

## Analysis of student learning independence during the pandemic

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**Abstract:** Independent study is necessary for students, particularly when they are studying online. Due to the minimal contact between lecturers and students in online learning, particularly in science, students must study independently. The significance of individual learning during the CoVD-09 epidemic provides the context for this study. This research intends to identify the profile of junior high school students' independence in scientific learning throughout the academic year 2021-2022. This research is descriptive. This study's population consisted of 116 pupils enrolled in the eighth grade of junior high school. The sample for this research consisted of 37 eighth-grade SMP students selected using a simple random selection procedure. Furthermore, the data gathering approach employed a non-test technique, namely a questionnaire. The analysis of data was conducted using descriptive statistics. The findings indicated that the general average of pupils' freedom in learning was classified as very independent (81%). In addition, 14 students are in the very independent category, which is equal to (40%), 12 students are in the independent category, which is equal to (34%), and seven students are in the fairly independent category, which is equal to (20%), four students are in the less independent category that is equal to (12.9%), and no one is categorized as very less independent than 37 students. This shows that most class VIII students are very independent in their learning.

**Keywords:** Independent learning, pandemic, science

## Analisis kemandirian belajar siswa selama masa pandemi

**Abstrak:** Belajar mandiri diperlukan bagi siswa, terutama ketika mereka belajar online. Karena minimnya kontak antara dosen dan mahasiswa dalam pembelajaran online, khususnya sains, mahasiswa harus belajar secara mandiri. Pentingnya pembelajaran individu selama epidemi CoVD-09 memberikan konteks untuk penelitian ini. Penelitian ini bertujuan untuk mengidentifikasi profil kemandirian siswa SMP dalam pembelajaran sains sepanjang tahun ajaran 2021-2022. Penelitian ini bersifat deskriptif. Populasi penelitian ini adalah 116 siswa kelas VIII SMP. Sampel penelitian ini terdiri dari 37 siswa kelas VIII SMP yang dipilih dengan prosedur pemilihan acak sederhana. Selanjutnya, pendekatan pengumpulan data menggunakan teknik non tes yaitu angket. Analisis data dilakukan dengan menggunakan statistik deskriptif. Temuan menunjukkan bahwa rata-rata umum kebebasan siswa dalam belajar tergolong sangat mandiri (81%). Selain itu, terdapat 14 siswa yang berada pada kategori sangat mandiri yakni sebesar (40%), 12 siswa dengan kategori mandiri yakni sebesar (34%), 7 siswa dengan kategori cukup mandiri yakni sebesar (20%), 4 siswa dengan kategori kurang mandiri yakni sebesar (12,9%) dan tidak ada yang berkategori sangat kurang mandiri dari 37 siswa. Hal ini menunjukkan bahwa sebagian besar siswa kelas VIII, kemandirian belajarnya sangat mandiri.

**Kata Kunci:** Kemandirian belajar, pandemi, sains

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## INTRODUCTION

In the 21st century, the national education system has complicated issues in developing quality human resources who can compete in the global period — the correct effort to produce high-quality human resources in education. Education is an investment in the future of a nation because through education, the generation is trained to become intelligent, creative, innovative, and well-mannered individuals. Such a person is very much needed to build a nation's pillars. The world of education at this time cannot be carried out effectively because the world is being hit by the COVID-19 pandemic (Damopolii et al., 2021).

The impact of the current COVID-19 pandemic is felt by all people, such as the decline in people's income. One of the impacts on education is the change in the learning system, which was originally done face-to-face to a distance learning system, or learning is done face-to-face from house to house. The difference in the current learning system requires teachers to carry out the learning process effectively and efficiently so that learning objectives can be achieved. Thus parents of students will be satisfied with the learning used by the teacher (Bokayev et al., 2021).

