VISIOEDUSAINS
Jurnal Ilmu Pendidikan dan Sains
https://visioedusains.tajuk.or.id/index.php/visioedusains
Vol. 2 No. 1 (2026): 33 – 38 | E-ISSN: 3090-7977

The Influence of *the Project Based Learning* Model on Student Creativity and Environmental Literacy at MTs NW Pengadang, Central Lombok Regency

Nadiatus Sholehah[1*], Suhirman[2], Firman Ali Rahman[3]

[1,2,3]Biology Science Education, Faculty of Education and Teacher Training, Universitas Islam Negeri Mataram, Jln. Gajah Mada No. 100, Jempong Baru, Mataram City, West Nusa Tenggara, Indonesia

*e-mail: nadiaasholehah151@gmail.com

Received: 20 June 2025, Revised: 08 July 2025, Accepted: 31 July 2025

Abstract

This study aims to analyze the influence of the Project Based Learning (PjBL) learning model on student creativity and environmental literacy on environmental pollution materials at MTs NW Pengadang, Central Lombok Regency. This study uses a quasi-experimental method with a non-equivalent control group design. The sampling technique was carried out through simple random sampling, with a total sample of 42 students divided into experimental and control groups. The instruments used in data collection include observation sheets to measure student creativity and questionnaires to assess the level of environmental literacy. The data obtained was analyzed using the MANOVA (Multivariate Analysis of Variance) test, to determine the influence of the learning model on both dependent variables simultaneously. The results of the analysis showed that the PjBL learning model had a significant influence on increasing student creativity, which was shown by a significance value of 0.00 ($p < 0.05$). In addition, the application of the PjBL model also had a significant impact on improving students' environmental literacy, with the same significance value, namely 0.00 ($p < 0.05$). Thus, it can be concluded that the implementation of the project-based learning model is able to improve students' creative thinking skills as well as students' awareness of environmental issues. These findings recommend the application of PjBL as an effective learning approach to integrate students' cognitive and affective aspects, especially in science learning that is contextual and relevant to daily life.

Keywords: Student Creativity, Environmental Literacy, Project Based Learning

INTRODUCTION

In the 21st century, education requires students not only to master academic content but also to possess essential life skills such as critical thinking, creativity, collaboration, and digital literacy (Faridah et al., 2022). Learning not only focuses on academic performance, but also develops and enhances students' overall capacity (Khatimah et al., 2020). Project-Based Learning (PjBL) is a student-centered approach that emphasizes active exploration of real-world challenges through projects, fostering both cognitive and social-emotional skills (Mokambu, 2021). Project-based learning is an educational model that can support students to grow their thinking and communication skills. In this learning activity, students are expected to use their ability to research, analyze, create, and write learning products based on real experience Ability-based curriculum shows how important the development of creativity is in the education system (Aditama et al., 2022).

While facing obstacles in the development of science and technology and information technology, resources are needed who have high expertise that links critical, systematic, logical, creative, and effective group skills (Sambada, 2012). One of the most effective graphic media to give a message is posters. Graphic media is a visual media that conveys facts, ideas, and ideas through various symbols or images, as well as words, sentences, and numbers (Megawati, 2017). Environmental literacy consists of two words: "environmental", which means "environment", and "literacy", which means "literacy" or seeing in everyday language (Afrianda et al., 2019). Literacy, which includes a person's skills to identify, understand, create, interpret, communicate, and use his or her knowledge in a variety of situations, becomes especially important in the context of the environment. Environmental literacy encompasses awareness, knowledge, attitudes, and skills that empower individuals to make informed decisions and take responsible actions concerning the environment (Leksono et al., 2020). According to the above explanation, the low quality of the environment is caused by human behavior that ignores environmental factors when carrying out daily activities (Wulandari et al., 2019). One way that can be done is by having environmental

Vol. 1 No. 2, September 2025: 33-38
DOI: 10.71024/visioedusains.2025.v1i2.60

literacy that can be taught through education in schools (Agustina et al., 2022).

