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The Effect of the Guided Inquiry Learning Model Assisted by Wordwall Media on Science Learning Interest and Achievement in Elementary Schools

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Abstract

The objectives of the study were to (1) analyze the influence of guided inquiry learning model assisted by Wordwall Media on students' interest in learning science at SDN 30 Sumpang Bita, (2) analyze the influence of guided inquiry learning model assisted by wordwall media on students' science learning outcomes, and (3) analyze the influence of guided inquiry learning model assisted by wordwall media on students' interest and science learning outcomes of grade IV SDN 30 Sumpang Bita. This study used aquantitative approach, with a non-equivalent control group design. The population in this study was all grade IV elementary school students in Region 2, Balocci District, Pangkep Regency, consisting of 10 schools totaling 113 students. The sampling technique used was random sampling. The sample in this study was SDN 30 Sumpang Bita selected as the experimental class with 20 students and SDN 6 Bulu-Bulu as the control class with 20 students. The data obtained were analyzed using normality and homogeneity tests, followed by hypothesis testing using the t-test in the MANOVA results. The results of the study showed that; (1) The guided inquiry learning model assisted by wordwall media has a significant effect on students' interest in learning science at SDN 30 Sumpang Bita. The results of the t-test analysis showed that the significance value (Sig = 0.000) was smaller than the set alpha value of 0.05 (0.000 <0.05). (2) The guided inquiry learning model assisted by wordwall media has a significant effect on students' science learning outcomes at SDN 30 Sumpang Bita. The results of the t-test analysis showed that the significance value (Sig=0.000) was smaller than the set alpha value of 0.05 (0.000 <0.05). (3) There is a significant influence between leaming interest and students' science learning outcomes applied with the guided inquiry learning model assisted by wordwall media at SDN 30 Sumpang Bita. The results of One-way Multivariate Analysis of Variance (One-way MANOVA) show that all statistics have very significant values with p-value (Sig.) = .000. This shows that the intercept significantly affects the dependent variable. It can be concluded that the guided inquiry learning model assisted by wordwall media has a significant effect on the interests and science learning outcomes of Grade IV students at SDN 30 Sumpang Bita.

Keywords: Guided Inquiry Model, Wordwall Media, Interest, Science Learning Outcomes.

Introduction

Education is the primary foundation for developing quality human resources. In today's era of globalization, technological advances have a significant impact on various aspects of life, including education. This development demands that education adapt and improve its quality to meet the ever-evolving challenges of the times (Mayanda et al., 2024). Therefore, education must be able to resolve the issue of national disintegration and provide solutions to the

increasingly complex challenges of the times. In line with the national education goals, as stipulated in Law of the Republic of Indonesia No. 20 of 2003 concerning the National Education System, education plays a crucial role in developing the nation's intelligence.

The process of learning and education is an obligation for every individual, especially for Muslims. Verse 78 of the Quran, An-Nahl, explains:

وَاللّٰهُ اَخْرَجَكُمْ مِّنْۢ بُطُوْنِ اُمَّهٰتِكُمْ لَا تَعْلَمُوْنَ شَيْـًٔاۙ وَّجَعَلَ لَكُمُ السَّمْعَ وَالْاَبْصَارَ وَالْاَفْـِٕدَةَۙ لَعَلَّكُمْ تَشْكُرُوْنَ

"And Allah brought you forth from your mothers' wombs knowing nothing, and gave you hearing, sight, and conscience, that you might be grateful."

The long-term goal of education is to develop students' potential to become people of faith, piety, noble character, knowledgeable, capable, creative, independent, and democratic and responsible citizens. To achieve this goal, the learning paradigm must adapt to the demands of 21st-century education, which demands higher-order thinking, a positive mental attitude, and the ability to actualize oneself in society (Noor et al., 2022).

At the elementary school level, students are in the concrete-operational cognitive development phase according to Jean Piaget's theory, which prioritizes concrete and interactive learning experiences. However, in practice, learning Natural Science (IPA) is often challenging. Students frequently struggle to understand abstract science concepts and find it difficult to relate them to everyday life (Gillies, 2022). This highlights the importance of innovation in learning to actively engage students in the learning process.

