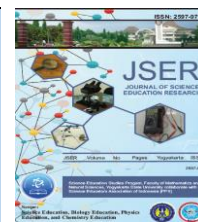


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The Effect of Online Learning Using Smansa Ende Online on The Students' Motivation and Learning Outcomes of Physics Subject of Class XI

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ABSTRACT

Keywords:

Online Learning,
Learning
motivation,
learning outcomes.

The study aimed to find out the effect of online learning using Smansa Ende online on motivation to learn physics and the effect of online learning using Smansa Ende online on physics learning outcomes, to students in class XI at SMA Negeri 1 Ende for the academic year 2020/2021. Quantitative research was used to examine the causal relationships that were not treated by researchers and the occurred activities. The data collection techniques were questionnaires and documentation. The population was 71 students of class XI MIPA 4 and XI MIPA 5 at SMAN 1 Ende, with a research sample of 36 students of class XI MIPA 5. The hypothesis testing using linear regression t-test showed that H_1 and H_2 were accepted, with a significance value of H_1 being less than 0.05 ($0.026 < 0.050$). Then, there was an effect of online learning using Smansa Ende Online on learning motivation. Meanwhile, the significant value of H_2 was less than 0.05 ($0.007 < 0.050$). Then, there was an effect of online learning using Smansa Ende Online on learning motivation.

INTRODUCTION

Learning is a process of interaction between students and teachers. Teacher is the party who design activity to help and foster the students to actively learn and understand the learning material. The learning objectives are to increase students' knowledge and concept, as well as build their personalities and attitudes (Amka, 2018). There are many subjects in learning, such as Physics subject. The material of Physics is so complicated that makes it difficult to understand. Physics is a branch of science whose application can develop analytical thinking skills through natural phenomena as a form of implementation of physics (Erviani, Sutarto, & Indrawati, 2016). KKBI (Indonesian Dictionary) defines physics as a science of matter and energy, such as heat, light, and sound (Chulsum & Novia, 2006). In short, Physics is the study of natural phenomena and their relationships with visible objects in the universe and their effects. Physics give wide benefits for human, which regulates the

entire pattern of human life. Along the way, the rules in education are always changing to adapt to the situation or condition. For example the situation today, where the spread of a virus can be contagious and endemic in almost all countries. This epidemic force all human activities to be slow because it is very detrimental and dangerous. This virus is called Corona Virus Disease which firstly occurred in 2019 and was declared as a Global Health Emergency. And, the World Health Organization (WHO) named the Corona Virus Covid-19 (Handayani et al., 2020).

This virus greatly affects all aspects of human life, such as education, health, economy, politics, culture, and beliefs. All activities of human life are affected, including education. Because of its contagious nature, then it requires all activities to be stopped or through online. This activity is called "Quarantine". As a result, students do not attend school, while the learning is carried out remotely.

The government's policy regarding quarantine has forced the education sector to implement several policies, such as studying at home, teacher visits, and online learning. By the policy, SMA Negeri 1 Ende applies online learning, specifically to Physics subjects. Online learning that is applied to Physics subjects is carried out through online media using Smansa Ende Online.

SMA Negeri (Senior High School) 1 Ende is one of the schools in the province of NTT that responded to the instructions of the Governor and the letter issued by the Head of the Education and Culture Office of the province of NTT, on the efforts to prevent the spread of the COVID-19 pandemic through online learning. The principal of SMA Negeri 1 Ende, at the MPLS online event for the 2021/2022 school years, convey steps in improving the education system on online learning (Dedi, Niron, & Ado, 2021). First, all teachers must teach remotely using technology. Second, the use of technology must be effective. It needs the knowledge to use technology to realize the educational goals. Third, the patterns of online learning must be part of all learning, even it only plays a complementary part. Fourth, it must be completed with online learning equipment. Learning at SMA Negeri 1 Ende is dominantly carried out online using the Smansa.online link. Smansa Ende online is an e-learning application used by SMA Negeri 1 Ende to perform the distance learning process. Through online learning using Smansa Ende Online, several applications support online learning that is completed with interesting and easy features and aimed to help students to understand the material. This e-learning might be used by principals, teachers, employees, and students. They create an account to enter the e-learning of SMA Negeri 1 Ende. Students are invited by teachers to join Smansa Ende Online.

There are many benefits from online learning using Smansa Ende Online, such as self-learning, gaining knowledge on technology, and being able to operate the technological equipment. Online learning can create student-centered learning by training independent learning, as well as improving technological skills. Online learning may define as a remote-learning through media, in the form of the internet and other supporting tools such as mobile phones and computers (Putria, Maula, & Uswatun, 2020). Online learning connects students with learning resources (databases, experts/instructors, libraries) that are physically separated or far, but they can communicate, interact or collaborate (synchronously and asynchronously) (Sadikin & Hamidah, 2020).

