

## **The Effect of a Problem-Based Learning Model Supported by the Wordwall Media on The Science Learning Outcomes of Fifth-Grade Students at Santo Ignatius Private Elementary School in Medan Academic Year 2025/2026**

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**Keywords:**

Problem-Based Learning assisted  
by Wordwall Media; Learning  
Outcomes; Science.

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**ABSTRACT**

This study aims to determine the effect of the Problem Based Learning (PBL) model assisted by Wordwall media on the learning outcomes of fifth-grade students of Santo Ignatius Private Elementary School, Medan, in the 2025/2026 academic year. This study was motivated by the low student learning outcomes caused by the use of learning models that do not involve students' activeness and critical thinking skills in the learning process. This study used a pre-experimental method with a One Group Pretest-Posttest Design. The sample in this study amounted to 28 students. Data collection techniques used observation, learning outcome tests, questionnaires and documentation. Data analysis was carried out through normality tests and hypothesis tests using the Wilcoxon Signed-Rank Test. The results showed that the average pretest score was 72.5 and the average posttest score was 89.1, resulting in an increase of 16.6. The results of the normality test showed that the data were normally distributed. Furthermore, the results of the hypothesis test used the Wilcoxon Signed-Rank Test. The test results showed a significance value of 0.000 ( $p < 0.05$ ), indicating a significant difference between the pretest and posttest scores. Thus,  $H_0$  is rejected and  $H_a$  is accepted, indicating that the Problem-Based Learning model assisted by Wordwall media has an effect on the science learning outcomes of fifth-grade students at Santo Ignatius Private Elementary School, Medan, in the 2025/2026 academic year.

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### **INTRODUCTION**

Education is an important process in improving the quality of human resources through the development of students' knowledge, skills, attitudes, and character. At the elementary school level, the learning process is expected to be able to form students who are active, creative, critical, and able to solve problems in daily life. 21st century learning also requires teachers to create student-centered learning by utilizing innovative learning models and media so that learning goals can be achieved optimally. In this regard, Ayunopiasari, et al. (2024) states that innovative learning can increase student participation and engagement in the learning process.

Social studies learning in elementary school is expected to help students understand the surrounding environment, improve critical thinking skills, and practice problem-solving skills. Therefore, IPAS learning should be carried out actively, interactively, and contextually

so that students not only receive the material, but also be able to discover and understand concepts through hands-on learning experiences. In this regard, Putri, et al. (2024) stated that social studies learning needs to be actively and meaningfully designed so that students are able to understand concepts optimally.

Learning is a process of interaction between students and educators and learning resources in a certain learning environment (Dwi et al., 2025; Erlina et al., 2021). This process is consciously and systematically designed to achieve the learning goals that have been set. Learning is not only oriented to the delivery of material, but also to efforts to build an active, creative, effective, and fun learning experience, thus learning places learners as the main subjects who actively build their own understanding through thinking, discussing, observing, trying, and reflecting activities. In this regard, Law Number 20 of 2003 article 1 paragraph (20) states that learning is the process of interaction between students and educators and learning resources in a learning environment.

Furthermore, Munif (2012) in Hasnul and Madona (2018) He said that learning is a two-way process of knowledge transfer, between teachers as informants and students as recipients of information. Furthermore, Nugrahini and Margunani (2015) in Astusi, et al. (2025). stating that good learning is usually seen from the atmosphere of the classroom and the interaction between teachers and students. Teachers play an important role in education, especially in selecting and designing the right learning tools, such as lesson plans, syllabus, proms, curriculum, and learning media. After choosing the right learning tools, teachers must be varied and innovative in choosing learning media, so that students can easily understand and understand the delivery of material provided by teachers.

Natural and Social Sciences (IPAS) is important for students. Social studies learning is relevant in the 21st century, because it teaches problem-solving and understanding human and environmental interactions, thus enabling students to develop the skills needed to face future challenges. Learning outcomes from learning science include a better understanding of scientific and social concepts, as well as the ability to apply such knowledge in daily life. The role of educators is crucial in the learning outcomes of IPAS, they create an interactive environment and encourage active participation. In this regard, Muthmainnah, dkk. (2025) stated that the role of educators is needed in order to improve the quality of education and develop 21st century skills.

This research gap is further evidenced by the prevalence of lecture-based instruction, which fails to provide students with hands-on, meaningful learning experiences. As a result, students are often unable to connect abstract scientific concepts to their everyday lives, limiting their ability to achieve optimal learning outcomes. The problem is compounded by a lack of variation in learning media, which diminishes student motivation and engagement. The urgency of this research, therefore, lies in its potential to address these foundational pedagogical deficits by introducing and testing an integrated instructional approach that combines an active learning model with innovative digital media (Sigh et al., 2025; Olympian et al., 2024).

Learning outcomes are evidence of the teaching and learning behaviors and processes that students receive in the classroom. Evidence can be seen in the changes in abilities that have been experienced in the learning process. Learning outcomes are an attitude shown by students that are produced through the values obtained through the learning process. In this

regard, Stuart (2019) said that learning outcomes are changes in behavior or competencies (attitudes, knowledge and skills) that students acquire after going through learning activities. It refers to changes in students' knowledge, understanding, attitudes and skills so that they become better than before.

One of the learning models that is expected to be able to improve student learning outcomes is the Problem Based Learning (PBL) (Anisah et al., 2024; Delsi, 2021). The model emphasizes learning through real problem solving so that students can think critically, collaborate, actively discuss, and be able to find solutions to given problems. In this regard, Rahayu, et al. (2024) states that the Problem Based Learning able to improve student activities and learning outcomes because students are directly involved in the learning process.

In addition to the PBL model, learning media is also expected to be able to support the success of the teaching and learning process. One of the digital media that can be used is Wordwall (Aeni et al., 2022; Rahma et al., 2025). Media Wordwall It is expected to create an interesting, fun, interactive, and able to increase student learning motivation through various educational games. In this regard, Ayunopiasari, et al. (2024) states that the use of media Wordwall Able to increase students' interest and motivation to learn because learning becomes more interactive and fun.

