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Research Article

The Effect of the COVID-19 Pandemic on the Attention, Attitude and Awareness Indicators of Senior High School Students When Learning Chemistry

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Abstract.
The COVID-19 pandemic had an impact on students when learning chemistry because it affected their attention, attitude, and awareness. Therefore, this study aimed to determine students' attention, attitude, and awareness when learning chemistry. This study used a non-experimental quantitative approach. Observation, interviews, questionnaires, and documentation were data collection techniques used in this study. A closed questionnaire was used and was compiled based on content validity and was tested for reliability. The data from the research showed that the student's percentage for attention was 55.97%, attitude was 56.48%, and awareness was 54.85%. It was also found that factors that influenced students during the COVID-19 pandemic were level of intelligence, teacher's creativity in teaching, and having certain methods of observation and learning have certain conditions. Good physical and health, and the teaching style of the teacher who did not provide examples of problems in solving them.

Keywords: COVID-19 pandemic, chemistry, attention, attitude, awareness

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1. INTRODUCTION

The Covid-19 pandemic that occurred in Indonesia had an impact on various fields. The impact caused by Covid-19 in various fields including health, tourism, the business world, transportation, education, and also has an influence on the daily life of the community. Daily life that is usually carried out outside the home, currently with the impact of Covid-19, has to be diverted at home. The oid-19 Pandemic also had an impact for Education in Indonesia. It enforces the rule that all teaching and learning activities are carried out online, for all levels from kindergarten, elementary, junior high, senior high school/ vocational high school. While in Senior high school there are many subjects that the students must master. One of the subjects that I teach in Senior High School is

Chemistry. Therefore, in learning chemistry students must feel comfortable through the learning process even though in the Pandemic Covid-19 situation. We found that there are several things in the learning process that impact the students conceptual thinking like attention, attitude and awareness (A3). These indicators are part of students' interest [1].

Attention refers to students' activity in learning to observe or to supervise objects in their learning process. The connection and interaction between students and teachers gauge students' attention [2]. The previous study showed that a partially flipped learning model can be useful to enhance student attention [3]. It also found that learning by using media can enhance students' attention [4]. Early research shows that indicators of student attention increased in the medium category by using *Quizizz* [5]. Teachers should draw the attention of students during the learning, because their attention begins to decrease after the first ten minutes of learning[6].Teachers need to change the environment and engage students to regain their attention. Advances in technology and science have drawn attention to the technological tools that appeal to the sense organs and require interaction with students in environmental education [7].

Moreover, attitude is a learned tendency to evaluate things in a certain way. This can include evaluations of people, issues, objects, or events. Such evaluations are often positive or negative, but they can also be uncertain at times. Previous studies on challenges in chemistry learning have concluded that several facts including learning environment and cognitive ability have an influence on attitude towards science in general [8]. It is known that attitude as an affective construct in chemistry learning and the role of a learning environment as an influencing factor stimulated the inquiry. It is pointed out that although attitude is regarded as a significant outcome of science teaching and a relevant variable in science learning [9, 10]. Although few studies have compared online and face-to-face learning environments in the physical sciences, our results are consistent with the idea that students who complete an online course fare just as well as those who attend face-to-face classes. It found that Students in the online course and face-to-face course did not differ in their performance on the common exam questions, course grade distribution, or attitudes toward chemistry [11–15].

Even though awareness has become one thing that must be not distinguished from students' performance in the learning process [16]. The early research developed upon traditional case based instruction through role-play and to explore the effectiveness of the approach in raising students' awareness of the social dimension of the engineering profession. The results gathered show that role-playing contributed to complex student responses to the scenario and an awareness of the social factors that are part of

engineering practice and which can constrain or enable decision-making [12, 17]. We suggest that exposing students to the perspectives of the different stakeholders that are involved in engineering professional practice can contribute to their understanding of the social context of engineering [18, 19].

When educators provide students with opportunities to interact with educational technology such as floor-robots, it may increase students' awareness of new educational tools as well as increase students' awareness and use of newer educational technologies, in service teachers may need guidance, support, and professional development when selecting and using new educational technologies. such as floor-robots [20]. Student-participants' post-study surveys and interviews provided researchers with insight into elementary students': (a) interest in floor-robots and robotics, (b) perceived ease-of-use, (c) preferred type of floor-robot in this particular study, and, (d) opinions on the potential uses and downsides of floor-robot [21] .Therefore, we would like to find the effect of Covid-19 Pandemic on the A3 (Attention, Attitude and Awareness) Indicators of Senior High School Student in Learning Chemistry.