Social distancing in COVID-19 has limited face-to-face learning and moved online learning (Abidah et al., 2020; Jaap et al., 2021; Kurniawan et al., 2021; Yurida et al., 2021). The pandemic eliminates opportunities for students to interact and decreases student performance due to the inability to access information (Mbaubedari et al., 2022). On the other hand, Musyeri et al. (2022) found that students could adapt to the learning offered during the pandemic. Even Raiman et al. (2021) found that students were motivated to learn despite the COVID-19 condition. Good management in education is needed so that learning continues to maintain student performance in pandemic conditions (Chandio, 2021).

A study by Koroh (2020) found that although students had difficulty adapting to the pandemic environmental conditions, they still tried to adapt and learn independently. The online learning and teaching experience offer opportunities for students to develop their critical thinking skills, technological communication, researching skills, and critical, analytical, and problem-solving (Hart et al., 2019). Distance education is carried out in various forms, for example, through independent education (Rizaldi & Fatimah, 2020). The impact of learning during a pandemic is depression, pressure, reduced quality of time management, and students experience a decrease in response (Slimi, 2020). In addition, the use of technology is increasing (Aditya, 2021).

Education will create reliable human builders. To achieve this goal, one of the most important expectations in implementing education is the curriculum. The Curriculum is a collection of designs and arrangements pertaining to goals, content, learning resources, and procedures that serve as guides for conducting learning activities. From the basic education curriculum to higher education, several contents must be included, one of which is Natural Science. Learning is a process where humans learn more broadly. Learning is a process of interaction between students and educators. In this learning process, humans carry out mental or psychic activities in active interaction with the environment, which results in changes in values, knowledge, understanding, attitudes, and skills.

According to Aini and Taman (2012), a person's nature, attitude, and ability to carry out learning activities alone or with the help of others are based on his own motivation. To master a certain competence, the person can use it to solve the problems he faces in the real

world. According to Suhendri (2015), independence is a positive mental attitude of an individual for the convenience of planning activities to achieve goals by positioning or conditioning what students have, namely growing self-confidence, which is very important for students.

Aini (2021) tried to improve students' independence in learning mathematics during the pandemic through Flipped Classroom. The results of his research show that students' independence reached the very good category despite the pandemic conditions. Learning independence contributes 7% to improving student learning outcomes (Fadila et al., 2021); it can even reach 15% of the contribution of learning independence to student success (Misdalina et al., 2017). Sanjaya (2021), in his research, show that during online learning, students tend to feel bored, disobedient when taught by their parents, and do not have their own initiative to learn, causing students' learning independence to decrease.

The determining factor in the development of the level of students' ability to receive science lessons in the learning process is that some students must be independent in studying the materials that the teacher has given. Thus, students are expected to have self-confidence and are consciously willing to accept a stimulus in the form of science learning activities during the COVID-19 pandemic. In learning science, students' ability to respond is shown by a sense of responsibility for the learning process, a sense of responsibility such as independent learning, discipline, self-confidence, and being able to overcome problems.

A person's learning abilities and achievements are closely related to independent learning. Because basically, independence is the ability of individuals who are able to overcome problems, have confidence, and are responsible for doing things without expecting help from others. Independent study is necessary for students, particularly when they are studying online. Due to the minimal contact between lecturers and students in online learning, particularly in science, students must study independently. The significance of individual learning during the COVID-19 epidemic provides the context for this study. This research intends to identify the profile of junior high school students' independence in scientific learning throughout the academic year 2021-2022.

## **METHOD**

Research on the independence of science learning for state junior high school students in the Aimere area, East Nusa Tenggara, during the 2021-2022 academic year pandemic is descriptive research. Descriptive research is one of the processes used in a study where to find out the truth of independent variables, do not make comparisons, or look for relationships between other variables.

The research design used in the study is an ex post facto design that examines causal relationships that are not manipulated or treated (designed and implemented) by the researcher. Furthermore, it is said to be ex post facto research because the activities that have occurred or have taken place have no control variables, and usually, there is no pre-test.

The population in this study was the entire class VIII in the academic year 2021-2022, totaling 116 students.

