**Islamic Journal of Integrated Science Education (IJISE), Vol. 4 No. 1, Maret 2025, pp. 1-10**
DOI: https://doi.org/10.30762/ijise.v4i1.4746

**Islamic Journal of Integrated Science Education (IJISE)**

**Program Studi Tadris IPA**
**Institut Agama Islam Negeri Kediri**
**e-ISSN : 2986-0865**
https://jurnalfaktarbiyah.iainkediri.ac.id/index.php/ijise

# THE INFLUENCE OF STUDENTS' CREATIVITY ON SCIENCE LEARNING INDEPENDENCE

**Ayunda Dwi Gustami Putri[1*], Wiworo Retnadi Rias Hayu[2], Muhammad Rendi Ramdhani[3], Luthfiyatul Muniroh[4]**

[1]Universitas Djuanda, Bogor, Indonesia
[2]Universitas Djuanda, Bogor, Indonesia
[3]Universitas Djuanda, Bogor, Indonesia
[4]University of Tsukuba, Japan

***Correspondence E-mail:** dwiayunda56@gmail.com

**Abstract:** One of the factors that influences learning independence is creativity. The purpose of this study was to determine the effect of student creativity on the independence of learning science in grade IV at SDN Pabuaran 02 Bogor. The method used is quantitative with the type of causal correlation. The population in this study were all grade IV students totaling 156 students. The sample used was 39 students from grade IV. The sampling technique is sample random sampling. The data collection technique used is the assessment of creative work with product assessment and the learning independence observation sheet. The data analysis technique is by using a simple linear regression test formula. Based on the results of the regression test, the value of Y = 17.198 + 0.994X and the correlation value (R) is 0.680 and the coefficient of determination (*R Square*) which is 0.462 means that there is an influence between student creativity on learning independence of 46.2%. While the significance value is 0.000 <0.05 which means a significant influence related to student creativity on learning independence which means Ho is rejected and Ha is accepted so that it can be seen that there is an influence of student creativity on learning independence in science.

**Keywords:** Creativity, Learning Independence, Science Subject

**Article History:**
Received: 16 January 2025; Revised: 21 March 2025; Accepted: 24 March 2025; Published: 31 March 2025

**Citation (APA Style):**
Putri, A. D. G., Hayu, W. R. R., Ramdhani, M. R., & Muniroh, L. (2025). The Influence of Students' Creativity on Science Learning Independence. *Islamic Journal of Integrated Science Education (IJISE)*, *4*(1), 1–10. https://doi.org/10.30762/ijise.v4i1.4746

DOI: https://doi.org/10.30762/ijise.v4i1.4746

## INTRODUCTION

Education is the main milestone in making the nation's life intelligent, becoming a medium to eradicate knowledge poverty, solve the problem of ignorance, and present a civilized and cultured nation (Zuyyinatul et al., 2020). However, education in Indonesia still faces various challenges in achieving ideal standards like other developed countries (Isnawati & Samian, 2017). In the 21st century, rapid technological advances have brought major changes that require education to continue to adapt to be relevant to the challenges of the times (Hajri, n.d.).

One of the strategic steps in improving the quality of education is curriculum renewal, such as the Independent Learning Curriculum (Fauzi, 2023). This curriculum aims to encourage creativity and innovation in learning, both for teachers and students (Yuridka & Nazaruddin, 2024). Student creativity is an important element in learning, because this ability allows them to produce new works or ideas that are relevant in facing the challenges of the modern era (Natalia & Sukraini, 2021).

Creativity not only contributes to students' learning success but also becomes a supporting factor for learning independence (Aliyah & Darmawan, n.d.). Learning independence is the ability of students to direct and control themselves in the learning process without relying on others (Nurfadilah & Hakim, 2019). This attitude allows students to take active steps in determining learning goals, finding learning resources, and conducting self-evaluations (Sibuea et al., 2022). Independence is an important component that students must have (Tresnaningsih et al., 2019). Independence that students have will help students to solve problems well (Mursari, 2020). In addition, independence is the first step for students to be able to survive in global competition (Atthohiri & Saidah, 2022). In addition to independence, creativity is also very much needed to support student competence in facing real life and producing work (Nuraini et al., 2023).

