Online Learning: Impact on Learning Loss?

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Abstract. The impact of online learning on learning loss during the Covid 19 epidemic, which is the subject of this study, was investigated using the explanatory survey approach. A total of 97 students from the Department of Economics Education participated in the study. To establish the influence of online learning on learning loss, the data analysis technique employed descriptive analysis to determine the description of online learning and learning loss, and simple linear regression analysis to determine the effect of online learning on learning loss. According to the findings, online learning is a good option, whereas learning loss is a middling one. The magnitude of t count > t table and the magnitude of R square of 0.645 indicate that online learning has a positive and significant effect on learning loss, implying that online learning has a 64.5 percent effect on learning loss and the remaining 35.5 percent is influenced by other factors not investigated.

Keywords: Online Learning; Learning loss

1   Introduction

For one year since the Government of Indonesia announced the first Covid-19 case in Indonesia on March 2, 2020, this pandemic has had a huge global impact. People's physical health is often threatened and affected and even causes death. Furthermore, all aspects of human life are under stress. Economic activity, welfare, psychological and social contacts, human rights and democratic decision-making, international political relations, and global solidarity [1].

The spread of the virus is so massive and relatively fast makes people feel afraid. This fear has forced everyone to decide to stay at home to break the chain of transmission of Covid-19. The Covid-19 pandemic has had a broad impact, especially on all aspects of life, including education. Almost all countries in the world including Indonesia have decided to temporarily close face-to-face learning and switch to online learning by the circular letter of the Minister of Education and Culture Number 3 of 2020 concerning Prevention of Covid-19 in Education Units, and Number 36962/MPK.A/HK /2020, teaching and learning activities are carried out online to prevent the spread of Corona Virus Disease (Covid-19).

The Covid-19 pandemic on education in the short term was felt by many families in Indonesia both in cities and in villages who felt less familiar with carrying out the learning process at home. The learning process carried out at home causes problems for the psychological condition of students who usually carry out the learning process at school face to face. This process runs on a scale that has never been measured and tested because it has never happened

before. In remote villages where the population of school-age is very dense, there is confusion, because the information technology infrastructure is very limited. In the long term, many groups of people in Indonesia will be exposed to COVID-19. The impact of education from a long-term perspective is the aspect of justice and increasing inequality between community groups and between regions in Indonesia[2].

Learning is a lasting change in behavior, or in the capacity to behave in a certain way, resulting from practice or forms of experience[3]. Learning during the Covid-19 pandemic can change a person's behavior. The online learning process that is carried out suddenly makes Education elements have to try to find effective virtual learning alternatives during the pandemic. In practice, the learning process is carried out by utilizing facilities from Google, WhatsApp Groups, the Moodle Platform, and Zoom meetings. With limited capabilities, not a few educators and students experience difficulties in implementing the online learning process and difficulties in accessing the internet. This is in line with research that states that educators and students experience difficulties due to the limited implementation of online-based teaching and learning processes and limited internet access[4].

Educators and students often need extra time to learn how to operate online applications through various files or live tutorials. Other research states that the Covid-19 pandemic has raised several concerns that the government must address, namely software applications, lesson schedules, interactive lessons, grades, attendance, payment of fees, and registration[5]. Difficulties and concerns in implementing this learning process can result in learning loss, namely reduced achievement of learning goals and cognitive skills. Students who are vulnerable to learning loss are students who do not have maximum access to the online learning process. For example, students who are in rural or remote areas where internet access is difficult to obtain.

Even if there is internet access, limited infrastructure remains an obstacle for students to take part in learning. This is in line with the statement that online learning will raise concerns that it can widen the existing inequality if all actions are not thought out properly. For example, students who are not given the same opportunities by educators, are faced with the same learning expectations[6]. In addition, the parental factor also has a significant impact on the occurrence of learning loss. For parents who have a low level of education or parents who do not understand online learning, there is an assumption that online learning does not exist or is made up. If this learning loss continues, it will have an impact on the loss of student interest in learning caused by lack of learning time and lack of interaction between students and teachers.