Table 1. Distribution of number of students

Class	Number of Student
VIII A	29
VIII B	29
VIII C	29
VIII D	28

The sample calculation can use the Slovin formula, which is as follows:

$$n = \frac{N}{1 + M(d)^2} \quad (1)$$

Information:

n = number of samples required

N = Total Population

d = Sampling error, usually 10%

With a population of 58 students and a set precision of 0.01, the sample size in this study is:

$$\begin{aligned} n &= \frac{58}{1 + M(0.1)^2} \\ &= \frac{58}{1 + M(0.01)} \\ &= \frac{58}{1 + 0.58} \\ &= \frac{58}{1.58} \\ &= 36.7 \\ &= 37 \text{ students} \end{aligned}$$

This research had a total of 58 students, with the Slovin formula yielding an error rate of 10%, or 37 students, based on its estimates. The sample was collected using a probability sampling approach, specifically simple random sampling, in which the researcher offered equal opportunity for each member (student) to be picked as a random sample without respect to the population's strata.

Research instruments are tools or facilities used by researchers to gather data in order to make their job simpler and the findings superior in terms of being more accurate, comprehensive, and systematic in order to be more manageable. This study used a questionnaire (questionnaire) to assess student learning independence. The questions provided in the questionnaire employ a Likert scale consisting of two questions, namely favorable questions (positive) and unfavorable questions (negative).

The questionnaire used in this study was in the form of a checklist with levels of value for each alternative answer using a Likert scale. Respondents were asked to put a tick (✓) in the column provided according to the actual situation.

Table 2. Learning independence grid

No	Indicator	Item number		Number
		Positive	Negative	
1	Don't depend on other people	1, 4	6, 16	4
2	Self-confident	10, 22, 24	8, 17, 26	6
3	Discipline	12, 23, 25	11, 18, 27	6
4	Responsible	13, 21, 28	7, 14, 29	6
5	Self-initiated	5, 30	2, 3, 20	5
6	Self-control	15	9, 19	3
Amount				30

In this study, for validity and reliability using professional judgments expert, which means that before the instrument is distributed to students, the instrument's validity has been tested by lecturers or experts. After all the experts have completed their evaluations, they are summarized in a table; the findings are then analyzed. If the agreement index is less than 0.4, it is considered to have low validity; if it falls between 0.4 and 0.8, it has moderate validity; and if it exceeds 0.8, it has high validity. The following is a test of the instrument's validity by experts or lecturers using the Gregory table. Calculation of content validity by two experts using the following formula.

$$V_c = \frac{D}{A+B+C+D} \quad (2)$$

Information:

Vc = Content Validation

A = Both raters disagree

B = First rater is agreed, and the second rater disagreed

C = First rater disagrees, and the second-rater agree

D = Both raters agree

Table 3. Content validation criteria

Agreement Index	Criteria
0.80 - 1.00	Very High Validation
0.60 - 0.79	High Content Validation
0.40 - 0.59	Content Validity Medium
0.20 - 0.39	Low Content Validity

Table 4. Gregory test matrix

		Rater I	
		Weak	Strong
Rater II	Weak	(A) 0	(C) 0
	Strong	(B) 0	(D) 30

Based on the validity test by two experts, the instrument is said to be of very high validity, so the instrument can be used as a questionnaire instrument.

This research uses descriptive analysis, namely statistical analysis which is used to analyze data by describing or describing the data that has been collected without intending to make conclusions that apply to the public or generalizations. In this study, descriptive analysis was used to describe the data and the mean, median, mode, maximum score, a minimum score of learning independence data, and the data presented in a bar chart.

## RESULTS

The data from the sample class were analyzed using descriptive statistics to obtain the maximum score, minimum score, mean (mean), median, mode, standard deviation, and percentage of acquisition score. The data can be seen in Table 4.

Table 4. Score recapitulation of learning independence data acquisition

<b>Descriptive statistics</b>	<b>Score</b>
Number of students	37
Maximum score	93
Minimum score	69
Mean	81
Median	81
Modus	78
Standard Deviation	5,8

Based on Table 4, it can be seen that the learning independence of students has an average score (mean) (81); meanwhile, the maximum score (93), minimum score (69), median (81), mode (78) and standard deviation (5.8).

