e-ISSN: 2986-8076
DOI: 10.57254/tess.v2i1.27

International Journal of Geometry and Applied Mathematics
TESSERACT
Vol. 2, No. 1, March 2024 Pp. 40-50
Journal Page is available to http://ekalaya.nindikayla.com/index.php/home

INDEPENDENCE IN LEARNING MATHEMATICS IN GRADE II SDN 2 CIBEUTI: COMPARISON BETWEEN PJBL AND PBL STRATEGIES

Gumgum Gumilar[1], Sutama[2], Markhamah[3]
[1,2,3]Universitas Muhammadiyah Surakarta, Indonesia
Email: g200220018@student.ums.ac.id [1], sut197@ums.ac.id[2], mar274@ums.ac.id [3]

Abstract

The aim of this study is to describe a project-based learning strategy (PjBL) with Problem-based Learning (PBL) towards reviewed learning independence from student discipline. The research method used in this study is Quantitative with the model or approach of quasi-experimental design (pretest-posttest) as the design. The study was conducted from March to July 2023 in Class II SDN 2 Cibeuti, Tasikmalaya, West Java. Counting is the chosen learning material. Data collection techniques use tests and nontes. In this study, the test (pretest-posttest) is a double-choice test, while the non-test consists of documentation, interviews with teachers, and student discipline observation sheets. These are all used to evaluate learning processes and outcomes, including student activities. With a total of 25 students in the experimental and control classes. The data analysis techniques used are obtained from the test results of the independent value of learning mathematics as well as from the use of statistics. Data analysis techniques to test the hypothesis of independent learning mathematics results pre-testposttest using SPSS 25 for Windows Data from the research results showed that class II students at SDN 2 Cibeuti, Tasikmalaya, had significant learning independence when implementing PjBL and PBL strategies. In an effort to improve the independence of students in class II on math subjects in SDN 2 Cibeuti, statistical tests showed that the significance of posttest results in both classes is less than 0.05. Analysis of the results of independent mathematical learning showed significant improvements using PjBL strategies in the experimental class, with an average posttest score (96.00) higher than the mean posttest value for the PBL strategy in the control class (62.40). The results of this study show that the PjBL strategy is more effective than the PBL strategy. Therefore, it can be concluded that the project-based learning strategy (PjBL) is effective.
Keywords: *Mathematics, PjBL and PBL Learning Strategies, Elementary School.*

INTRODUCTION

Mathematics is one of the very important fields of science that has many definitions. Mathematics not only includes numeracy and the use of symbolic language, but it also has an important role in the development of science. Students must be able to think logically, creatively, skillfully, and independently when learning mathematics. Mathematics also involves abstract concepts and deductive thinking techniques. Mathematics involves numbers, symbols, and calculation operations, and requires good understanding and concentration. It also focuses on the relationship of patterns, shapes, and structures. In accordance with what was expressed by Muslim, A. (2017). "Mathematics is the science of numbers and space, the language of symbols, numerical language, abstract and deductive science, logical thinking methods, the science that

studies the relationship of patterns, shapes, and structures". Nurfitriyanti, M. (2016). reveals that, "Mathematics is a collection of numbers, symbols, and computational operations of abstract concepts that need to be understood and concentrated as they are performed". Meanwhile, according to Susanto (2014:184), it is revealed that, "Mathematics is a field that can improve a person's thinking and thinking, and help solve daily problems". According to Wahyudi (2012:10), revealed that,

"Mathematics is concerned with abstract concepts because mathematics is concerned with ideas or ideas, rules, and relationships".

But in reality, math is considered difficult by some students in elementary school. This can be caused by the lack of student learning independence in understanding mathematical concepts. Problems related to mathematics lessons are no exception at SDN 2 Cibeuti, Tasikmalaya, especially in the learning process. The problem is, students experience difficulties in the dizzying computational operations learning material as well as solving math problems. This shows that students' independence in learning mathematics has not functioned optimally and the lack of student discipline in learning.

