P-ISSN 2746-9034 || E-ISSN 2774-5066
Indonesian Physics Education Research
Volume 02, No. 01, June 2021, pp. 32-40

ANALYSIS OF STUDENTS CRITICAL THINKING ABILITY ON DISTANCE LEARNING PHYSICS LESSONS SMA/MA CITY OF TANJUNGBALAI A.Y 2020/2021

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Abstract

This study aims to determine the level of students' critical thinking skills in distance learning physics subjects using aspects of critical thinking skills according to Ennis. The method used is descriptive with a quantitative approach. The population in this study was all SMA/MA Tanjungbalai City. The research sample was taken by purposive sampling as many as 150 students of class X from 5 sample schools SMA/MA Tanjungbalai City. The research instrument is a test of critical thinking skills and a questionnaire. The critical thinking ability of SMA/MA students in Tanjungbalai City in the subject of straight-motion physics in distance learning is still low overall. The average test of students' critical thinking skills is 55,73 in the low category. With the average achievement of each aspect, namely 61,83 in the aspect of Elementary Clarification, 56,37 in the aspect of Basic Support, 53,60 in the aspect of Interference, 56,17 in the aspect of Advance Clarification, 50,67 in the aspect of Strategy and Tactics. Student responses to distance learning show that all respondents of SMA/MA Tanjungbalai On the aspect of access to the use of distance learning, students gave an average response of 70%, indicating that students still find it difficult to use the distance learning method applied. Understanding the material shows that learning occurs when 78% of students better understand the material in face-to-face learning, and 52% of students understand physical lessons through distance learning. The aspect of implementing distance learning shows that students' responses to the effectiveness of distance learning are weak, with an average response of 65%.

Keywords: Ability, Critical Thinking, Distance Learning

The progress of education in the 21st century is part of various competencies or abilities that may be mandatory for students, one of which is the expertise of students in critical thinking and problem solving (Critical Thinking and Problem-Solving Skills), the 21st-century learning paradigm emphasizes 4C namely (Communication, Collaboration, Critical Thinking, and Problem Solving, and Creativity and Innovation) the ability of students to think critically, be able to connect science with the real world, master information technology, communicate and collaborate (Söderström et al., 2011).

The importance of critical thinking skills for students because it can stimulate students' thinking cognitively in obtaining knowledge. Students' critical thinking is needed at this time because during the teaching and learning process students

will develop ideas for thinking about a problem encountered in learning. Likewise, in learning physics, all the concepts of learning are from everyday life.

The world is currently being attacked by the coronavirus outbreak. Coronavirus Diseases 2019 (Covid-19), On March 2, 2020, COVID-19 has started to enter the country of Indonesia which has begun to be tested positive for corona, This requires us to stay at home to break the chain of virus transmission. This situation causes all activities in various sectors, including the education sector, to be hampered. According to the Minister of Education and Culture Circular no. 36962/MPK.A/HK/2020 In 2020, to continue educational activities, the government has made efforts to reduce the series of Covid-19, one of which has been implemented in the Indonesian education system. Since March 2020, teaching activities have been carried out through an online or remote system (Yurianto & Wibowo, 2020).

According to Sani (2016), society in the 21st century should realize how important it is to prepare young generations who are creative, flexible, think critically, make the right decisions, and are skilled in solving a problem. Based on this, schools should continue to strive to build and train and improve students' thinking skills so that they can face the challenges of learning in the 21st century.

Critical thinking skills can be trained during the Physics learning process. Based on observations at SMA Kota Tanjungbalai, currently, every SMA/MA school is conducting a distance learning process (PJJ) on physics subjects, with teachers providing material with various media, namely Zoom, Whatsapp, Google Meet, Google Classroom, Microsoft Teams, and others. , then students learn from the material provided and do assignments independently from home. This kind of learning process will result in less stimulation of student development because they dominate independent homework assignments at home. This of course will have an impact on students' critical thinking skills

Based on this, researchers are interested in knowing what the description of students' critical thinking skills is like and analyzing their level of achievement during distance learning. This is certainly done as a form of evaluation of the distance learning process. In addition, it can also be an input for teachers to be able to increase creativity in compiling a learning system that can improve students' critical thinking skills in distance learning. This critical thinking ability analysis

will be carried out on physics subjects which include Straight Motion material as a material that will become a critical thinking ability test instrument to measure the level of students' critical thinking skills.