Wordwall is one of the media that can be used to make interactive learning. Media based Copyright © It can be used to create learning media such as quizzes, matchmaking, pairing couples, word randomization, word search, grouping, and so on. In this regard, Retno, et al. (2024) stating that one of the media that can be used to support an innovative and varied learning process is Wordwall, this media is a media in the form of platform which has many variations of games including, quizzes, random cards, crossword and so on. Wordwall is an interactive learning medium that can be used to increase student involvement in the learning process. This medium allows students to actively learn fun with and in a way that is not boring. Therefore, Wordwall It will be very helpful to increase student learning motivation which will later affect student learning outcomes. In this regard, research conducted by Lubis and Nuriadin (2022) states that the media Wordwall has a significant effect on improving student learning outcomes as shown by an average score of 79.67 out of 100. This means that there is a significant difference between classes that use media Wordwall with classes that use conventional methods.

However, in reality, the results of preliminary research in the form of interviews with grade V teachers of Santo Ignatius Private Elementary School Medan, raised the following 7 problems: (1) science learning is still dominated by conventional methods. (2) students are less active and less involved in the learning process. (3) students' critical thinking and problem-solving skills are still low. (4) the use of learning media is still limited and less varied. (5) the learning outcomes of social studies for grade V students are still relatively low. (6) the application of the Problem Based Learning model has not been optimal. (7) Wordwall media has not been utilized optimally in learning.

## **METHOD**

Research methods were scientific methods or steps used by researchers to obtain data and information to answer the formulation of research problems. The research method is systematically arranged so that the research process runs in a directional, planned, and

produces conclusions that can be scientifically accounted for. In this regard, Meikardo and Ginting (2024) said that research methods are frameworks used to collect, analyze, and interpret data in order to answer research questions or achieve certain research objectives.

This study uses a quantitative method. In this regard, Kozleski (2017) in Meikardo and Ginting (2024) said that quantitative methods are scientific approaches that aim to collect data that can be measured numerically, and analyze them using statistical techniques. Approach pre-experimental is used because this study aims to test the influence of the use of the model Problem Based Learning media-assisted Wordwall to student learning outcomes through data analysis in the form of statistically processed numbers. In experimental research, the researcher provides a treatment (treatment) to find out its effect on the bound variable.

Meikardo and Ginting (2024) said that experimentation is one of the main methods in quantitative research that allows researchers to explore cause-and-effect relationships between certain variables. The researcher's experiment deliberately manipulated one or more independent variables and observed the impact on the dependent variable. In this study, the researcher intends to test the influence of the model Problem Based Learning media-assisted Wordwall (X) to learning outcomes (Y).

## RESULTS AND DISCUSSION

### Descriptive Statistical Analysis

Descriptive statistical analysis was carried out to describe the learning outcomes of social studies of grade V students before and after the application of *the Problem Based Learning* model assisted by *Wordwall media*. The data analyzed included the number of students, minimum score, maximum score, mean, and standard deviation. The data can be shown in the form of Table 1 as follows:

**Table 1. Descriptive Statistical Analysis**

Yes	Statistics	Pretest	Post-test
1	Number of students (N)	28	28
2	Minimum score	55	70
3	Maximum value	90	100
4	Track-Track (Mean)	72,5	89,1
5	Standard deviation	9,670	8,057

### Description of Value Data

#### Observation Results

Observations were made to determine the implementation of IPAS learning using the *Problem Based Learning model assisted by Wordwall media* in class V A SD Santo Ignatius Private School Medan. Observation data was obtained through observation sheets of teacher and student activities during the learning process. The results of the observations were analyzed in the form of percentages to determine the level of learning implementation which is then presented in Table 2 as follows:

**Table 2. Observation Results**

Aspects observed	Scores Obtained	Maximum Score	Percentage	Category
Student Activities	38	40	90,00%	Excellent
Teacher Activities	50	52	96,15%	Excellent

Based on Table 2, the results of observation of student activities during the IPAS learning process using *the Problem Based Learning* model assisted by *Wordwall media*, a total score of 38 out of a maximum score of 40 was obtained. The results show a percentage of 95.00% and are included in the very good category. This shows that students actively and enthusiastically participate in learning activities. Students pay attention to the teacher's explanations, are involved in the use of *Wordwall media*, and are able to participate in learning activities according to the steps that have been planned.

Based on the results of observation of teachers' activities during the implementation of IPAS learning using *the Problem Based Learning* model assisted by *Wordwall media*, a total score of 50 was obtained from a maximum score of 52. The percentage of learning implementation reached 96.15% and was included in the very good category. These results show that teachers have carried out the learning process in accordance with the teaching modules that have been prepared. Teachers are able to manage the classroom well, convey material clearly, and utilize *the Problem Based Learning* model with the help of *Wordwall media* effectively.

It was concluded that the observation results showed that the implementation of IPAS learning using *the Problem Based Learning* model assisted by *Wordwall media* went very well. This is shown by the percentage of student activity of 95.00% and teacher activity of 96.15%. Thus, the *Problem Based Learning model assisted by Wordwall media* can be used well in supporting the IPAS learning process in class V and is able to create an active and interesting learning atmosphere for students.

### Student Pretest Results

In the first step, the researcher gave a pretest to 28 students in class V before learning. The following are the results of the *Pretest* for grade V students of Santo Ignatius Private Elementary School Medan. To find out the level of students' initial understanding before the application of *the Problem Based Learning* method assisted by *Wordwall media* in the subject of IPAS Eye Parts and Functions, measurements were carried out through a *pretest* consisting of 20 multiple-choice questions. *The pretest* was given to 28 students with a score range of 0-100. The results obtained were then categorized into four categories, namely Very Good (86-100), Good (76-85), Adequate (66-75), and Need Guidance ( $\leq 65$ ). Then the data acquisition is made into Table 3 of the following frequency distribution list:

**Table 3. Frequency Distribution of Student Pretest Results**

X	F	FX	$X - \bar{X}$	$(X - \bar{X})^2$	$F(X - \bar{X})^2$
55	2	110	-17,5	306,25	612,50
60	1	60	-12,5	156,25	156,25
65	8	520	-7,5	56,25	450,00
70	4	280	-2,5	6,25	25,00
75	2	150	2,5	6,25	12,50
80	6	480	7,5	56,25	337,50
85	4	340	12,5	156,5	625,00
90	1	90	17,5	306,25	306,25
	$\Sigma=28$	$\Sigma FX= 2.030$		$\Sigma X^2 = 1.050,25$	$\Sigma FX^2 = 2.525$

