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THE EFFECT OF LOCAL WISDOM-BASED PROJECT LEARNING MODEL ON CHARACTER AND OUTCOMES OF GRADE IV STUDENTS

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ABSTRACT

Study This aim For know the influence of learning models project based wisdom local to character and results Study Mathematics student class IV of State Elementary School 80 Kuri Lompo. In general specific, research This examine: 1) influence partial learning model to character students, 2) influence partial to results Study Mathematics, and 3) influence simultaneous to character and results Study Mathematics. Research use approach quantitative with type survey. A sample of 23 students taken total sampling. Data collected through observation, tests, questionnaires, and documentation, then analyzed using validity and reliability tests, as well as analysis statistics descriptive and inferential (t-test, regression, F-test, and coefficient determination) with SPSS assistance. Research results show implementation of Project Based Learning (PjBL) based on wisdom local implemented with good and impactful positive. Learning model This increase activeness, collaboration, independence, and character positive student like not quite enough answer, work equality, honesty, discipline, and independence. In addition, PjBL proven effective increase understanding draft number count, with an average value increase from 76.39 to 87.26 and the percentage completeness increase from 65% to 87%. Analysis inferential show influence significant this model to character and results Study in a way partial and simultaneous, affirming effectiveness PjBL based wisdom local in increase performance academic and character student.

1. INTRODUCTION

Education is investment important in build source Power human beings who play a role in progress social and economic public as well as nation. Education is carried out in a way conscious and planned For create environment learning that encourages participant educate develop potential, good from spiritual aspects, personality, intelligence, and morals noble (Ahmad Razak, 2018). National education

based on The 1945 Constitution and its values noble, purposeful form man faithful, creative, capable, and become democratic and responsible citizens answer.

The country has not quite enough answer fulfil right on education as arranged in Constitution Number 20 of 2003, which emphasizes creation environment learning and supporting learning processes development potential participant educate For interest self, society, nation, and state (Jalal, 2019). From the perspective society, education functioning as inheritance culture between generation For guard sustainability social (Nurviana, 2020). Meanwhile from perspective individual, education become a development process potential self, push independence, ability life, and fulfillment need personal (Ekasari et al., 2019).

View the originate from objective education that can experience changes, especially when associated with context Islamic teachings. In its comprehensive approach, Islam builds system education that is guided by the Koran and As-Sunnah. Through framework This, Islam fosters individuals to become a person who is faithful and has good morals noble, and civilized, so capable realize dignified society. The basis of theory This sourced from the word of Allah in the Koran. As Allah SWT says in QS At – Taubah verse 122 as following:

لِيَنْفِرُوْا كَاۤفَّةً ۗفَلَوْلَا نَفَرَ مِنْ كُلِّ فِرْقَةٍ مِّنْهُمْ طَاۤىِٕفَةٌ لِّيَتَفَقَّهُوْا فِى الدِّيْنِ وَلِيُنْذِرُوْا قَوْمَهُمْ اِذَا رَجَعُوْٓا اِلَيْهِمْ لَعَلَّهُمْ God وَمَا كَانَ يَحْذَرُوْنَ ع ﴿١٢٢﴾

Translation:

" *It is not appropriate for believers go all (to Medan war). Why part from every the group in between they No go (stay) with the Prophet) to deepen their religious knowledge and giving warning to his people if they has back, so that they can guard himself ?* "

Education aims develop intelligence, knowledge wide, and form moral person. Through education, individual Study differentiate between good and bad, thinking critical, and committed For act in a way ethical. As need basic, education also works guide, prepare discipline live, and build character nation through innovation learning. Transformative education expected capable form just, peaceful, globally - minded citizens, and enrich culture nation (Irawati et al., 2022). Not just teach skills technical, education play a role important in transformation value, formation personality and inheritance culture to generation successor to be ready face future challenges (Loloagin et al., 2023).

