

THE EFFECT OF PROJECT-BASED LEARNING IN INCREASING STUDENT CREATIVITY AND INDEPENDENCE IN ISLAMIC RELIGIOUS EDUCATION LEARNING AT DAIRI STATE VOCATIONAL SCHOOL

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Abstract

This study aims to determine the influence of Project-Based Learning (PjBL) based learning in Islamic Religious Education (PAI) on the creativity and independence of MTs Negeri Dairi students. The type of research used was quasi-experimental with a pretest–posttest control group design involving 54 grade VIII students who were divided evenly into experimental and control classes. The experimental class uses the PjBL learning model, while the control class uses the conventional method. Creativity and independence were measured by a reliable questionnaire ($\alpha = 0.719$; $\alpha = 0.717$). The hypothesis test in this study is the MANOVA analysis, and the t-test. The results showed that PjBL-based learning had a significant effect ($F = 126.22$, $p < 0.05$, $\eta^2 = 0.832$). Individually, creativity ($\eta^2 = 0.485$) and independence ($\eta^2 = 0.781$) increased strongly. This study concludes that the use of the PjBL learning model has a significant influence on students' creativity and self-esteem in Islamic religious education learning.

Keywords: *Project-Based Learning, Islamic Religious Education, creativity, self-reliance*

INTRODUCTION

The 21st-century educational paradigm demands mastery of the 4Cs: critical thinking, creativity, collaboration, and communication, which are essential for students to face the challenges of the Industrial Revolution 4.0 (Nurmala et al., 2021). Therefore, the education system is expected to improve the quality of human resources to become reliable, competent, and innovative. Education is a deliberate and planned effort for the advancement of a nation, particularly to shape national character (Sitepu et al., 2022). In learning activities, students are not only required to master the material but also to develop critical thinking, problem-solving, creativity, and independent learning skills. Therefore, the learning process must be student-centered, with teachers acting as facilitators, motivators, and mediators of knowledge. This aims to ensure that educators understand learning theories and implement strategies and methods (Harfiani & Fanrenza, 2019; Sitepu, 2017).

Islamic Religious Education (PAI) plays a strategic role in shaping students' character, morals, and religious values. As mandated by Law No. 20 of 2003 on the National Education System, the ultimate goal of education is to develop students who are faithful, have noble character, are independent, creative, and responsible. In Islamic teachings, education is a comprehensive process encompassing spiritual and intellectual development. The Qur'an, as stated in Surah Al-Baqarah [2]:31, emphasizes the importance of seeking knowledge. This signifies the fundamental role of knowledge and the human capacity to learn, reason, and create. Therefore, education must be transformative and holistic, in line with Qur'anic guidance.

In response to rapidly changing societal needs, the Indonesian education system has responded with the Independent Curriculum (Kurikulum Merdeka), a national reform that emphasizes differentiated, student-centered, and contextual learning (Kurniawan, 2023). This curriculum encourages teachers to use innovative strategies that actively and meaningfully engage students. However, current Islamic Religious Education (PAI) practices remain predominantly teacher-centered, normative, and rely heavily on memorization with minimal contextual application (Ruslan et al., 2023). This results in passive learning and hinders the development of essential competencies such as creativity and independence. Creativity is closely related to problem-solving and strategy, while independent learning is the ability of students to take initiative and complete tasks without relying on external assistance (Budi, 2020). Both competencies are crucial for academic success and lifelong learning.

One effective innovative strategy is Project-Based Learning (PjBL), a pedagogical model that emphasizes learning through real-life projects. Research shows that this model enhances student motivation, critical thinking, creativity, and independence (Anggelia et al., 2022; Yani & Taufik, 2020). In the context of Islamic education, PjBL enables students to connect Islamic values with everyday realities, thus deepening their understanding of religious teachings (Rohmah et al., 2016; Sutrisno & Nasucha, 2022). A preliminary study at MTs Negeri Dairi revealed that Islamic Religious Education (PAI) learning was still dominated by lectures, lacked engaging media, and rarely included contextual elements, resulting in passive student behavior, with low creativity and independence (Oktavia, 2022).