Based on the data above, the mean, standard deviation and standard error are as follows:

a. Track-Track (Mean)

$$\bar{X} = \frac{\sum FX}{N}$$

Description:

$\bar{X}$  = Track-Track (mean)

$\sum FX$  = the sum of the multiplication of frequency by the score

N = number of samples or number of frequencies

$$\bar{X} = \frac{\sum FX}{N}$$

$$\bar{X} = \frac{2030}{28}$$

$$\bar{X} = 72,5$$

b. Standard Devastation

$$SD = \sqrt{\frac{\sum f((X-\bar{X})^2)}{N-1}}$$

Description:

S = Standard Devastation

F = Frequency

X = Score or value

$\bar{X}$  = Average

$(X-\bar{X})^2$  = The square of the difference between the score and the mean

$\sum f(X-\bar{X})^2$  = The sum of the multiplication of frequencies by the square of the difference between the score and the mean

N = Number of samples

N-1 = Derajat kebebasan (*Degree of Freedom*)

$$SD = \sqrt{\frac{\sum f(X-\bar{X})^2}{N-1}}$$

$$SD = \sqrt{\frac{2525}{27}}$$

$$SD = \sqrt{93,52}$$

$$SD = 9,67$$

c. Standard Error

$$SE = \frac{S}{\sqrt{N}}$$

Description:

SE = *Standard error of the mean* (Mean Searched)

S = Standard deviation of the sample studied

N = Number of samples

$\sqrt{N}$  = Square root of the number of samples

$$SE = \frac{S}{\sqrt{N}}$$

$$SE_m = \frac{9,67}{\sqrt{28}}$$

$$SE_m = \frac{9,67}{\sqrt{5,29}}$$

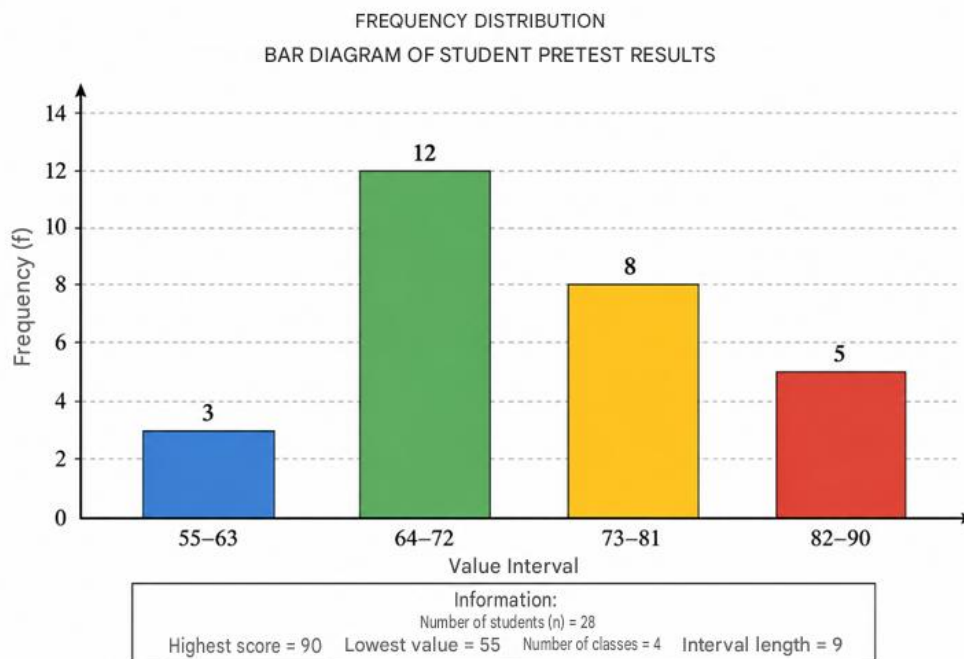
$$SE_m = 1,83$$

Based on the results of descriptive statistical analysis of pretest data on 28 students, an average score (mean) of 72.5, standard deviation of 9.67, and standard error of 1.83 were obtained. The mean value shows that the student's initial ability before being given treatment is in the sufficient category. The standard deviation obtained showed that there was a moderate variation in students' abilities, while a relatively small standard error showed that the sample average was quite representative in describing the population. In general, the results of the pretest show that the student's initial ability is still at a moderate level before being given learning treatment.

**Table 4. Interval of Learning Objective Achievement Criteria**

No	Interval Classes	Frequency	Percentage (%)	Cumulative Frequency	Category
1	≤ 65	11	39,3%	11	Need Guidance
2	66 – 75	7	25,0%	18	Enough
3	76 – 85	9	32,1%	27	Good
4	86 – 100	1	3,6%	28	Excellent
Quantity		28	100		

Based on Table 4 frequency distribution, it can be seen that of the 28 students who took the *pretest* of the science subject of Eye Parts and Functions, as many as 11 students (39.3%) were in the Need for Guidance category, as many as 7 students (25.0%) were in the Sufficient category, as many as 9 students (32.1%) were in the Good category, and only 1 student (3.6%) was in the Very Good category. The average score of the pretest obtained was 72.5, which is included in the Adequate category. This shows that students' initial understanding of the Eye Parts and Functions material before the implementation of the *Problem Based Learning* method assisted by *Wordwall* media is still relatively low and needs to be improved through a more effective learning process.