According to Amal et al. (2021), one of the causes of low student interest and learning outcomes is a lack of varied learning models. To facilitate student creativity and create a more engaging science learning experience, new approaches to learning are needed. The use of practical and experimental methods can be an effective alternative to conventional lectures. For example, at SDN Wilayah 2 Balocci, Pangkep Regency, fourth-grade science subject evaluation data shows that the majority of students have not yet achieved the Minimum Completion Criteria (KKM), as shown in the table below:

Table 1 Mid-Semester Summative (STS) for the 2023/2024 Academic Year

No	School Name	Percentage (%)	
		Completed	Incomplete
1	SDN 4 BALOCCI	40%	60%
2	SDN 6 BULU – BULU	35%	65%
3	SDN 11 PADANGTANGARAYA	44%	56%
4	SDN 16 SENGGERANG	33%	67%
5	SDN 18 BONTO – BONTO	35%	65%
6	SDN 23 BONTI	33%	67%
7	SDN 24 BAJENG	50%	50%
8	SDN 30 SUMPANG BITA	40%	60%
9	SDN 31 SENGGERANG	50%	50%
10	SDN 34 MINGGI	100%	0

Source: Primary data 2024

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This phenomenon refers to the results of the fourth-grade science test at SDN Wilayah 2 Balocci, Pangkep Regency, during the Mid-Semester Summative Test (STS) for the 2023/2024 academic year. Of the 10 schools whose data is included, 9 had a completion percentage below the Minimum Completion Minimum (KKM). This indicates a mismatch between the teaching methods used and the needs for effective learning.

Furthermore, QS. Al-Mujaadilah Verse 11 reminds us that knowledge can elevate a person's status, as stated in this verse:

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْٓا اِذَا قِيْلَ لَكُمْ تَفَسَّحُوْا فِى الْمَجٰلِسِ فَافْسَحُوْا يَفْسَحِ اللّٰهُ لَكُمْۚ وَاِذَا قِيْلَ انْشُزُوْا فَانْشُزُوْا يَرْفَعِ اللّٰهُ الَّذِيْنَ اٰمَنُوْا مِنْكُمْۙ وَالَّذِيْنَ اُوْتُوا الْعِلْمَ دَرَجٰتٍۗ وَاللّٰهُ بِمَا تَعْمَلُوْنَ خَبِيْرٌ

Meaning:
"O you who believe! When it is said to you, 'Spread yourselves freely in gatherings,' then do so; Allah will make you spacious. And when it is said to you, 'Stand up,' then stand up; Allah will exalt those who believe among you and those who are given knowledge, by degrees. And Allah is All-Aware of what you do." (Q.S. Al-Mujaadilah: 11)

This verse emphasizes the vital role of knowledge in a person's progress. Therefore, a good understanding of Natural Sciences (IPA) plays a crucial role in improving the quality of human resources, including by equipping students with scientific thinking skills and the ability to analyze complex problems in everyday life. Through science learning, students are encouraged to understand the world around them more deeply and logically. This also helps students develop critical and analytical thinking skills, which are crucial for their intellectual development.

These challenges require innovation in learning models. One potential solution is the use of a guided inquiry learning model, which can enhance student active engagement in the learning process (Laili, 2019). This model allows students to explore their own knowledge through teacher guidance, focusing on asking questions, experimenting, and analyzing data.

The use of technology-based learning media, such as Wordwalls, can enrich students' learning experiences by providing game-based activities and interactive exercises that can increase student interest and engagement in learning (Rahmawati et al., 2024). Therefore, the guided inquiry model combined with Wordwalls can provide an effective solution to improve student interest and learning outcomes at SDN Wilayah 2 Balocci.

Method

The type of research used is a quasi-experimental design or quasi-experiment, which provides different treatments to two research groups. The design used in this study is a non-equivalent control group design, which means that the two groups (experimental and control) are not selected randomly (non-random), but are adjusted based on existing conditions. The experimental group will receive treatment, namely learning with a guided inquiry model, while the control group will follow learning using conventional methods or without a guided inquiry model. The population in this study was all fourth-grade elementary school students in area 2, Balocci District, Pangkep Regency, consisting of 10 schools totaling 113 students. In selecting the sample, the characteristics of schools that are of the same level were still taken into account in terms of school accreditation, facilities and infrastructure, teaching staff and learning outcomes. Therefore, SDN 6 Bulu-Bulu was selected as the control class, where the control class was given treatment using a guided inquiry model without the aid of wordwall media. SDN

30 Sumpang Bita was selected as the experimental class, where the experimental class was given treatment using a guided inquiry learning model assisted by wordwall media. Data collection techniques were carried out using three methods: Pretest, Observation, Questionnaire, Posttest.