SDN Pabuaran 02, one of the elementary schools in Bogor Regency, has implemented the Merdeka Curriculum since the 2022/2023 academic year. Based on the results of observations and interviews with one of the grade IV teachers, several challenges were found in the science learning process, especially related to low student participation. Learning that is still centered on the teacher (teacher-centered) causes students to tend to be passive, less creative, and not actively involved in learning (Chikita et al., 2023). This also has an impact on low student learning independence, such as dependence on teachers or friends, lack of self-confidence, and lack of responsibility for the tasks given (Rozali et al., 2022).

This condition shows that student creativity has a close relationship with learning independence. Creative students tend to be more independent, have a high willingness to learn, and are able to compete in achieving achievements. Therefore, teachers play an important role in creating a learning environment that encourages the development of student creativity. Based on the above explanation, this study aims to further examine the influence of student creativity on learning independence in science subjects.

## METHOD

This study uses a quantitative method with a causal correlation approach. Quantitative methods are based on the philosophy of positivism which is used to study a particular population or sample, with data collected through research instruments and analyzed statistically to test the established hypothesis. This study aims to determine the effect of student creativity on independent science learning in grade IV of SDN Pabuaran 02 Bogor. The research was conducted at SDN Pabuaran 02, which is located at Jl. Gg H. Encit, Kp. Kelapa RT.03/RW.15, Rawa Panjang Village, Bojong Gede District, Bogor Regency, West Java Province. The research period began in January 2024 and lasted until data management and compilation were completed.

The population in this study were all fourth-grade students of SDN Pabuaran 02 in the 2023/2024 academic year, totaling 156 students. The research sample was taken as many as 39 students using the simple random sampling technique, which provides an equal opportunity for each student in the population to be selected as a research sample. This study has two main variables, namely the independent variable (X) in the form of student creativity and the dependent variable (Y) in the form of student learning independence. Data were collected through two main methods, namely the assessment of creative work which assesses the level of student creativity based on the results of the work produced, and the learning independence observation sheet which is used to record the level of student independence during the learning process.

The research instruments used include a creative work assessment instrument grid to measure student creativity indicators, such as the ability to create shapes according to the theme, adjust colors, and imagination, as well as a learning independence instrument grid that includes indicators of responsibility, progressiveness, initiative, self-control, and self-stability (Sibuea et al., 2022). The research instruments are presented in Tables 1 and 2.

DOI: https://doi.org/10.30762/ijise.v4i1.4746

**Table 1.** Grid of creative work assessment instruments

| Variables | Indicator | Item number | Amount |
|---|---|---|---|
| **Student Creativity (X)** | Able to form images according to Theme | 1, 2 | 2 |
| | Able to adjust color | 3, 4, 5 | 3 |
| | Neat in doing assignments | 6, 7, 8 | 3 |
| | Have high imagination | 9, 10 | 2 |

**Table 2.** Grid of the independent learning research instrument

| Variables | Indicator | Item number | Amount |
|---|---|---|---|
| **Learning Independence (Y)** | Free to take responsibility | **1, 2, 3** | **3** |
| | Progressive and persistent | **4, 5, 6** | **3** |
| | Initiative or creative | **7, 8, 9** | **3** |
| | Self-control | **10, 11, 12** | **3** |
| | Self-confidence | **13, 14, 15** | **3** |

The validity of the instrument is tested to ensure that each item of the instrument is able to measure the intended indicator accurately, while the reliability is tested to ensure the consistency of the measurement of each item of the instrument at different times. The validity test is carried out using item-total correlation analysis, while the reliability test is calculated using the Cronbach's Alpha coefficient. The collected data are analyzed using simple linear regression to determine the effect of student creativity on learning independence. The analysis procedure includes a normality test to ensure that the data is normally distributed, a linearity test to test the linear relationship between the independent and dependent variables, and a hypothesis test to determine the significance of the influence between variables X and Y with a significance value of 0.05 as the decision-making limit. The results of the regression analysis produce a linear equation and a coefficient of determination (R Square) value, which shows the magnitude of the influence of the independent variables on the dependent variable.

