

# MEASUREMENT OF STUDENT ACHIEVEMENT DURING THE COVID-19 PANDEMIC

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## Abstrak

Penelitian ini bertujuan untuk mengukur prestasi belajar siswa pada masa pandemi covid-19, dan untuk mengetahui apakah instrumen yang digunakan valid dan reliabel. Penelitian ini dilakukan di kelas XII IPA 1 MAN 3 Cianjur. Hasil penelitian menunjukkan bahwa persentase validitas sangat tinggi sebesar 44%, persentase validitas tinggi sebesar 44%, dan persentase validitas tinggi sebesar 12%. Hal ini menunjukkan bahwa semua instrumen pengukur prestasi siswa selama pandemi covid-19 adalah valid. Selain itu, hasil estimasi reliabilitas berdasarkan data yang diuji adalah 0,7619. Artinya, instrumen yang dibuat reliabel, sehingga instrumen ini dapat digunakan di kelas manapun atau pada mata pelajaran lain. Secara umum hasil analisis seluruh nilai siswa menunjukkan bahwa prestasi belajar siswa pada uji coba sebesar 64,86% memiliki prestasi belajar yang baik, dan 35,12% memiliki prestasi belajar yang kurang baik. Di masa pandemi COVID-19 ini tentunya banyak faktor yang mempengaruhi prestasi mahasiswa, dan hal ini dapat dijadikan bahan untuk penelitian selanjutnya.

**Kata Kunci:** Masa Pandemi, Pengukuran, Prestasi Belajar Siswa, Reliabilitas, Validitas.

## Abstract

This study aims to measure student learning achievement during the covid-19 pandemic, and to find out whether the instrument used is valid and reliable. This research was conducted in class XII IPA 1 MAN 3 Cianjur. The results showed that the percentage with very high validity was 44%, the percentage with high validity was 44%, and the percentage with high validity was 12%. This shows that all instruments measuring student achievement during the covid-19 pandemic are valid. In addition, the results of the reliability estimation based on the tested data are 0.7619. That is, the instrument made is reliable, so this instrument can be used in any class or on other subjects. In general, the results of the analysis of all student scores show that student learning achievement in the trial of 64.86% has good learning achievement, and 35.12% has poor learning achievement. During this COVID-19 pandemic, of course, there are many factors that affect student achievement, and this can be used as material for further research.

**Keywords:** Covid-19 Pandemic, Measurement, Reliability, Student Achievement, Validity.

## INTRODUCTION

Covid-19 is an infectious disease caused by a newly discovered type of coronavirus. This virus is an outbreak that occurred in the city of Wuhan, China, in November 2019 [1]. Covid-19 is now a pandemic that is happening in many countries around the world. Until now this virus has developed into several variants,

such as Alpha, Beta, Gamma, Delta, Mu variants. It is possible that this virus will continue to grow and there will be new variants.

The COVID-19 pandemic is a situation that affects all sectors/fields, such as the economic sector, trade, industry, agriculture, politics, and others, including the education sector [2]. The COVID-19 pandemic is a major challenge for the education system [3]. This makes the government have to think hard in formulating a strategy between dealing with COVID-19 and educating the nation's children. Many institutions/institutions in the field of education, especially schools/colleges, implement distance learning for the safety of students [4][5].

Distance learning is one of the solutions for schools in dealing with this COVID-19. This method is effective [6], besides saving students, it also keeps students learning. However, we need to know the changes in students when they study at home, whether positive or otherwise. Education is said to be successful if there is a positive change in students both in terms of knowledge, skills, behavior, and attitudes that can be used in social life [7]. This is what is hereinafter called achievement.

Therefore, an activity is needed to determine the ability of the student's achievement. This activity is called measurement, because any activity carried out in this world cannot be separated from measurement [8]. It is very important for teachers, that by measuring student achievement, it can be an evaluation for a teacher in carrying out a lesson, either at school face-to-face or at home through distance learning.