**Figure 1. Frequency Distribution Diagram of Student Pretest Results**

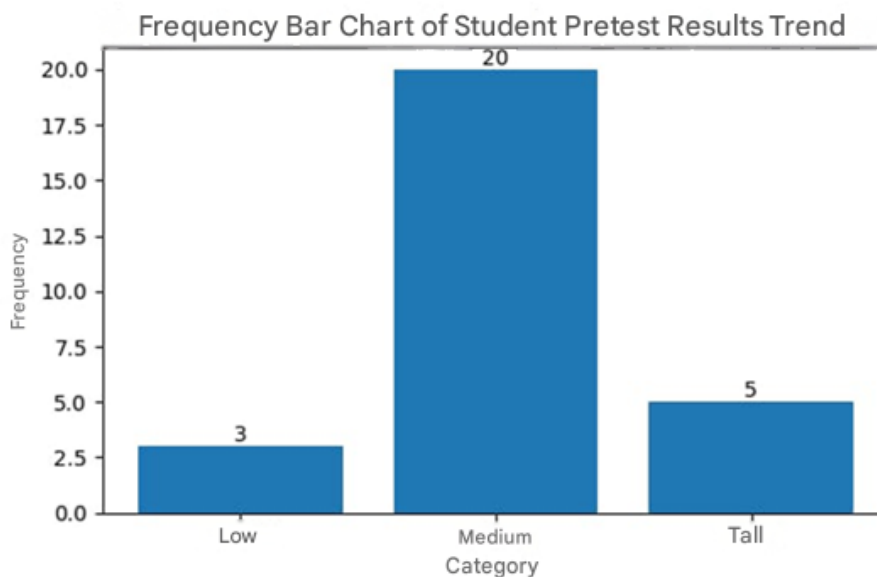
Next, a tendency test was carried out on the results of the *pretest scores*. The data for performing the tendency test are the average result value and the standard deviation. The

average value (M) is 72.5 and the standard deviation result (SD) is 9.67, so the tendency test for the *pretest* results in Table 5 is as follows:

**Table 5. Results of *Students' Pretest Tendencies***

No	Value Interval	Frequency	Percentage	Category
1	$X \geq 82,17$	5	17,86%	Height
2	$62,83 \leq X < 82,17$	20	71,43%	Medium
3	$X < 62,83$	3	10,71%	Low
Quantity		28	100%	

Based on the tendency test of *pretest results*, as many as 5 students (17.86%) were in the high category, 20 students (71.43%) were in the medium category, and 3 students (10.71%) were in the low category. Thus, the tendency of students' *pretest* results is in the medium category because it has the highest frequency and percentage, which is 71.43%, so it can be illustrated in the following bar chart:



**Figure 2. Frequency Diagram of *Tendency of Student Pretest Results***

Based on the bar chart of the frequency of the tendency of *students' pretest results*, the medium category has the highest frequency, namely 20 students (71.43%), followed by the high category as many as 5 students (17.86%) and the low category as many as 3 students (10.71%). This shows that students' initial abilities before being given treatment tend to be in the medium category.

### **Student *Post-test* Results**

After the learning material is taught with the *Problem Based Learning* model assisted by *Wordwall* media, then the researcher provides a *post-test* which aims to find out the level of success given. Based on the results of *post-test* data after the application of the *Problem Based Learning* (PBL) model assisted by *Wordwall* media on 28 students, an average score (mean) of 89.11, a standard deviation of 8.06, and a standard error of 1.52 were obtained. The high average score shows that student learning outcomes after participating in learning with the PBL model assisted by *Wordwall media* are in the very good category. A relatively small standard deviation indicates that the distribution of students' scores tends to be homogeneous, while a low standard error value indicates that the sample average is fairly representative in describing

the population condition. Thus, the application of the PBL model assisted by *Wordwall* media showed high and relatively even learning outcomes in students.

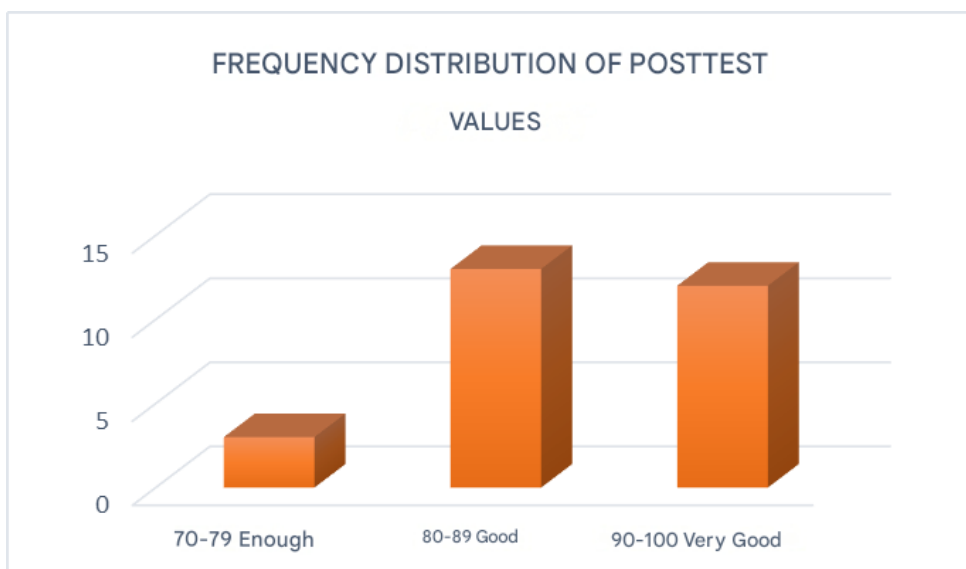
**Table 6. Interval of Learning Objective Achievement Criteria**

No	Interval Classes	Frequency	Percentage (%)	F. Cumulative	Category
1	70-79	3	10,7%	3	Enough
2	80-89	13	46,4%	16	Good
3	90-100	12	42,9%	28	Excellent
Quantity		28	100%	-	

Based on Table 6 Interval of Learning Goal Achievement Criteria, it can be seen that of the 28 students who took the *post-test* of the Science subject of Eye Parts and Functions, as many as 12 students (42.9%) obtained scores in the Very Good category with a score range of 90-100, as many as 13 students (46.4%) were in the Good category with a score range of 80-89, and as many as 3 students (10.7%) were in the Fair category with a score range of 70-79. No students received a score in the Less or Very Less category. The average score obtained by all students was 89.1, which is included in the Good category.