This condition is driven by the results of a study that states that the application of the project-based learning model is able to increase the creativity of students in grades X-3 of SMAN 1 Tumpang for the even school year 2022/2023. This can be seen from the learning outcomes of students who have increased, namely before treatment 69, after treatment 77 in the first cycle and to 90 in the second cycle. In addition, the percentage of students' learning completeness, namely before treatment, was from 57.14% to 77.14% in the first cycle and to 90% in the second cycle (Bramantya et al., 2024). In addition, it proves that the scores of students in class VIIF of SMP Negeri 35 Semarang show an increase in students' environmental literacy skills, in the pre-cycle of 57% with the good category, cycle 1 by 67% with the good category, and cycle 2 by 75% with the good category (Adilah et al., 2024).

Based on the research above related to the school conditions at MTs NW Pengadang the learning model used is still conventional and has not directed students to actively study and criticize a problem, so that students' environmental literacy skills are minimally trained. There has never been a study on the influence of the project-based learning model on students' creativity ability to make posters and environmental literacy. So that what distinguishes the project-based learning model from other learning models is that the project is central to learning, focused on questions or problems that lead students to find solutions with appropriate scientific concepts or principles.

RESEARCH METHODS

This study uses a quantitative approach with a quasi experimental type and a nonequivalent control group design. The sample was selected using a simple random sampling technique, with class VII B as the experimental class and VII C as the control class at MTs NW Pengadang, Central Lombok Regency. The instruments used consisted of observation sheets to measure student creativity and questionnaires to measure environmental literacy. The research will be carried out in February 2025 in an even semester, according to the schedule that has been agreed upon with the school, including the principal and science teachers. Data were analyzed quantitatively using the Multivariate Normality test, the Levene Homogeneity test, and MANOVA to test the influence of the learning model on the two dependent variables.

RESULTS AND DISCUSSION

This study aims to determine the influence of the project-based learning model on student creativity and environmental literacy in MTs NW Pengadang, Central Lombok Regency. This study used two classes as a research sample, namely class VIIB as an experimental class that applied the project-based learning (PjBL) learning model and class VIIC as a control class that applied direct or conventional learning, then the class received treatment for three meetings. However, the treatment given in the experimental class was to use the project-based learning model, while the control class used conventional learning. The total number of samples used in this study was 42 students in grade VII, where in each class there were 21 students. The following will be explained about the influence of the project-based learning development model on student creativity and environmental literacy.

Table 1. Experimental Class and Control Class values.

Class	Instruments	Value	Category
Experiment	Observation Sheet	85,33%	Excellent
Control		61,52%	Pretty good
Experiment	Questionnaire	92,76	Excellent
Control		76,16	Good
Experiment	Loans	45,14	Pretty good
Control		41,52	Pretty good
Experiment	Posts	79,38	Good
Control		68,38	Good

The data from the analysis of student creativity using the observation sheet method showed significant results, where the results of student creativity in the experimental class were higher with a presentation score of 85.33% from the overall student category of 85.33% with the "very

Vol. 1 No. 2, September 2025: 33-38
DOI: 10.71024/visioedusains.2025.v1i2.60

good" category compared to the control class which only obtained a percentage score of 61.52% and was included in the "quite good" category (Table 1). From the results of this study, it can be concluded that the learning model test shows that the creativity of students taught using the project-based learning model is better than using the conventional learning model. From the results of the research that has been carried out, teaching and learning activities in experimental classes use the learning model Project Based Learning has a significant influence on students' creativity. This is due to the application of the learning model Project Based Learning provide students with many opportunities for creativity, such as during the learning steps. Application of learning models Project Based Learning in the experimental class to find out the extent to which students' creativity can develop. The data analysis used in this study is descriptive analysis, where the analysis of student creativity data obtained a percentage of all students of 85.33%, so that from this percentage figure it can be concluded that the learning model Project Based Learning has a significant effect on students' creativity. In line with the results of the research that has previously been carried out by usman, the results of descriptive statistical analysis show that the creativity of students in the experimental class increases after being given a learning model Project Based Learning (PjBL) is evidenced by the average results of the questionnaire that students' creativity increases after being given a learning model Project Based Learning (PjBL). Based on the results of the infernal statistics, the tcal value of the tcal > ttable or Sig. ≤ α. Then Ha is accepted and H0 is rejected, so it can be concluded that there are differences before and after being given a learning model Project Based Learning (PjBL) on students' creativity in making decorative works (Usman et al., 2022).