According to Thomas Lickona, character is disposition inner being that can reliable For respond situation morally, reflect identity formed self through accumulation attitude, pattern think and value ethical from experience (Mery et al., 2022). In education, formation character become part important from results learning, which is not only covers achievement academic but also attitudes, skills think critical, and moral values of participants students (Soraya, 2020). Learning outcomes reflect change behavior in the realm cognitive, affective, and psychomotor as results interaction between activity Study students and teacher teaching (Somayana, 2020). Head school hold role important as leaders and agents change, determine direction policy, giving role model, and weave Work The same professional with inhabitant school. Success leadership head school determined by intelligence intellectual, ability related social, encouragement achievement and ability harmonious coordination (Mulyadi et al., 2020). For reach results optimal learning is required approach effective and relevant learning with context social as well as culture participant educate, one of them learning based wisdom local wisdom local that reflects values, traditions, and customs public can strengthen character and identity participant educate, at the same time grow a generation that is knowledgeable, has character, and is rooted in values sublime nation.

Based on observation early in Elementary School 80 Kuri Lompo for students class IV, found a number of problem in learning mathematics, including: results learning is not optimal because difficulty understand draft base, low participation and creativity students, as well as domination method

conventional that makes student passive and tend to memorizing. In addition, motivation Study low consequence monotonous methods and limited facilities, so that ability think critical and creative student Not yet develop in a way maximum. Teachers also face challenge in designing effective and integrated learning theory with practice optimally. Based on findings, conditions Learning at SD Negeri 80 Kuri Lompo requires an innovative, interactive, and contextual model. The Project-Based Learning (PJBL) model is becoming alternative appropriate Because No only transfer knowledge, but also develop skills practical, collaborative, entrepreneurial, and relevant problem-solving skills with need industry. Therefore that, the findings This become base study about the influence of PJBL on character and results Study mathematics student class IV.

PJBL is implemented in context The Independent Learning Curriculum emphasizes formation character and morals noble, and development communication, talent, and intelligence participant educate to be ready work and useful for society (Marisa, 2021). This model present innovation in learning with utilise problem as the core of the activity learn, train ability solution problem, forming discipline, and encourage student more active as well as creative, so that experience Study become more interesting and meaningful (Anggraini & Wulandari, 2020).

Culture local as identity nation now threatened by progress technology and information, which reduces interest society, including participant educate, in preserve culture (Annafi & Agustina, 2018). One of the solution is learning mathematics based wisdom local, which utilizes knowledge, skills, values, and customs local For develop potential participant educate as well as instill a sense of pride to identity culture. Integration of wisdom local through the Project-Based Learning (PJBL) model, it allows student understand draft mathematics in a way contextual, at the same time develop skills think critical thinking, creativity, collaboration, and communication. Urgency study This lies in the importance of PJBL based on wisdom local For increase results learning, motivation, and shaping individual smart, skilled, and characterful in accordance objective education national.

2. METHODS

This study uses a quantitative approach with a survey type to test the effect of the local wisdom-based project learning model (X) on the character (Y1) and mathematics learning outcomes (Y2) of fourth-grade students of SD Negeri 80 Kuri Lompo. The study was conducted in March 2025 with a population of 23 students who were sampled by total sampling. The research instruments included an observation sheet (scale 1–4) to measure the implementation of PBL, a 5-point Likert scale questionnaire (1–5) for character indicators and model implementation, and a mathematics learning outcome test compiled based on the related KD grid (PG/descriptive questions). Item validity was tested using Pearson Product Moment correlation (SPSS), reliability was tested using Cronbach's Alpha ($\alpha > 0.60$), and data analysis involved descriptive statistics (percentage & mean) and inferential: normality test (K–S or Shapiro–Wilk according to n), linearity test, simple linear regression (X→Y1; X→Y2), t-test for coefficients, F-test for model significance, and coefficient of determination (R^2). The results are presented in descriptive tables, validity/reliability outputs, regression tables (R, R^2, F, B, t, p), scatter graphs/regression lines, as well as discussions of implications and limitations of the study.

3. RESULTS AND DISCUSSION

This research was conducted at SD Negeri 80 Kuri Lompo in the fourth grade mathematics subject with seven meetings, where the first meeting was used for a pretest to measure students' initial abilities, meetings 2–6 implemented a project-based learning model to develop creativity, cooperation, and application of mathematical concepts, and the last meeting was used for a posttest to assess improvements in learning outcomes.