These results show that most of the students, namely 89.3%, have been able to understand the Parts and Functions of the Eye material well and very well after participating in the learning process using *the Problem Based Learning* method assisted by *Wordwall* media. This achievement is inseparable from the role of *the Problem Based Learning* method which encourages students to actively think critically in solving problems related to parts and functions of the eye, so that students' understanding is built in a more meaningful way. In addition, the use of *Wordwall* media as an interactive learning medium also contributes positively to increasing student motivation and involvement during the learning process, because students can learn while playing in a fun way.

Thus, the application of *the Problem Based Learning method* assisted by *Wordwall media* in the learning of IPAS material Parts and Functions of the Eyes has been proven to be effective in improving student understanding, which is characterized by the acquisition of an average score of 89.1 and the majority of students are in the Good and Very Good categories. The results of *the students' post-test* in the science subject of Eye Parts and Functions after the application of *the Problem Based Learning* method assisted by *Wordwall media* can be visualized through the following bar diagram. The diagram depicts the distribution of the number of students based on three categories of grades obtained, namely Adequate (70-79), Good (80-89), and Very Good (90-100).



**Figure 3. Post-test Score Frequency Distribution Diagram**

Based on the bar chart above, it can be seen that the Good category is the category with the highest number of students, namely 13 students (46.4%), followed by the Very Good category with 12 students (42.9%), and the Fair category with 3 students (10.7%). No students are in the Less or Very Less category. This shows that the application of *the Problem Based Learning* method assisted by *Wordwall media* has a positive impact on students' understanding of the Eye Parts and Functions material, so that most students are able to achieve good and excellent learning results at the time the post-test is carried out. Next, a tendency test was carried out on the results of *the pretest scores*. The data for performing the tendency test are the average result value and the standard deviation. The average value (M) is 89.1 and the standard deviation result (SD) is 8.057, so the tendency test for *the pretest* results in Table 7 is as follows:

**Table 7. Results of Students' Post-test Tendencies**

No	Value Interval	Frequency	Percentage	Category
1	$X \geq 93,13$	15	53,6%	Excellent
2	$85,07 \leq X < 93,13$	10	35,7%	Good
	$76,99 \leq X < 85,07$	3	10,7%	Enough
3	$X < 76,99$	0	0%	Less
Quantity		28	100%	

Based on the results of the above tendency calculation, it can be seen that of the 28 students who took the *post-test* of the science subject of Parts and Functions of the Eyes, as many as 15 students (53.6%) were in the Very Good category with a score range of  $X \geq 93.13$ , as many as 10 students (35.7%) were in the Good category with a score range of  $85.07 \leq X < 93.13$ , and as many as 3 students (10.7%) were in the Fair category with a score range of  $77.01 \leq X < 85.07$ . No students are in the Less or Very Less category.

### Student *Post-test* Results

After the learning material is taught with the *Problem Based Learning* model assisted by *Wordwall media*, then the researcher provides a *post-test* which aims to find out the level of success given. Based on the results of *post-test* data after the application of *the Problem Based Learning* (PBL) model assisted by *Wordwall media* on 28 students, an average score (mean)

of 89.11, a standard deviation of 8.06, and a standard error of 1.52 were obtained. The high average score shows that student learning outcomes after participating in learning with the PBL model assisted by *Wordwall media* are in the very good category. A relatively small standard deviation indicates that the distribution of students' scores tends to be homogeneous, while a low standard error value indicates that the sample average is fairly representative in describing the population condition. Thus, the application of the PBL model assisted by *Wordwall media* showed high and relatively even learning outcomes in students.

**Table 8. Interval of Learning Objective Achievement Criteria**

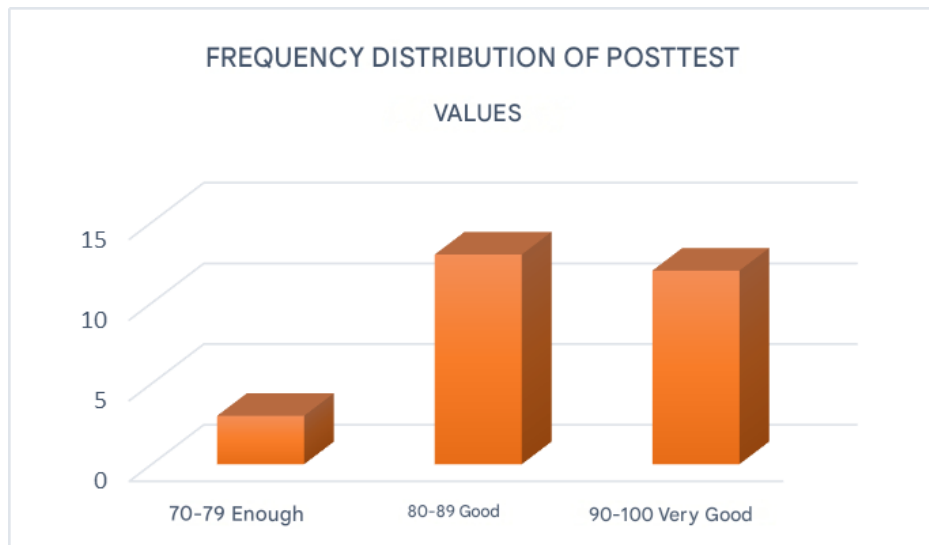
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3	90-100	12	42,9%	28	Excellent
Quantity		28	100%	-	

Based on Table 8 Interval of Learning Goal Achievement Criteria, it can be seen that of the 28 students who took the *posttest* of the Science subject of Eye Parts and Functions, as many as 12 students (42.9%) obtained scores in the Very Good category with a score range of 90-100, as many as 13 students (46.4%) were in the Good category with a score range of 80-89, and as many as 3 students (10.7%) were in the Fair category with a score range of 70-79. No students received a score in the Less or Very Less category. The average score obtained by all students was 89.1, which is included in the Good category.

These results show that most of the students, namely 89.3%, have been able to understand the Parts and Functions of the Eye material well and very well after participating in the learning process using *the Problem Based Learning* method assisted by *Wordwall media*. This achievement is inseparable from the role of *the Problem Based Learning* method which encourages students to actively think critically in solving problems related to parts and functions of the eye, so that students' understanding is built in a more meaningful way. In addition, the use of *Wordwall media* as an interactive learning medium also contributes positively to increasing student motivation and involvement during the learning process, because students can learn while playing in a fun way.