2. RESEARCH METHOD

This study uses a quantitative approach with a non-experimental type of research. The population in this study were 27 students from one state senior high school in Papua. Data collection techniques are carried out to obtain data or information needed in order to achieve research objectives. Sources of data in qualitative research such as: observation, interview and questionnaire.

The validation of the questionnaire that has been carried out has been compiled by looking at the suitability of the contents of the questions with the questionnaire which is associated with the theory and opinions of several experts regarding the notion of interest so that it fulfills content validation, to validate using an expert validator and the results of the validation have met the suitability of the content. The questionnaire test that the researchers used was the instrument reliability test which was carried out on a questionnaire test on students.

Reliability test is the suitability of the measuring instrument with what is being measured, so that the measuring instrument can be trusted or reliable. The reliability test shows an understanding that an instrument is reliable enough to be used as a data collection tool because the instrument is already good. The instrument is said to be reliable if it is able to produce a relatively fixed size even though it is done repeatedly. Knowing the reliability of the questionnaire, the researcher used the *Product Moment*

Test formula: Pearson and Spearman-Brown [22]. Data analysis technique using a scoring form. Determine the scoring of all statements of each item with the weight of each answer as follows:

TABLE 1: Alternative item score positive answer.

Alternative Answer		Mark
Always Often Sometimes Never		3 2 1 0

The formula used to calculate interest in studying Chemistry during the Covid-19 pandemic is analyzed as follows:

$$N = \frac{Total\ score}{Maximal\ Score} x 100 \quad (1)$$

Based on the results of the calculations above, the categories of students' interest indicators A3 (Attention, Attitude and Awareness) in learning Chemistry can be found with the benchmarks in Table 2.

TABLE 2: Category interests A3 in studying chemistry.

Score Achievement Rate	Criteria
76-100% 51-75% 26-50% 0-25%	Very high Enough Low Very low

Based on criteria in Table 2, we can also make the category for the Chemical UAS scores used as indicator indicators can be seen in Table 3**.**

TABLE 3: Category of chemistry exam grades.

Range of Grade	Predicate
86-100 68-85 51-67 1-50	A B C D

The category in Table 3 shows the predicate based on the student grade from the examination.

3. RESULT AND DISCUSSION

Based on data that we collect from the students' result test after that we do the analysis indicators of attention can be seen in Table 4.

Table 4 shows that most of the students in the attention indicator, mostly choosing sometimes. The attention indicator in the description of the percentage of students who answered always (27.56%), often (22.21%), sometimes (40.73%), never (9.46%). The results of this study indicate that students have an interest in learning Chemistry in the sufficient category because the percentage sometimes gets the highest score, this is in accordance with the results of research that students who answer choices sometimes

TABLE 4: Data on the results of Chemistry learning interest analysis on attention indicators.

SL		SR		KK		TP		Number of Students
F	%	F	%	F	%	F	%	
7	25.92%	9	33.33%	10	37.03%	1	3.70%	27
10	37.03%	7	25.92%	9	33.33%	1	3.70%	27
9	33.33%	7	25.92%	11	40.74%	0	0	27
7	25.92%	6	22.22%	10	37.03%	4	14.81%	27
9	33.33%	6	22.22%	9	33.33%	3	11.11%	27
2	7.40%	4	14.81%	16	59.25%	5	18.51%	27
5	18.51%	7	25.92%	13	48.14%	2	7.40%	27
10	37.03%	3	11.11%	12	44.44%	2	7.40%	27
8	29.62% 27.56%	5	18.51% 22.21%	9	33.33% 40.73%	5	18.51% 9.46%	27

Information:
SL = Always KK = Sometimes F = Frequency
SR = Often TP = Never

in the questionnaire get a higher interest. enough on learning Chemistry. Students who always pay attention to the Chemistry teacher when explaining Chemistry material online (*Google Meet, Google Classroom and WhatsApp*) tend to have good Chemistry UAS scores, this is in line with the opinion that students who pay attention to the lessons given by the teacher have the potential to great to get good learning outcomes [7, 18, 23]. It shows learning indicators in the description of the percentage of students who answered always (28.38%), often (20.98%), sometimes (37.65%), never (12.95%). Analysis for awareness indicators can be seen in Table 5.

TABLE 5: Data on the results of chemistry learning interest analysis on awareness indicators.