As revealed by Rythia Afkar, Economist, the World Bank estimates the percentage of learning loss to increase by 10 percent. This loss of interest in learning can result in the achievement of learning objectives or learning outcomes being hampered and can even cause students to drop out of school. By looking at the current phenomenon, the authors are interested in conducting research, by examining more deeply the impact of online learning on learning loss.

2 Research Methods

The method used in this research is an explanatory survey. According to John Creswell, survey research is a type of quantitative research in which researchers explore samples and populations, collect data using questionnaires and interviews, and draw conclusions about the population[7].

A total of 111 students from the Department of Economics Education were used in this study. Saturated sample is a sampling approach that uses the entire population as a sample in

the study. Data was obtained by sending a Likert scale survey using Google Forms to all members of the population, but only 97 people responded. Descriptive statistics are used to determine the characteristics of respondents' responses. A simple linear test was conducted to determine the effect of learning variables on learning loss, while the t-test was used to test the hypothesis using the SPSS 24 program.

3   Results and Discussion

3.1. Results
3.1.1 Description of Online Learning Variable (X)
Based on research data that was processed using the SPSS 24 application for online learning variable (X), the highest score was 88 and the lowest was 48. From this data, the average information (mean) was 69.87, the median value was 68, and the standard deviation of 8.29. To determine the class interval, use the formula $1 + 3.3$ Log n, where n is the number of research subjects. The number of subjects in this study was 97 people so that the class interval 7.5563 was rounded up to 8; The data range is $88 - 48 = 40$. By knowing the data range, it can be obtained that the class interval for each group is 5.2935 rounded up to 5. The frequency distribution for the online learning variable (X) can be seen in Table 5.3.

Table 1. Frequency Distribution of Online Learning Variables (X)

No	Interval	Frequency	Relative Frequency (%)
1	48 – 52	1	1,03
2	53 – 57	5	5,15
3	58 – 62	5	5,15
4	63 – 67	37	38,14
5	68 – 72	18	18,56
6	73 – 77	9	9,28
7	78 – 82	13	13,40
8	≥ 83	9	9,28
	Total	97	100

Source: Primary data processed, 2021

The online learning variable (X) can be classified into three categories of variable tendencies, namely very good, good, and quite good. The online learning variable (X) was measured using a questionnaire consisting of 22 statements given to 97 respondents. The score assessment criteria are a maximum score of 22 X 4 = 88 and a minimum score of 22 X 1 = 22. Then the ideal average (Mean Ideal) is 66 and the ideal standard deviation of 14.67 is rounded up to 15. Based on these calculations, the online learning variable category (X) can be seen in Table 5.4.

Table 2. Trend Distribution of Online Learning Variables (X)

No	Skor	F	Relative Frequency (%)	Cumulative Frequency	Category
1	X > 81	13	13,40	13,40	Very Good
2	51 ≤ X ≤ 81	83	85,57	98,97	Good
3	X < 51	1	1,03	100	Quite Good
	Total		100		

Source: Primary data processed, 2021

Table 5.4 shows that the trend of the online learning variable (X) is in a good category, namely as many as 83 people or 85.57%. This means that the online learning process carried out in the economics department has been carried out well. When viewed from the online learning measurement indicators related to the quality of delivery of learning strategies, students gave a good response, which was 64.84%. The indicator is formed by 10 statement items, namely lecturers prepare online learning well, interactions in the learning process are well prepared, online class scheduling is prepared completely and clearly, lecturers manage online learning well, lecturer and student communication are carried out well and effectively, lecturers motivate students to actively participate, learning materials are delivered clearly, easily accessible, and understandable by students, learning activities are well managed, online learning methods used can be followed by students effectively, and lecturers encourage students to explore more independently on the subject matter. given.

When viewed from the indicators of teaching quality measurement, 71.63% of respondents gave a good response. The indicator is formed by 4 statement items, namely teaching materials used to increase knowledge and skills, assignments and assessments given by lecturers are relevant to the teaching materials provided, ease of accessing teaching materials provided by lecturers, and lecturers convey material clearly and easily understood.