Thus, the application of *the Problem Based Learning method* assisted by *Wordwall media* in the learning of IPAS material Parts and Functions of the Eyes has been proven to be effective in improving student understanding, which is characterized by the acquisition of an average score of 89.1 and the majority of students are in the Good and Very Good categories.

The results of *the students' posttest* in the science subject of Eye Parts and Functions after the application of *the Problem Based Learning* method assisted by *Wordwall media* can be visualized through the following bar diagram. The diagram depicts the distribution of the number of students based on three categories of grades obtained, namely Adequate (70-79), Good (80-89), and Very Good (90-100).



**Figure 4. Post-test Score Frequency Distribution Diagram**

Based on the bar chart above, it can be seen that the Good category is the category with the highest number of students, namely 13 students (46.4%), followed by the Very Good category with 12 students (42.9%), and the Fair category with 3 students (10.7%). No students are in the Less or Very Less category. This shows that the application of *the Problem Based Learning* method assisted by *Wordwall media* has a positive impact on students' understanding of the Eye Parts and Functions material, so that most students are able to achieve good and excellent learning results at the time the post-test is carried out.

Next, a tendency test was carried out on the results of *the pretest scores*. The data for performing the tendency test are the average result value and the standard deviation. The average value (M) is 89.1 and the standard deviation result (SD) is 8.057, so the tendency test for *the pretest* results in Table 9 is as follows:

**Table 9. Results of Students' Post-test Tendencies**

No	Value Interval	Frequency	Percentage	Category
1	$X \geq 93,13$	15	53,6%	Excellent
2	$85,07 \leq X < 93,13$	10	35,7%	Good
	$76,99 \leq X < 85,07$	3	10,7%	Enough
3	$X < 76,99$	0	0%	Less
Quantity		28	100%	

Based on the results of the above tendency calculation, it can be seen that of the 28 students who took the *posttest* of the science subject of Parts and Functions of the Eyes, as many as 15 students (53.6%) were in the Very Good category with a score range of  $X \geq 93.13$ , as many as 10 students (35.7%) were in the Good category with a score range of  $85.07 \leq X < 93.13$ , and as many as 3 students (10.7%) were in the Fair category with a score range of  $77.01 \leq X < 85.07$ . No students are in the Less or Very Less category.

Thus, the tendency of students' *posttest* results in the IPAS subject of Eye Parts and Functions after the application of the *Problem Based Learning* method assisted by *Wordwall media* is in the Very Good category. This shows that the application of these learning methods and media is able to encourage students' optimal understanding of the Eye Parts and Functions material, so that most students succeed in achieving very satisfactory learning outcomes.

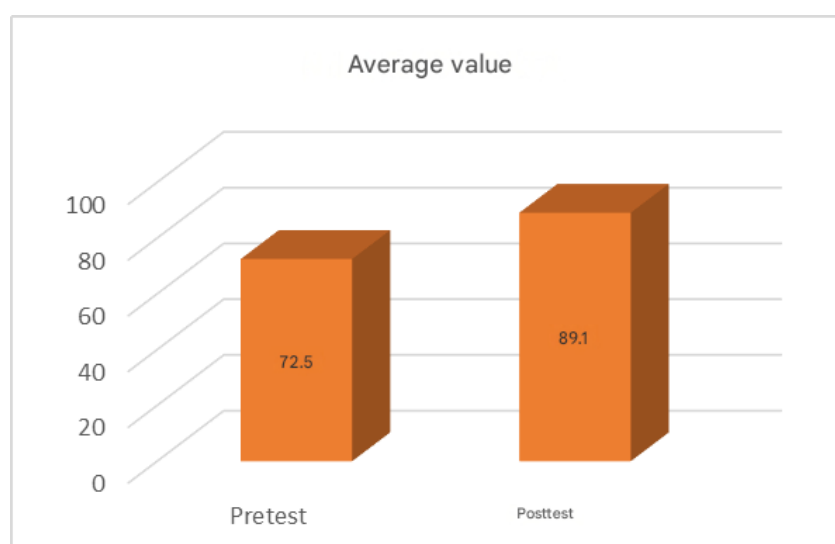
### Pretest Score Results and Posttest Scores

Based on the calculation of the research results, the average value between the pretest not using *the Problem Based Learning* model and the posttest using *the Problem Based Learning* model assisted by *Wordwall media* can be shown in Table 10 as follows:

**Table 10. Pretest and Posttest Average Score Results**

Value Results	Average Score	Category
Pretest	72,5	enough
Posttest	89,1	Good

The learning outcomes of grade V students have increased, this can be seen from the *higher posttest* scores than the pretest scores. The average pretest score was 72.5 in the good category while *the posttest* was 89.1 in the good category. The following can be seen from the average pretest and *posttest* values can be seen in the following diagram:



**Figure 5. Average Score Diagram of Class V Pretest and Posttest**

Based on the diagram above, it can be seen that the average score of *the Posttest* after being treated using the *Problem Based Learning* learning model assisted by *Wordwall media* from the average score of *the pretest* before being treated by using *the Problem Based Learning* model assisted by *Wordwall media*.

### Results of the *Problem Based Learning* Model Questionnaire Assisted by *Wordwall Media*

At the end of the lesson, the researcher gave a questionnaire to the students, this aimed to find out the level of success and how the students were after being given learning using the *Problem Based Learning* model assisted by *Wordwall media*.

The highest questionnaire score was 79 and the lowest questionnaire score was 68.