Description of Observation Results

Table 1. Results of Observations on the Implementation of Learning in Meetings I – VII

Meeting	Average Score	Category	Information Criteria
I	3.38	Very well executed	$2.5 < x \leq 3.5$
II	3.42	Well executed	$2.5 < x \leq 3.5$
III	3.42	Well executed	$2.5 < x \leq 3.5$
IV	3.33	Well executed	$2.5 < x \leq 3.5$
V	3.42	Well executed	$2.5 < x \leq 3.5$
VI	3.38	Well executed	$2.5 < x \leq 3.5$
VII	3.29	Well executed	$2.5 < x \leq 3.5$
Average	**3.37**	**Well executed**	**$2.5 < x \leq 3.5$**

Source: Processed data, 2025

Based on the results of observations during seven meetings, the average score for the implementation of learning was 3.37, categorized as "implemented well." In the first meeting (pretest), learning still used conventional methods with a score of 3.38, indicating that the teacher was able to carry out the learning process even though student participation was still limited. From the second to the sixth meeting, when the Project-Based Learning (PjBL) model was implemented, the score ranged from 3.33–3.42, indicating that students began to be more active, creative, and involved in the project, although there were variations in participation between groups and challenges in developing complex projects. In the seventh meeting (posttest), the score of 3.29 still indicated a good category, although it decreased slightly due to student boredom. Overall, the implementation of PjBL had a positive impact on the implementation of learning, student activity, and involvement in the learning process.

Figure 1. Implementation Activities Project-Based Learning (PjBL) Model

Description Student Character Pre-Test and Post-Test

Table 2. Analysis Student Character Statistics

Statistical Analysis	Pretest	Posttest
Mean	81.74	85.09
Median	81	85
Mode	75	85
Standard Deviation	4,901	3,489
Variance	24,020	12,174
Range	15	11
Minimum Score	75	79
Maximum Score	90	90

Source: Processed data, 2025

Based on table the seen existence improvement mark character student after implementation of learning models based project (PjBL). Average (mean) value character students increased from 81.74 in the pretest to 85.09 in the posttest. The median and mode values also experienced increase, from 81 and 75 respectively on the pretest to 85 on the posttest. In addition, the range value (range) narrows from 15 to 11, which shows that distribution mark character student the more evenly. Decrease mark standard deviation and variance also show that distribution mark character student after treatment more consistent. With Thus, the application of the PjBL model give influence positive to development character student class IV.

As for the categorization character student class IV before (pretest) and after given treatment (posttest) can seen in the following table and diagram:

Table 3. Categorization Character Student Class IV

No	Interval	Category	Pretest		Posttest	
			Frequency	Percentage	Frequency	Percentage
1	< 75	Very less	0	0%	0	0%
2	75 – 78	Not enough	8	35%	0	0%
3	79 - 81	Enough	4	17%	4	17%
4	82 – 85	Good	4	17%	9	39%
5	86 – 90	Very good	7	31%	10	44%
Total			**23**	**100%**	**23**	**100%**

Source: Processed data, 2025

Based on the table above seen existence improvement category mark character student after application of learning models based project (PjBL). At the pretest stage, some big student is in the "Less" category, namely as many as 8 students (35%), and only 7 students (31%) entered in "Very Good" category. After given treatment, no There is Again students who are included "Less" category, while amount students in the "Very Good" category increased to 10 students (44%). In addition, the number

of student in The "Good" category also experienced increase Enough significant, from 4 students (17%) to 9 students (39%). Findings This show that implementation PjBL based wisdom local capable give influence positive in form as well as increase character student class IV in general comprehensive.