For indicators of student engagement and activeness in online classes (student engagement), respondents gave a good response of 68.53%. The indicator is formed by 6 statement items, namely, I am interested in further exploring the material provided by the lecturer, I can take online classes effectively, I can increase my knowledge and skills through the learning process that is followed, the learning process and teaching materials have increased my knowledge in accordance with Subject Learning Outcomes (CPMK), the learning process and teaching materials have improved my soft skills according to the CPMK, and the learning process and teaching materials encourage the achievement of higher education values and academic norms.

3.1.2 Description of Learning Loss Variable (Y)

Based on research data that was processed using the SPSS 24 program for the learning loss variable (Y), the highest score was 72 and the lowest was 39. From this data, the average information (mean) was 58.2, the median value was 57, and a standard deviation of 6.809. To obtain interval class information, the formula $1 + 3.3 \log n$ is used, where n is the number of research subjects totaling 97 people so that the number of interval classes is 7.5563 rounded up to 8; The data range is 33. By knowing the data range, it can be obtained that the class interval for each group is 4.36 rounded up to 4. The frequency distribution of the variable learning loss (Y) can be seen in Table 5.5.

Table 3. Frequency Distribution of Learning Loss Variables (Y)

No	Interval	Frequency	Relative Frequency (%)
1	39 – 42	1	1,03
2	43 – 46	0	0
3	47 – 50	8	8,25
4	51 – 54	29	29,90
5	55 – 58	19	19,59
6	59 – 62	13	13,40
7	63 – 66	13	13,40
8	≥ 67	14	14,43
	Total	97	100

Source: Primary data processed, 2021

The learning loss variable (Y) can be classified into three categories of high, medium, and low tendency. The learning loss variable (Y) was measured using a questionnaire consisting of 18 statement items given to 97 respondents. The scoring criteria, namely a maximum score of 18 X 4 = 72, a minimum score of 18 X 1 = 18, then the ideal average value (Mean Ideal) is 54 and the ideal standard deviation is 12. Based on these calculations, the learning loss variable category (Y) can be seen in Table 5.6.

Table 4. Trend Distribution of Learning Loss Variables (Z)

No	Skor	F	Relative Frequency (%)	Cumulative Frequency	Category
1	X > 66	14	14,58	14,43	High
2	42 ≤ X ≤ 66	82	85,42	98,97	Medium
3	X < 42	1	1,04	100	Low
	Total	304	100		

Source: Primary data processed, 2021

Table 5.6 shows that the trend of variable learning loss (Y) is that most of the 2018 Economics Education Department students are in the medium category, which is 82 people or 85.42%. While the remaining 14 people or 14.58% were in the high category and 1 person or 1.04 percent were in a low category. This means that students majoring in economics experience learning loss, namely the loss of specific or general knowledge and skills or a reversal in academic progress. Loss of interest in learning in students due to reduced intensity of interaction with lecturers during the learning process.

This variable learning loss is built on four indicators, namely, produce standardized lessons based on students' age and their distance learning modality, maintain students' learning engagement, provide learning alternatives for connectivity-constrained students, and Support families' involvement in children's learning and their digital lives. with an average of 59.2%.

3.1.3 Data Analysis

Assessment of normality is the output to test whether the research data is multivariate as an assumption requirement that must be met with maximum likelihood. Based on Table 5.9 related to the Assessment of normality, information is obtained that the critical skewness value is very low for all variables, namely below 2.58 (significant 1%) it can be concluded that the univariate data is normally distributed. Multivariate, the value of 1.493 is the coefficient of multivariate kurtosis with a critical value of 1.343, which is below 2.58. So it can be concluded that the data are normally distributed in a multivariate manner.

Table 5. Assessment of normality

Variable	min	max	skew	c.r.	kurtosis	c.r.
Online Learning	48,000	88,000	,258	1,038	-,235	-,472
Learning Loss	39,000	72,000	,242	,973	-,555	-1,115
Multivariate					1,493	1,343

To find out how much influence online learning has on learning loss, statistical testing was carried out (table 5.10) and information was obtained on the magnitude of the correlation coefficient (R) 0.803, meaning that the online learning variable has a relationship of 80.3% to learning loss. While the coefficient of determination (R^2) of 0.645 indicates that online learning has an effect on learning loss of 64.5%. These results indicate that the higher the level of online learning, the higher the learning loss and vice versa.

