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Profile of Critical Thinking Results Analyzed from Facione Indicators and Gender of Learners

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ABSTRACT

Objective: This research aims to describe the results of students' critical thinking in three different junior high schools. This research was conducted using a quantitative descriptive method in which the data obtained were the results of the critical thinking of male and female Grade VIII students from three different junior high schools in Pamekasan, namely in the Tlanakan, Galis, and Larangan areas using thinking indicators. Fionce's Critical Thinking on Narcotics, Psychotropics, and Other Addictive Substances, Fionce's critical thinking indicators are as follows Interpretation, Analysis, Evaluation, Conclusion, Explanation, and Self-Regulation Methods**:** The method used in this study was to have students work on five critical thinking essay questions by taking random samples. **Results:** From the three junior high schools, a sample of 50 students was obtained, namely 25 male and 25 female students. After the students worked on the questions, the average male student scored 62.56, and the female student scored 65.28. **Novelty:** From the results obtained, it was found that the average score of female students was higher than that of male students from three different schools based on an analysis of the Fionce indicators where female students tended to give more detailed and thorough answers than male students. The second reason female students have higher critical thinking skills than male students is that the answers given by male students tend to be different from the topics in the questions given by the researcher.

INTRODUCTION

In the 21st century, along with advances in science and technology, it is necessary to have the ability to carry out higher-order thinking activities in various fields of work (Arisoy & Aybeck, 2021; Saputri & Sajidan, 2019). Someone in the 21st century must possess several thinking skill competencies. These 21 skills include critical thinking, problem-solving, communication, and collaboration. Thinking is one of the activities carried out by every human. The thinking activity uses the organs of the human brain (Verenina et al., 2020; Hadisaputra et al., 2021). In the learning process, there are individual and group thinking activities. As a prospective educator or professional educator, he must educate his students to compete and meet the competency needs that exist in the 21st century, such as the ability to think critically (Syawaludin & Ritanyanti, 2019).

Critical thinking is a way for individual humans to answer questions by analyzing these questions based on facts, then these individuals will provide conclusions, then answers will be obtained from these questions (Mahdi & Almuslamani, 2020; Muh et al., 2020). Critical thinking is reasoning and an organized approach to understanding the relationship between ideas or facts. Individual critical thinking skills can be measured through indicators from (Facione, 2015), namely interpretation, analysis, evaluation, conclusions, explanations, and self-regulation. Researchers often use these indicators to measure the achievement of students' critical thinking skills. The average

critical thinking ability of students in Indonesia still needs to improve. This is evidenced by research (Affifah & Agoestanto, 2020) conducted by the Program for International Student Assessment (PISA) in this study which stated that students' critical thinking skills in Indonesia are ranked 64 out of 65 countries according to (Lombard et al., 2020) students' low critical thinking skills can be caused by several factors such as students tend to memorize material and formulas rather than understand the material.

Female students tend to have higher critical thinking skills than male students. According to Bezannila et al. (2019) causing, students with low critical thinking skills are not used to analyzing a problem and facts found. Hence, the productivity obtained by students at school could be much higher. According to Ningsih et al. (2021), there are several factors causing students' low critical thinking, such as educators focusing too much on lecture learning strategies; this causes student productivity in class to become a passive and only focus on delivering material provided by educators. Furthermore, according to Yusuf et al. (2020), educators provide materials and practice questions that are not analytical (multiple choice, not descriptions) so that students do not understand the material and questions based on critical thinking. Giving description questions can train students' critical thinking skills. This can be proven by several studies using essay questions to help students practice critical thinking skills, such as research from (Warsah et al., 2021), which uses essay questions to help students train their critical thinking skills. Critical thinking The research results show a positive and significant influence on students' critical thinking skills. Then research from Ramdhani et al. (2021) shows that essay questions can affect students' critical thinking skills. This research got good results.

