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THE EFFECT OF DISCOVERY LEARNING MODEL ON READING COMPREHENSION BY ASSISTED WORDWALL

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Abstract

This research investigates the effect of the Discovery Learning Model on reading comprehension in class XI SMAS Al Ma'shum Sidodadi in the 2024/20245 academic year. This research uses a quantitative approach with a pre-test and post-test experimental design that focuses on students in classes XI-2 and XI-3, who were selected through random sampling. Reading comprehension abilities are assessed through pre-test and post-test evaluations to measure the effectiveness of the Discovery Learning model in improving reading comprehension, especially in narrative texts. The results showed a significant increase in reading comprehension after implementing the Discovery Learning Model, with an average score increase of 29.1% from pre-test to post-test in one group and an increase of 39.2 in the other group. Statistical analysis using the t test formula shows significant improvement, as evidenced by the t value which exceeds the critical value at the significance level of 0.05. These findings support the effectiveness of the discovery learning model in improving reading comprehension in narrative texts. The calculation of the scores by using t-test for the degree of freedom (df) 63 at significance level 0.05 where the t-critical value is 1.668. The result of the analysis showed that the t-score was higher than t-table 16.25 > 1.669 at the level of significance 0.05 with the degree of freedom (df) 63. It means that Ha is accepted.

Key word: Effect, Discovery Learning, Reading Comprehension.

INTRODUCTION

In education, English plays a crucial role in helping students communicate and gain knowledge from across the globe. As a global language, it is commonly taught in schools, both as a subject itself and as the medium for learning other subjects like science or mathematics. To master English, students need to develop four key language skills: listening, speaking, reading, and writing(Jivi et al., 2024). These skills are enhanced by language elements like grammar, vocabulary, and spelling. Since these skills are interrelated, English teachers must address all four when teaching English content(Lestari & Purnama, 2023).

The goal is for students to be able to use English both in daily life and in their professional careers. English enables students to understand different cultures and creates opportunities to study abroad or work in international companies(Ridha et

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al., 2021). In a world that is becoming more interconnected, English language skills are viewed as crucial for addressing global challenges(Kurniadi et al., 2020). Despite its numerous advantages, learning English presents challenges, such as a shortage of qualified teachers and obstacles for students in under-resourced areas(Sinaga, 2019). Nonetheless, English remains a vital component of education as it can unlock broader opportunities(Damayanti et al., 2023).

According to (Hameed, H., & Ali, 2022)English learning involves four skills that students must master: listening, speaking, reading, and writing. This study focuses on the third skill, which is reading. Of these skills, reading is regarded as the most important language skill.(Ridwan, 2024). However, things don't always go as planned, and many students still have difficulty answering text-related questions, which leads to boredom and discourages them from engaging with the material. (Kheang et al., 2024). The issue of reading comprehension is a major concern worldwide in education and literacy, as this skill is fundamental for learning and acquiring information(Vana & Nurhaeni, 2024). One of the main challenges is the low literacy rates in many countries, especially in developing regions. While many students can technically read, they have difficulty fully understanding the texts(Manao et al., 2024).

This limitation prevents students from analyzing, inferring, or relating the content of texts to real-world situations. Another contributing factor is the limited access to quality reading materials(Hasbullah & Rahmawati, 2024). In certain regions, particularly rural or low-income areas, libraries, books, and digital resources are in short supply(Liberta et al., 2024). Additionally, ineffective teaching methods further intensify the issue.

Many educators still depend on rote learning or direct translation methods, overlooking comprehension strategies like making inferences or identifying main ideas(Damayanti et al., 2023). The growth of technology and digital media has also impacted reading habits. Particularly among younger generations, there is a tendency to engage with short texts or online content instead of longer texts, such as books or academic articles(Firmansyah et al., 2021). This shift reduces the ability to process and understand information deeply.

Based on the Integrated School Field Introduction Program (PLPT) at SMA Swasta Al Ma'shum Sidodadi, it was observed that many students still face significant challenges in reading comprehension. One of the primary causes of this issue is a limited vocabulary. Some students struggle to understand the content of texts due to insufficient vocabulary knowledge, and a few are completely unfamiliar with specific words. This challenge stems from the fact that English instruction is introduced only when students enter junior high school. As a result, students have difficulty adapting when teachers give instructions in English lessons, such as finding word meanings, synonyms, antonyms, or understanding technical language within a text. This lack of vocabulary severely impedes their ability to grasp the overall meaning of the text, presenting a major obstacle to reading comprehension.

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These challenges highlight the need for more effective vocabulary-building strategies at earlier stages of education. Using interactive teaching methods, such as the Discovery Learning Model combined with tools like Wordwall, can help overcome these difficulties by offering engaging and adaptive learning opportunities for students.