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.803[a]	.645	.641	4.081

a. Predictors: (Constant), Online Learning

To determine the effect of online learning on learning loss, a simple linear regression test was carried out, the information obtained can be seen in Table 5.11.

Table 7. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.123	3.535		3.430	.001
	Online Learning	.659	.050	.803	13.124	.000

a. Dependent Variable: Learning Loss

The regression equation can be written as $\hat{Y} = 12{,}123 + 0{,}659X$ using Table 5.10. According to the regression equation, learning loss can be explained without the influence of online learning. The hypothesis was tested using a t-test at a 95% significance level, and the results showed that online learning had a positive and significant effect on learning loss.

3.2 Discussion

Because of the Covid-19 pandemic, all aspects of education have been forced to shift from face-to-face learning to distance learning or online learning. In addition to breaking the chain of the Covid-19 virus's spread, online learning is carried out so that students can still have meaningful learning experiences through the use of technology for learning that are not available in the traditional teaching and learning process. Unfortunately, not all students can fully participate in online learning. Almost every aspect of education is being forced to look for alternatives in order to prepare effective tools for online learning. One of the barriers to implementing online learning is the limited ability to operate online learning devices. Furthermore, many students do not have full access to the online learning process, and parents have limitations in accompanying students during the online learning process.

These issues result in a loss of opportunities for students to gain learning experiences that are typically obtained through the face-to-face learning process. This loss of opportunity is referred to as learning loss, which is a condition in which a person or student loses interest in learning, which has a significant impact on the knowledge and skills of children in particular. This loss of learning is caused by a lack of interaction between teachers and students, which has a negative impact on student interest. In the long run, this learning loss can lead to a decrease in student interest in learning, which can lead to poor learning outcomes and even an increase in dropout rates or dropouts.

The findings revealed that online learning had a 64.5 percent positive and significant effect on learning loss. This is explained by the medium category's tendency for variable learning loss. In the learning process, 82 respondents, or 85.42 percent, reported a loss of specific knowledge and skills. According to Le Thu Huong and Teerada Na Jatturas, learning loss is "any specific

or general loss of knowledge and skills or reversals in academic progress, most commonly due to extended gaps or discontinuities in a student's education."[8]

Students experience significant disruptions in the educational process, resulting in a loss of learning opportunities over a relatively long period of time. Students face technical difficulties while learning as a result of unsupported facilities and infrastructure; not all students have devices and internet networks that support online learning. Furthermore, students struggle to concentrate when learning online because they are not used to using devices or laptops to study. Of the 97 respondents, 10.3 percent strongly agree and 53.6 percent agree that the lecturer's explanation during the online learning process was unclear.

This is consistent with the findings of other studies, which show that some students struggle to concentrate when learning online because they are experiencing culture shock and are not used to using gadgets. Many problems that lecturers and students face are revealed by online interactions in long-term learning. Many concepts require real face-to-face interaction for a complete understanding of certain subjects whose contents are abstract, which makes online learning problematic.

As a result, student learning time is reduced, students are disinterested in learning, and some students even skip school[9]. According to the study's findings, online learning was less successful than face-to-face learning in terms of academic achievement. Some students are uneasy with this method of learning because of technical difficulties or a lack of appropriate or compatible gadgets[10].

4 Conclusion

In terms of the impact of online learning on learning loss, the findings revealed that learning had a 64.5 percent effect. This means that the greater the learning level, the greater the learning loss, and vice versa. This learning loss is defined as the loss of specific knowledge and skills, as well as long-term setbacks caused by online interactions in the learning process over a relatively long period of time. This study has limitations; researchers discovered how significant the effect of bold learning is on learning loss, but learning loss has not been studied further. This study is also restricted to the Department of Economics Education. As a result, the researcher recommends that readers conduct additional research to learn more in-depth information about the effect of online learning on online loss using a larger sample size. Furthermore, it is hoped that additional research on the measurement of learning loss will be conducted.

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