The normality test was used to determine whether the data was normally distributed or not. The condition of normally distributed data is a requirement for testing hypotheses using parametric statistics. The normality test used Chi-Square (χ2) with degrees of freedom with the formula:

$$\chi 2 = \sum_{i=1}^{k} \frac{(fo - fe)^2}{fe}$$

Description:
χ2 = Chi-square value
fo = Observation frequency
fe = Expected frequency
k = Number of classes

To decide whether to accept or reject the proposed hypothesis, it is necessary to compare the χ^2_{hitung} dengan χ^2_{tabel}. If the $\chi^2_{hitung} \leq \chi^2_{tabel}$, the data are normally distributed. Conversely, if the $\chi^2_{hitung} \geq \chi^2_{tabel}$, the data are not normally distributed. With degrees of freedom in the denominator and numerator dk = n-1, with a significance level of α = 0.05. Homogeneity of Variance Test: This test aims to determine whether the sample data in each group have the same variance. To determine whether the sample is homogeneous, the following homogeneity test formula is used:

$$F_{hitung} = \frac{Varians\ terbesar}{Varians\ terkecil}$$

The next step is to compare the F_{hitung} dengan F_{tabel}, with the following stipulation: if the $F_{hitung} \leq F_{tabel}$, the data are homogeneous. Conversely, if the $F_{hitung} \geq F_{tabel}$, the data are not homogeneous. Multivariate Analysis of Covariance (MANOVA). Hypothesis testing in this study used the t-test for Hypotheses 1 and 2, and the MANOVA test for Hypothesis 3. The null hypothesis can be interpreted as there being no difference between the parameter and the statistic, or there being no difference between the population size and the sample size. In this study, the type of hypothesis used was a descriptive hypothesis. The statistical technique used to test this research hypothesis was the t-test, which is used to test the truth or falsity of the hypothesis stating that there is no significant difference between two sample means drawn randomly from the same population. The analysis used One-way Multivariate Analysis of Variance (One-way MANOVA) in SPSS 29 to analyze the existing data. The statistical hypothesis was stated as follows:
Hypothesis 1
H0 : μ1 = μ2
H1 : μ1 ≠ μ2
Where:
H0 : There is no influence of the guided inquiry model supported by wordwall media on the learning interest of fourth-grade students.
H1 : There is an influence of the guided inquiry model supported by wordwall media on the learning interest of fourth-grade students.

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Hypothesis 2
H0 : μ1 = μ2
H1 : μ1 ≠ μ2
Where:
H0 : There is no influence of the guided inquiry model supported by wordwall media on the learning outcomes of fourth-grade students.
H1 : There is an influence of the guided inquiry model supported by wordwall media on the learning outcomes of fourth-grade students.
Hypothesis 3
H0: μ1 = μ2
H1: μ1 ≠ μ2
Where:
H0: There is no influence of the guided inquiry model supported by wordwall media on the interest and learning outcomes of fourth-grade students.
H1: There is an influence of the guided inquiry model supported by wordwall media on the interest and learning outcomes of fourth-grade students.
To test the hypothesis, a one-tailed t-test was used with the formula:

$$t = \frac{\underline{X_1} - \underline{X_2}}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Description:
$\underline{X_1}$ = average improvement score of the experimental class
$\underline{X_2}$ = average improvement score of the control class
S = combined standard deviation
n_1 = number of students in the experimental class
n_2 = number of students in the control class
The criteria for hypothesis testing are a significance level of α = 0.05 and degrees of freedom (dk) = n1 + n2 - 2.

Results

Descriptive Analysis

a. Overview of the Implementation of the Guided Inquiry Learning Model Assisted by Wordwall Media in Fourth Grade Students at SDN 30 Sumpang Bita, Pangkalpinang Regency

The following tables illustrate the learning interests of fourth grade students at SDN 30 Sumpang Bita. This study examines the data collected from the distribution of learning interest questionnaires. The data presented in Table 2 illustrates the learning interests of 20 students after being treated with the guided inquiry learning model assisted by wordwall media in science learning. The following data can be seen in Table 2:

Table 2: Data on Learning Interests of Students in the Experimental Class

No.	Assessment Score	Frequency (F)	Percentage (%)	Category
1	81 – 100	0	0	Excellent
2	61 – 80	20	100	Good
3	41 – 60	0	0	Fair
4	21 – 40	0	0	Poor

5	0 – 20	0	0	Very Poor
	Total	20	100%	

Table 2 above shows a picture of learning interest after being given treatment in the form of the guided inquiry learning model assisted by word walls, which is in the good category because there are 20 students with a percentage of 100% who fall within the assessment score range of 61 to 80.