METHOD

The researcher used an experimental method with a quantitative approach, involving two sample groups: the Experimental Group and the Control Group. The study examines two variables: the Discovery Learning model as the independent variable and reading comprehension as the dependent variable. The design emphasizes treatment and outcomes. Data were gathered through pre-tests and post-tests to assess whether the Discovery Learning model, utilizing Wordwall, effectively improved reading comprehension. A simple random sampling technique was used for sampling. The samples for this study were taken from classes XI 2 and XI 3, with students from XI 3 acting as the experimental group and students from XI 2 serving as the control group.
The research design is as follows:

Table 1 Two Groups Pre-test Post-test

Class	Pre-Test	Independent Variabel	Post Test
E	Y1	X	Y2
C	Y1	-	Y2

Note:
X : Using Conventional way
Y : Using Project Based Learning Model (PjBL) and Kahoot Application

1. Pre-test

Before giving the treatment, a pre-test is conducted for the sample. Both the experimental group and the control group are given the pre-test. The test is administered to each group, and their performance is evaluated through assigned grades.

2. Treatment

The treatment is implemented in both the experimental and control classes. The experimental class is taught using the Discovery Learning Model, while the control class follows traditional teaching methods.

3. Post-test

After the pre-test is completed and the students have undergone the treatment, a post-test is administered. This test is conducted after the treatment, which spans two meetings, to assess the difference in average scores between the experimental and control groups. The post-test is specifically used to evaluate the impact of the Discovery Learning model on the experimental group.

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4. Scoring Test

After administering the post-test, all responses will be reviewed and scored. This research will involve testing to assess students' reading comprehension abilities. For the assessment, a reading comprehension rubric will be used to measure the students' performance and evaluate their reading comprehension skills.

Table 2 reading comprehension rubric

No	Aspect	Indicators	Number of question
1	Determining Main Idea	Students' determine the main idea or the paragraph or text as a whole	1, 6, 11, 14
2	Detail information	Students' identify supporting details in the text that relate to main idea	2, 5, 13, 18
3	Making Inference	Students' can analyse the passage and make inference	7, 10, 15, 20
4	Understanding of Vocabulary	The students' know each words (synonym and antonym word)	3, 8, 16,19
5	Locating Reference	The students' is identifying the words that are referred to in the text, like "it" "this" "that" "here" "there" etc	4, 9, 12, 17

RESULTS AND DISCUSSION

The results of the students' test can be seen in the following score table.

Table 3. The Score of Pre-test and Post-test in Control Group

No	Students' Initial	Score of Pre-test (X)	Score of Post-Test (Y)	X^2	Y^2	XY
1	ARP	55	75	3025	5625	4125
2	AGP	40	70	1600	4900	2800
3	AKP	35	50	1225	2500	1750
4	AFP	35	45	1225	2025	1575
5	AA	45	55	2025	3025	2475
6	ACK	45	55	2025	3025	2475
7	AD	45	75	2025	5625	3375
8	ASA	55	65	3025	4225	3575
9	CSP	45	75	2025	5625	3375
10	CFW	30	75	900	5625	2250

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11	DR	35	60	1225	3600	2100
12	DA	30	75	900	5625	2250
13	DEA	40	75	1600	5625	3000
14	DES	55	70	3025	4900	3850
15	DWI	50	75	2500	5625	3750
16	HP	55	70	3025	4900	3850
17	IL	35	75	1225	5625	2625
18	KA	30	75	900	5625	2250
19	MLN	35	75	1225	5625	2625
20	MSN	30	75	900	5625	2250
21	MU	30	70	900	4900	2100
22	MDA	40	70	1600	4900	2800
23	MHH	35	70	1225	4900	2450
24	MI	35	70	1225	4900	2450
25	NST	35	75	1225	5625	2625
26	PA	40	75	1600	5625	3000
27	SA	35	75	1225	5625	2625
28	SRA	45	65	2025	4225	2925
29	SKA	35	75	1225	5625	2625
30	TD	35	50	1225	2500	1750
31	TEW	45	75	2025	5625	3375
32	VM	40	75	1600	5625	3000
33	ZS	30	55	900	3025	1650
34	ZOS	35	65	1225	4225	2275
	TOTAL	**$\sum X$ =1340**	**$\sum Y$ =2330**	**$\sum X^2$= 54850**	**$\sum Y^2$= 162300**	**$\sum XY$= 91975**

From the data above, it shown that the highest and the lowest score in Pre-test was:

1. There were four students who got 55 score.
2. There was one student who got 50 score.
3. There were six students who got 45 score.
4. There were five students who got 40 score.
5. There were twelve students who got 35 score.
6. There were six students who got 30 score.