**Table 11. Frequency Distribution of Questionnaire Results**

Interval	Category	Frequency	%
82,25-100	Strongly agree	0	0
63,5-81,25	Agree	28	100
44,75-62,5	Disagree	0	0
25-43,75	Strongly Disagree	0	0
	Total	28	100

From the calculation results obtained from the questionnaire data, the results that obtained a agree score of 100% can be shown in Figure 4.6 The questionnaire frequency distribution diagram is as follows:

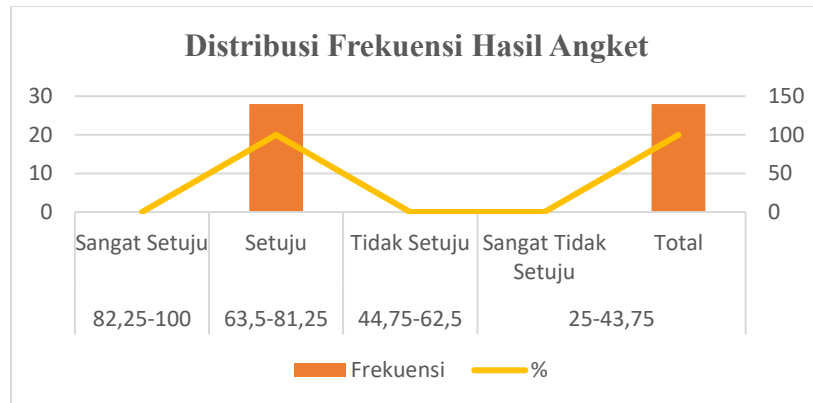


Figure 6. Frequency Distribution Diagram of Questionnaire Results

## Data Analysis Techniques

### Normality Test

The normality test is carried out to find out whether the data from the posttest of social studies learning outcomes of students is distributed normally. Based on the results of the calculation using SPSS version 25 with the provision that if it is known that the *Test of Normality test value* is significant  $p > 0.05$ , then  $H_a$  is accepted and the sample is distributed normally and if it is known that *the Test Of Normality test value* is significant  $p < 0.05$ , then  $H_0$  is rejected and the sample is not distributed normally. The following can be seen below the results of *Shapiro-Wilk's calculations* using the SPSS program version 25.

Table 12. Pretest Normality Test

Test of Normality						
Pretest	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
	,174	28	,030	,933	28	,073

a. Lilliefors Significance Correction

The significant level value used by the researcher is a significant level of 5% or 0.05. From the results of Table 12 above, a significant value of  $0.073 > 0.05$  was obtained in accordance with the decision-making in the normality test of normalized distributed data.

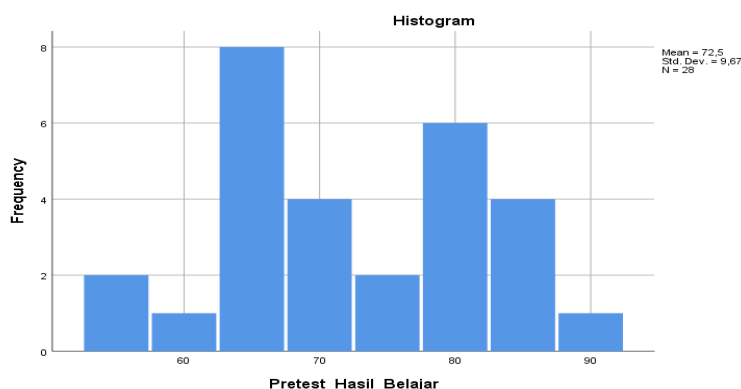
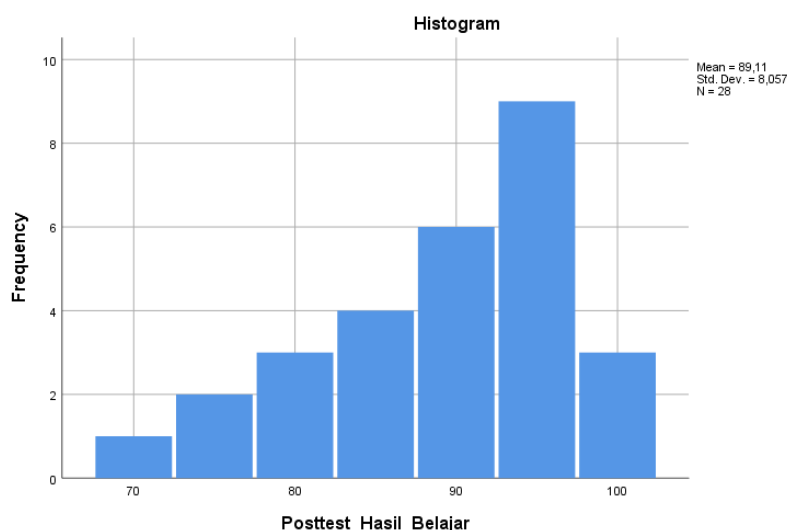


Figure 7. Normality Histogram of Pretest Values

**Table 13. Posttest Score Normality Test**

<b>Test of Normality</b>						
	<i>Kolmogorov-Smirnova</i>			<i>Shapiro-Wilk</i>		
	Statistic	df	Sig.	Statistic	df	Sig.
<i>Pretest</i>	,196	28	,007	,912	28	,022
<i>a. Lilliefors Significance Correction</i>						

The significant level value used by the researcher is a significant level of 5% or 0.05. From the results of Table 13 above, a significant value of  $0.022 < 0.05$  was obtained in accordance with the decision-making in the normality test of data not normally distributed.



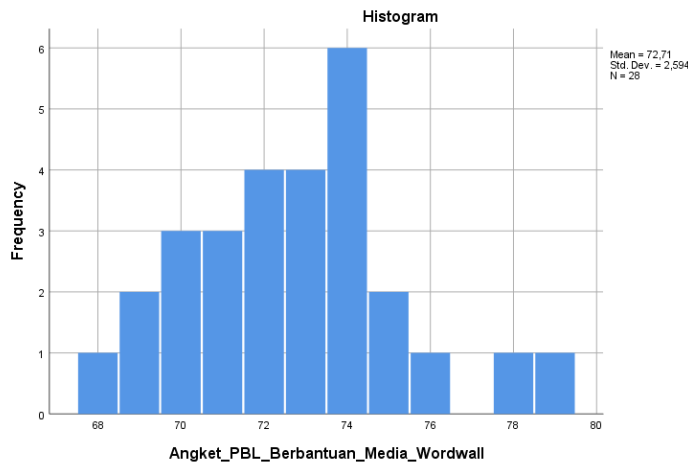
**Figure 8. Histogram of Normality of Posttest Scores**

Based on the results of the normality test using *the Shapiro-wilk test*, a significant value was obtained in the *pretest* data of 0.073 ( $p > 0.05$ ) so that *the pretest data* was declared to be normally distributed. Meanwhile, the significance value in the *posttest* data was 0.022 ( $p < 0.05$ ) so that *the posttest data* was declared not to be distributed normally. Because one of the data, namely *the posttest*, is not normally distributed, the research data does not meet the assumptions of the parametric test. Therefore, hypothesis analysis is continued using *the Wilcoxon Signed-Rank Test* as an alternative to nonparametric tests to determine the difference between *pretest and posttest results*.