The challenges identified at MTs Negeri Dairi demonstrate the need for a learning strategy. The transition to PjBL has the potential to transform Islamic Religious Education (PAI) learning experiences because it has been shown to enhance creativity and independence, especially when designed to be engaging, student-centered, and contextually relevant (Budiono et al., 2024). Several previous studies have also reinforced the positive impact of PjBL. Harahap et al. (2025) found that integrating PjBL into Islamic education increased student creativity and engagement. Nurhamidah and Nurachadijat (2023) reported that students taught with PjBL exhibited greater independence, and Oktaviana.N and Saputra (2024) also found increased student enthusiasm and independence after implementing PjBL in Islamic Religious Education.

However, most existing research focuses on general subjects or only examines one variable (creativity or independence) separately. Research examining both simultaneously in Islamic Religious Education (PAI) at the junior high school/Islamic junior high school (SMP/MTs) level is rare. This study attempts to fill this gap by examining the effect of the PjBL strategy in Islamic Religious Education (PAI) on the creativity and independence of students at MTs Negeri Dairi. The main objective of this study is to analyze whether the implementation of PjBL learning can significantly improve student creativity and independence. Through real-life classroom contexts and measurable indicators, this study is expected to provide empirical evidence to support the integration of PjBL in Islamic education, while also providing insights for educators, curriculum developers, and policymakers in improving the quality and relevance of Islamic education in Indonesia. According to Harfiani and Setiawan (2019), one important component in determining the effectiveness of the learning process is assessment.

METHOD

This study used a quantitative approach with a quasi-experimental design of the pretest–posttest control group type. The research subjects involved two classes with equivalent academic characteristics of eighth-grade students of MTsN Dairi. The experimental class (VIII A, $n = 27$) received Islamic Religious Education learning through the Project-Based Learning strategy, while the control class (VIII B, $n = 27$) received conventional learning. Both groups were given a pretest (O1) before treatment and a posttest (O2) after treatment. The research design is presented in Table 1.

Table 1. Research Design

Class	Pretest	Treatment	Posttest
Experiment	O ₁	X ₁	O2
Control	O ₁	X ₂	O2

The pretest was used to measure students' initial abilities, while the posttest was used to assess learning outcomes after treatment. A comparison of the pretest and posttest results in both groups was used to determine the effect of PjBL on students' creativity and learning independence. The research instrument consists of two questionnaires: (1) Creativity Questionnaire (20 items) which measures aptitude aspects including fluency, flexibility, originality, and elaboration, as well as non-aptitude aspects including curiosity, imagination, tolerance for complexity, and courage to take risks; and (2) Learning Independence Questionnaire (30 items) which measures responsibility, perseverance, initiative/creativity, self-control, and self-confidence.

Prior to use in the main study, both instruments were pilot tested on 108 students from the same population to assess their validity and reliability. Item validity was tested using Pearson's product–moment correlation at a significance level of 0.05, with items declared valid if the correlation coefficient exceeded the table's r value. Reliability was tested using Cronbach's alpha, where an α value ≥ 0.70 indicates acceptable internal consistency. The pretest and posttest data were analyzed in several stages. Prior to hypothesis testing, assumption tests were conducted to ensure the suitability of the statistical analysis. The Shapiro–Wilk test was used to verify the normality of the data distribution for each variable in the experimental and control groups at a significance level of 0.05. Homogeneity of variance was tested using Levene's test, while homogeneity of the covariance matrix,

required for multivariate analysis, was tested using Box's M test. Further analysis was only performed if the data met these assumptions. Hypothesis testing was conducted using Multivariate Analysis of Covariance (MANCOVA) to determine the simultaneous effect of PjBL on creativity and learning independence, with pretest scores as a covariate to control for initial differences between groups. As an additional analysis, an independent-samples t-test was used to compare gain scores between the experimental and control groups, while a paired-samples t-test was used to see significant changes in each group from pretest to posttest. Effect sizes were calculated to provide an overview of the magnitude of the treatment effect. Partial eta-squared (η^2) values were reported for both multivariate and univariate analyses, with interpretations as small (0.01), medium (0.06), or large (≥ 0.14). For t-tests, Cohen's d was used as an additional indicator of effect size. All statistical tests used a significance level of 0.05.