In its sense, learning independence is a person's ability to learn in solving problems. As stated by Suzana, Y., Jayanto, I., & Farm, S. (2021). "Learning independence is the ability of students to acquire knowledge, with the hope that each individual can improve their cognitive ability in solving problems". Syah in Wahab, G., & Rosnawati, R. (2021). revealed that, "Independence is a relatively positive and steady stage of student behavior change as a result of interaction with the environment involving cognitive processes". Furthermore, according to Triwinarni, D. (2017). revealed that, "Independence in learning mathematics has a positive and significant impact on mathematics learning outcomes". High mathematics learning outcomes can help students in learning mathematics because it makes students want to improve even better learning outcomes. In the end, it results in maximum learning discipline.

Learning independence can be achieved through the application of learning strategies that allow students to actively seek knowledge and improve cognitive thinking skills in solving problems. Therefore, the right learning strategy needs to be implemented so that students can master mathematical concepts well. Learning strategies are methods or approaches used to facilitate the student learning process with the aim of increasing student learning independence. In accordance with what was expressed by Nasution, W. N. (2017). "A learning strategy is a series of teaching and learning activities that are selected and implemented by teachers contextually, with the aim of ensuring that students achieve learning objectives effectively, through the use of relevant methods, techniques, and procedures".

There are several learning strategies that may be applied, and one of them is *project-based learning* (PjBL) and *problem-based learning* (PBL). PjBL focuses on improving students' knowledge, skills, and understanding through active participation in real projects or assignments. According to Nasution, W. N. (2017). revealed that, "*Project-based learning* is learning that produces problem-solving-based work". Meanwhile, according to Hosnan (2014:319), it was revealed that, "Project-based learning strategies are learning strategies that use activities or projects as media". These projects are often cross-disciplinary in nature and allow students to apply what they have learned such as investigating, analyzing, and solving real problems or

challenges. The next learning strategy is *problem-based learning*. PBL is one of the learning strategies that emphasizes problem solving. In this strategy, students will be given problems that must be solved, then must find solutions to the problems using various methods. In accordance with what was expressed by Nasution, W. N. (2017). "Problem-based learning strategies can be interpreted as a series of learning activities that are focused on the process of solving problems scientifically". Furthermore, according to Arends (Hosnan, 2014:295). reveals that, "Learning strategies are strategies that utilize real-life problems to help students develop knowledge, improve skills, become more independent, and increase self-confidence". This learning strategy is to use problems that occur in the real world as a learning resource. The purpose of this learning is to help students improve their critical thinking skills, solve problems, gain additional knowledge, and gain new knowledge. In this case, the teacher provides a lot of information in this lesson; The expectation is that students can use problem-based learning to solve problems independently.

In addition to learning strategies, student discipline is also an important factor in the success of learning mathematics. Student discipline can affect motivation and concentration in learning. When students have good discipline, they will tend to have high motivation in learning and be able to manage their study time effectively. In accordance with what was expressed by Wahab, G., & Rosnawati, R. (2021). "Discipline is the ability to focus and concentrate on the lesson, with a focus on the learning material and the process of acquiring it". Wirantasa, U. (2017). revealed that, "Learning discipline is an attitude or behavior that helps a person self-regulate, obey rules, and stay focused while studying. Learning discipline includes many things, such as arriving on time, completing homework on time, staying on top of the study schedule, and managing time well."

This is relevant to the results of research conducted by Larasati, I., Joharman, J., & Salimi, M. (2020). A positive and significant relationship between learning independence and students' mathematics learning outcomes. In other words, the higher the independence, the higher the students' mathematics learning outcomes. According to Siagian, H., et al. (2020). and Wulandari, N., et al. (2023). Learning independence has responsibility for the tasks or projects carried out. In addition, according to Anggraeni, P. N., Miyono, N., & Setyawati, R. D. (2023). Discipline in understanding material using *project-based learning* (PjBL) is an effective strategy in the implementation of mathematics learning.