Essay questions or essays require students to organize ideas or ideas that students have studied. Essay questions can be taken from material students study (Siburian et al., 2019). The essay questions or essays will later become student scores. From these values, educators can find out the critical thinking skills possessed by students for research from Rosmaiyadi et al. (2023), where the research was carried out in the field of mathematics using essay questions and based on gender students using cube material in this study female students tend to have superior critical thinking skills (Rear, 2019) compared to male students several factors cause this internal factor namely lack of talent, intelligence, motivation, social factors, certain physiological conditions and students' interest in subjects which resulted in students being less skilled and lazy (Bellaera et al., 2021; Boso et al., 2021), as for the cognitive factors of students, namely conceptual errors (not understanding the question instructions), not being able to develop ideas, and not being thorough in working on the questions. From this background and some of the research that has been done, the researchers took the initiative to research to find out how much the learning outcomes of students' critical thinking based on gender in the three different schools in the Pamekasan area are directly expected to be able to obtain valid data and also to find out the factors causing the low critical thinking skills of students.

RESEARCH METHOD

General Background

This type of research is descriptive quantitative. This study describes students' critical thinking skills related to narcotics, psychotropics, and other addictive substances. The method used in this research is a survey. The data in this study are data obtained from the results of students working on five questions.

Participants

The population of this study was class VIII students who were taught Narcotics, Psychotropics, and other Addictive Substances. The research subjects consisted of 50 grade 8 students who were taught Narcotics, Psychotropics, and other Addictive Substances at three public junior high schools in Pamekasan for the 2022-2023 academic year. The details of the junior high schools in Pamekasan that were used as research sites were the Tlanakan, Galis, and Larangan areas.

Instruments and Procedures

The instrument used in this study described five questions relating to narcotics, psychotropic substances, and other addictive substances. The steps in this study were as in Figure 1.

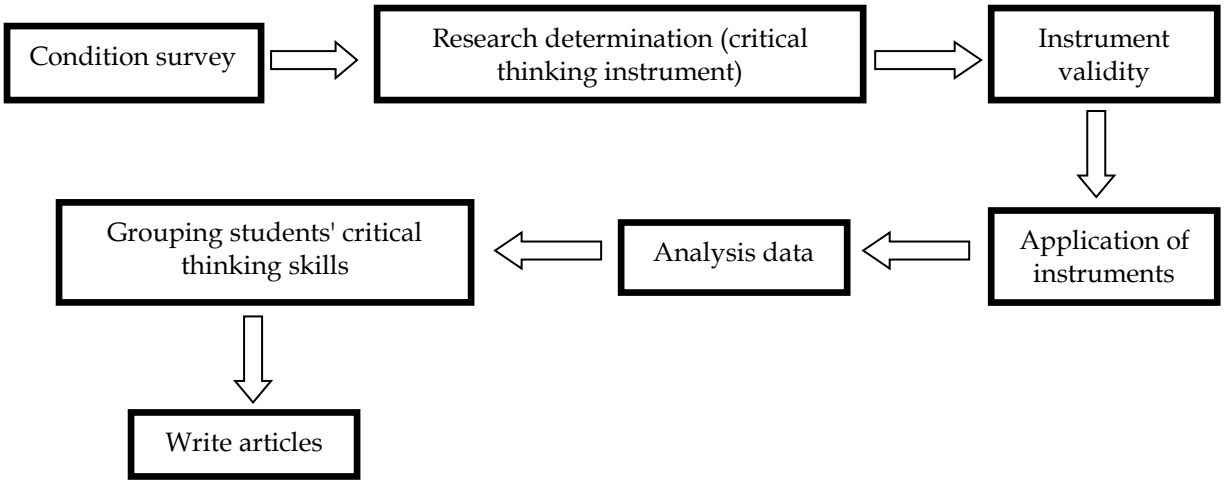

Figure 1. Research flowchart.

Based on Figure 1, the initial stage in this research procedure is the researcher surveying several schools by noting what is needed. After conducting the survey, the researcher determines three schools to be used for research on critical thinking instruments, and then the instrument is validated by the two validators. The results of the validity obtained are valid by 95.20% and reliable, with a reliability value of 0.98. The next step is the application of the instrument. Then, after applying the instrument, the data is analyzed based on critical thinking indicators from Facione (2015).