## FINDING AND DISCUSSION

### Descriptive Analysis Results

The descriptive results of quantitative statistics show that student creativity (X) involving 39 respondents obtained a minimum score of 23, a maximum of 38, an average (mean) of 32.15, and a standard deviation (std. deviation) of 3.580. Meanwhile, for learning independence (Y) which also involved 39 respondents, a minimum score of 35, a maximum

DOI: https://doi.org/10.30762/ijise.v4i1.4746

of 59, an average (mean) of 49.15, and a standard deviation (std. deviation) of 5.234 was obtained. The results are shown in Table 3.

**Table 3.** Descriptive analysis

| Descriptive Syayictics | | | | | |
|---|---|---|---|---|---|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Students' Creativity | 39 | 23 | 38 | 32.15 | 3,580 |
| Independence Study | 39 | 35 | 59 | 49.15 | 5.234 |
| Valid N (listwise) | 39 | | | | |

## Data Analysis Prerequisite Test Results

*Normality Test*

The results of the normality test show that the Asymp Sig. (2-tailed) value is 0.173, this value is greater than 0.05. Thus, it can be interpreted that in this analysis the data is normally distributed. The results are shown in Table 4.

**Table 4.** Research data normality test

| One-Sample Kolmogorov-Smirnov Test | | |
|---|---|---|
| | | Unstandardized Residual |
| N | | 39 |
| Normal Parametersa,b | Mean | .0000000 |
| | Std. Deviation | 3.83879615 |
| Most Extreme Differences | Absolute | .119 |
| | Positive | .070 |
| | Negative | -.119 |
| Test Statistics | | .119 |
| Asymp. Sig. (2-tailed) | | .173c |
| a. Test distribution is Normal. | | |
| b. Calculated from data. | | |
| c. Lilliefors Significance Correction. | | |

*Linearity Test*

The result of the linearity test is the significance value of Deviation from Linearity between the variables of student creativity and learning independence, which is 0.052. Based on the decision-making criteria, if the significance value is > 0.05, then the correlation of the independent variable to the dependent variable has a linear relationship. The results are shown in Table 5.

**Table 5.** Linearity test

| ANOVA Table | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Sum of Squares | df | Mean Square | F | Sig. |
| Independence Study * Student Creativity | Between Groups | (Combined) | 765,198 | 13 | 58,861 | 5.334 | .000 |
| | | Linearity | 481,095 | 1 | 481,095 | 43.597 | .000 |

DOI: https://doi.org/10.30762/ijise.v4i1.4746

| | | | | | | |
|---|---|---|---|---|---|---|
| | Deviation from Linearity | 284.103 | 12 | 23,675 | 2.145 | .052 |
| Within Groups | | 275,879 | 25 | 11,035 | | |
| Total | | 1041.077 | 38 | | | |

## Hypothesis Testing Results

*Regression Equation*

Simple linear regression analysis was used to test the effect of student creativity (X) on learning independence (Y). This test refers to the significance value, where if sig <0.05, variable X has an effect on Y. Based on the results of the analysis, the regression equation Y = 17.198 + 0.994X was obtained, with a constant value of 17.198 indicating the value of learning independence when student creativity = 0. The regression coefficient of 0.994 indicates that every 1 unit increase in student creativity will increase learning independence by 0.994 units, indicating a positive relationship between student creativity and learning independence. The results are shown in Table 6.

**Table 6.** Simple linear regression equation

**Coefficientsa**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 17,198 | 5,702 | | 3.016 | .005 |
| | Student Creativity | .994 | .176 | .680 | 5,638 | .000 |

a. Dependent Variable: Learning Independence

*Coefficient of Determination*

The value of the coefficient of determination (R2) can be seen in the R Square column, which is 0.462. This value explains that the magnitude of the influence of the student creativity variable on the learning independence variable is 0.462 (46.2%) with a moderate category, then 53.8% is influenced by other factors that contribute to student learning independence in the subject of science. The results are shown in Table 7.

**Table 7.** Coefficient of determination

**Model Summaryb**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .680a | .462 | .448 | 3.89033 |

a. Predictors: (Constant), Student Creativity
b. Dependent Variable: Learning Independence

DOI: https://doi.org/10.30762/ijise.v4i1.4746

*Significance Test*

Based on the test results, the t value was obtainedcount of 5.638 and ttable 2.026 so it can be concluded that tcount > ttable and obtained a significant value of 0.000 < 0.05. Based on the hypothesis it can be interpreted that H1 is accepted H0 is rejected. Thus the variable of student creativity partially has a positive and significant effect on learning independence. The results are shown in Table 8.