To obtain data on environmental literacy in this study, the researcher used test question instruments in the form of pretest and postest which amounted to 50 questions with 25 multiple-choice questions each related to environmental pollution material and questionnaires totaling 26 statements. Based on the results of the study, the average score of the initial test (pretest) before learning activities in the experimental class was 45.14 and after learning activities were carried out, the average score of the final test (postest) increased to 79.23 so that it was included in the "good" category. Meanwhile, in the control class, the average score of the initial test (pretest) before learning activities in the experimental class was 41.52 and after the learning activity was carried out, the average score of the final test (posttest) increased to 68.38 so that it was included in the "good" category.

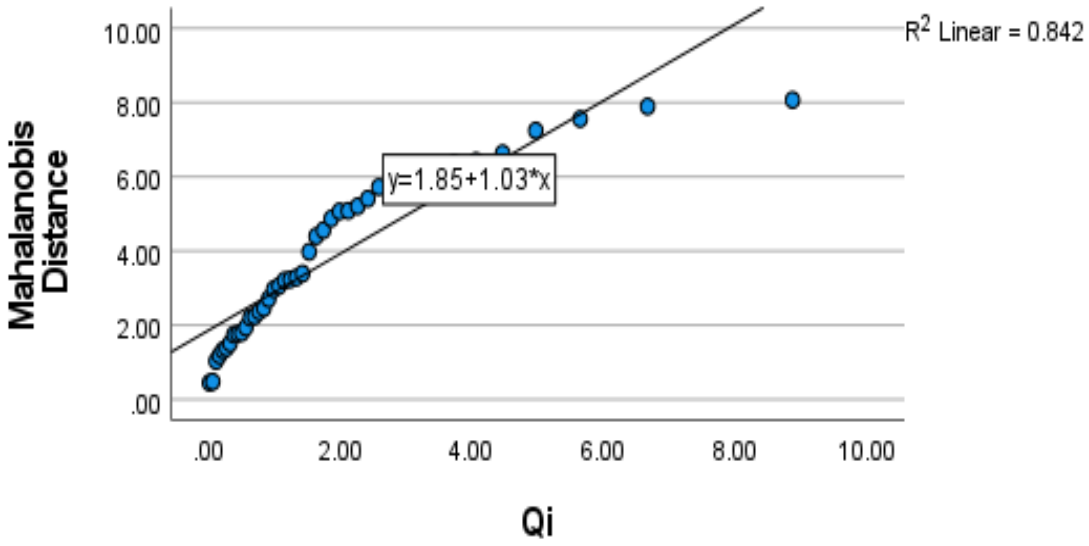

Figure 1. Multivariate Normality test results

In addition to environmental literacy analysis obtained from the pre-test assessment, questionnaire calculation analysis was also carried out. The results of the environmental literacy analysis in students obtained from the two classes used as samples had significant differences, where the average score of the experimental class was 92.76 in the "very good" category. Meanwhile, the average score of the control class was 76.16 in the "good" category. From the results of this study, it can

Vol. 1 No. 2, September 2025: 33-38
DOI: 10.71024/visioedusains.2025.v1i2.60

be concluded that the learning model test shows environmental literacy taught using the learning model Project Based Learning better than using conventional learning models. In line with the statement made by Ramadhana regarding the use of conventional models by teachers in learning, it can make students' environmental literacy low. One of the learning models that provides opportunities for student participation is PjBL or project-based learning. Type Project Based Learning Guiding students to discuss and collaborate in studying and understanding environmental issues and dealing with environmental problems by formulating solutions. Collaboration and discussion affect the sensitivity of students so as to encourage the improvement of environmental literacy (Ramadhana et al., 2021).