Data Analysis

The data obtained from the test results were then analyzed based on critical thinking indicators from Facione, where the calculation of the scores obtained and the provisions of the scores can be seen as follows.

$$Score: \frac{\text{Total score obtained}}{\text{Maximum Score}} \text{ X } 100\%$$

Information :

a. The total score obtained is the survey value of the sample.
b. The specified maximum score is 25. Determination of the maximum score is calculated based on the highest score for each question, meaning the highest score (5) x number of questions (5) = 25.

Self-assessment scores are assessed using the range 0-5 after the data is analyzed based on critical thinking indicators from Facione (2015), then these values are categorized according to the criteria specified in the school's Minimum Completeness Criteria, namely 75.00 in the good category such in Table 1.

Table 1. Scoring of critical thinking questions.

Question Number	Score
1,2,3,4, and 5	a. A score of 5 is given to students if they fulfill all critical thinking indicators. b. A score of 4 is given to students if they only fulfill four indicators of critical thinking. c. A score of 3 is given to students if they only fulfill three critical thinking indicators. d. A score of 2 is given if students fulfill two indicators of critical thinking. e. A score of 1 is given if students only fulfill one indicator of critical thinking or if students give answers but are wrong. f. A score of 0 is given if the student does not answer a question.

Table 2. Categories of critical thinking and score.

Category	Score
Very good	91.00-100.00
Good	71.00- 90.00
Moderate	41.00-70.00
The less good	26.00-40.00
Does not meet	0.00-25.00

Table 1 is the score of giving values that have been adjusted to indicators of critical thinking, where the scoring starts from a score of 0-5, where the score has been adjusted to the criteria specified in the table. Then in Table 2 are the critical thinking categories and the average value of the results of students working on the description questions. Students are declared to have high critical thinking skills if they score 75 and above.

RESULTS AND DISCUSSION

Results

Figure 2 is the overall result of the scores obtained by students in working on critical thinking questions.

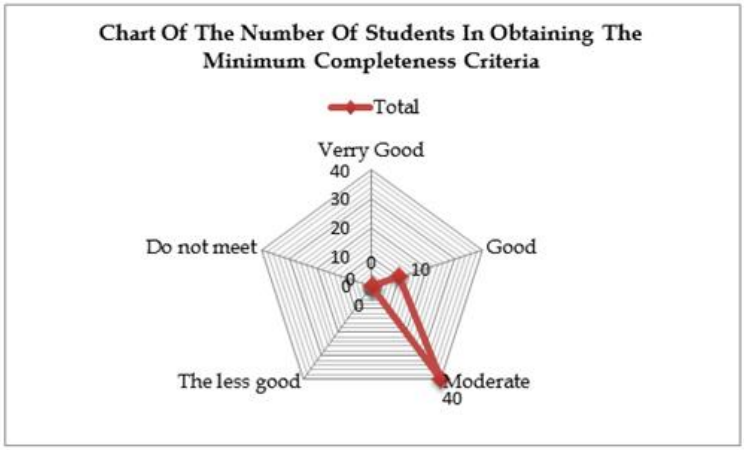

Figure 2. Results overall value.

Discussion

The results of the answers from students were analyzed and then given a score according to Table 1, then the results of these values were classified according to Table 2. Figure 1 is an overall picture of the results of student scores according to the Minimum Completeness Criteria; in Figure 2, it is explained that students are in the very good category (students who get scores 91.00-100.00) is 0.00, students in the good category (students who score 71.00-90.00) are 10.00, students in the moderate category (students who score 41-70) are 40, and students in the less good category (students who score 26.00-40.00) is 0.00, and students in the category do not meet. (students who score 0-25) are 0.00. The value is analyzed based on critical thinking indicators from Fionce, along with the overall average results, which can be seen in Table 2. From the table, it can be seen that the average value of female students gets an average score of 65.28, and male students get an average value of 62.56.