RESULTS AND DISCUSSION

This research was conducted at MTs Negeri Dairi involving eighth-grade students. The research design consisted of two groups: an experimental group and a control group, each consisting of 27 students. The experimental group received project-based learning as the independent variable, while the control group was taught using conventional methods. Both groups were given a pretest and posttest that measured creativity and learning independence as the dependent variables. The results of the pretest and posttest were analyzed using SPSS version 26 to determine the effect of project-based learning on the creativity and learning independence of eighth-grade students at MTs Negeri Dairi. Student creativity and learning independence were measured using a questionnaire designed to evaluate the extent to which these aspects developed during the learning process. Research data were obtained through pretests and posttests in the experimental and control groups. The pretest was used to measure students' initial levels of creativity and independence, while the posttest was used to assess the effect of *Project-Based Learning* (PjBL) on these variables.

The research instruments consisted of a Creativity Questionnaire that measures fluency, flexibility, originality, and elaboration, and a Learning Independence Questionnaire that assesses responsibility, perseverance, initiative/creativity, self-control, and self-confidence. Before being used in the main study, the instruments were piloted on 108 students from the same population to ensure validity and reliability. Item validity was tested using Pearson *product-moment correlation* at a significance level of 0.05, with the validity criterion if the correlation coefficient exceeds the table r value. Reliability was tested using Cronbach's Alpha, with an α value ≥ 0.70 indicating acceptable internal consistency. The validity test results show that all 20 items in the creativity instrument have calculated r values between 0.312 and 0.495, all of which exceed the table r of 0.1909, so they are declared valid. Similarly, in the learning independence instrument, all 30 items have calculated r values between 0.201 and 0.464, also exceeding the same table r, so they are declared valid. The reliability test produced a *Cronbach's Alpha value* of 0.719 for creativity and 0.717 for independence, both of which are above the threshold of 0.70. This indicates that both instruments have good internal consistency and are suitable for use in the main study.

The validity of each instrument item is shown in Table 2 as follows:

Table 2. Results of Creativity Item Validity Test

No Item	r count	r table	Information
1	0.475	0.1909	Valid
2	0.381	0.1909	Valid
3	0.381	0.1909	Valid
4	0.495	0.1909	Valid
5	0.389	0.1909	Valid
6	0.399	0.1909	Valid
7	0.325	0.1909	Valid
8	0.398	0.1909	Valid
9	0.392	0.1909	Valid
10	0.357	0.1909	Valid
11	0.383	0.1909	Valid
12	0.392	0.1909	Valid
13	0.463	0.1909	Valid
14	0.341	0.1909	Valid
15	0.459	0.1909	Valid

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No Item	r count	r table	Information
16	0.354	0.1909	Valid
17	0.450	0.1909	Valid
18	0.312	0.1909	Valid
19	0.376	0.1909	Valid
20	0.442	0.1909	Valid

Thus, all items of the creativity instrument are declared valid. The validity of each item of the learning independence instrument is shown in Table 3. From Table 3, it can be concluded that all items of the learning independence instrument are also declared valid.