The following are several tables that illustrate the learning interest of fourth-grade students at SDN 6 Bulu-Bulu. This study, each of which is reviewed from the data from the distribution of learning interest questionnaires. According to the data presented in Table 3 below, the learning interest of 20 students after being given treatment in the form of the conventional learning model in science learning can be seen in the data presented in Table 3 below:

Table 3 Data on Learning Interest of Control Class Students

No.	Assessment Score	Frequency (F)	Percentage (%)	Category
1	81 – 100	0	0	Excellent
2	61 – 80	20	100	Good
3	41 – 60	0	0	Fair
4	21 – 40	0	0	Poor
5	0 – 20	0	0	Very Poor
	Total	20	100%	

Table 3 above shows that learning interest after being given treatment in the form of the application of the conventional learning model was in the moderate category because there were 20 students with a percentage of 100% who fell within the score range of 41 to 60.

b. Science Learning Outcomes Before and After Treatment (Pretest and Posttest) in the Experimental Class

The pretest was administered to students in the first meeting, and the posttest was administered to students in the final meeting. The results of the pretest and posttest were then collected, reviewed, and analyzed by the researcher. Statistics on the science learning outcomes of students in the experimental class before being given treatment (pretest and posttest) can be seen in the following table:

Table 4. Descriptive Statistics of Science Learning Outcomes in the Experimental Class

Descriptive Statistics	Statistical Value	
	Pretest	Posttest
Sample Size	20	20
Highest Score	71	95
Lowest Score	43	76
Average Score	59,4	84,6

Table 4 shows that the highest science learning score in the pretest was 71 with an average score of 59.4, while the highest score in the posttest was 95 with an average score of 84.6.

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If the students' science learning scores before and after the pretest were grouped into five categories, the frequency and percentage distribution of scores is shown in Table 5 below:

Table 5: Distribution and Percentages of Experimental Pretest and Posttest

Score	**Category**	***Pretest***		***Posttest***	
		F	P (%)	F	P (%)
0 – 49	Very Low	3	15	0	0
50 – 69	Low	12	60	0	0
70 – 84	Moderate	5	25	10	50
85 – 94	High	0	0	7	35
95 – 100	Very High	0	0	3	15
Total		20	100	20	100

Table 5 above shows that in the pretest, only 5 students, or 25%, achieved the Minimum Completion (KKM) score. However, in the posttest, this increased, with all 20 students, or 100%, achieving the KKM score.

c. Science Learning Outcomes Before and After Treatment (Pretest and Posttest) in the Control Class

The pretest was administered to students in the first meeting, and the posttest was administered to students in the final meeting. The results of the pretest and posttest were then collected, reviewed, and analyzed by the researcher. Statistics on the science learning outcomes of students in the control class before treatment (pretest and posttest) are shown in the following table:

Table 6 Descriptive Statistics of Science Learning Outcomes in the Control Class

Descriptive Statistics	**Statistical Value**	
	Pretest	*Posttest*
Sample Size	20	20
Highest Score	71	76
Lowest Score	38	52
Average Score	57,1	66,2

Table 6 shows that the highest science learning outcome score in the pretest was 71 with an average score of 57.1, while the highest score in the posttest was 76 with an average score of 66.2.

If students' science learning outcomes scores before and after the pretest were grouped into five categories, the frequency and percentage distribution of scores is shown in Table 7 below:

Table 7. Distribution and Percentages of Pretest and Posttest Control

Score	**Category**	***Pretest***		***Posttest***	
		F	P (%)	F	P (%)
0 – 49	Very Low	4	20	0	0
50 – 69	Low	13	65	12	60

70 – 84	Moderate	3	15	8	40
85 – 94	High	0	0	0	0
95 – 100	Very High	0	0	0	0
Total		20	100	20	100

Table 7 above shows that in the pretest, only 3 students, or 15%, achieved the Minimum Competency (KKM) score. Meanwhile, in the posttest, 8 students, or 40%, achieved the KKM score.

d. Comparison of Science Learning Outcomes

Data from the frequency distribution of fourth-grade students' learning outcomes scores in the pretest and posttest of the experimental and control classes can be presented in the following table:

Table 8 Comparison of Science Learning Outcomes for Experimental and Control Classes

Skor	Category	Experimental Class				Control Class			
		Pretest		Posttest		Pretest		Posttest	
		F	P(%)	F	P(%)	F	P(%)	F	P(%)
≥70	Completed	5	25	20	100	3	15	8	40
< 70	Incomplete	15	75	0	0	17	85	12	60
Total		20	100	20	100	20	100	20	100

