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THE EFFECT OF DISCOVERY LEARNING MODEL ON STUDENTS' ABILITY IN WRITING PORTOFOLIOS

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Abstract

Writing is considered one of the most challenging skills for English as a Foreign Language (EFL) learners, especially when it comes to producing structured and coherent texts such as portfolios. This study aims to determine and analyze the effect of the Discovery Learning model on students' ability in writing portfolios. The research employed a quantitative approach with an experimental method using a pre-test and post-test control group design. The population of this study consisted of all Grade XII students at SMAN 1 Tanjungbalai, and the sample included 60 students selected through random sampling techniques. Data were collected using writing tests and analyzed using the t-test. The results revealed that students taught using the Discovery Learning model performed better in writing tasks compared to those taught using conventional methods. The average post-test score of the experimental group was 86.86, while the control group scored 67.42. Hypothesis testing showed that the calculated t-value ($t_h = 9.894$) was higher than the critical t-value ($t_t = 2.042$), and the significance level was $p < 0.05$. These findings indicate that there is a statistically significant difference between the two groups. Therefore, the study concludes that the Discovery Learning model has a positive and significant effect on students' ability in writing English portfolios.

Keywords: Discovery Learning, Portfolio Writing, Recount Text.

INTRODUCTION

Language serves as a fundamental tool for human communication and plays a crucial role in the learning process. Through language, individuals can express their thoughts, emotions, and ideas, as well as understand both their own culture and the cultures of others. In education, language functions not only as a medium of instruction but also as a gateway to knowledge and critical thinking. English, in particular, has gained prominence as the global lingua franca and has become essential in many fields such as international business, diplomacy, science, and technology. Consequently, the teaching and learning of English have been institutionalized across formal education levels in Indonesia, from junior High school to university, and are also offered in informal learning environments such as private language courses and tutoring programs.

In the classroom context, English is used not merely for basic communication but as a tool for acquiring content knowledge, participating in

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social interaction, and engaging with cultures embedded in the language. As Baker (2020) points out, English enables learners to experience language learning that is deeply tied to cultural contexts, and mastery of the language demands a comprehensive understanding of four primary skills: listening, speaking, reading, and writing. Among these, writing is widely regarded as the most challenging skill because it requires the simultaneous management of vocabulary, grammar, sentence and paragraph structure, and overall coherence. Writing also demands precision, clarity, and the ability to present ideas in a logical sequence, making it a higher-order cognitive skill that necessitates practice and strategy (Baker, 2020).

Writing in English is not monolithic; it encompasses various genres, each with unique communicative goals, generic structures, and linguistic features. These include descriptive, narrative, procedure, report, exposition, and recount texts, which are all taught throughout the Indonesian high school curriculum. This study focuses specifically on recount texts, which are taught in the second semester of Grade XII at SMAN 1 Tanjungbalai. Recount texts aim to retell past events in chronological order and are characterized by the use of the past tense, time connectives, and a structured sequence of orientation, events, and reorientation. According to Anderson, recount texts are designed to narrate past experiences or historical events in a structured manner. Hyland (2021) reinforces this by explaining that recounts serve to inform and entertain readers through sequential storytelling that reflects cultural and personal meaning-making.

Field observations conducted by the researcher at SMAN 1 Tanjungbalai revealed a number of learning obstacles, particularly in students' ability to write recount texts in English. The data showed that many students struggled with identifying the main ideas of a text (68.7%), understanding and using appropriate vocabulary (70.15%), and applying the generic structure of recount texts (81.95%). These statistics highlight significant challenges faced by students in producing effective written texts. Such difficulties suggest not only a gap in students' understanding of the genre but also an issue in how writing is taught—often relying on rote learning rather than functional application. Students seemed to have limited opportunities to explore language authentically or engage with writing as a process that involves planning, drafting, revising, and reflecting.

These challenges are not isolated to one school; they mirror broader trends in Indonesian EFL classrooms, where students' writing proficiency remains low due to multiple intersecting factors. According to Nugraha (2020), common problems in English writing include limited vocabulary, poor grammar mastery, low motivation, and a general lack of interest in learning English. When students are not sufficiently engaged or are unable to make meaningful connections with what they write, their performance often suffers. Moreover, conventional teaching strategies may fail to address individual differences in learning styles and may not promote autonomy or creativity—both of which are essential for developing writing skills. Therefore, innovative teaching methods are urgently needed to transform writing instruction from passive reception to active discovery.