Based on the description above, this study will focus on the difference between *project-based learning* (PjBL) and *problem-based learning* (PBL) on the learning independence of grade II students of SDN 2 Cibeuti reviewed from the student's discipline.

RESEARCH METHODS

This study uses the Quantitative Research method with a quasi-experimental research model (*Quasi Experimental Design*). Quantitative research is a method of data processing in the form of numbers and analysis using statistics. According to Sugiyono (2019:22). reveals that, Quantitative research is a *scientific method* that includes scientific principles, namely concrete/empirical, objective, measurable, rational, systematic, and *replicable*. Meanwhile, the research model or quasi-experimental

approach (*Quasi Experimental Design*) is experimental research with an experimental class design and a control class without randomly taking samples. In accordance with what was expressed by Sugiyono (2019: 136). "*Quasi Experimental Design* is a research design that has a control class that affects the implementation of experiments and without taking random samples". This experimental research was conducted with *a pretest-posttest design*. Pretest scores are used to measure students' abilities before treatment. Meanwhile, *posttest* scores are used to measure students' abilities after treatment. In line with what is expressed by Rogers, J., & Revesz, A. (2020). About *the pretest-posttest* design, "*Pretest* aims to ensure class comparison before treatment. Meanwhile, *the posttest* allows researchers to find out the direct impact of the treatment on the outcome variables". Furthermore, according to Gravetter & Forzano, (2018). reveals that, "The inclusion of the control class allows the researcher to know whether the observed change in the experimental class from *pretest* to *posttest* is due to the experiment (treatment) or may be due to other influences such as the test effect or maturation, as the experimental class and the control class undergo the test".

Table 1.
Pretest-Posttest design

Experimental	O X O
Control	O O

Based on table 1, it shows that in experimental studies, *the pretestposttest design* is often used to compare the effect of a treatment or intervention on the experimental class (which received the treatment) with the control class (which did not receive the treatment). The experimental class is represented with the letter "X" between *the pretestposttest*, indicating that the Before and after treatment classes, this class will be measured to find out if there are any significant changes. On the other hand, in the *pretest-posttest*, the letter "O" indicates that the control class did not receive the same treatment or intervention as the experimental class. Control classes are used as a comparison to see how changes occur in the experimental classes that receive and those that do not receive the treatment. Using this design, researchers were able to compare the changes that occurred in the experimental classes that received and those that did not receive the treatment.

This research was conducted from March to July 2023 in grade II of SDN 2 Cibeuti, Tasikmalaya, West Java. Calculation operations are the chosen learning materials. Data collection techniques use tests and non-tests. In this study, the test (*pretest-posttest*) is a multiple-choice test, while the non-test consists of documentation, interviews with teachers, and student discipline observation sheets. These are all used to assess the learning process and outcomes, including student activities.

The data analysis technique used was obtained from the results of the mathematics learning independence score test and processed using statistics. Stages of data analysis techniques to test the hypothesis of independence in learning mathematics *pretest-posttest results using SPSS 25* for windows.

RESULTS AND DISCUSSION

The data obtained from this study consisted of *pretest* and *posttest data* on mathematics learning independence reviewed from the discipline of students. Table 2 shows a description of the analysis of the results of measuring mathematics learning independence.

Table 2.
Description of Analysis of *Pretest* and *Posttest* Score
Measurement Results for Experimental and Control Class

Descriptive Statistics

	N	Range	Min	Max	Mean	Std. Deviation
Pretest Experimental Class - PjBL	25	30	40	70	57.60	7.789
Posttest Experimental Class - PjBL	25	10	90	100	96.00	5.000
Pretest Control Class - PBL	25	30	40	70	58.80	7.810
Posttest Control Class - PBL	25	30	50	80	62.40	9.256
Valid N (listwise)	25					

Based on table 2, it shows that the average *pretest* score in the experimental class was 57.60 with a minimum score of 40, a maximum score of 70, and a standard deviation of 7.789. After learning activities with the PjBL strategy, the *average posttest score* increased to 96.00 with a minimum score of 90, a maximum score of 100, and a standard deviation of 5,000. With a total of 25 students.