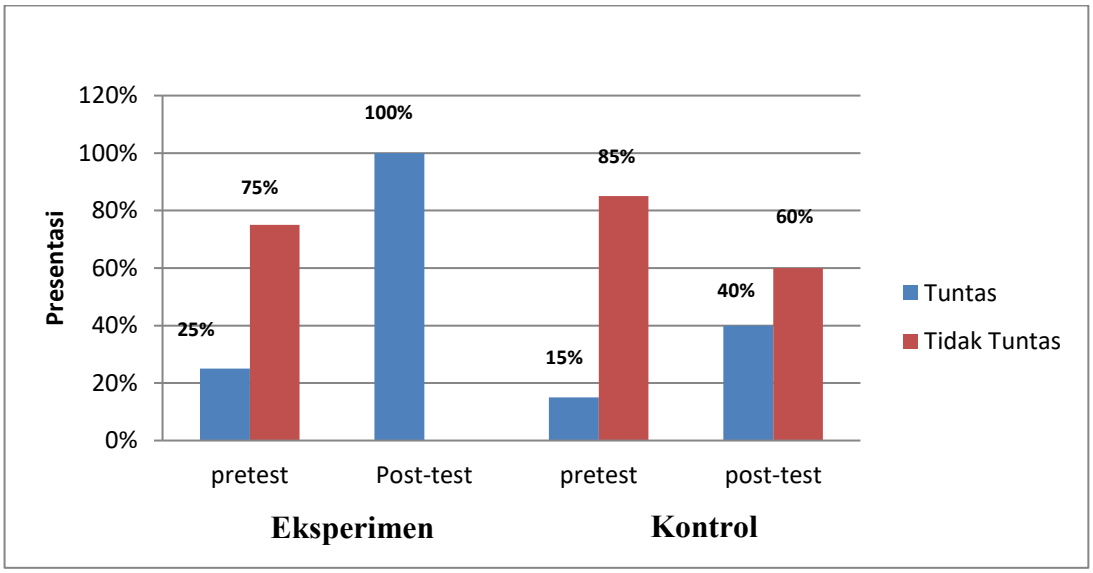


Figure 1. Pretest and Posttest Graph of Experimental and Control Classes

e. Description of Student Activity Observation Results

The student observation sheet was created to collect data to support learning. This instrument contains instructions and eight indicators that reflect the observed student activity. Observations were conducted over four meetings. At the end of each meeting, the data obtained from the instrument was presented in a summary. Table 9 below shows the final results of each observation.

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Table 9: Description of Student Activity Observation Results

No	Observed	I	II	III	IV	V	VI	Average ($\bar{x}$)	Percentage (%)
1	Students who listen to the learning objectives presented by the teacher		15	16	17	20		17	85
2	Students who answer questions posed by the teacher based on their knowledge	PRETEST	14	15	16	19	POSTTEST	16	80
3	Students who are active in group discussions		13	13	14	20		15	75
4	Students who gather ideas in groups based on questions posed		13	14	13	20		15	75
5	Students who provide their opinions regarding the results of other groups' discussions		13	14	14	19		15	75
6	Students who ask questions		13	16	16	19		16	80
7	Students who present the results of their group work		14	16	18	20		17	85
8	Students who summarize the lesson		14	17	17	20		17	85
			Amount						**640**
			Average						**80**

The criteria for successful student activities in this study were considered successful if a minimum score of 70% of students were actively involved in the learning process. Table 9 shows that 85% of students listened to the learning objectives presented by the teacher, 80% of students answered the teacher's questions based on their own knowledge, 75% of students actively participated in group discussions, 75% of students brainstormed questions within the group, 75% of students provided opinions regarding the results of other groups' discussions, 80% of students asked questions, 85% of students presented their group work, and 85% of

students summarized the lesson. Based on the activities observed during the four meetings, the average student activity rate was 80%, categorized as very active.

Inferential Analysis

a. Normality Test

The data normality test was intended to determine the distribution of student data scores. The normality test used a One Sample Shapiro-Wilk Test with a significance level of >0.05, indicating that the data were normally distributed. The results of the normality test for the experimental and control groups can be seen in the following table.

Table 10. Questionnaire Normality Test Results

			Shapiro-Wilk[a]			Shapiro-Wilk	
	Kelas	Statistic	df	Sig.	Statistic	Df	Sig.
Learning Interest Questionnaire	PostTest Experiment	.165	20	.117	.784	20	.392
	Control PostTest	.185	20	.0113	.732	20	.091

The data is normally distributed because the significance values for the experimental class questionnaire (0.117) and the control class questionnaire (0.113) are greater than the α significance value (0.05).