Table 5. Data on the achievement of learning independence for each indicator

<b>Indicator</b>	<b>Percentage</b>
Don't depend on other people	81%
Self-confident	79%
Discipline	78%
Responsible	80%
Self-initiated	83%
Self-control	86%
Average	81%

Based on Table 5 above, it can be seen that the indicator of independence in science learning achieved by students is the lowest, namely the discipline indicator with a score of 78% and the highest is self-control with a score of 86%.

Table 6. Category of science learning independence level

Category	Frequency	Percentage
Very independent	14	40
Independent	12	34
Moderate independent	7	20
Less independent	4	12.90
Very less independent	0	0
Amount	37	100

Table Based above shows that the category of the level of independence in learning science for class VIII state junior high school students in the Aimere area for the 2021/2022 academic year is 14 students who are in the very independent category (40%), 12 students with an independent category of (40%). 34%), seven students in the moderately independent category (20%), four students in the less independent category (12.9%), and no students in the very less independent category than 37 students.

## DISCUSSION

The results of the research data analysis showed that the students' learning independence in science was generally very independent and independent, meaning that, in general, students could learn independently. This is supported by data on science learning outcomes, namely the value of assignments and the value of the final science semester exam is at an average value of 75. Furthermore, based on the results of observations and interviews with science subject teachers, it is shown that grade VIII junior high school students in Aimere in learning activities, in general, can express opinions, complete assigned tasks well, do assignments independently, come to school on time and are very concerned with the cleanliness of the school environment. Students' learning independence during the pandemic is very good by being able to learn without the help of others to control themselves (Handayani & Ariyanti, 2020).

The results of this study are in line with research conducted by Ananda and Aziz (2020) that of the six indicators of learning independence, the average percentage score of 81% is one of the factors determining student success in learning, so this attitude toward independence is important for anyone who wants to be successful in his life. The principle of online learning is to be responsible for learning and awareness to learn, which is part of independent learning. Science students can learn independently well. Students have good self-control to escape their high dependence on others during the pandemic. Students need independence from others to build the concepts or materials they are learning (Hamka & Vilmala, 2019). Thus, students can adapt well to learn to adapt to pandemic conditions.

When teachers set up online learning by presenting questions and assignments, students' learning independence increases (Xie & Yang, 2020). Learning conditions like this make students still interested in learning even though they are independent due to the availability of reading materials and clear and directed assignments from the teacher. Online learning during a pandemic will not be boring for students if the teacher designs learning according to the basic needs of students during the pandemic. Tasks and questions are given by the teacher cause the students' initiative to work on them. Our research findings prove that the self-initiative indicator achieves 83%. Students can issue their ideas

to do the assignments given by the teacher. Even though they do not interact directly with their classmates, it is not a burden and a problem for the students themselves to be able to study independently at home.

However, some students have less independent learning. This happens because it is influenced by several factors, such as internal factors that come from the students themselves. After all, some students have negative attitudes, including students coming late to school, students always cheating on their friends' work during tests, and students not understanding the lessons from the teacher. Mariana (2021) found the same thing where all students could manage the learning process very well independently. However, some students were still unable to manage their time properly due to boredom, laziness, and longing to go to school directly in class. Students who cannot study independently online will have difficulty learning (Lau et al., 2021). The four students who were found to be less independent in this research indicated that only a few students could not adapt to online learning conditions during the pandemic.

## CONCLUSION

Based on the analysis and discussion of the research results, it can be concluded that the independence of learning science in grade VIII junior high school students in the Aimere area for the academic year 2021/2022 overall, the average score is the very independent category of 81%. Meanwhile, when viewed based on the number of students who are categorized as very independent, it is higher (40%) than the number of students who are categorized as independent (34%), moderately independent (20%), and less independent (12.9%). Based on the research results above, the researchers would like to propose suggestions to all parties. Further researchers involved in increasing the independence of learning science in students conduct further research because the independence of learning science and science is the independence that students must possess.