**Table 8.** Significance test results

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 17,198 | 5,702 | | 3.016 | .005 |
| | Student Creativity | .994 | .176 | .680 | 5,638 | .000 |

a. Dependent Variable: Learning Independence

## Discussion

This study aims to determine the effect of student creativity on independent learning of science in grade IV SDN Pabuaran 02 Bogor. Based on the results of the analysis using SPSS 25, it was found that student creativity has a positive effect on independent learning. The regression equation obtained is Y = 17.198 + 0.994X, with a positive regression coefficient indicating a significant relationship between creativity and independent learning. The correlation value (R) of 0.680 and the coefficient of determination ($R^2$) of 0.462 indicate that student creativity affects independent learning by 46.2%, while 53.8% is influenced by other factors. The results of the t-test show a significance value of 0.000 <0.05, which means Ho is rejected and Ha is accepted.

In addition to creativity, several other factors also influence learning independence, such as genetic factors, parenting patterns, and the education system. Lestari (2022) stated that support and appreciation at school can accelerate the development of student independence. Sugianto et al. (2020) also explained that learning independence is formed through internal factors (such as discipline and responsibility) and external factors (such as social and cultural environments). Therefore, student creativity does have an influence on learning independence in science (Nisa, A. F., Prasetyo, Z. K., & Istiningsih, I., 2019); Permana, K. A. D., Gading, I. K., & Agustina, I. G. A. T., 2023). Based on the results of data analysis and supported by existing theories, it can be concluded that there is a significant relationship between creativity and independence.

The researcher is aware of the limitations in this study, including in the preparation of the writing and the time for data collection which is more effective if it involves more than one observer. The authentic assessment used in this study assesses students' knowledge and skills in a real way, focuses on competency and is student-centered, which distinguishes it from other assessment methods (Pohan, 2022).

## CONCLUSION

Based on the results of the study, student creativity has a significant effect on learning independence in science subjects. This can be seen from the regression equation Y = 17.198 + 0.994X, with a correlation value (R) of 0.680 and a coefficient of determination (R Square) of 0.462, which indicates that student creativity has a 46.2% effect on learning independence. The significance test shows a probability value of 0.000, which is smaller than 0.05, so it can be concluded that there is a significant effect. Therefore, educators are expected to continue to provide guidance so that students can improve their creativity and learning independence. Students are also expected to be more active in developing their creativity, while the results of this study can be a consideration for schools to design programs that support student independence and creativity.

## REFERENCES

Aliyah, N. D., & Darmawan, D. (n.d.). *Pengaruh Kemandirian Belajar, Lingkungan Belajar, dan Metode Pembelajaran Terhadap Prestasi Belajar Siswa SDN Di Desa Bangeran Kecamatan Dukun Kabupaten Gresik.*

Atthohiri, Moh. M., & Saidah, I. (2022). Hubungan Tanggung Jawab Belajar dengan Kemandirian Siswa di MTs Al-Mukhlishin Galis Pamekasan. *DA'WA: Jurnal Bimbingan Penyuluhan & Konseling Islam, 1*(2). https://doi.org/10.36420/dawa.v1i2.84

Chikita, D., Sari, D. P., & Puspitasari, R. (2023). Penerapan Perencanaan Model Pembelajaran Teacher Center di MTs Negeri 2 Rejang Lebong. 2.

Fauzi, M. N. (2023). Problematika Guru Mengimplementasi Kurikulum Merdeka Belajar pada Pembelajaran PAI di Sekolah Dasar. *Al-Madrasah: Jurnal Pendidikan Madrasah Ibtidaiyah, 7*(4), 1661. https://doi.org/10.35931/am.v7i4.2688

Hajri, M. F. (n.d.). *Pendidikan Islam di Era Digital: Tantangan dan Peluang pada Abad 2*.

Isnawati, N., & Samian. (2017). Kemandirian Belajar Ditinjau Dari Kreativitas Belajar Dan Motivasi Belajar Mahasiswa. *Jurnal Pendidikan Ilmu Sosial, 25*(1), 128–144. https://doi.org/10.2317/jpis.v25i1.825

Lestari, D. I. (2022). *Pengaruh Motivasi Belajar Dan Kemandirian Belajar Terhadap Hasil Belajar Matematika Siswa Kelas V SD Se-Dabin 1 Kecamatan Tegal Timur Kota Tegal*. Skripsi, 1–146.