Based on Figure 1, it can be assumed that the p-variate normality in the project-based learning group is fulfilled because the observation points can be said to follow the direction of the diagonal straight line and the scutter plot tends to form a passing line or about 50% of the distance value is less than or equal to the chi square, so it is a multivariate normal distribution. In addition to paying attention to the scatter plot, it can also be deduced from the correlation values, namely:

		Mahalanobis Distance	Qi
Mahalanobis Distance	Pearson Correlation	1	.917**
	Sig. (2-tailed)		.000
	N	42	42
Qi	Pearson Correlation	.917**	1
	Sig. (2-tailed)	.000	
	N	42	42

In the Table above, the correlation coefficient obtained is a significant value of 0.00 < 0.05, then there is a significant correlation. So it can be concluded that the data on student creativity and environmental literacy using *the project-based learning model* has a normal distribution *of p-variance* because the Sig. < value of 0.05 (Table 2).

Table 2. Yield Homogeneity test scores

		Living Statistic	df1	df2	Sig.
STUDENT CREATIVITY	Based on Mean	.010	1	40	.920
	Based on Median	.008	1	40	.929
	Based on Median and with adjusted df	.008	1	33.641	.929
	Based on trimmed mean	.010	1	40	.922

The results of the calculation of the homogeneity test of student creativity in the table above show that the value based on mean is at a significant level of 0.920 > 0.05, which means that the data is homogeneously distibusted.

		Living Statistic	df1	df2	Sig.
PRETEST IPA	Based on Mean	.458	1	40	.503
	Based on Median	.302	1	40	.585
	Based on Median and with adjusted df	.302	1	37.847	.586
	Based on trimmed mean	.479	1	40	.493
		Living Statistic	df1	df2	Sig.
POSTEST IPA	Based on Mean	1.189	1	40	.282
	Based on Median	1.756	1	40	.193
	Based on Median and with adjusted df	1.756	1	35.958	.193
	Based on trimmed mean	1.356	1	40	.251

Vol. 1 No. 2, September 2025: 33-38
DOI: 10.71024/visioedusains.2025.v1i2.60

The table above shows the results of the homogeneity of the pretest value in the experimental class and the control class obtained a value seen from the based on mean at a significant level of 0.503 > 0.05 and the postest value in the experimental class and the control class obtained a value that can be seen based on the mean at a significant level of 0.282 > 0.05 which means that the data is homogeneously distributed.

		Living Statistic	df1	df2	Sig.
Questionnaire Value	Based on Mean	.006	1	40	.941
	Based on Median	.001	1	40	.978
	Based on Median and with adjusted df	.001	1	36.462	.978
	Based on trimmed mean	.010	1	40	.922

The results of the calculation of the environmental literacy homogeneity test using the questionnaire sheet in the experimental class and the control class in the table above show that the value based on mean is at a significant level of 0.941 > 0.05 which means that the data is homogeneously distributed.

Table 3. Manova test results

Multivariate Testsa

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.995	3695.160b	2.000	39.000	.000
	Wilks' Lambda	.005	3695.160b	2.000	39.000	.000
	Hotelling's Trace	189.495	3695.160b	2.000	39.000	.000
	Roy's Largest Root	189.495	3695.160b	2.000	39.000	.000
Model_pembelajaran	Pillai's Trace	.760	61.775b	2.000	39.000	.000
	Wilks' Lambda	.240	61.775b	2.000	39.000	.000
	Hotelling's Trace	3.168	61.775b	2.000	39.000	.000
	Roy's Largest Root	3.168	61.775b	2.000	39.000	.000

Based on the calculation of the hypothesis test, the test results simultaneously or simultaneously show the significance value of the manova test of 0.00 < 0.05 (Table 3), then Ha is accepted and H0 is rejected. From the results of the manova test, it can be concluded that there is a significant influence of the learning model on student creativity and environmental literacy at MTs NW Pengadang, Central Lombok Regency.