In the table, it can also be seen that the *average pretest* score in the control class was 58.80 with a minimum value of 40, a maximum value of 70, and a standard deviation of 7.810. After learning activities with the PBL strategy, the *average posttest score* increased to 62.40 with a minimum score of 50, a maximum score of 80, and a standard deviation of 9.256.

With a total of 25 students.

Table 3.
Average Score Comparison
Experiment and Control Class

Results of Mathematics Learning Independence	Grade Point Average		Value Difference
	Experimental Classes	Control Class	
Pretest	57,60	58,80	1,20
Posttest	96,00	62,40	33,60

Based on table 3, it shows that there is a difference in the average score of *the pretest* and *posttest* using the PjBL strategy and the PBL strategy. The *pretest score* in the experimental class was 57.60 and the control class was 58.80. The difference between *the pretest* score in the experimental and control classes was 1.20. After

e-ISSN: 2986-8076
DOI: 10.57254/tess.v2i1.27

learning activities were carried out using the PjBL strategy and the PBL strategy, *the* average score of the students' posttest increased, both in the experimental and control classes. The *posttest score* in the experimental class was 96.00 and the control class was 62.40. The difference between *the posttest* score in the experimental and control classes was 33.60. The following is a diagram of the results of *measuring pretest* and *posttest* scores in the experimental and control classes presented in figure 1.

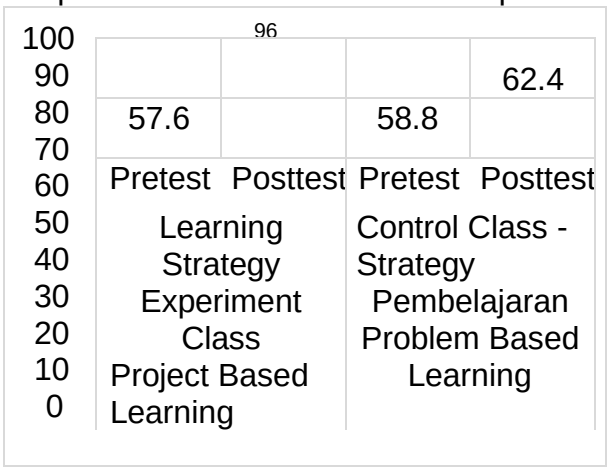

Figure 1.
Pretest *and* Posttest *Score Measurement Results Chart*
Experimental Class and Control Class

Based on figure 1, it shows that there was an increase in the average score in the experimental class that received the PjBL strategy treatment and the control class that used the PBL strategy.

Table 4.
Normality Test Results of *Pretest-Posttest Scores* for Experimental Class and Control Class

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Class	Statistic	df	Itself.	Statistic	df	Itself.
Independence Learn Math Results	*Pretest* - PjBL	.261	25	.000	.860	25	.003
	Posttest - PjBL	.388	25	.000	.625	25	.000
	Pretest - PBL	.281	25	.000	.853	25	.002
	Posttest - PBL	.202	25	.010	.877	25	.006

a. Lilliefors Significance Correction

Based on table 4, it shows that the results of the normality test of *pretest* and *posttest learning* independence in the experimental class and the control class using *the Shapiro Wilk* technique with SPSS 25 *for windows*, if the significance value is <0.05, then it is said that it is not abnormally distributed. If the significance value is >0.05, the data is normally distributed. Based on the data above, it means that the data is not distributed normally.