Table 11. Results of the Learning Outcomes Normality Test

			Shapiro-Wilk[a]			Shapiro-Wilk	
	Kelas	Statistic	df	Sig.	Statistic	Df	Sig.
Learning outcomes	PreTest Experiment	.180	20	.075	.956	20	.384
	PostTest Experiment	.171	20	.082	.926	20	.090
	Control PreTest	.205	20	.069	.881	20	.062
	Control PostTest	.176	20	.075	.937	20	.174

The results of the normality test are seen in the One Sample Shapiro-Wilk Test. The values obtained are greater than 0.05, namely 0.7 and 0.8 in the experimental class. In the control class, they are 0.6 and 0.7. Thus, it can be concluded that the data obtained are normally distributed.

b. Homogeneity Test

The data homogeneity test is used to determine whether several population variances are equal. The guidelines for decision-making are:

1) If the significance value or probability value is <0.05, then the data comes from a population with unequal variances (inhomogeneous).

2) If the significance value or probability value is >0.05, then the data comes from a population with equal variances (homogeneous).

Based on the data homogeneity test results shown in Table 4.11, the data based on the mean table can be concluded that both data types are homogeneous.

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Table 12. Questionnaire Homogeneity Test Results
Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Learning Interest Questionnaire Results	Based on Mean	1.135	1	39	.939
	Based on Median	.246	1	39	.864
	Based on Median and with adjusted df	.246	1	73.902	.864
	Based on trimmed mean	1.158	1	39	.924

The homogeneity of the two data sets is due to the large significance value shown in the Based on Mean table, which is 0.939, which is greater than the α significance value of 0.05, as required in the test.

Table 13. Results of the Homogeneity Test of Learning Outcomes

		Levene Statistic	df1	df2	Sig.
Learning outcomes	Based on Mean	1.081	1	39	.354
	Based on Median	.814	1	39	.372
	Based on Median and with adjusted df	.814	1	40.914	.372
	Based on trimmed mean	1.152	1	39	.289

The homogeneity test using IBM SPSS for Windows version 29 showed a significance value of 0.354. Since the homogeneity test had a significance level of 0.354 > 0.05, the data had the same variance (homogeneous).

c. Hypothesis Testing

a. The Effect of the Guided Inquiry Learning Model Assisted by Wordwall Media on Students' Interest in Science at SDN 30 Sumpang Bita

Based on the results of the hypothesis testing using an independent sample t-test in SPSS 29.0 for Windows, the analysis results are presented in Table 14 below:

Table 14. Results of Hypothesis Test 1: Independent Sample t-test
Independent Samples Test

Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means

		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Questionnaire Results	Equal variances assumed	2.366	.132	11.118	20	.000	.63009	.05667	.51563	.74454
	Equal variances not assumed			11.252	33.759	.000	.63009	.05600	.51626	.74391

The results of the t-test analysis on the effect of the guided inquiry learning model assisted by wordwall media on the learning interest of fourth-grade students at SDN 30 Sumpang Bita showed that the significance value (Sig = 0.000) was less than the set alpha value of 0.05 (0.000 < 0.05). Based on the results obtained, it can be concluded that H0 is rejected and H1 is accepted, stating that there is an effect of the guided inquiry learning model assisted by wordwall media on the learning interest of fourth-grade students at SDN 30 Sumpang Bita.

b. The Effect of the Guided Inquiry Learning Model Assisted by Wordwall Media on Science Learning Outcomes of Students at SDN 30 Sumpang Bita.

The results of the study, in the form of pretest and posttest scores, were analyzed using hypothesis testing with the help of SPSS 29.00 for Windows. The hypothesis testing in this study used an independent samples t-test. Hypothesis testing was carried out if the sig. (2-tailed) > α (0.05), then H0 is accepted (there is no effect of guided inquiry learning assisted by wordwall media on the science learning outcomes of fourth-grade students at SDN 30 Sumpang Bita, Pangkaje'ne and Kepulauan Regency). If the sig. (2-tailed) ≤ α (0.05), then H0 is rejected, provided that the mean value after treatment is higher than the mean value before treatment (there is an effect of guided inquiry learning assisted by wordwall media on the science learning outcomes of fourth-grade students at SDN 30 Sumpang Bita, Pangkaje'ne and Kepulauan Regency).

Table 15. Results of Hypothesis 2 Independent Sample t-test

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper

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Learning outcomes	Equal variances assumed	2.366	.132	12.113	20	.010	.65002	.06567	.51563	.73342
	Equal variances not assumed			13.251	33.759	.010	.65002	.06500	.51626	.73281

The results of the t-test analysis on the effect of the guided inquiry learning model assisted by wordwall media on the science learning outcomes of fourth-grade students at SDN 30 Sumpang Bita showed a significance value (Sig = 0.000) lower than the alpha value of 0.05 (0.000 < 0.05). Based on the results obtained, it can be concluded that H0 is rejected and H1 is accepted, stating that there is an effect of the guided inquiry learning model assisted by wordwall media on the science learning outcomes of fourth-grade students at SDN 30 Sumpang Bita.