The data presented results from students' critical thinking from three different schools. From these data, there are differences in the results of critical thinking of male and female students. This data is obtained when students complete the questions given. The critical score of students from the three different schools was 63.92 and was categorized as low for the overall average score of female students, with 65.28 in the low category. The average score of male students was 62.53 in the low category of the student's overall score. The results of female and male students' critical thinking are still relatively low in the predetermined minimum completeness criteria (Wang et al., 2019). From the results of this analysis, the critical thinking ability of female students is higher than that of male students. The assessment is based on critical thinking indicators from Facione (2015), where there are six indicators: interpretation, analysis, evaluation, inference, explanation, and self-regulation. These indicators are as follows 1) Interpretation indicators describe the form of interpretation from a person's point of view in understanding something. Students can write down what they see and what is in their minds on this indicator. Then 2) analysis indicators describe the activity of observing an object to get the facts that what is meant is that after students make presentations, students will conduct investigations or observations. At this stage, students will collect answers that they think are relevant or accurate (according to questions or logic). At this stage several questions will appear in the minds of students namely what, why, and how then students will find these answers based on their understanding so far 3) evaluation indicators are activities of reinterpreting answers obtained from the meaning analysis stage after students find relevant answers or accurate the student will assess the answer later 4) the conclusion indicator at this stage is still related to the previous stage, namely the student will provide conclusions from the selection of the answer later 5) explanatory indicator, namely the student provides an explanation or reason why they chose this answer compared to the previous stage. 6) self-regulation, namely students have the awareness to monitor the process of self-cognition, the elements used in the thought process, and the results used in the process of the results developed especially applying the ability to analyze self-ability in drawing conclusions and providing explanations (reasons for giving answers). This study focuses on the NAPZA sub-material, where NAPZA stands for Narcotics, Psychotropics, and other Addictive Substances, which are substances contained in drugs and active ingredients that cause users to experience dependence to find out how critical students are on the substances in the material. Used in everyday life, the researcher conducted research by giving five essay questions where the questions

contained material discussing narcotics, psychotropics, and other addictive substances in the form of cases related to drugs or substances that are commonly consumed every day after students answered essay questions, the researcher then analyzed the students' answers according to the indicators of critical thinking Fionce, the researchers conducted a stage analysis according to the six indicators if then one of the six indicators was not met then the student could be said not to have the ability to think critically (Bellaera et al., 2021).

Problem number 1 discusses students' views on the meaning of Narcotics, Psychotropics, and other Addictive Substances based on their understanding. The analysis results were obtained from 50 students; about 15 answered incorrectly. Addictive substances several factors cause students to experience misconceptions about this problem. Namely, students do not know the difference between narcotics and psychotropic substances, and other additives. Students may think that Narcotics, Psychotropics, and Addictive Substances are always related to food and drink only for question number 2, namely, discussing substances in coffee and tea, where these substances are classified as non-Narcotic and Psychotropic substances. In question number 2, students are instructed to explain why coffee and tea are classified as non-narcotics and psychotropic substances. Out of 50 students, around 21 students answered. Coffee is not a type of drug, and the ingredients in coffee and tea do not contain harmful chemicals, which is wrong because coffee and tea contain chemicals that make users addicted and, if consumed in excess, can cause chronic disease to death. In question number 3, students are faced with cases related to narcotics cases which are reported via electronic media (e-newspaper) (Ilham & Hardiyanti, 2020).

Class of narcotics and students are also required to mention the consequences of using narcotics from the results of the analysis; that is, out of 50 students, almost 40 students answered incorrectly overall; this is because students do not know the narcotics class and cannot give reasons why these items are classified as narcotics, so students cannot explain the consequences from drug use. In question number 4, students are presented with questions from cases related to psychotropics through electronic media (e-newspaper). In question number 4, students were asked to state the addictive substances contained in newspaper reports, including what class of psychotropic addictive substances, the reasons for these psychotropic addictive substances to be included in that type of psychotropics, and students were also asked to mention the impact of using these substances from the results of the analysis, namely out of 50 students, 45 students answered incorrectly. This is because students do not know the class of psychotropics, so they cannot give reasons why these items are classified as psychotropics. Students also cannot mention the consequences of using these psychotropics (Wiliawanto, 2019). From the analysis obtained in questions number 3 and 4, it can be concluded that students do not know enough about narcotics and psychotropics (Ningsih et al., 2021).