From the data above, it shown that the highest and the lowest score in Post-test was:

1. There were seventeen students who got 75 score.
2. There were seven students who got 70 score.

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3. There were three students who got 65 score.
4. There was one student who got 60 score.
5. There were three students who got 55 score.
6. There were two students who got 50 score.
7. There was one student who got 45 score.

The data above indicated that students' scores in the pre-test were lower than in the post-test for the control class. The average score in the pre-test was 39,4, and after receiving the material through conventional learning, the average score in the post-test increased to 68,5, showing a 29,1% improvement.

Table 4. The Sore of Pre-test and Post-test in Experimental Group

No	Students' initial	Score of Pre-test (X)	Score of Post-Test (Y)	X2	Y2	XY
1	ARS	50	80	2500	6400	4000
2	AZA	75	95	5625	9025	7125
3	AAH	45	80	2025	6400	3600
4	AP	35	80	1225	6400	2800
5	AIS	40	85	1600	7225	3400
6	AL	40	85	1600	7225	3400
7	BL	35	85	1225	7225	2975
8	CNP	60	95	3600	9025	5700
9	CFR	55	90	3025	8100	4950
10	DSS	40	80	1600	6400	3200
11	EP	35	85	1225	7225	2975
12	FAK	35	80	1225	6400	2800
13	IA	55	90	3025	8100	4950
14	KWS	35	85	1225	7225	2975
15	KS	45	85	2025	7225	3825
16	KR	35	80	1225	6400	2800
17	MR	40	70	1600	4900	2800
18	MY	65	95	4225	9025	6175
19	MIM	35	80	1225	6400	2800
20	MAA	45	70	2025	4900	3150
21	NND	55	85	3025	7225	4675
22	NU	45	90	2025	8100	4050
23	SCA	40	90	1600	8100	3600
24	SRA	55	75	3025	5625	4125
25	SC	35	80	1225	6400	2800
26	SNB	30	80	900	6400	2400
27	TAR	50	90	2500	8100	4500
28	TN	35	75	1225	5625	2625

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29	TA	45	80	2025	6400	3600
30	WR	35	85	1225	7225	2975
31	RAR	45	80	2025	6400	3600
	TOTAL	**$\sum X$ =1370**	**$\sum Y$ =2585**	**$\sum X^2$= 63850**	**$\sum Y^2$= 216825**	**$\sum XY$= 115350**

From the data above, it shown that the highest and lowest score in Pre-test was:

1. There was one student who scored 75.
2. There was one student who scored 65.
3. There was one student who scored 60.
4. There were four students who scored 55.
5. There were two students who scored 50.
6. There were five students who scored 45.
7. There were four students who scored 40.
8. There were ten students who scored 35.
9. There was one student who scored 30.

From the data above, it shows that the highest and lowest scores in the post-test was:

1. There were three students who got 95 score.
2. There were five students who got 90 score.
3. There were eight students who got 85 score.
4. There were eleven students who got 80 score.
5. There were two students who got 75 score.
6. There were two students who got 70 score.

The data above revealed that students' scores in the pre-test were lower than in the post-test for the experimental class. The average score in the pre-test was 44,1, and after receiving the material through the Discovery Learning model, the average score in the post-test increased to 83,3, showing a 39,2% improvement.

CONCLUSION

This research employs quantitative methods with random sampling techniques to determine the sample, which consists of XI grade students from SMA Swasta Al Ma'shum Sidodadi for the 2024/2025 academic year. Data were collected in three stages: pre-test, treatment, and post-test. The instrument used was a reading comprehension test, aimed at evaluating students' understanding of narrative texts. The Discovery Learning Model, supported by Wordwall, was used to enhance students' reading comprehension of narrative texts. One of the key reasons for its effectiveness is that this model encourages students to acquire new information before solving related problems, thus making them more active in the learning process.

Based on the data analysis in the previous chapter, the findings show that the alternative hypothesis (Ha) is supported, while the null hypothesis (Ho) is rejected.

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This indicates that the implementation of the Discovery Learning Model significantly improves students' reading comprehension skills in narrative texts. Therefore, students' prior knowledge plays an essential role in enhancing their reading abilities. By utilizing the Discovery Learning Model, students were more engaged and placed in a different learning environment, which increased their motivation to learn English, especially in reading comprehension. As a result, students became more focused during the learning process and achieved better outcomes.

After analysing the data, it can be concluded:

1. The Discovery Learning model by assisted wordwall was applied to help the students in reading comprehension of narrative text.
2. The Discovery Learning model assisted by wordwall makes students pay more attention and follow the teacher's guidance in learning English.
3. The Discovery Learning model assisted by wordwall makes students have higher motivation to learn English, especially in narrative text.

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