A way for a teacher to achieve optimal learning outcomes is by selecting and using appropriate learning methods and models. Then, it

can create an atmosphere of good teaching and learning activities. The teaching and learning process by using the same learning model continuously, especially the subject of physic, can lead to monotonous. As the impact, students tend to be lazy, bored, less motivated, and interested to learn physics which may further affect students' learning outcomes. In situations of urgency, teachers must always be updating the process of learning – new and different methods, so the students are willing to learn and have high motivation due to interest and attractive learning. Indicators to measure the students' learning motivation are diligently working and completing the assignments, being tough in facing difficulties, quickly getting bored with routine tasks, happy to solve problems and questions, and having the desire to succeed (Ilyas & Liu, 2020). Learning motivation is one of the psychological factors contributing to achieving learning outcomes. Students who have high learning motivation are certainly students who have a desire and motivation for achievement. The need for achievement is for a student who wants to be successful, dares to take risks, is responsible, has characteristics of fast, works hard, is not afraid to fail, and tends to stand out (Muhammad, 2016). Motivation is an important factor that makes students able to move their intention to learn (Arimbawa & Santyasa, 2017). Thus, students are motivated to study physics and obtain good scores. Indicators of learning motivation according to Uno (Elmirawati, Daharnis, & Syahniar, 2013) classified into six categories. They are:

- 1) have a strong desire and willingness to succeed.
- 2) have encouragement and need in learning.
- 3) have hopes and dream for the future
- 4) There is an appreciation in learning
- 5) Supported by interesting activities in learning
- 6) A conducive environment to allow a student to learn well.

Learning outcomes are seen after students obtain learning experiences and changes in behavior (Muhammad, 2016), as well as reach the peak of a process during learning (Wahyuni, Nasar, & Kaleka, 2020).

In the journal Sjukur, the frame of thinking is illustrated through a chart. The chart defined students' intrinsic motivation and extrinsic motivation that, through online and face-to-face learning, students experience the spirit of learning which is then supported by a blended learning model so as improve student learning outcomes (Sjukur, 2012). In this case, fun learning leads to students' learning motivation. In the end, it improves students' learning outcomes.

METHOD

The research type was quantitative. The quantitative research method -proposed by Sugiyono- is a research method based on the philosophy of positivism, used to examine certain populations or samples, sampling techniques are generally selected randomly, data collection uses research instruments, and data analysis is quantitative/statistical with the aim to test the established hypothesis (Darna & Herlina, 2018).

The population was 71 students of XI MIPA 4 XI MIPA 5 SMA Negeri 1 Ende in the academic year 2020/2021. The sample was 36 students of Class XI MIPA 5. The sampling selection technique was Probability sampling with simple random sampling. The technique is intended that as many as n samples from N population, and each member of the population has the same opportunity to be selected (Retnawati, 2017). The Slovin formula was used in sample determination (Rane, Ridwan, & Wardah, 2019). Slovin's formula in sample determination was as follows:

$$n = \frac{N}{1 + N(e)^2} \dots\dots\dots (1)$$

The solvin formula provides the error tolerance limit (e), with a value of = 0.2 (20%). This tolerance value is used for small populations.

The data collection technique was a test (non-test). Two non-test techniques were used, namely questionnaires and documentation. The instruments are guidelines for questionnaires and documentation. The Independent variable was online learning. Meanwhile, the dependent variables were learning motivation and learning outcomes. The documentation technique was used to collect data on the learning outcomes of class X in Physics subjects. The data of final exam scores in the even semester of the 2020/2021 school year was used for the learning outcomes variables. The data analysis technique used inferential analysis, which was normality test, linearity test, and hypothesis test. Research variables were analyzed using SPSS 21.

RESULT AND DISCUSSION

Data of learning outcomes that were analyzed with the help of SPSS 21 described the score of online learning using Smansa Ende Online, learning motivation, and learning outcomes. The descriptive statistics were presented in table 1.

Table 1. *Descriptive Analysis*

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Learning_Motivation	36	39	67	58,22	5,462
Online_Learning	36	47	77	69,00	5,281
Learning_Outcome	36	60	86	78,64	4,752
Valid N (listwise)	36				

Based on Table 1, the sample was 36 students. They filled out a questionnaire on perception about online learning and learning motivation. Meanwhile, learning outcomes were obtained through documentation or archived report cards for even semesters. Then, the scores obtained by students on online learning were; 47 as the smallest score, 77 as the highest score, 69 as the average score, and 5.281

as the standard deviation score. Meanwhile, the scores obtained by students on learning motivation were; 39 as the smallest score, 67 as the highest score, 58.22 as the average score, and 5.462 as the standard deviation score. And, learning outcomes obtained by students were; 60 as the smallest score, 86 as the highest score, 78.64 as the average score, and 4.752 as the standard deviation.