Table 3. Results of the Validity Test of Independence Question Items

No Item	r count	r table	Information
1	0.287	0.1909	Valid
2	0.309	0.1909	Valid
3	0.404	0.1909	Valid
4	0.328	0.1909	Valid
5	0.429	0.1909	Valid
6	0.426	0.1909	Valid
7	0.357	0.1909	Valid
8	0.324	0.1909	Valid
9	0.337	0.1909	Valid
10	0.426	0.1909	Valid
11	0.316	0.1909	Valid
12	0.310	0.1909	Valid
13	0.299	0.1909	Valid
14	0.234	0.1909	Valid
15	0.210	0.1909	Valid
16	0.246	0.1909	Valid
17	0.328	0.1909	Valid
18	0.271	0.1909	Valid
19	0.249	0.1909	Valid
20	0.251	0.1909	Valid
21	0.464	0.1909	Valid
22	0.201	0.1909	Valid
23	0.401	0.1909	Valid
24	0.405	0.1909	Valid
25	0.393	0.1909	Valid
26	0.418	0.1909	Valid
27	0.268	0.1909	Valid
28	0.282	0.1909	Valid
29	0.380	0.1909	Valid
30	0.327	0.1909	Valid

These findings indicate that each item in both instruments is capable of representing the measured variable indicators. This aligns with Anggelia et al. (2022) who stated that a valid instrument produces data that accurately reflects the construct being measured. High validity is also crucial to ensure measurement accuracy in assessing student creativity and learning independence (Yani & Taufik, 2020) . Reliability analysis was conducted to determine the internal consistency of the instruments used in this study. Reliability was tested using *Cronbach's Alpha* , where a value ≥ 0.70 indicates acceptable internal consistency. The reliability coefficients for the creativity and learning independence instruments are presented in Table 4.

Table 4. Reliability Test Results

Variables	Cronbach's Alpha	N of Items
Creativity	0.719	20
Independence	0.717	30

Based on Table 1, the Cronbach's Alpha values for both instruments are above the threshold of 0.70, which indicates that the instruments have good internal consistency and are suitable for use in primary research. The Cronbach's Alpha value exceeding the 0.70 threshold confirms good internal consistency. This result aligns with methodological standards, which state that an instrument is considered valid if each item shows a significant positive correlation with the total score, and *Cronbach's Alpha* indicates internal consistency reliability (Khanal & Chhetri, 2024) . This view is also supported by the conceptual framework in recent psychometric literature, which emphasizes an iterative validation process through testing total item scores and internal consistency (Nirmalan, 2021) . Furthermore, Budiono et al. (2024) state that high reliability guarantees consistent results, while Harahap et al. (2025) emphasize the importance of reliable instruments in evaluating the success of PjBL in enhancing creativity and independence. Descriptive statistics were used to determine the central tendency and variability of creativity and independence scores in the experimental and control groups. Table 5 presents the mean and standard deviation for each variable.

Table 5. Descriptive Statistics of Creativity and Independence Scores

Variables	Class	Average	Standard Deviation
Creativity	Experiment	83.12	6.45
	Control	75.34	5.89
Independence	Experiment	85.78	6.22
	Control	78.41	5.74

The table shows that the average scores for creativity and independence were higher in the Project-Based Learning (PjBL) group compared to the conventional group. This indicates that project-based learning provides more opportunities for students to be creative and independent in their learning process. This finding aligns with Anggelia et al. (2022) who reported that Project-Based Learning (PjBL) is effective in fostering creative thinking skills through challenging and contextual tasks. Furthermore, Yani and Taufik (2020) emphasized that this model encourages independence because students are actively involved in managing their own learning process. A normality test was performed to determine whether the data for each variable was normally distributed. The Shapiro–Wilk test was used with a significance level of 0.05. If the p-value (Sig.) is greater than 0.05, the data is considered normally distributed. The results are presented in Table 6.

Table 6. Results of Normality Test (*Shapiro–Wilk*)

Variables	Class	Sig. Pretest	Sig. Posttest
Creativity	Experiment	0.09	0.166
	Control	0.392	0.058
Independence	Experiment	0.19	0.305
	Control	0.135	0.098

The results in Table 6 show that all significance values are greater than 0.05, which means that the data for the creativity and independence variables, both in the experimental and control classes, are normally distributed. A homogeneity test was performed to assess whether the variances between groups were equal. Levene's test was used with a significance level of 0.05. If the p-value is greater than 0.05, the variances are considered homogeneous. The results are presented in Table 7.