In question number 5, students were faced with a question that mentioned differences in non-narcotic, narcotic, and psychotropic substances. Out of 50 students, 47 students answered incorrectly because students needed to learn the difference between the three, and three answered correctly. From the results of this analysis, if seen according to the critical thinking indicators from Facione, students experience some difficulties, such as interpretation; this can be seen in question number 1, where students find it challenging to provide an understanding of narcotics, psychotropics, and others. Addictive substance based on the ability of students. In addition, students

also need help analyzing the conclusions from this, which can be seen in questions 2 to 5. Students must learn the substance in the questions and cannot provide differences between the three groups. In a study conducted on 50 samples (students), it was found that female students tended to have more detailed and thorough answers compared to male students' answers, and it could be stated that the thinking skills of students from the three junior secondary schools in the Pamekasan area were still relatively low (Nurfadilah et al., 2020). Research conducted by Rosmaiyadi et al. (2023) and research from Harianandа (2022), namely, students tend to need to be more able to explain in detail the questions given by the two studies by the research conducted because of the research. After all, students have low critical thinking skills is that these students cannot explain in detail the answers given; most students give short answers and tend to give answers that are not on the topic in the questions given by the researcher then, according to Arsy et al., (2019) the factors that cause students to have low critical thinking skills are because students tend to memorize material from on understanding the concept, and it still happens a lot. One of the reasons students have low critical thinking skills is the habits of these students, such as low student literacy (Pohan et al., 2020).

Educators can apply a problem-based learning model to overcome low critical thinking skills. This learning model will direct students to real problems around them (authentic). Several studies state that the problem-based learning model can improve students' abilities. Research from (Sherman et al., 2021) states that PBL can help improve students' critical thinking skills, while research from (Suparman & Tamur, 2021) states that PBL can improve students' critical thinking skills because it presents problems, and these problems are the exact problem. Addictive because the addictive substance itself is found in products that are used daily (Serin, 2019; Son, 2020) problem-based learning can improve critical thinking skills not because it presents authentic problems, but students are also required to solve these problems collaboratively so that they can stimulate the thinking abilities and psychomotor abilities of students other than PBL, several studies have said that they can improve critical thinking skills, namely as in research (Marundut et al., 2020) where educators can improve students' critical thinking skills in science subjects using process skills in addition to methods several ways can be used to improve student's critical thinking skills, namely by applying Active learning strategies by asking questions to students. In addition, educators can also apply scientific approaches and blended learning strategies (Kusumah, 2019; Utomo & Wihartanti, 2019; Ilham & Hardiyanti, 2020). The Mobile Learning Role Play Games (RPG) application media helps students improve their critical thinking (Rasyid et al., 2020). In line with the research of Triandini et al. (2021), where this study used guided inquiry-based modules to improve critical thinking skills, then research from Utarni & Mulyatna (2020), where this study, a mean-ends analysis strategy applied to improve students' critical thinking skills. Where The 7e learning cycle model, with the help of modules in improving the critical thinking skills of research students (Sugiharti et al., 2019; Sunaryo & Fatimah, 2019), which uses the contextual approach with scaffolding, and the group investigation (GI) model in improving students' critical thinking skills (Santi, 2019).

CONCLUSION

Fundamental Finding: In the three junior high schools in the Pamekasan area on the students of the three schools, it can be concluded that female students have superior

critical thinking skills compared to male students. Although, these averages are still relatively low for students' critical thinking skills. **Implication:** Students cannot analyze and need help understanding the problems, and the tendency of male students to give answers that are not to the topics in the questions given by researchers causes the scores obtained by male students to be lower than female students. **Limitation:** This research was only conducted on Narcotics, Psychotropics, and other Addictive Substances, and this research was only conducted in three junior high schools in Pamekasan with random sampling in the Tlanakan, Galis, and Larangan areas. **Future Research:** Researchers hope that there will be research conducted with thinking skills other than critical thinking and also so that teachers can improve to improve students' critical thinking skills researchers hope that there will be more research related to thinking skills that compare gender differences.