c. Significant Relationship Between Learning Interest and Students' Science Learning Outcomes Implemented by the Guided Inquiry Learning Model Assisted by Wordwall Media at SDN 30 Sumpang Bita

Table 16: Hypothesis 3 Multivariate Test

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.999	28883.154[b]	2.000	55.000	.000
	Wilks' Lambda	.001	28883.154[b]	2.000	55.000	.000
	Hotelling's Trace	1050.297	28883.154[b]	2.000	55.000	.000
	Roy's Largest Root	1050.297	28883.154[b]	2.000	55.000	.000
Model	Pillai's Trace	.040	29821.159[b]	2.000	55.000	.010
	Wilks' Lambda	.960	298211.159[b]	2.000	55.000	.010
	Hotelling's Trace	122.242	298211.159[b]	2.000	55.000	.010
	Roy's Largest Root	122.242	298211.159[b]	2.000	55.000	.010

a. Design: Intercept + Model
b. Exact statistic

The results of One-way Multivariate Analysis of Variance (One-way MANOVA) show that all statistics have highly significant values with p-value (Sig.) = .000. This indicates that the intercept significantly affects the dependent variable. The very high F value (28883.154) and df hypothesis = 2 and df error = 55 strengthen that this relationship is consistent across tests. In the model effect, all statistics also show significance with a Sig. value = 0.01 (p < 0.05). This indicates that the model has a significant relationship with the dependent variable. The large F

value (29821.159) with df hypothesis = 2 and df error = 55 supports the consistency of these results. Multivariate statistics such as Pillai's Trace (.040), Wilks' Lambda (.960), Hotelling's Trace (122.242), and Roy's Largest Root (122.242) show a significant contribution of the model to the dependent variable in this analysis. These results indicate that both the intercept and the model provide a significant relationship to the dependent variable based on this test. Thus, based on the test results, it shows that there is a significant relationship between learning interest and students' science learning outcomes applied with the guided inquiry learning model assisted by Wordwall media at SDN 30 Sumpang Bita.

Discussion

The results of the study showed an improvement in student learning outcomes, with student learning outcomes in the experimental class improving. This improvement was due to the fact that after the guided inquiry learning model with the aid of word walls, students became active participants in learning, engaged in group discussions, understood and mastered the material, were able to solve problems in group discussions, and became independent in completing assignments assigned by the teacher. According to Arlizah (2019), cooperative learning is a learning strategy that involves students working collaboratively to achieve goals. Collaboration itself is defined as a philosophy of personal responsibility and respect for others. Students are responsible for their own learning and strive to find information to answer the questions posed to them, while the teacher acts only as a facilitator. Pudjiarti Sri Emiliana (2023) stated that the benefits of cooperative learning for students include improved learning outcomes, increased learning motivation, and increased participation in class.

Opinion: Given these problems, innovation in learning models is needed. One solution that can be implemented is the use of a guided inquiry learning model, which can increase active student engagement in the learning process (Laili, 2019). This model allows students to explore their own knowledge through teacher guidance, focusing on asking questions, experimenting, and analyzing data.

The use of technology-based learning media such as Wordwalls can enrich students' learning experiences by providing game-based activities and interactive exercises that can increase student interest and engagement in learning (Rahmawati et al., 2024). Guided inquiry learning is a learning model that creates learning situations that involve students actively and independently in discovering concepts or theories, understanding, and solving problems, with the teacher acting as a facilitator and guide. Priansa (Tarsiyah, 2021)

Research findings indicate that improvements in student learning outcomes after using interactive wordwall media resulted in students being more active in learning, participating in group discussions, understanding and mastering the material being studied, being able to solve problems in group discussions, and becoming more independent in completing assignments assigned by the teacher. The use of educational wordwall games as a stimulus makes learning more engaging. Students will start to think independently when working on quizzes assisted by Wordwall (Shidiq, 2021).

Wordwall is a gaming platform that offers a variety of useful and engaging game formats for students. Careful selection of materials, including a harmonious and consistent blend of education and entertainment, can enhance student interest and learning outcomes. This is in line with the statement by (Hulukati et al., 2021). Wordwall allows students to access it without prior registration, and the interactive quizzes designed can be sent via other platforms such as WhatsApp and Google Classroom. This platform can display images, helping students focus on the quizzes. The association of various components, such as images, words, and sounds, can