## REFERENCES

- Abidah, A., Hidaayatullaah, H. N., Simamora, R. M., Fehabutar, D., & Mutakinati, L. (2020). The Impact of Covid-19 to Indonesian Education and Its Relation to the Philosophy of "Merdeka Belajar." *Studies in Philosophy of Science and Education*, 1(1), 38-49. <https://doi.org/10.46627/sipose.v1i1.9>
- Aditya, D. S. (2021). Embarking digital learning due to COVID-19: Are teachers ready? *Journal of Technology and Science Education*, 11(1), 104-116. <https://doi.org/10.3926/jotse.1109>
- Aini, K. (2021). Kemandirian belajar mahasiswa melalui blended learning tipe flipped classroom pada masa pandemi Covid-19. *Jurnal Literasi Digital*, 1(1), 42-49. <https://doi.org/10.30605/jld.1.1.2021.7>
- Aini, P. N., & Taman, A. (2012). Pengaruh kemandirian belajar dan lingkungan belajar siswa terhadap prestasi belajar akuntansi siswa kelas XI IPS SMA Negeri 1 Sewon Bantul tahun ajaran 2010/2011. *Jurnal Pendidikan Akuntansi Indonesia*, 10(1), 48-65. <https://doi.org/10.21831/jpai.v10i1.921>
- Bokayev, B., Torebekova, Z., Davletbayeva, Z., & Zhakypova, F. (2021). Distance learning in Kazakhstan: estimating parents' satisfaction of educational quality during the



- coronavirus. *Technology, Pedagogy and Education*, 30(1), 27–39. <https://doi.org/10.1080/1475939X.2020.1865192>
- Chandio, A. R. (2021). Evaluating ICT utilization in education administration and management during the COVID-19 outbreak in Pakistan: An empirical review. *Journal of Research in Instructional*, 1(2), 81–94. <https://doi.org/10.30862/jri.v1i2.15>
- Damopolii, I., Lumembang, T., & İlhan, G. O. (2021). Digital Comics in Online Learning During COVID-19: Its Effect on Student Cognitive Learning Outcomes. *International Journal of Interactive Mobile Technologies (IJIM)*, 15(19), 33–47. <https://doi.org/10.3991/ijim.v15i19.23395>
- Fadila, R. N., Nadiroh, T. A., Juliana, R., Zulfa, P. Z. H., & Ibrahim, I. (2021). Kemandirian Belajar Secara Daring Sebagai Prediktor Hasil Belajar Mahasiswa Pendidikan Matematika UIN Sunan Kalijaga. *Jurnal Cendekia : Jurnal Pendidikan Matematika*, 5(2), 880–891. <https://doi.org/10.31004/cendekia.v5i2.457>
- Hamka, D., & Vilmala, B. K. (2019). Pengembangan Perangkat Pembelajaran Blended Learning Melalui Aplikasi Google Classroom Untuk Peningkatan Kemandirian Belajar Mahasiswa. *Journal of Education Informatic Technology and Science (JeITS)*, 1(2), 145–154. <https://ejournal.umri.ac.id/index.php/JeITS/article/view/1439>
- Handayani, A. S., & Ariyanti, I. (2020). Kemandirian belajar matematika siswa SMP disaat pandemi COVID-19. *Prosiding Konferensi Nasional Pendidikan I*, 6–10.
- Hart, C. M. D., Berger, D., Jacob, B., Loeb, S., & Hill, M. (2019). Online Learning, Offline Outcomes: Online Course Taking and High School Student Performance. *AERA Open*, 5(1), 233285841983285. <https://doi.org/10.1177/2332858419832852>
- Jaap, A., Dewar, A., Duncan, C., Fairhurst, K., Hope, D., & Kluth, D. (2021). Effect of remote online exam delivery on student experience and performance in applied knowledge tests. *BMC Medical Education*, 21(1), 86. <https://doi.org/10.1186/s12909-021-02521-1>
- Koroh, T. D. (2020). Respon Mahasiswa Terhadap Pembelajaran Daring dan Kemandirian Belajar Mahasiswa Selama Pandemi Covid-19. *Widyadewata*, 3, 54–59. <https://widyadewata.kemenag.go.id/index.php/widyadewata/article/view/10>
- Kurniawan, R. P., Damopolii, I., & Sirait, S. H. K. (2021). The Correlation Between Biology Teacher Learning Strategies During The Covid-19 Pandemic on Student Motivation. In *AECON* (pp. 299–305).
- Lau, E. Y. H., Li, J.-B., & Lee, K. (2021). Online learning and parent satisfaction during COVID-19: Child competence in independent learning as a moderator. *Early Education and Development*, 32(6), 830–842. <https://doi.org/10.1080/10409289.2021.1950451>
- Mariana, D. (2021). Analisis Kemandirian Belajar Siswa SD Pada Masa Pandemi Covid-19. *Bina Gogik: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 8(2), 172–178. <https://ejournal.stkipbbm.ac.id/index.php/pgsd/article/view/798>
- Mbaubedari, S., Sirait, S. H. K., & Jeni, J. (2022). Encouraging students' learning outcomes using the information search method. *Inornatus: Biology Education Journal*, 2(1), 24–32. <https://doi.org/10.30862/inornatus.v2i1.262>
- Misdalina, M., Ningsih, Y. L., & Marhamah, M. (2017). Pengaruh Kemandirian Belajar Terhadap Hasil Belajar Mahasiswa. *Prosiding Seminar Nasional Pendidikan PGRI*, 858–861.
- Musyery, N. I., Nebore, I. D. Y., & Nunaki, J. H. (2022). Student perceptions of online biology