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Attachments

Knowledge Assessment Instrument

Name :
No absence :
Class :
School :

1. Explain based on your understanding regarding narcotics, psychotropics, and other addictive substances!
2. Look at the picture below !

Source: Detik.com

The drinks above are often consumed and can even become drinks that must be consumed daily. Based on information from relevant sources, namely school books, the substance in the drink is classified as a non-narcotic and psychotropic substance. Explain what non-narcotic and psychotropic substances are and why are the substances in these drinks classified as non-narcotic and psychotropic substances. Answer this question according to your understanding.

3. Take a look at the news snippet below !

> Source: BNN.CO.ID - Aceh, the national narcotics agency, carried out another operation for cannabis fields in Aceh on Wednesday, 18 September 2022. In this operation, the national narcotics agency, together with a joint team and law enforcement officers in Aceh province, found two points of cannabis fields with an area each -1 hectare each in Alue Garot Hamlet, Teupin Reusep Village, Sawang District, North Aceh.
> Cannabis fields were found at an altitude of 222 meters above sea level and 240 meters above sea level and then destroyed by 119 personnel who were joint BNN and Kodim personnel, Lhokseumawe Porles, Mobile Brigade, Satpol PP, Agriculture Service, Director General of Customs and Excise, and the State Attorney under the leadership of the Narcotics Director Deputy for BNN Eradication, Aldrin MP Hutabarat.
>
> To reach the location, the joint team reached a distance of 1.5 hours from Lhokseumawe using a four-wheeled vehicle followed by walking for 1.5 hours. From this long journey, the joint team cleared 13,000 cannabis plants weighing 6.5 tons between ginger and chili plants. Inhabitant.

The news snippet contains the type of narcotics your job is
a. State the name of the drug.
b. What class of drugs are these?
c. Why are these narcotics classified as ... (explain)!
d. What are the effects of using these drugs?

4. Look at the news snippets below !

Text 1

Pamekasan (BeritaJatim.com) A total of 10 suspects for abusing methamphetamine-type drugs were arrested by the Pamekasan Police Satnarkoba National Operations Team specifically in the last 21 cases from Monday to Sunday 1-21/11/2021 of the ten suspects, five were recorded as dealers, each with the initials AM (35) resident of Braga city of Bandung, H (28) resident of Tlanakan Pamekasan, RR (32) resident of Konang Pamekasan Village, SR (53) city of Bandung, SS (35) resident of Seddur Village, Pakong Pamekasan.

Text 2

Within 21 days in November 2021, the Pamekasan Police Satnarkoba National Operations Team managed to arrest ten drug abuse suspects in several different locations, including evidence of 44.76 grams of western methamphetamine, 136 Y pills, and a methamphetamine suction device, said the Head of Police AKBP Rogib Triyanto through Head of Subbang Public Relations AKP Nining Dyah Friday (26/11/2021). As a result of this case, the suspects were threatened with different articles according to their status, such as Article 112 (1) RI Law number 35 number 2009 concerning narcotics with a sentence of 4-12 years in prison, Article 114 (1) RI Law number 35 2009 with a sentence of 5 - 20 years in prison or life.
This also includes article 127 (1) 2009 UU-RI number 35 2009, which carries a prison term of 1-4 years in prison, while the suspect in the pill case is subject to article 196 number 98 UU-RI number 36 2009 concerning health which carries a maximum prison sentence of 4 years.

In the news snippet, there is a type of addictive narcotic substance your job is
a. State the name of the psychotropic.
b. What group are these psychotropics?
c. Why are these psychotropics included in the class ... (explain)!
d. What are the effects that the use of these psychotropics can cause?

5. From the news snippets on questions number 3 and 4, the impact on different narcotics and psychotropics, why can this happen?