**Table 14. Wordwall Media-Assisted PBL Model Normality Test**

<b>Test of Normality</b>						
	<i>Kolmogorov-Smirnova</i>			<i>Shapiro-Wilk</i>		
	Statistic	df	Sig.	Statistic	df	Sig.
<i>Pretest</i>	,132	28	,200	,967	28	,498
<i>a. Lilliefors Significance Correction</i>						

The significant level value used by the researcher is a significant level of 5% or 0.05. From Table 14, a significant value of  $0.498 > 0.05$  is obtained, so in accordance with the basis of decision-making for the normality test, it can be concluded that the data from the questionnaire results above is said to be normally distributed.



**Figure 9. Histogram of Questionnaire Normality**

### Hypothesis Testing

The hypothesis test in this study was carried out to determine the difference in student learning outcomes before and after the learning treatment. Based on the results of the normality test using *the Shapiro-wilk test*, it was obtained that *the pretest* data was normally distributed with a significance value of 0.073 ( $p > 0.05$ ). Meanwhile, *the posttest* data was not normally distributed with a significant value of 0.022 ( $p < 0.05$ ). Therefore, hypothesis analysis cannot use parametric tests, so it is continued to use *the Wilcoxon Signed-Rank Test* as a nonparametric test. The decision-making criteria are as follows:

1. If the significance value ( $p$ )  $< 0.05$ , then  $H_0$  is rejected and  $H_a$  is accepted
2. If the significance value ( $p$ )  $> 0.05$  then  $H_0$  is accepted and  $H_a$  is rejected.

**Table 15. Wilcoxon Signed-Rank Test Results**

Test Statistics <sup>a</sup>	
<i>Posttest-Pretest</i>	
Z	-4.660b
Asymp.Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test  
b. Based on negative ranks.

The results of *the Wilcoxon Signed-Rank Test* can be seen in Table 15 obtained a significance value of 0.000 ( $p < 0.05$ ), so that  $H_0$  was rejected and  $H_a$  was accepted. Thus, there is an influence of *the Problem Based Learning* model assisted by *Wordwall* media on student learning outcomes. This shows that student learning outcomes have improved after being given learning treatment.

### Discussion of Research Results

Based on the results of the analysis of student learning outcome data during the *implementation of the pretest* and *posttest*, learning results were obtained, namely the average student score increased after the implementation of *the Problem Based Learning* model assisted by *Wordwall media*. This can be seen from the results of the average score obtained in the implementation of the *posttest* reached 89.1, very different from the average score obtained

during the implementation of the pretest before the application of the card-assisted group investigation learning model only reached an average score of 72.5.

Based on the hypothesis test, a significance value of  $\alpha=0.000$  was obtained according to the hypothesis test criteria, it was stated that sig (2-tailed) was smaller than 0.05 so that from the results obtained  $0.000 < 0.05$ . Therefore, it can be stated that the *Problem Based Learning* model assisted by *Wordwall media* has a significant influence on improving students' social studies learning outcomes, especially in the Eye Part and Function Social Science material. Thus, it can be stated that  $H_a$  is accepted and  $H_0$  is rejected. The results of the study are also in line with the research obtained by Lutfi, et al. (2025) titled Model Influence *Problem Based Learning* Media Assisted *Wordwall* On the learning outcomes of IPAS students in grade V of elementary school. The results of the study concluded that there was a significant influence of the application of the *Problem Based Learning* media-assisted *Wordwall* on the learning outcomes of grade V elementary school students.

The results of the research conducted by Stuart et al. (2025) entitled The Influence of the Media-Assisted PBL Model *Wordwall* to Student Learning Outcomes in Flat Building Materials for Class V Elementary School. The results of the study concluded that there was a significant influence of the application of the *Problem Based Learning* media-assisted *Wordwall* to the learning outcomes of students in the flat building material of grade V elementary school. Then, the research conducted by Bereshia dkk. (2026) entitled The Influence of Learning Models *Problem Based Learning* Help *Wordwall* on the Learning Outcomes of IPAS Grade IV Elementary School Students. The results of the study show that there is a significant positive influence of the learning model *Problem Based Learning* Assisted *Wordwall* on student learning outcomes in the subject of IPAS IV SD.

## CONCLUSION

Based on the results of the research and discussion regarding the influence of the Problem Based Learning (PBL) model assisted by Wordwall media on the social studies learning outcomes of Grade V students at Santo Ignatius Private Elementary School Medan, it can be concluded that the implementation of the PBL model assisted by Wordwall media has been carried out very well. This is evidenced by the observation results of student activities reaching 90.00% and teacher activities reaching 96.15%, both of which fall into the very good category, indicating that the learning process was conducted in accordance with the planned instructional steps. Furthermore, student learning outcomes showed a significant improvement after the implementation of the model, as reflected in the increase of the average pretest score from 72.5 to 89.1 in the posttest, demonstrating that the use of the PBL model assisted by Wordwall media effectively enhances students' understanding of the social studies material, particularly on the topic of the parts and functions of the eye. In addition, the results of hypothesis testing using the Wilcoxon Signed-Rank Test showed a significance value of 0.000 ( $p < 0.05$ ), which indicates that the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted, meaning that there is a significant effect of the implementation of the PBL model assisted by Wordwall media on student learning outcomes. Overall, it can be concluded that the application of the Problem Based Learning model assisted by Wordwall media is effective in improving the learning outcomes of Grade V social studies students at Santo Ignatius Private Elementary School Medan for the 2025/2026 academic year.

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