Measurement can be defined as the assignment of numbers in such a way as to correspond to different degrees of quality of some object or event [9]. Measurement consists of rules for numerically representing the number of degrees or attributes. The main purpose of measurement is to provide a reasonable and consistent way of summarizing the responses people make to express their achievements, attitudes, or personal points of view through instruments such as scales, achievement tests, questionnaires, surveys, and psychological scales.

The results of the measurements made by the teacher can be trusted if several times the teacher takes measurements of the same subject, obtaining relatively the same or reliable results. It will apply if the instrument being measured does not change. In addition to being reliable, the instrument that will be used as a measure by the teacher must be proven first for its validity [10].

The success of a student in learning can be seen from his learning achievement. One of the efforts that make someone achieve is to carry out sustainable activities. That is, after a person realizes his potential in a field, he will continuously try to develop it into a major ability. As stated by Dahlan that achievement is the result of continuous efforts to develop talent [11]. The learning outcomes are students' learning achievements that can be measured by students' scores after working on the questions given by the teacher at the time the evaluation was carried out. This means that the success or failure of achieving educational goals depends a lot on the learning process experienced by students. Measurement of learning achievement is needed to determine the level of student learning success, diagnose learning difficulties, and guide students to obtain better results. The success of student learning is influenced by at least three factors, namely internal factors (from within students), external factors (from the environment) and student learning approaches which include strategies and methods used by students

to carry out learning activities [12]. Although the students' external factors are good enough, if the students' internal factors are still not good, then the results of student achievement will be less than optimal.

MAN 3 Cianjur is one of the schools/madrasah which is quite far from the city of Cianjur. As a teacher and researcher in this article, we want to know and measure student achievement while students carry out distance learning during this pandemic.

## METHODOLOGY

This research was conducted in class XII IPA 1 which amounted to 37 students as a sample, while the population was class XII IPA MAN 3 Cianjur. This study aims to measure student learning achievement during the covid-19 pandemic, and to find out whether the instrument used is valid and reliable.

### A. Validity

The content validity test was determined using expert agreement. The agreement of experts in the field of study or often referred to as the measured domain determines the level of content validity. This is because the measurement instrument is proven valid if the expert believes that the instrument measures mastery of the abilities defined in the domain or also the psychological construct being measured [13].

After being examined by an expert, in this case as a validator, then the expert gives an assessment of the instrument. The assessment consists of 5 criteria as follows.

**TABEL 1.** Criteria for Assessment of Instrument Points by Validator

<i>Value</i>	<i>Description</i>
1	Not Relevant
2	Less Relevant
3	Enough
4	Relevant
5	Very Relevant

After being given an assessment by the expert, the researcher then calculated the results of the assessment using a validity index, including the index proposed by Aiken as follows [14].

$$V = \frac{\sum s}{N(c-1)} \quad (1)$$

when,  $s = r - l$

Description:

$r$  : rater rating

$l$  : lowest category rater rating

$c$  : highest category

$N$  : number of raters/respondents

The range of V numbers that may be obtained is between 0 up to 1. The higher the V number (close to 1 or equal to 1), the higher the value of the validity

of an item, and the lower the V number (close to 0 or equal to 0) the value of the validity of an item / item also decreases. More details as follows [15].

**TABEL 2.** Criteria for the Validity of Questions

<i>Value</i>	<i>Description</i>
0,800 – 1,000	Very high
0,600 – 0,800	High
0,400 – 0,600	Enough
0,200 – 0,400	Low
0,000 – 0, 200	Very Low

**B. Reliability**

Next is the estimation of reliability. This estimate is used to test the extent to which the measuring instrument can be trusted to explain the existing conditions, the test is carried out using the Kuder-Richardson 20 (KR-20) test, because the KR-20 test is suitable for the form of data obtained from test results which are dichotomous data. , which consists of only two values (Yusuf, 2014). The basis of decision making, among others, if the value of the reliability coefficient > 0.7 then it is considered reliable. The following is the calculation formula for KR-20 [16].

$$KR_{20} = \left(\frac{n}{n-1}\right) \frac{SD^2 - \sum pq}{SD^2} \quad (2)$$

Description:

*KR20* : reliability coefficient

*n* : number of question items

*SD* : standard deviation

*p* : the proportion of respondents answered correctly

*q* : proportion of respondents answered incorrectly (1-*p*)

**C. Measurement of Student Achievement**

Furthermore, the data analysis technique used by researchers to determine student achievement is according to the KKM value, which is 65. That is, if students get a score of 65 then student achievement is good. However, if students get a score of <65, the student's learning achievement is not good.