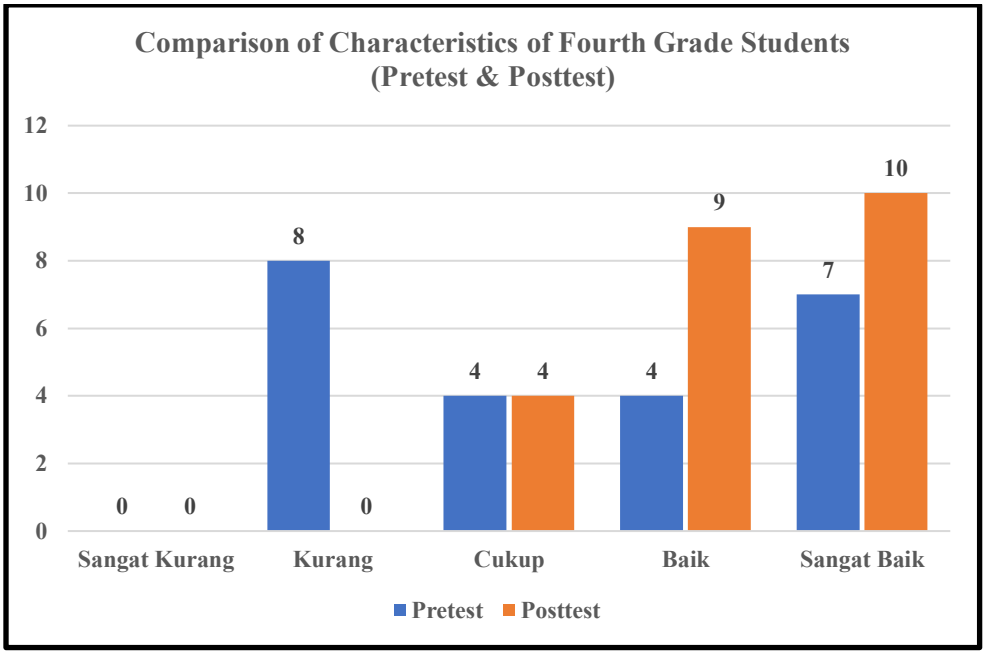

Figure 2. Comparison Diagram Characteristics of Grade IV Students

Description of Pre-Test and Post-Test Learning Results

Table 4. Statistical Analysis of Grade IV Students

Statistical Analysis of Fourth Grade Students	Pretest	Posttest
Mean	76.39	87.26
Median	81	82
Mode	82	82
Standard Deviation	15,864	10,665
Variance	245,976	113,747
Range	58	38
Minimum Score	42	62
Maximum Score	100	100

Source: Data processed by SPSS, 2025

Based on the data obtained, it can be concluded that the implementation of the Project Based Learning method has a positive effect on student learning outcomes. This is indicated by an increase in the average score from the previous value to 87.26, with a median and mode value of 82, indicating the consistency of student achievement around that score. The range of values of 38 (minimum score of 62 and maximum of 100) indicates a narrower variation in scores compared to the pretest. In addition, a decrease in the standard deviation to 10.665 and variance of 113.747 indicates an even distribution of student learning outcomes, so this method is effective in improving student understanding and engagement in learning.

Table 5. Learning Outcomes of Class IV

No	Interval	Category	Pretest		Posttest	
			Frequency	Percentage	Frequency	Percentage
1	< 55	Very Low	3	13%	0	0%
2	55 – 65	Low	3	13%	1	4%
3	65 – 79	Currently	2	9%	2	9%
4	80 – 89	Tall	10	43%	9	39%
5	90 – 100	Very high	5	22%	11	48%
Total			**23**	**100%**	**23**	**100%**

Source: Processed data, 2025

Based on the distribution of grade categories, it can be concluded that the implementation of the Project Based Learning method effectively improves the learning outcomes of fourth-grade students at SD Negeri 80 Kuri Lompo. After the treatment, the majority of students were in the very high (48%) and high (39%) categories, while the number of students in the low and very low categories decreased drastically to 4% and 0%, respectively. This indicates a significant increase in students' understanding of whole numbers and a better distribution of academic achievement.

Figure 3. Process Implementation of Pretest

A visual depiction of distribution category results Study students at the pretest stage can seen more complete in the diagram below This.