CONCLUSION

Based on the results of research, data analysis, and discussions that have been carried out, it can be concluded that the Project-Based Learning (PjBL) learning model has a significant influence on student creativity and environmental literacy at MTs NW Pengadang, Central Lombok Regency. This is proven by the results of statistical tests using MANOVA which showed a significance value of 0.00 ($p < 0.05$). Thus, the alternative hypothesis (Ha) is accepted and the null hypothesis (H_0) is rejected. These findings indicate that the effective application of the PjBL model is able to improve students' creative thinking skills as well as their awareness and understanding of environmental issues. Therefore, the PjBL learning model is recommended as one of the learning approaches that can be integrated in science learning, especially in contextual materials such as environmental pollution.

REFERENCES

Adilah, P., Sudarmin, S., & Rozadi, H. (2024). The Implementation of Project-Based Learning Based on Socio-Scientific Issues to Improve Environmental Literacy in Class VIIF SMP Negeri 35 Semarang. *Proceedings of the National Seminar on Education and Classroom Action Research*, 1309–1314. https://proceeding.unnes.ac.id/snpptk/article/view/3266

Aditama, M. G., Shofyana, M. H., Muslim, R. I., Pamungkas, I., & Susiati, S. (2022). Improving teacher competence in project-based learning through meetings with regional educators. *Bulletin of KKN Education*, *4*(1), 90–98.

Afrianda, R., Yolida, B., & Marpaung, R. R. T. (2019). The influence of the adiwiyata program on environmental literacy and environmental care attitudes. *Journal of Bioeducation: A Vehicle of Scientific Expression*, *7*(1), 32–42.

Agustina, M. D., Hudha, M. N., & Kumala, F. N. (2022). Development of environmental learning videos (animations) to improve students'

Vol. 1 No. 2, September 2025: 33-38
DOI: 10.71024/visioedusains.2025.v1i2.60

environmental literacy on energy-saving topics. *Experiment: Journal of Science Education*, *2*(1), 1–10.

Bramantya, A., Untari, S., & Nafsiyah, F. (2024). The application of the pjbl learning model to increase the creativity of high school students in grades x-3 with the help of cultural posters at SMAN 1 Tumpang. *Journal of Ink: Journal of Teacher Training and Education*, *6*(1), 105–113.

Faridah, N. R., Afifah, E. N., & Lailiyah, S. (2022). The effectiveness of the project-based learning model on the numeracy and digital literacy skills of Madrasah Ibtidaiyah students. *Journal of Basicedu*, *6*(1).

Khatimah, H., Suhirman, S., & Raehanah, R. (2020). The Effect of the Project Based Learning Model on the Creativity of Thinking and Science Literacy of Students of SMAN 1 Gerung in 2018/2019. *Journal of Chemistry & Chemistry Education*, *2*(1), 13–26.

Leksono, S. M., Nestiadi, A., Andriana, E., Firdausy, A., Nurjanah, E., Shofa, M., & Marianingsih, P. (2020). Identify the components of environmental literacy in high school biology books. *Proceedings of the National Seminar on Education FKIP, 3*(1), 129–138. https://jurnal.untirta.ac.id/index.php/psnp/article/view/9924

Megawati, M. (2017). The Influence of Poster Media on English Vocabulary Learning Outcomes (Experiment at Sdit Amal Mulia Tapos Depok City). *English Education Journal*, *4*(2), 217637.

Ramadhana, S. D., Norra, B. I., & Rasyida, N. (2021). The effectiveness of learning tools with the PJBL-STEAM model on environmental materials to improve environmental literacy. *JP (Journal of Education): Theory and Practice*, *6*(2), 75–81.

Sambada, D. (2012). The role of students' creativity in the ability to solve physics problems in contextual learning. *Journal of Physics Research and Its Applications (JPFA), 2*(2), 37–47.

Usman, H., Raihan, S., & Arisya, W. (2022). The Influence of the Project Based Learning Learning Model on Students' Creativity in Making Decorative Works. *Nubin Smart Journal*, *2*(3), 215–228.

Wulandari, A. S., Suardana, I. N., & Devi, N. P. L. (2019). The influence of the project-based learning model on the creativity of junior high school students in science learning. *Journal of Indonesian Science Education and Learning (JPPSI), 2*(1), 47–58.