**RESULT**

**A. Validity**

Expert validity testing with V-Aiken was carried out to determine whether an instrument was valid or not from each question assessed by the validator. The validity test that has been carried out in this study is shown in the following table.

**TABEL 3.** V-Aiken Value

Item Number	V-Aiken Value	Category
1	0,875	Very high
2	0,5	Enough

Item Number	V-Aiken Value	Category
3	0,875	Very high
4	0,875	Very high
5	0,75	High
6	0,75	High
7	0,625	High
8	0,875	Very high
9	0,75	High
10	0,75	High
11	0,875	Very high
12	0,5	Enough
13	0,875	Very high
14	0,875	Very high
15	0,5	Enough
16	0,75	High
17	0,75	High
18	0,625	High
19	0,75	High
20	0,875	Very high
21	0,875	Very high
22	0,875	Very high
23	0,875	Very high
24	0,75	High
25	0,625	High

Based on the table above, it is found that the percentage with very high validity is 44%, the percentage with high validity is 44%, and the percentage whose validity is quite high is 12%. This shows that all instruments measuring student achievement during the covid-19 pandemic are valid.

### **B. Reliability**

The next step is to estimate reliability to measure whether or not an instrument is consistent in the research used to measure student achievement. The result of the reliability estimation based on the tested data is 0.7619. This means that the instrument made is reliable, so this instrument can be used in any class or on other subjects.

### **C. Measurement of Student Achievement**

The purpose of this study was to measure student achievement. If students get a score of 65 then the student's learning achievement is good, but if students get

a value of  $<65$  then the student's learning achievement is not good. In detail, student scores can be seen in the following table.

**TABLE 4.** Student Achievement Value

No.	Respondent	Value
1	Respondent 1	76
2	Respondent 2	76
3	Respondent 3	20
4	Respondent 4	72
5	Respondent 5	56
6	Respondent 6	68
7	Respondent 7	72
8	Respondent 8	56
9	Respondent 9	72
10	Respondent 10	52
11	Respondent 11	76
12	Respondent 12	68
13	Respondent 13	72
14	Respondent 14	68
15	Respondent 15	80
16	Respondent 16	72
17	Respondent 17	60
18	Respondent 18	72
19	Respondent 19	80
20	Respondent 20	44
21	Respondent 21	80
22	Respondent 22	80
23	Respondent 23	60
24	Respondent 24	80
25	Respondent 25	8
26	Respondent 26	76
27	Respondent 27	52
28	Respondent 28	80
29	Respondent 29	80
30	Respondent 30	68
31	Respondent 31	52

No.	Respondent	Value
32	Respondent 32	80
33	Respondent 33	68
34	Respondent 34	56
35	Respondent 35	36
36	Respondent 36	36
37	Respondent 37	76

Based on the table above, in general, the results of the analysis of all student scores show that student learning achievement in the trial of 64.86% has good learning achievement, and 35.12% has poor learning achievement. During this covid-19 pandemic, of course, there are many factors that affect student learning achievement, and this can be material for further research.

## CONCLUSION

This research was conducted in class XII IPA 1 MAN 3 Cianjur. The results showed that the percentage with very high validity was 44%, the percentage with high validity was 44%, and the percentage with high validity was 12%. This shows that all instruments measuring student achievement during the covid-19 pandemic are valid. In addition, the results of the reliability estimation based on the tested data are 0.7619. That is, the instrument made is reliable, so this instrument can be used in any class or on other subjects. In general, the results of the analysis of all student scores show that student learning achievement in the trial of 64.86% has good learning achievement, and 35.12% has poor learning achievement. During this COVID-19 pandemic, of course, there are many factors that affect student achievement, and this can be used as material for further research.

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