Table 7. Results of the Homogeneity Test (Levene's Test)

Variables	Experimental Sig.	Sig. Control
Creativity	0.712	0.224
Independence	0.098	0.062

The results in Table 7 show that all significance values exceed 0.05, which means that the variance between groups is homogeneous for both creativity and independence variables. Meeting the assumptions of normality and homogeneity indicates that the data are suitable for analysis using MANOVA. Meeting these assumptions is essential to avoid bias in the results of multivariate statistical analysis. A MANOVA test was conducted to determine the simultaneous effect of project-based learning on creativity and independence. The MANOVA results are presented in Table 8.

Table 8. MANOVA Results

Effect	F	Sig.	Partial Eta Squared
Learning Method	126.22	0,000	0.832

Based on Table 8, a significance value of $0.000 < 0.05$ indicates that project-based learning has a significant simultaneous effect on student creativity and independence. The Partial Eta Squared value of 0.832 indicates a very large effect size. These findings indicate that the implementation of PjBL has a positive impact on both dependent variables simultaneously. These results are consistent with Han et al. (2016) who found that PjBL effectively improves students' creative thinking skills and self-regulation abilities. Anggelia et al. (2022) also emphasized that PjBL facilitates a learning process that requires students to actively seek solutions, thereby enhancing both creativity and independence. Furthermore, Budiono et al. (2024) noted that a real-world project-based learning approach can integrate cognitive and affective skills simultaneously, resulting in more optimal learning outcomes. An independent samples *t-test* was conducted to compare the mean *posttest scores* between the experimental and control groups for each variable. The results are shown in Table 9.

Table 9. Results of *Independent Samples t-Test*

Variables	T	Sig. (2-tailed)
Creativity	6,995	0,000
Independence	13,608	0,000

As shown in Table 9, both variables have p-values less than 0.05, indicating a significant difference between the experimental and control groups. Students in the experimental group who received project-based learning achieved higher creativity and independence scores compared to students in the control group who received conventional learning. These findings corroborate the MANOVA results, which showed that PjBL positively impacted both variables. This is in line with Han et al. (2016), who found that PjBL improves creative thinking skills through students' active involvement in relevant projects. Yani and Taufik (2020) also stated that learning models that give students greater autonomy in managing their learning process will foster independence. Budiono et al. (2024) emphasized that PjBL integrates cognitive and affective learning, resulting in more optimal learning outcomes. This test aims to determine the effect of project-based learning on each variable separately. The results are shown in Table 10.

Table 10. Results of the *Test of Between-Subjects Effects*

Variables	F	Sig.	Partial Eta Squared
Creativity	48,935	0,000	0.485
Independence	185,168	0,000	0.781

Based on Table 10, the p-value for both variables is less than 0.05, indicating that project-based learning has a significant effect on creativity and independence when analyzed separately. The *Partial Eta Squared value* for creativity (0.485) indicates a strong effect, while for independence (0.781) indicates a very strong effect. These findings confirm the results of the MANOVA and t-test, which prove that PjBL is effective in improving both variables. Han et al. (2016) highlighted that project-based learning encourages divergent thinking, encourages students to generate new ideas, and solve problems through independent exploration, thus enhancing creativity. Yani and Taufik (2020) added that providing autonomy in managing learning is a key factor in increasing independence. Similarly, Budiono et al. (2024) explained that real-life projects in PjBL are able to integrate