Prerequisite tests show that the distribution data is abnormal. Furthermore, the analysis of the T test was performed with *the Mann-Whitney* test and SPSS 25 for *Windows*. The aim was to find out whether the results of independent learning of mathematics in experimental and control classes were different. The results of the analysis are shown in table 5.

Table 5.
Mann Whitney U *Test Results*
Test Statisticsa

	Independence Results
	Learn Math
Mann-Whitney U	.000
Wilcoxon W	325.000
Z	-6.209
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Kelas

Based on table 5, it shows that the results of the *Mann-Whitney U* test are known: *the Asymp value. Sig*. (*2-tailed*) *posttest* of 0.00, which is less than 0.05; *Mann-Whitney U test*, meaning that Ho rejected means Ha is accepted. This shows that there is a significant difference between the application of the PjBL strategy and the PBL strategy on the results of the independent learning of grade II students in the subject of Mathematics at SDN 2 Cibeuti.

Hypothesis Test: The results of the analysis *of the Mann-Whitney test* are shown in table 3. Furthermore, the research hypothesis is tested. Hypothesis testing is the process of determining the validity of a hypothesis. The research hypotheses are:

Ho: There is no significant difference in the results of learning independence between the application of the PjBL strategy and the PBL strategy on the learning independence outcomes of grade II students in Mathematics subjects at SDN 2 Cibeuti.

Ha: There is a significant difference in learning independence results between the application of the PjBL strategy and the PBL strategy on the learning independence outcomes of grade II students in Mathematics at SDN 2 Cibeuti.

SPSS 25 results for the testing criteria were used to test the hypothesis.
Using the Sig coefficient according to the requirements:

1. If the value is sig<0.05 then Ho is rejected
2. If the value is sig>0.05 then Ho is accepted

The results of the hypothesis test using *the Mann Whitney test*, showed a significance of 0.00, which means it is lower than 0.05. Thus, Ho was rejected, and Ha

was accepted. This shows that the results of the independent learning of grade II students in Mathematics at SDN 2 Cibeuti are very different between the application of the PjBL strategy and PBL.

Using the PjBL strategy in the experimental class had an average *posttest* score (96.00) higher than the average *posttest* score for the PBL strategy in the control class (62.40). The analysis of the results of mathematics learning independence showed a significant increase using the PjBL strategy in the experimental class. This is due to the discipline of students when the learning process is going well, even though some students still play in learning. The results of this study show that the PjBL strategy is more effective than the PBL strategy. Therefore, it can be concluded that the PjBL strategy is effective.

This is strengthened by the results of research conducted by Fiana, R. O., Relmasira, S. C., & Hardini, A. T. A. (2019). and Putri, F. P. W., Koeswanti, H. D., & Giarti, S. (2021). The *Project Based Learning* learning strategy is more effective than the *Problem Based Learning* learning strategy. Abidin, Z., Utomo, A. C., Pratiwi, V., & Farokhah, L. (2020). Literacy project-based learning is a good and effective learning strategy in facilitating students in improving mathematical reasoning skills. Mustopo, A. (2019). Learning using *project-based learning strategies* can improve student learning outcomes reviewed from individual and clinical completeness. According to Sari (2015: 13). The learning process using the students' PjBL strategy is very enthusiastic, and actively involved in learning activities. Anwar, A., Amir, Z., & Sari, I. K. (2020). The PJBL strategy can motivate students to learn in the implementation of learning. Setyowati, N., & Mawardi, M. (2018). *Project-based learning* can improve mathematics learning outcomes and make learning more meaningful. Winarti, N., Maula, L. H., Amalia, A. R., & Pratiwi, N. L. A. (2022). Critical thinking skills increase after implementing learning with *project-based learning strategies*.