Mursari, C. (2020). Deskripsi Kemampuan Berikir Kritis Matematis dan Kemandirian Belajar Siswa Ditinjau dari Gaya Belajar. *AlphaMath: Journal of Mathematics Education, 5*(2), 40. https://doi.org/10.30595/alphamath.v5i2.7345

Natalia, K., & Sukraini, N. (2021). Pendekatan Konsep "Merdeka Belajar" Dalam Pendidikan Era Digital Krisma. *Prosiding Webinar Nasional IAHN-TP Palangka Raya, 1*(3), 135.

Nisa, A. F., Prasetyo, Z. K., & Istiningsih, I. (2019). Tri N (Niteni, Niroake, Nambahake) Dalam Mengembangkan Kreativitas Siswa Sekolah Dasar. *El Midad: Jurnal Jurusan PGMI, 11*(2), 101-116.

Nuraini, F., Agustiani, N., & Mulyanti, Y. (2023). Analisis Kemampuan Berpikir Komputasi Ditinjau dari Kemandirian Belajar Siswa Kelas X SMK. *Jurnal Cendekia: Jurnal Pendidikan Matematika, 7*(3), 3067–3082. https://doi.org/10.31004/cendekia.v7i3.2672

Nurfadilah, S., & Hakim, D. L. (2019). Kemandirian Belajar Siswa Dalam Proses Pembelajaran Matematika.

Permana, K. A. D., Gading, I. K., & Agustina, I. G. A. T. (2023). Model project based learning untuk meningkatkan kemampuan berpikir kreatif dan hasil belajar IPA kelas V SD. *Innovative: Journal of Social Science Research, 3*(2), 14692-14704.

Pohan, J. E. (2022). Penilaian Otentik Pada Keterampilan Berkomunikasi Siswa Sekolah Menengah Atas. *Jurnal Bahasa Indonesia Prima (BIP), 4*(1), 115–123. https://doi.org/10.34012/jbip.v4i1.2188

Rozali, A., Irianto, D. M., & Yuniarti, Y. (2022). Kajian Problematika Teacher Centered Learning Dalam Pembelajaran Siswa Studi Kasus: SDN Dukuh, Sukabumi. *COLLASE (Creative of Learning Students Elementary Education), 5*(1), 77–85. https://doi.org/10.22460/collase.v5i1.9996

Santoso, I., & Madiistriyatno, H. (2021). *Metode Penelitian Kuantitatif*. Indigo Media.

Sibuea, M. F. L., Sembiring, M. A., Agus, R. T. A., & Pertiwi, D. (2022). Pengaruh Kemandirian Belajar (Self Regulated Learning) Terhadap Hasil Belajar Mahasiswa Pada Mata Kuliah Logika Komputer. *Journal of Science and Social Research, 3*, 71–721

Sugianto, I., Suryandari, S., & Age, L. D. (2020). Efektivitas Model Pembelajaran Inkuiri Terhadap Kemandirian Belajar Siswa Di Rumah. *Jurnal Inovasi Penelitian, 1*(3), 159–170.

Sugiyono. (2019). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Alfabeta.

Tresnaningsih, F., Santi, D. P. D., & Suminarsih, E. (2019). Kemandirian Belajar Siswa Kelas III SDN Karang Jalak I Dalam Pembelajaran Tematik. *Pedagogi: Jurnal Penelitian Pendidikan, 6*(2). https://doi.org/10.25134/pedagogi.v6i2.2407

Yuridka, F., & Nazaruddin, N. (2024). Implementasi Kurikulum Merdeka Dalam Era Masyarakat 5.0. *Jurnal Terapung: Ilmu - Ilmu Sosial, 6*(2), 210. https://doi.org/10.31602/jt.v6i2.16281

Zuyyinatul, A., Jupriyanto, & Sari, Y. (2020). Pengaruh Kreativitas Siswa Dalam Model Pembelajaran Problem Based Learning Terhadap Prestasi Belajar Siswa Kelas IV SDN Kalisari 01. *Jurnal Ilmiah 'Pendidikan Dasar', VIII*(1). http://dx.doi.org/10.30659/pendas.7.1.30-43