Table 2. *Tests of Normality*

	Kolmogorov-Smirnov^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Learning_Motivation	,117	35	,200*	,958	35	,204
Online_Learning	,111	35	,200*	,973	35	,526
Learning_Outcome	,100	35	,200*	,961	35	,252

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 2 presented the results of the normality test of the Shapiro-Wilk table. The significance level was more than 0.05 (sig. > 0.05). Then, the

data meet the requirements of normal distribution of data.

Table 3. Linearity Test

ANOVA Table			Sum	Df	Mean	F	Sig.
			of Squares		Square		
Learning_Motivation * Online_Learning	Between Groups	(Combined)	321,638	14	22,974	1,341	,267
		Linearity	83,628	1	83,628	4,883	,039
		Deviation from Linearity	238,010	13	18,308	1,069	,434
	Within Groups		342,533	20	17,127		
	Total		664,171	34			
Learning_Outcome * Online_Learning	Between Groups	(Combined)	266,505	14	19,036	1,329	,274
		Linearity	58,165	1	58,165	4,061	,058
		Deviation from Linearity	208,340	13	16,026	1,119	,399
	Within Groups		286,467	20	14,323		
	Total		552,971	34			

Based on Table 3, the df values were 13 and 20. The score indicated the location of the Ftable values, which were in column 13 and row 20 with a value of 2.250. Fcount on the linear relationship of online learning and learning motivation was 1.069,

while Fcount on the linear relationship of online learning and learning outcomes was 1.119. The results showed Fcount < Ftable (1,069 < 2,250 and 1,119 < 2,250). Then, the data met the requirements of linearity.

Table 4. Hypothesis Test of Online Learning to Learning Motivation

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
	(Constant)	90,153	13,460		
Online_Learning	-,453	,193	-,382	-2,342	,026

a. Dependent Variable: Learning_Motivation

Table 4 showed the significance value was less than 0.05 (0.026 < 0.050). So, there was an

effect of online learning using Smansa Ende Online on learning motivation.

Table 5. Hypothesis Test of Online Learning to Learning outcomes

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
	(Constant)	48,687	10,551		
Online_Learning	,438	,152	,455	2,891	,007

a. Dependent Variable: Learning_Outcome

Based on Table 5, the significance value was less than 0.05 (0.007 < 0.050). So, there was an effect of online learning using Smansa Ende Online on learning motivation.

causal relationship without any treatment given by researchers and only carried out on occurred activities. The study obtained data through questionnaires and documentation. The population were 71 students of class XI MIPA 4 and XI MIPA 5 at SMAN 1 Ende. The sample was 36 students of class XI MIPA 5. The independent variable was

The particular research conducted in August at SMA Negeri 1 Ende, addressed in Wirajaya street, Ende Regency. The study examined the

online learning. While the dependent variables were learning motivation and learning outcomes. Data collection techniques were questionnaires and documentation. Research variables were analyzed using SPSS 21.

The data analysis process was performed after obtaining the data and then analyzed using SPSS version 21. Descriptive and inferential analysis was used in data analysis. The descriptive analysis aimed to find out the minimum value, maximum value, mean and standard deviation. Then, it continued with inferential analysis, which was a prerequisite test and hypothesis test.

There were two prerequisite tests, namely the normality and linearity test. A normality test was used to find out the normality of data. The normality test was analyzed using the Shapiro Wilk method as the sample was less than 50. While the linearity test intended to determine the linear relationship between variables. The linear regression model cannot be used if a model did not meet the linearity requirements. Based on the output of normality test for data on online learning, learning motivation, and learning outcomes using the Shapiro Wilk method were 0.526, 0.204, and 0.252. So, the data is normally distributed.

T-test was used in the data analysis process through hypothesis test. The t-test was used to find out the effect of an independent variable and a dependent variable, which was to find out the effect of online learning using Smansa Ende Online on learning motivation and learning outcome. Based on the output of SPSS 21 in the coefficient table, it showed an effect of online learning using Smansa Ende Online on learning motivation. And, there was an effect of online learning using Smansa Ende Online on learning outcomes.

The table of *Multivariate Tests^a* showed the value of sig <0.05. The data was the analysis result of the MANOVA test. The data stated that there was an effect of online learning using Smansa Ende Online on learning motivation and learning outcomes.