Based on these data, it shows that the results of student learning independence are greatly influenced by project-based learning. This is because students have a great curiosity about the subject matter and become more active, creative, and innovative. By implementing the PJBL strategy. This research is expected to provide innovation in learning and determine whether the strategy is feasible. Learning strategies serve as guidelines in the design and implementation of learning steps, starting from the beginning to evaluation at the end of the activity. In addition, learning strategies can make directed learning activities up to the final evaluation, which makes it possible to evaluate how well the activities are successful.

CONCLUSION

Based on the results of the study, it can be concluded that there is a significant difference between the application of the PjBL strategy and the PBL strategy on the learning independence of grade II students of SDN 2 Cibeuti, Tasikmalaya. This is based on the results of the normality test, the prerequisite test. The results of the normality test showed that the significance value of *the pretest* and *posttest* results using *the Shapiro Wilk* technique with SPSS 25 *for windows* was less than 0.05. Therefore, *the pretest-posttest* data in the experimental and control classes were not normally distributed. Therefore, the prerequisite test was not met, so the *Mann-Withney differential test was used*. The results of the *Mann-Whitney U* test are known: *the*

Asymp value. Sig. (*2-tailed*) *posttest* of 0.00, which is less than 0.05; *Mann-Whitney U test*, meaning that Ho rejected means Ha is accepted. This shows that the results of the independent learning of grade II students in the subject of Mathematics at SDN 2 Cibeuti are significantly different between the implementation of the PjBL strategy and the PBL strategy.

To support these findings, further research with a larger sample and involving a variety of schools should be conducted. It is suggested that *the Project Based Learning* (PjBL) learning strategy needs to be expanded and developed in schools.

REFERENCES

Abidin, Z., Utomo, A. C., Pratiwi, V., & Farokhah, L. (2020). *Pembelajaran Project Based Learning–Literasi dalam Meningkatkan Kemampuan Penalaran Matematis Siswa di Sekolah Dasar*. Educational Journal of Bhayangkara, 1(1).

Anggraeni, P. N., Miyono, N., & Setyawati, R. D. (2023). *Penerapan Model Pembelajaran Project Based Learning Materi Penjumlahan Siswa Kelas 1 Sekolah Dasar Tlogosari Kulon 01 Semarang*. AS-SABIQUN, 5(3), 695-703.

Anwar, A., Amir, Z., & Sari, I. K. (2020). *Pengaruh Project Based Learning terhadap Motivasi Belajar Sekolah Dasar Negeri 167 Pekanbaru*. JMIE (Journal of Madrasah Ibtidaiyah Education), 4(1), 127-142.

Fiana, R. O., Relmasira, S. C., & Hardini, A. T. A. (2019). *Perbedaan Penerapan Model Project Based Learning dan Problem Based Learning Terhadap Hasil Belajar Matematika Kelas 4 SD*. Jurnal Basicedu, 3(1), 157-162.

Gravetter, F., & Forzano, L. (2018). *Research methods for the behavioral sciences*. Boston: Cengage.

Hosnan, M. (2014). *Pendekatan Saintifik dan Kontekstual dalam Pembelajaran Abad 21*. Bogor: Ghalia Indonesia.

Jaya, I. (2019). *Penerapan Statistik untuk Penelitian Pendidikan*. Jakarta. Prenada Media.

Larasati, I., Joharman, J., & Salimi, M. (2020). *Hubungan Kemandirian Belajar dan Hasil Belajar Matematika Siswa Sekolah Dasar di Kecamatan Buluspesantren*. EduBasic Journal: Jurnal Pendidikan Dasar, 2(2), 125-135.

Muslim, A. (2017). *Hakikat Matematika dan Pembelajaran Matematika SD*. Bandung: UPI Pers.

Mustopo, A. (2019). *Peningkatan Prestasi Belajar Matematika Siswa Kelas IV Materi Keliling Luas Bangun Datar Melalui Model Pembelajaran Berbasis Proyek (Project Based Learning)*. Indonesian Journal of Basic Education, 2(2), 182-191.