cognitive and affective skills in a balanced manner, thus not only mastering content but also fostering an attitude of independent learning. Validity and reliability tests confirmed that the instrument used had internal consistency and accurately measured the variables studied. Descriptive analysis showed that the PjBL group obtained higher average creativity and independence scores than the conventional group. Assumptions, including normality and homogeneity, were met so that the MANOVA results could be interpreted validly. MANOVA showed that PjBL had a significant simultaneous effect on creativity and independence. An independent t-test confirmed significant differences in each variable between the PjBL and conventional groups. Furthermore, the *Between-Subjects Effects test* confirmed that both dependent variables were significantly influenced by PjBL individually. These results align with Han et al. (2016) who reported that PjBL effectively improves creative thinking skills and independence through students' active involvement in solving real-world problems. Yani and Taufik (2020) and Budiono et al. (2024) emphasized that PjBL provides students with autonomy in managing the learning process, thereby increasing responsibility, initiative, and self-control. Anggelia et al. (2022) added that PjBL enables the integration of cognitive and affective skills, creating a more meaningful learning experience. Overall, this study supports the hypothesis that learning with the PjBL strategy in Islamic Religious Education (PAI) has a significant influence on the creativity and independence of students at MTs Negeri Dairi.

CONCLUSION

The results of this study support the hypothesis that the implementation of project-based learning (PjBL) in Islamic Religious Education (ISE) significantly influences student creativity and independence. PjBL is able to create active, meaningful, and contextual learning embedded in religious values. Consequently, Islamic Religious Education (ISE) teachers need to shift their role from merely delivering material to facilitators and mentors who encourage students to be independent and creative.

REFERENCES

- Anggelia, D., Puspitasari, I., & Arifin, S. (2022). Penerapan Model Project-based Learning ditinjau dari Kurikulum Merdeka dalam Mengembangkan Kreativitas Belajar Pendidikan Agama Islam. *Jurnal Pendidikan Agama Islam Al-Thariqah*, 7(2). [https://doi.org/10.25299/al-thariqah.2022.vol7\(2\).11377](https://doi.org/10.25299/al-thariqah.2022.vol7(2).11377)
- Budi, S. S. (2020). Penerapan Pembelajaran Berbasis Masalah (Problem Based Learning) Untuk Meningkatkan Prestasi dan Kemandirian Belajar Siswa Pada Mata Pelajaran PKWU Di Kelas XII IPS2 Semester 1 Tahun Pelajaran 2019/ 2020. *LITERASI (Jurnal Ilmu Pendidikan)*, 11(2), 124. [https://doi.org/10.21927/literasi.2020.11\(2\).124-138](https://doi.org/10.21927/literasi.2020.11(2).124-138)
- Budiono, S., Sanusi, M., Ghafur, O. A., & Ardianto, R. A. (2024). Pembelajaran Pendidikan Agama Islam Berbasis Proyek. *Jurnal Penelitian Guru Indonesia*.
- Han, S., Capraro, R., & Capraro, M. (2016). How science, technology, engineering, and mathematics project based learning affects high-need students in the US. *Learning and Individual Differences*, 51, 157–166. <https://doi.org/10.1016/j.lindif.2016.08.045>
- Harahap, Y. M., Hasibuan, M. K., Nasution, M. R., Nasution, U. K., & Harahap, N. H. (2025). Implementation of Project-Based Learning Model in Improving Student Creativity in Islamic Education Learning at SD IT Insan Robbani Padang Lawas. 1(1), 297–311.
- Harfiani, R., & Fanrenza, R. (2019). Implementasi Model Pembelajaran Lesson Study Praktikum Wisata Dalam Upaya Meningkatkan Pemahaman Konsep dan Berpikir Kreatif Mahasiswa Pada Mata Kuliah Media dan Sumber Belajar Di Prodi Pendidikan Islam Anak Usia Dini Fakultas Agama Islam UMSU. *Intiqad: Jurnal Agama Dan Pendidikan Islam*, 11(1), 135–154. <https://doi.org/10.30596/intiqad.v11i1.2041>
- Harfiani, R., & Setiawan, H. R. (2019). Model penilaian pembelajaran di paud inklusif. *Jurnal Ihya Al-Arabiyah*, 5, 235–243.
- Khanal, B., & Chhetri, D. B. (2024). A Pilot Study Approach to Assessing the Reliability and Validity of Relevancy and Efficacy Survey Scale. *Janabhawana Research Journal*, 3(1), 35–49. <https://doi.org/10.3126/jrj.v3i1.68384>
- Kurniawan, M. F. (2023). Implementasi Kurikulum Merdeka Pada Pembelajaran Pendidikan Agama Islam Dalam Mengembangkan Kreativitas Peserta Didik Di Sdit Annida' Kota Lubuklinggau.
- Nirmalan, P. K. (2021). The Validation of questionnaires. *Kerala Journal of Ophthalmology*, 33(3), 260–262. <https://doi.org/10.4103/kjo.kjo>