- learning during the COVID-19 pandemic. *Inornatus: Biology Education Journal*, 2(1), 33–42. <https://doi.org/10.30862/inornatus.v2i1.268>
- Raiman, M., Liu, A. N. A. M., & Wolo, D. (2021). Investigation of students' motivation to learn science while studying from home during a pandemic. *Journal of Research in Instructional*, 1(1), 33–42. <https://doi.org/10.30862/jri.v1i1.10>
- Rizaldi, D. R., & Fatimah, Z. (2020). How the Distance Learning can be a Solution during the Covid-19 Pandemic. *International Journal of Asian Education*, 1(3), 117–124. <https://doi.org/10.46966/ijae.v1i3.42>
- Sanjaya, B. P. (2021). Studi literatur kemandirian belajar siswa sekolah dasar selama pembelajaran daring. *JIPD (Jurnal Inovasi Pendidikan Dasar)*, 5(2), 71–78. <https://doi.org/10.36928/jipd.v5i2.733>
- Slimi, Z. (2020). Online learning and teaching during COVID-19: A case study from Oman. *International Journal of Information Technology and Language Studies*, 4(2), 44–56. <https://journals.sfu.ca/ijitls/index.php/ijitls/article/view/135>
- Suhendri, H. (2015). Pengaruh metode pembelajaran problem solving terhadap hasil belajar matematika ditinjau dari kemandirian belajar. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 3(2), 105–114. <https://doi.org/10.30998/formatif.v3i2.117>
- Xie, Z., & Yang, J. (2020). Autonomous Learning of Elementary Students at Home During the COVID-19 Epidemic: A Case Study of the Second Elementary School in Daxie, Ningbo, Zhejiang Province, China. *Best Evidence of Chinese Education*, 4(2), 535–541. <https://doi.org/10.15354/bece.20.rp009>
- Yurida, Y., Damopolii, I., & Erari, S. S. (2021). Hubungan Antara Kreativitas Guru dengan Motivasi Belajar Sains Siswa selama Pandemi COVID-19. *Prosiding SNPBS (Seminar Nasional Pendidikan Biologi Dan Saintek)*, 146–152.