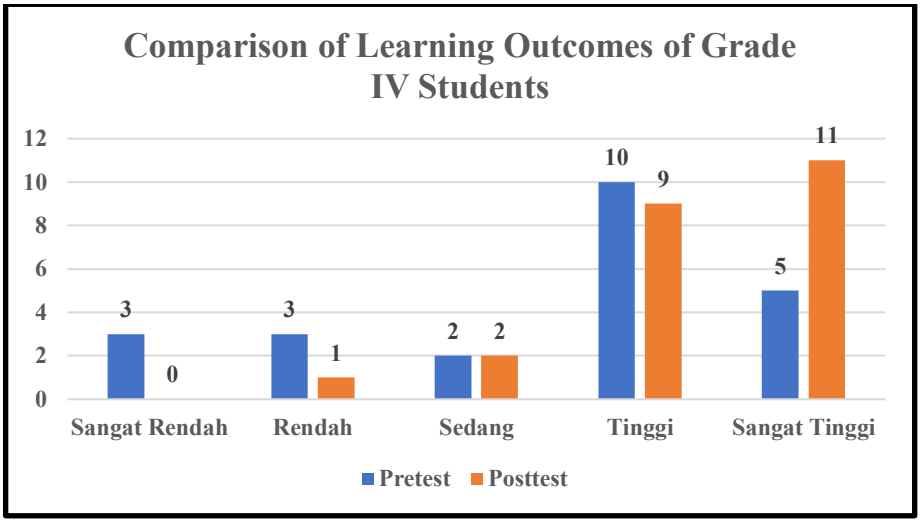

Figure 4. Comparison diagram of learning outcomes of fourth grade students

Table 6. Criteria Minimum Graduation Learning Outcomes for Class IV

Criteria	Mark	Pretest		Posttest	
		Frequency	Percentage	Frequency	Percentage
Passed	≥ 75	15	65%	20	87%
Not pass	< 75	8	35%	3	13%
Total		**23**	**100%**	**23**	**100%**

Source: Processed data, 2025

Based on the KKM achievement data, it can be concluded that the implementation of the Project Based Learning method is effective in improving the learning outcomes of fourth grade students. Before the treatment, as many as 65% of students achieved the KKM, while after the treatment it increased to 87%, with only 13% of students not achieving the KKM. This shows that the majority of students are able to understand the material on whole numbers well, so this method is proven to improve academic achievement and the achievement of the KKM in the class.

Figure 5. Posttest Implementation Process

A visual depiction of comparison graduation students at the pretest and posttest stages can seen more complete in the diagram below This.

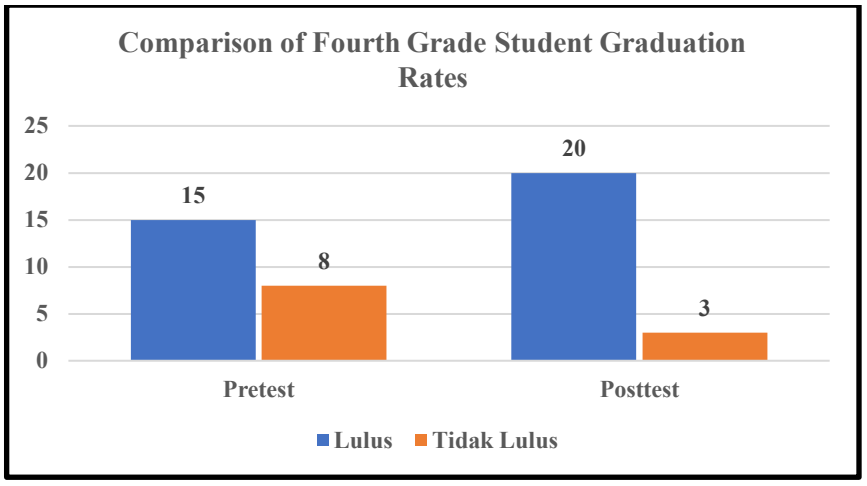

Figure 6. Comparison Diagram of Fourth Grade Student Graduation

Prerequisite Test

Table 7. Normality Test Results

Learning outcomes	Significance	
	Kolmogorov-Smirnov	Shapiro-Wilk
Pretest	0.001	0.086
Posttest	0.068	0.164

Source: Processed data, 2025

Based on the table above, it shows that the data results posttest own mark significance of 0.068 (Kolmogorov-Smirnov) and 0.164 (Shapiro-Wilk), both of which more big of 0.05. This is show that the posttest data normally distributed. Meanwhile that, the pretest results show mark significance of 0.001 (Kolmogorov-Smirnov) which is higher small than 0.05, but in the Shapiro-Wilk test the value is 0.086, which is more big of 0.05. Because the number of sample not enough than 50, then the Shapiro-Wilk test is more appropriate used, so that can concluded that both pretest and posttest data posttest normally distributed and meets assumptions For statistical tests were conducted parametric.

