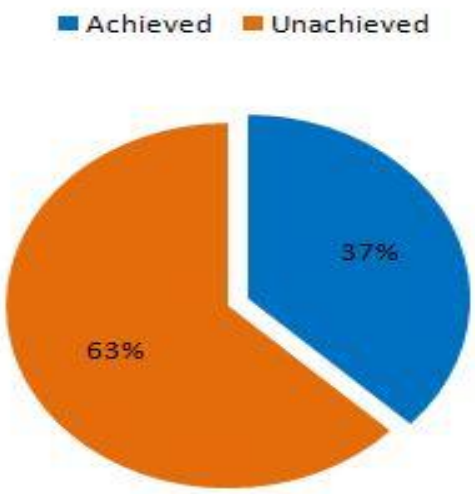

Figure 6. Critical Thinking Ability on Indicator Setting Strategy and Tactics

Figure 6 shows the achievement of the fifth indicator, namely setting strategy and tactics. The sub-indicator in the form of the ability to determine an action shows the achievement of 37%. If we look at the table of criteria for students' critical thinking skills, the indicators provide a simple explanation that is included in the sufficient category.

Based on the results of the analysis of students' critical thinking skills for each of the indicators described above, it can be seen that the average achievement of students' critical thinking is in the sufficient category for 4 indicators, namely: building basic skills, concluding, providing further explanations, and managing strategies and tactics. The indicator provides a simple explanation that is included in the good category with an achievement rate of 54%. The following is a description of the achievement of 5 critical thinking indicators according to Ennis.

Table 2. Percentage of achievement of critical thinking skills for each indicator

Indicator of Critical Thinking Ability	Percentage of Achievement (%)
Gives a simple explanation	54
Building basic skills	48
Concluding	48
Provide further explanation	49
Setting strategy and tactics	37

The percentage of students' critical thinking skills for each indicator is different. In the indicator providing a simple explanation, the highest percentage of achievement is obtained from the other 4 indicators of critical thinking skills, namely 54% in the good category. This can happen because this indicator only contains sub-indicators which are easier than the other 4 indicators of critical thinking skills, namely focusing questions, analyzing questions, asking and answering questions only. Thus, the acquisition of the percentage of achievement is classified in the good category. The following is a table of indicators of critical thinking skills and their sub-indicators.

Table 3. Critical Thinking Ability Indicators

No.	Indicator	Sub Indicator
1.	Give a simple explanation	a. Focusing the question b. Analyze questions c. Ask and answer questions
2.	Build basic skills	a. Consider whether the source is trustworthy or not b. Observing, considering the observation report
3.	Concluding	a. Doing and considering the results of the deduction b. Conduct and consider the results of induction c. Create and determine the value of considerations
4.	Provide further explanation	a. Define, consider, a definition b. Identify assumptions
5.	Set strategy and tactics	a. Define an action b. Interact with other people

The percentage of achievement of the other 4 indicators, namely; building basic skills, concluding, providing further explanations, setting strategies and tactics belong to the sufficient category. This can happen because this indicator contains sub-indicators that are more difficult than the previous indicators, namely indicators that provide simple explanations. Thus, for the 4 indicators of critical thinking skills, including building basic skills, concluding, providing further explanation, managing strategies and tactics, it is categorized as sufficient. While the percentage of overall achievement of the 5 critical thinking indicators is 47% belonging to the sufficient category.

Based on the results of the research described above, efforts to improve the quality of learning, especially in developing students' critical thinking skills, are important and essential. To answer the problem above regarding the percentage of ability of junior high school students in Situbondo Regency, changes are made not only in restructuring the substance being studied, but the very basic thing is a paradigm shift from how teachers teach to how students learn (Johnson, 2014). Learning is no longer seen as a process of transferring knowledge to be stored in the student's memory system through repeated practice and reinforcement (Istianah, 2013). Students must be directed to approach each new problem/task with prior knowledge, assimilate new information, and construct their own understanding (Apriani, 2012).

The ability to think critically is one of the basic capital or intellectual capital that is very important for everyone, besides this ability is a fundamental part of human maturity (Heong et al., 2011). Critical thinking is thinking rationally and reflectively by emphasizing making decisions about what to believe and do (Priyadi, Mustajab, Tatsar, & Kusairi, 2018).

Critical thinking is an activity of analyzing ideas or ideas in a more specific direction, distinguishing sharply, selecting, identifying, reviewing and developing them in a more perfect direction. This mental process analyzes ideas and information obtained from observations, experiences, common sense or communication. People who think critically will evaluate and then conclude something based on facts to make decisions. One of the characteristics of people who think critically will always look for and explain the relationship between the problems discussed and other relevant problems or experiences.

CONCLUSION

Based on the results of the discussion, it can be concluded that the critical thinking ability of grade IX students in Situbondo Regency on the material of the human

circulatory system shows an average value of 47.37% belonging to the sufficient category. achievement on indicators providing a simple explanation 53.8% included in the good category, achievement on indicators building basic skills 48.3% included in the sufficient category, achievement on indicators concluded 48.3% included in the sufficient category, achievement on indicators provided further explanation 49 .2% is in the sufficient category, and the achievement of indicators in managing strategies and techniques 37.3% is in the sufficient category.

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