METHOD

This research will be carried out in SMA/MA in Tanjungbalai City, when the research was conducted in May – June 2020/2021 Academic Year in Distance Learning. Based on the research objectives, the population in this study were all SMA / MA in Tanjungbalai City that used the Distance Learning System as many as 14 schools. The sample in this study consisted of 5 schools which were taken by purposive sampling technique, namely sampling by the research objectives where The sample is a school that uses the current Distance Learning system and is willing to accept this research. The schools that were sampled were SMA Negeri 1 Tanjungbalai, SMA Negeri 3 Tanjungbalai, SMA Negeri 5 Tanjungbalai, MAN Tanjungbalai, MAS YMPI St.Raso Tanjung balai

The type of research carried out is descriptive with a quantitative approach, the research design carried out is One-Shot Case Only, which means that from this research design there is a group that is given treatment and then the results are analyzed by observation (Sugiyono, 2017).

The technique of collecting data in this study is to use a critical thinking ability test instrument that has been validated in terms of items in previous research and development to determine the level of students' critical thinking skills. a questionnaire instrument containing statements or questions about student responses to distance learning.

RESULT AND DISCUSSION

Research Result

Giving scores to student test results and making a recapitulation of the measured test results, the scores obtained will be totaled and categorized in their respective groups and then the average index is calculated according to the predetermined categories, namely;

Table 1. Score Interpretation Criteria

No	Value	Category/Quality Aspect
1	90 - 100	Very Critical
2	80 - 89	Critical
3	60 - 79	Quite Critical
4	50 - 59	Less Critical
4	≤50	Not Critical

The results of the analysis of the Critical Thinking Ability Test of Students from SMA Negeri 1 Tanjungbalai, can be seen in table 2.

Table 2. The results of the Critical Thinking Ability Test for SMA Negeri 1 Tanjungbalai

No.	Aspect	Means	Category
1	Elementary Clarification	60,83	Quite Critical
2	Basic Support	63,17	Quite Critical
3	Interference	65,17	Quite Critical
4	Advance Clarification	68,17	Quite Critical
5	Strategy and Tactics	67	Quite Critical
	Average	**64,87**	**Quite Critical**

Table 2. This shows that the average test results of students' critical thinking skills in the category are sufficient with a score of 64,87. The results of the analysis of the Critical Thinking Ability Test of Students from SMA Negeri 3 Tanjungbalai, can be seen in table 3.

Table 3. The results of the Critical Thinking Ability Test for SMA Negeri 3 Tanjungbalai

No.	Aspect	Means	Category
1	Elementary Clarification	51,17	Less Critical
2	Basic Support	53,33	Less Critical
3	Interference	47,83	Not Critical
4	Advance Clarification	53,67	Less Critical
5	Strategy and Tactics	45	Not Critical
	Average	**50,20**	**Less Critical**

Table 3. This shows that the average test results of students' critical thinking

skills in the category are Low with a score of 50,20. The results of the analysis of the Critical Thinking Ability Test of Students from SMA Negeri 5 Tanjungbalai, can be seen in table 4.

Table 4. The results of the Critical Thinking Ability Test for SMA Negeri 5 Tanjungbalai

No.	Aspect	Means	Category
1	Elementary Clarification	54.33	Less Critical
2	Basic Support	59.83	Less Critical
3	Interference	47.33	Not Critical
4	Advance Clarification	45.33	Not Critical
5	Strategy and Tactics	43.33	Not Critical
	Average	**50.03**	**Less Critical**

Table 4. This shows that the average test results of students' critical thinking skills in the category are very Low with a score of 50.03. The results of the analysis of the Critical Thinking Ability Test of Students from MAN Tanjungbalai can be seen in table 5.