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- Nurhamidah, S., & Nurachadijat, K. (2023). Project Based Learning dalam Meningkatkan Kemandirian Belajar Siswa. *Jurnal Inovasi, Evaluasi Dan Pengembangan Pembelajaran (JIEPP)*, 3(2), 42–50. <https://doi.org/10.54371/jiepp.v3i2.272>
- Nurmala, S., Triwoelandari, R., & Fahri, M. (2021). Pengembangan Media Articulate Storyline 3 pada Pembelajaran IPA Berbasis STEM untuk Mengembangkan Kreativitas Siswa SD/MI. *Jurnal Basicedu*, 5(6), 5024–5034. <https://doi.org/10.31004/basicedu.v5i6.1546>
- Oktavia, S. (2022). Pengaruh Penerapan Model Pembelajaran Berbasis Proyek Pada Pelajaran Pai Terhadap Peningkatan Kemandirian Belajar Siswa Disman 01 Simpang Pematang.
- Oktaviana.N, S., & Saputra, M. I. (2024). Implementasi Model Pembelajaran Berbasis Proyek dalam Meningkatkan Keterampilan Berfikir Siswa. *At-Ta'dib: Jurnal Ilmiah Prodi Pendidikan Agama Islam*, 16, 118–130. <https://doi.org/10.58578/masaliq.v4i4.3180>
- Rohmah, S., Ilah Nurlaelah, & Ina Setiawati. (2016). Penerapan Model Pembelajaran Project Based Learning (PjBL) Terhadap Kreativitas dan Prestasi Belajar Siswa Kelas X Pada Konsep Limbah dan Daur Ulang Limbah di SMA Negeri 1 Ciawigebang. *Jurnal Quagga*, 8(2), 1907–3089.
- Ruslan, M., Lestari, R. D., Muniro, J., & Sunardi, N. (2023). Penerapan Metode Pembelajaran terhadap Minat dan Prestasi Belajar Pendidikan Agama Islam. *TASYRI': Jurnal Tarbiyah Syari'ah Islamiyah*, 30(2).
- Sitepu, J. M. (2017). Pembelajaran Berbasis Edutainment Untuk Meningkatkan Keaktifan Belajar Siswa. *The Progressive and Fun Education Seminar*, 304–310.
- Sitepu, J. M., Masitah, W., Nasution, M., & Ginting, N. (2022). Media Pembelajaran Islamic Cartoon Pocket Book untuk Meningkatkan Perilaku Santun Anak. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 6(6), 6137–6148. <https://doi.org/10.31004/obsesi.v6i6.3320>
- Sutrisno, S., & Nasucha, J. A. (2022). Islamic Religious Education Project-Based Learning Model to Improve Student Creativity. *At-Tadzkir: Islamic Education Journal*, 1(1), 13–22. <https://doi.org/10.59373/attadzkir.v1i1.3>
- Yani, I. L., & Taufik, T. (2020). Penerapan Model Project Based Learning (Pjbl) pada Pembelajaran Tematik Terpadu di Sekolah Dasar. *E-Journal Pembelajaran Inovasi, Jurnal Ilmiah Pendidikan Dasar*, 8(10), 171–184