Table 8. Results of Homogeneity Test

Variables	Significance Value
Student Character	0.138
Learning outcomes	0.443

Source: Processed data, 2025

The table above shows that the significance value for the student character variable is 0.138 and for learning outcomes is 0.443. Because both significance values are greater than 0.05, it can be concluded that the data meets the assumption of homogeneity of variance, meaning there is no significant difference

in variance between groups. Therefore, the MANOVA test can be conducted because the assumption of homogeneity is met for both variables.

Table 9. Partial Test Results

Class	Variables Dependent	F	Significance
Pretest – Posttest	Student Character	7,122	0.011
	Learning outcomes	7,554	0.009

Source: Processed data, 2025

Based on the table above show that there is significant influence in a way partial from learning model treatment to second variables dependent, namely character students and results Study mathematics. For variables character students, obtained F value = 7.122 with significance of 0.011, and for results Study mathematics, obtained F value = 7.554 with significance of 0.009. Because both mark significance the more small from level significance 0.05, then can concluded that learning model project based wisdom local influential in a way partial to character and results Study students. With Thus, the results This support and strengthen hypotheses H1 and H2, namely:

a. H1 is accepted, because the learning model project based wisdom local proven influential to character student Class IV of State Elementary School 80 Kuri Lompo.

b. H2 is also accepted, because the learning model the influential significant to results Study mathematics students in the same class.

In a way overall can concluded that learning model project based wisdom local influential significant to character and results Study mathematics student Grade IV of State Elementary School 80 Kuri Lompo. Partial test results show that treatment the impact real to second variables dependent, with mark the significance of each is greater small from 0.05. so that can it is said that application of learning models This effective No only in increase results academic, but also in form character student in a way positive.

Table 10. Simultaneous Test Results

Multivariate Tests [a]		
Effect		**Significance**
Intercept	Pillai's Trace	.000
	Wilks' Lambda	.000
	Hotelling's Trace	.000
	Roy's Largest Root	.000

Source: Processed data, 2025

Based on the table above, it shows that the significance value for all testing methods, namely Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root, is 0.000. This value is consistently far below the significance level of 0.05, which means that the results are statistically significant. Thus, it can be concluded that there is a simultaneous significant influence of the local wisdom-based project

learning model on both dependent variables, namely student character and mathematics learning outcomes. This finding indicates that the application of the PJBL learning model is not only effective in improving students' cognitive achievements but also contributes to strengthening affective aspects such as character formation. Therefore, hypothesis H3 is accepted, which states that the local wisdom-based project learning model has a simultaneous influence on character development and learning outcomes of fourth-grade students of SD Negeri 80 Kuri Lompo.

4. CONCLUSIONS AND SUGGESTIONS

Based on the results of research on the influence of the local wisdom-based project learning model on the character and Mathematics learning outcomes of fourth-grade students of SD Negeri 80 Kuri Lompo, it can be concluded that the implementation of the local wisdom-based Project Based Learning (PjBL) model was well implemented and had a positive impact. This learning encourages students to be more active, collaborative, and independent, while improving positive character traits such as responsibility, cooperation, honesty, discipline, and independence. In addition, PjBL has proven effective in improving the understanding of the concept of whole numbers, indicated by an increase in the average score from 76.39 to 87.26, an increase in the percentage of students who completed the course from 65% to 87%, and a more even distribution of scores. Overall, the local wisdom-based project learning model has a significant influence on the character and Mathematics learning outcomes of students, both partially and simultaneously, with a significance value below 0.05, thus proving its effectiveness in forming positive character while improving students' academic achievement as a whole.

Based on the research, it is recommended that SD Negeri 80 Kuri Lompo continue implementing and developing the Project-Based Learning (PjBL) model, based on local wisdom, to improve mathematics understanding and foster positive student character. Furthermore, researchers and curriculum developers are expected to conduct further research and curriculum development so that PjBL can be implemented more widely with guaranteed effectiveness in both academic and character aspects.

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