Table 5. The results of the Critical Thinking Ability Test for MAN Tanjungbalai

No.	Aspect	Means	Category
1	Elementary Clarification	71	Quite Critical
2	Basic Support	48.83	Not Critical
3	Interference	51.67	Less Critical
4	Advance Clarification	50.17	Less Critical
5	Strategy and Tactics	42,5	Not Critical
	Average	**52,83**	**Less Critical**

Table 5. This shows that the average test results of students' critical thinking skills in the category are Low with a score of 52,83. The results of the analysis of the Critical Thinking Ability Test of Students from MAN Tanjungbalai can be seen in table 6.

Table 6. The results of the Critical Thinking Ability Test MAS YMPI Sei.Tualang Raso Tanjungbalai

No.	Aspect	Means	Category
1	Elementary Clarification	71.83	Quite Critical

2	Basic Support	56.67	Less Critical
3	Interference	56	Less Critical
4	Advance Clarification	63.50	Quite Critical
5	Strategy and Tactics	55.50	Less Critical
	Average	**60.70**	**Quite Critical**

Table 6. This shows that the average test results of students' critical thinking skills in the category are Very Low with a score of 60.70. This questionnaire data aims to determine student responses to distance learning on the aspects of ease of access to the use of distance learning, understanding of the material in distance learning, the effectiveness of implementing distance learning in SMA/MA Tanjungbalai City. Student response questionnaire data were obtained from 5 schools, namely SMA Negeri 1 Tanjungbalai, SMA Negeri 3 Tanjungbalai, SMA Negeri 5 Tanjungbalai, MAN Tanjungbalai, MAS YMPI Sei.Tualang Raso Tanjungbalai totaling 150 students consisting of 30 students from each school.

Table 7. Results of Student Responses to Distance Learning

No	Question	Percentage %				Average	Criteria
		VA	A	NA	VNA		
Ease Of Acces Using Distance Learning							
1	Distance Learning is Easy and fun to use in learning physics	7	21	56	66	45%	L
2	I don't agree if distance learning is implemented in schools	30	60	46	17	67%	S
3	I feel motivated to learn physics by using distance learning	13	43	64	30	57%	L
4	Distance learning makes learning easy during a pandemic	12	61	53	24	60%	L
5	Distance learning physics learning makes me bored	30	67	41	12	69%	S
6	Through online learning, doing physics problems is easier because you can find other sources on the internet	24	81	33	12	70%	S
7	Distance learning is difficult to implement because it is constrained by the internet access	37	75	31	7	74%	S
30	I feel lazy to study through distance learning	74	59	12	5	84%	VS
Understanding of Materials in distance learning							

8	Through distance learning, I can find various additional information from the internet	24	63	45	18	66%	S
9	It is easier for me to understand physics lessons through distance learning	10	34	65	41	52%	L
10	It is easier for me to understand and conclude physics material with distance learning	8	32	76	34	52%	L
11	Through distance learning, it makes me more challenged to solve difficult physics problems	19	47	56	28	60%	L
12	Through distance learning, I am motivated to express opinions critically in solving problems from the tasks given by the teacher	11	62	53	24	60%	L
13	Through distance learning, I can explain and summarize the material being studied	14	41	70	25	57%	L
14	I always rely on friends to do physics problems	24	59	47	20	65%	S
15	It is easier for me to understand and conclude physics material with face-to-face or direct learning	58	58	26	8	78%	S
16	I find it easier to understand lessons through direct learning or face-to-face learning	67	53	22	8	80%	S
17	I find it difficult to understand lessons with distance learning	54	65	22	9	77%	S
Effectiveness of the Implementation of Distance Learning							
18	I interact more with distance learning than face-to-face lessons	16	36	67	31	56%	L
19	I can learn independently through distance learning	15	74	43	18	64%	S
20	Distance learning makes the learning process organized	13	68	49	20	62%	L