SL		SR		KK		TP		Number of Students
F	%	F	%	F	%	F	%	
8	29.62%	2	7.40%	13	48.14%	4	14.81%	27
4	14.81%	10	37.03%	9	33.33%	4	14.81%	27
15	55.55%	6	22.22%	5	18.51%	1	3.70%	27
9	33.33%	8	29.62%	9	33.33%	1	3.70%	27
6	22.22%	4	14.81%	11	40.74%	6	22.22%	27
5	18.51%	5	18.51%	10	37.03%	7	25.92%	27
8	29.62% 29.09%	5	18.51% 21.15%	9	33.33% 34.91%	5	18.51% 14.81%	27

Information:
SL = Always KK = Sometimes F = Frequency
SR = Often TP = Never

Table 5 shows that most of the students choose sometimes on the awareness indicator. The awareness indicator in the description of the percentage of students who answered always (29.09%), often (21.15%), sometimes (34.91%), never (14.81%). If students already have awareness in learning, these students will be more serious in learning to get good results [24, 25].

TABLE 6: Data on the results of chemistry learning interest analysis on attitude indicators.

SL		SR		KK		TP		Number of Students
F	%	F	%	F	%	F	%	
8	29.62%	5	18.51%	10	37.03%	4	14.81%	27
12	44.44%	6	22.22%	8	29.62%	1	3.70%	27
20	74.07%	3	11.11%	4	14.81%	0	0	27
4	14.81%	3	11.11%	10	37.03%	10	37.03%	27
11	40.74%	6	22.22%	8	29.62%	2	7.40%	27
8	29.62%	5	18.51%	11	40.74%	3	11.11%	27
6	22.22%	3	11.11%	11	40.74%	7	25.92%	27
8	29.62% 35.64%	8	29.62% 18.05%	9	33.33% 32.86%	2	7.40% 13.42%	27

Information:
SL = Always KK = Sometimes F = Frequency
SR = Often TP = Never

Attitude indicators of students show most of them always choose. Table 6 on the attitude indicators in the description of the percentage of students who answered always (35.64%), often (18.05%), sometimes (32.86%), never (13.42%). The results of this study indicate that more students always answer at a higher percentage, because students have a caring attitude in solving problems while learning Chemistry online (*Google Meet, Google Classroom and WhatsApp)*. This is in accordance with the results of the questionnaire. It was given to students and students who have a caring attitude in learning tend to increase student interest in learning. Respondents 7, 25, 26, 17, 6, 23, 15, and 18 are different because they have a low interest in Chemistry category but have good UAS scores on respondents 7, 25, 23, 18, and the category is sufficient for respondents 26, 17, 6, and 15, while the 22 respondents in the category of very low interest in studying Chemistry but had sufficient UAS scores [18, 19, 21, 26]. The results of the analysis on each indicator (attention, attitude, and awareness) in learning Chemistry during the Covid-19 pandemic and the value of the Chemistry UAS can be seen in Table 7.

Table 7 shows the results of the analysis of interest in learning Chemistry on each indicator and the value of the Chemistry UAS in the percentage description attention (55.97%), awareness (54.85%), and attitude (56.48%).

TABLE 7: Data analysis of indicators a3 in learning chemistry and UAS Score.

R	Attention	Awareness	Attitude	UAS score
12	100	100	100	86
8	92.5	100	95.8	88
1	96.2	95.2	95.8	87
2	74.0	85.7	75	68
27	74.0	80.9	83.3	80
9	66.6	61.9	70.8	69
10	66.6	71.4	70.8	76
5	59.2	47.6	62.5	56
20	77.7	66.6	70.8	52
3	48.1	57.1	62.5	73
14	70.3	57.1	62.5	69
7	77.7	66.6	50	77
24	59.2	57.1	70.8	65
16	33.3	52.3	54.1	76
21	51.8	57.1	70.8	79
25	59.2	33.3	58.3	80
4	48.1	57.1	58.3	84
26	37.0	57.1	41.6	66
19	51.8	47.6	70.8	83
17	40.7	42.8	50	58
22 6	48.1 37.0	28.5 33.3	20.8 37.5	57 58
23	33.3	33.3	37.5	70
15	29.6	33.3	41.6	54
18	33.3	33.3	29.1	69
11	25.9	14.2	29.1	48
13 Σ %	18.5 408 55.97%	9.5 311 54.85%	12.5 366 56.48%	47

4. CONCLUSION

Based on the results of the description above, it can be concluded that the percentage of each indicator of During the Covid-19 pandemic for A3 indicators are attention of 55.97%, awareness by 54.85%, attitude of 56.48%. Based on the results of the study, the researchers suggest that students' parents need to know the level of interest in learning Chemistry during the Covid-19 pandemic of students and the factors that influence students to be interested in learning Chemistry. Teachers need to know the level of interest in learning Chemistry during the Covid-19 pandemic of students and the factors that influence students to be interested in learning Chemistry.

5. ACKNOWLEDGMENTS

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