Nasution, W. N. (2017). *Strategi Pembelajaran*. Jl. Sosro No. 16-A Medan 20224. Perdana

Mulya Sarana.

Nurfitriyanti, M. (2016). *Model Pembelajaran Project Based Learning Terhadap Kemampuan Pemecahan Masalah Matematika*. Formatif: Jurnal Ilmiah Pendidikan MIPA, 6(2).

Putri, F. P. W., Koeswanti, H. D., & Giarti, S. (2021). *Perbedaan Model Problem Based Learning dan Project Based Learning Terhadap Hasil Belajar Siswa Sekolah Dasar*. Edukatif: Jurnal Ilmu Pendidikan, 3(2), 496-504.

Rogers, J., & Revesz, A. (2020). *Experimental and quasi-experimental designs*. Routledge.

Sari, L. I., Satrijono, H., & Sihono, S. (2015). *Penerapan Model Pembelajaran Berbasis Projek (Project Based Learning) untuk Meningkatkan Hasil Belajar Keterampilan Berbicara Siswa Kelas VA SDN Ajung 03*. Jurnal Edukasi, 2(1), 11-14.

Setyowati, N., & Mawardi, M. (2018). *Sinergi Project Based Learning dan Pembelajaran Bermakna untuk Meningkatkan Hasil Belajar Matematika*. Scholaria: Jurnal Pendidikan Dan Kebudayaan, 8(3), 253-263.

Siagian, H., Pangaribuan, J. J., & Silaban, P. J. (2020). *Pengaruh Kemandirian Belajar terhadap Hasil Belajar Matematika Siswa di Sekolah Dasar*. Jurnal Basicedu, 4(4), 13631369.

Sugiyono. (2019). *Metode Penelitian Pendidikan (Kualitatif, Kuantitatif, Kombinasi, R&D, dan Penelitin Tindakan)*. Bandung. Alfabeta, cv.

Sugiyono. (2019). *Statistika untuk Penelitian (SUP)*. Bandung. Alfabeta, cv.

Susanto, A. 2014. *Teori Belajar dan Pembelajaran di Sekolah Dasar*. Jakarta : Kencana Prenanda Media Group.

Suzana, Y., Jayanto, I., & Farm, S. (2021). *Teori Belajar & Pembelajaran*. Jl. Sumedang No. 319, Cepokomulyo, Kepanjen, Malang. 65163. Literasi Nusantara.

Triwinarni, D., & Fauzi, M. (2017). *Pengaruh Kecerdasan Logika Matematika Terhadap Kedisiplinan Belajar Siswa Kelas V SD Negeri 1 Pagar Air Kabupaten Aceh Besar*. Jurnal Ilmiah Pendidikan Guru Sekolah Dasar, 2, 16-29.

Wahab, G., & Rosnawati, R. (2021). *Teori-teori Belajar dan Pembelajaran*. Indramayu. CV. Adanu Abimata.

Wahyudi. (2012). *Pemecahan Masalah Matematika*. Salatiga : Widya Sari Press

Winarti, N., Maula, L. H., Amalia, A. R., & Pratiwi, N. L. A. (2022). *Penerapan Model Pembelajaran Project Based Learning untuk Meningkatkan Kemampuan Berpikir Kritis Siswa Kelas III Sekolah Dasar*. Jurnal Cakrawala Pendas, 8(3), 552-563.

Wirantasa, U. (2017). *Pengaruh kedisiplinan siswa terhadap prestasi belajar Matematika*. Formatif: Jurnal Ilmiah Pendidikan MIPA, 7(1).

Wulandari, N., Nuvitalia, D., Nursyahidah, F., & Istikomah, A. (2023). *Analisis Implementasi*

Karakter Mandiri Melalui Project Based Learning (PJBL) Pada Pembelajaran Matematika Kelas IC di SD Supriyadi Semarang. Jurnal Pendidikan dan Konseling (JPDK), 5(2), 4934-4939.