CONCLUSION

Based on the data analysis, the research entitled “the effect of online learning using Smansa Ende online on the students’ motivation and learning outcomes of physics subject of class XI at SMA Negeri 1 Ende for the academic year 2020/2021” concluded that there was an effect of online learning using SMA Ende Online on learning motivation and learning outcomes.

The conclusion was seen from the significance value of the t-test with the help of SPSS 21. The significance value of 0.026 <0.050 indicated the effect of online learning on learning motivation.

While significance value of 0.007 <0.050 indicated the effect of online learning on learning outcomes. In short, both H_0 rejected and H_1 accepted.

REFERENCES

- Amka, H. (2018). Buku Ajar Belajar dan Pembelajaran (cetakan pe). sidoarjo: Nizamia Learning center.
- Arimbawa, P. A., & Santyasa, I. (2017). Strategi Pembelajaran Guru Fisika: Relevansinya Dalam Pengembangan Motivasi Belajar Dan Prestasi Belajar Siswa. 11(1), 43–60.
- Chulsum, U., & Novia, W. (2006). Kamus Besar Bahasa Indonesia. Surabaya: Kashiko.
- D. Handayani, Dwi Rendra Hadi, Fathiyah Isbaniah, Erlina Burhan, H. A. (2020). Penyakit Virus Corona 2019. Jurnal Respirologi Indonesia, 40(2), 119–129.
- Darna, N., & Herlina, E. (2018). Memilih Metode Penelitian Yang Tepat Bagi Penelitian Bidang Ilmu Manajemen. 5(April), 287–292.
- Elmirawati, Daharnis, & Syahniar. (2013). Hubungan Antara Aspirasi Siswa dan Dukungan Orangtua Dengan Motivasi Belajar Serta Implikasinya Terhadap Bimbingan Konseling. Jurnal Ilmiah Konselor, 2(1), 107–112.
- Erviani, F. R., Sutarto, & Indrawati. (2016). Model Pembelajaran Instruction, Doing, Dan Evaluating (MPIDE) Disertai Resume Dan Video Fenomena Alam Dalam Pembelajaran Fisika Di SMA. Jurnal Pendidikan Fisika, 5(1), 53–59.
- Ilyas, & Liu, A. N. A. M. (2020). Analisis Motivasi Belajar Mahasiswa Dalam Belajar Gerak Harmonik Sederhana Menggunakan Pendekatan Kontekstual Berbasis E-Learning. Jurnal Pendidikan Fisika, 4(2), 103–109.
- Muhammad, M. (2016). Pengaruh Motivasi Dalam Pembelajaran. Lantanida Journal, 4(2).
- Putria, H., Maula, L. H., & Uswatun, D. A. (2020). Analisis Proses Pembelajaran dalam Jaringan (Daring) Masa Pandemi Covid- 19 Pada Guru Sekolah Dasar. Jurnal Basicedu, 4(4), 861–870.
<https://doi.org/10.31004/basicedu.v4i4.460>
- Rane, M. K. D., Ridwan, M. S., & Wardah. (2019). Pengaruh Kualitas Layanan, Biaya Pendidikan dan Fasilitas Pendidikan Terhadap Keputusan Konsumen Dengan Brand Image Sebagai Variabel Intervening Dalam Memilih Program Studi Pada Fakultas Ekonomi Universitas Kristen Artha Wacana Kupang. Jurnal Ekonomi Dan Bisnis, 4(1), 869–880.
- Retnawati, H. (2017). Teknik Pengambilan Sampel. In Workshop Update (Vol. 13).

- Retrieved from [http://staffnew.uny.ac.id/upload/132255129/pengabdian/15-Teknik Penyampelan alhamdulillah.pdf](http://staffnew.uny.ac.id/upload/132255129/pengabdian/15-Teknik_Penyampelan_alhamdulillah.pdf)
- Sadikin, A., & Hamidah, A. (2020). Pembelajaran Daring di Tengah Wabah Covid-19:(Online Learning in the Middle of the Covid-19 Pandemic). *BIODIK: Jurnal Ilmiah Pendidikan Biologi*, 06(02), 214–224. Retrieved from <https://online-journal.unja.ac.id/biodik>
- Sjukur, S. B. (2012). Pengaruh Blended Learning Terhadap Motivasi Belajar Dan Hasil Belajar Siswa Tingkat SMK. *Jurnal Pendidikan Vokasi*, 2(3), 368–378.
- Wahyuni, S., Nasar, A., & Kaleka, M. U. (2020). Pengaruh Model Pembelajaran Discovery Learning Terhadap Hasil Belajar Fisika Siswa. *Jurnal Pendidikan Fisika*, 5(2), 112--117.