No	Question	Percentage %				Average	Criteria
		VA	A	NA	VNA		
21	My time is more efficient with distance learning	15	51	62	22	60%	L
22	Easier distance learning costs	16	49	54	31	58%	L
23	I feel enthusiastic about distance learning because I can interact with friends and teachers without feeling shy	18	49	58	25	60%	L
24	The media used by teachers in distance learning varies in conveying information and collecting assignments such as zoom,	33	71	32	14	71%	S

	Webex, google meet, WhatsApp and others.						
25	I prefer to study at school than online learning	61	57	22	10	78%	S
26	I spend more on distance learning	39	57	46	8	71%	S
27	I feel like I'm wasting my time because I'm learning through distance learning	35	59	41	15	69%	S
28	I still need help from others in learning through distance learning	44	67	32	7	75%	S
29	Even though I use distance learning, I still need face-to-face interaction with teachers and friends	83	43	16	8	84%	VS
	∑NRS	904	1662	1337	597	66%	S
	%NRS	20%	37%	30%	13%	100%	

Table 7. This shows that the percentage of responses from Tanjungbalai City Senior High School students to distance learning on each indicator has different criteria. In the Positive statement, the average percentage of student responses to distance learning is 63% with a weak category. In negative statements, the average percentage of student responses to distance learning is 75% with a strong category.

Discussion of Research Result

Based on the student CBC data presented at each school, it can be seen that the students' CBC, in general, is in a low category. Only 2% of students were able to be in the very good category with a total of 3 students, followed by only 12% of students who were able to be in the good category with a total of 18 students, followed by only 13% of students who were able to be in the sufficient category with the number of students as many as 19 people, followed by 19% only in the low category with a total of 29 students, and dominant 54% students in the very low category as many as 81 students. each category indicator of the critical thinking ability of high school / MA students in Tanjungbalai City is only in the low category.

The ability to think critically becomes very important in the learning process because it can train students carefully, thoroughly, and logically to improve decision-making from all angles. If students' critical thinking skills are instilled and developed, human resources will be formed who think quickly and critically in problem-solving. Therefore, the learning process in schools, including learning physics, must develop students' abilities and skills to explore, process, and critically evaluate various information (Sari, 2014).

The results of the questionnaire show that students' responses to distance learning that are currently applied in schools, find facts where students do not

respond well or positively to distance learning. In this case, it has been shown that the percentage of students' answers to each item of positive statements is at an average of ±63%. Many students responded Disagree to the favorable items and gave Agree answers to the unfavorable statements. So that distance learning is applied when it can be categorized as learning that has not been able to improve students' ability to understand learning or improve learning outcomes in the city of Tanjung Balai. Distance learning should have various positive benefits for students. According to Anita & Trisianawati (2016) in their research explaining that distance learning can improve good and interactive communication for students, because with distance learning students get access to scientific reference information related to the broad learning process (Anita & Trisianawati, 2016).

CONCLUSION

The critical thinking ability of high school/MA students in Tanjungbalai City in the subject of straight-motion physics in distance learning is still low overall. The average critical thinking ability test of students is 55.73 in the low category. Based on the results of student responses, it shows that in the aspect of access to the use of distance learning, students give an average response of <70% indicating that students are still difficult to use the applied distance learning method. face-to-face and 52% of students understand physics lessons through distance learning, the aspect of the effectiveness of the implementation of distance learning shows that students' responses to the effectiveness of distance learning are weak with an average response of ±65%.

ACKNOWLEDGMENTS

I would like to express my gratitude to Mr. Sabani as the supervisor who has provided guidance and input to the author so that this research can be carried out. Last, but not least, thanks to my family for the moral and financial support during this study.

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