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strengthen students' memories, making this medium highly supportive of understanding the meaning of the quizzes presented (Hasram et al., 2021). Wordwall is an application that can be used to create interactive learning media. This website-based application can be used to create learning media such as quizzes, matching games, pairing games, anagrams, word scrambles, word searches, grouping, and more. Furthermore, users can access their created media online, and they can also download and print them on paper. This research was conducted in fourth-grade students at SDN 30 Sumpang Bita. The subjects were fourth-grade students in the experimental group, and fourth-grade students at SDN 6 Bulu-Bulu in the control group. The difference between the experimental and control groups was the teacher's delivery method. In the experimental group, the teacher delivered the material using a guided inquiry learning model with the aid of a word wall, while in the control group, the teacher delivered the material in the same manner as usual, using a conventional learning model without media. The purpose of this difference in teacher delivery was to determine the effect of the guided inquiry learning model with the aid of a word wall on the interest and learning outcomes of fourth-grade students at SDN 30 Sumpang Bita. Prior to this research, a pretest was conducted to determine students' initial abilities before being given the treatment.

In the control group, the same materials were used as in the experimental group. The teacher explained the material, and the students listened and took notes. The use of printed textbooks resulted in students' lack of enthusiasm and lack of ability to express themselves effectively. Some students also chatted while the teacher delivered the material, resulting in a less effective learning process.

The results of the study indicate that the guided inquiry learning model, supported by wordwalls, significantly influenced students' interest in learning science at SDN 30 Sumpang Bita. The guided inquiry learning model, supported by wordwalls, significantly influenced students' science learning outcomes at SDN 30 Sumpang Bita. There was a significant relationship between students' interest in learning and their science learning outcomes when the guided inquiry learning model, supported by wordwalls, was implemented at SDN 30 Sumpang Bita.

This finding is supported by research by Syachruroji et al. (2024), which showed that the use of technology-based learning media, such as wordwalls, creates a more engaging learning experience, making students more active and engaged in the learning process. Another study by Apriliani, Wibawa, & Rati (2019), demonstrated that the guided inquiry model is effective in improving student learning outcomes because it allows them to be directly involved in the investigation and problem-solving process. This learning model requires students to actively participate, which in turn deepens their understanding of the subject matter.

The results of this study align with those of Sephia, Ellyna Hafizah, & Muhammad Fuad Sya'ban (2024), who showed that the Wordwall application has a positive impact on students' learning interest. The use of technology-based media like this can create a more enjoyable learning environment and encourage students' interest in science.

Furthermore, research by Widyaningrum, Masfuah, & Fakhriyah (2024) revealed that a guided inquiry model supported by the educational game Wordwall can improve elementary school students' scientific literacy. By combining the guided inquiry model and educational games, students not only gain knowledge but also develop critical thinking and problem-solving skills, which are essential skills in scientific literacy.

Based on the research findings, discussion, and supporting theory, it can be concluded that the use of a guided inquiry learning model supported by the Wordwall media significantly influences the interest and learning outcomes of fourth-grade students at SDN 30 Sumpang Bita.

Suggestions for further research are that the research needs to be further deepened, especially since there are students with special needs and maximizing every preparation for implementing the research, one of which is during the data collection process, requires thorough preparation.

Conclusion

Based on the results of the research and development conducted, it was concluded that: The guided inquiry learning model assisted by wordwall media had a significant effect on students' interest in learning science at SDN 30 Sumpang Bita. The results of the t-test analysis on the effect of the guided inquiry learning model assisted by wordwall media on the learning interest of fourth-grade students at SDN 30 Sumpang Bita showed that the significance value (Sig = 0.000) was less than the specified alpha value of 0.05 (0.000 < 0.05). Based on the results obtained, it can be concluded that H0 is rejected and H1 is accepted.

The guided inquiry learning model assisted by wordwall media has a significant effect on students' science learning outcomes at SDN 30 Sumpang Bita. The results of the t-test analysis on the effect of the guided inquiry learning model assisted by wordwall media on the science learning outcomes of fourth-grade students at SDN 30 Sumpang Bita showed that the significance value (Sig. = 0.000) was less than the set alpha value of 0.05 (0.000 < 0.05). Based on the results obtained, it can be concluded that H0 is rejected and H1 is accepted.

There is a significant relationship between learning interest and students' science learning outcomes applied with the guided inquiry learning model assisted by wordwall media at SDN 30 Sumpang Bita. The results of the One-way Multivariate Analysis of Variance (One-way MANOVA) showed all statistics were highly significant with a p-value (Sig.) = 0.000. This indicates that the intercept significantly influences the dependent variable. The very high F value (28883.154) and the df hypothesis = 2 and df error = 55 confirm that this relationship is consistent across all tests. In the model effect, all statistics also showed significance with a Sig. = 0.01 (p < 0.05). This indicates that the model has a significant relationship with the dependent variable.

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