In light of these concerns, this research explores the use of the Discovery Learning model to improve students' writing skills, specifically through the use of portfolio writing in recount texts. Discovery Learning emphasizes active student

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involvement, allowing learners to construct knowledge through exploration, experimentation, and self-reflection. The portfolio approach, in turn, gives students the opportunity to document their writing progress, receive feedback, and revise their work over time—thereby fostering a sense of ownership and continuous improvement. By integrating Discovery Learning with portfolio writing, the researcher aims to provide a more engaging and effective learning environment that supports students in developing their ability to produce well-structured and meaningful recount texts. The findings of this study are expected to contribute to the enhancement of writing instruction in EFL settings and to provide educators with alternative strategies for improving writing outcomes in senior high school students.

METHOD

This study employs a quantitative approach. According to Sugiyono (2021), quantitative research is a positivist-based methodology that involves studying a specific population or sample, collecting data using research tools, and conducting quantitative and statistical analyses to test pre-formulated hypotheses. Since the data collected is numerical and subjected to statistical analysis, this research is categorized as quantitative.

This research samples was taked from 2 classes, namely class XII-1 with a total of 30 students as an Experimental class using the Discovery learning model and class XII-2 with a total of 30 students using Conventional Teaching Methods during the research. Quasi- experimental designs are often employed when it is challenging to establish a true control group. This design will compare the effect of the Discovery Learning model on students' writing abilities. There are two student groups: the control group, which will use conventional teaching methods, and the experimental group, which will be taught using the Discovery Learning model. Both groups will undergo pre-tests and post-tests. The design of this study is :

Table 1. Two Groups Pre-Test Post-Test

Group	Types	Experiment	Types
Experiment Group	Pre-test	X	Post-test
Control Group	Pre-test	Y	Post-test

Note:
X : Using Word Wall Interactive Media
Y : Using Conventional Way

The instrument for collecting data was a writing test, in which students were asked to write a report text based on one of three given topics. According to (Arikunto 2014), a test is defined as "a tool or procedure used to discover or assess something within a specific context, under pre-established methods and

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rules." This study employed a structured data collection method consisting of four key stages: pre-test, treatment, post-test, and scoring. The purpose was to evaluate the effectiveness of the Discovery Learning model on Grade XII students' writing portfolio skills at SMAN 1 Tanjungbalai in the 2024/2025 academic year.

1. **Pre-Test**
   The pre-test was administered to both experimental and control groups to assess their initial writing abilities. It included writing prompts aligned with curriculum goals, focusing on content, organization, and language use (grammar, punctuation, vocabulary). The results served as a baseline for comparison.
2. **Treatment**
   The experimental group received instruction using the Discovery Learning model, which emphasizes active learning, collaboration, and critical thinking. Activities included group discussions, hands-on tasks (e.g., brainstorming, peer review), and reflective writing. Meanwhile, the control group was taught using conventional methods focused on direct instruction.
3. **Post-Test**
   After the treatment, both groups completed a post-test using prompts similar to the pre-test. The post-test aimed to measure students' progress and evaluate the impact of Discovery Learning by comparing pre- and post-test results.

RESULTS AND DISCUSSION

The result of the students' test can be seen on the following table score.

Score of Pre-test and Post-test in Experimental Group

No	Initial Name	Score of Pre-Test (X)	Score of Post-Test (Y)	X^2	Y^2	XY
1	AMN	65	90	4225	8100	5850
2	AWS	65	85	4225	7225	5525
3	CP	65	85	4225	7225	5525
4	CA	65	90	4225	8100	5850
5	DFT	65	90	4225	8100	5850
6	F	70	85	4900	7225	5950
7	M	55	80	3025	6400	4400
8	MR	65	90	4225	8100	5850
9	NA	65	90	4225	8100	5850
10	NS	70	90	4900	8100	6300
11	ND	55	80	3025	6400	4400
12	NI	55	85	3025	7225	4675
13	PL	65	85	4225	7225	5525
14	R	55	85	3025	7225	4675
15	RS	55	85	3025	7225	4675

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16	RCP	55	85	3025	7225	4675
17	R	65	95	4225	9025	6175
18	RI	70	95	4900	9025	6650
19	SA	75	100	5625	10000	7500
20	SK	65	85	4225	7225	5525
21	SA	50	85	2500	7225	4250
22	SI	65	85	4225	7225	5525
23	SN	75	85	5625	7225	6375
24	SAN	65	85	4225	7225	5525
25	SIA	65	85	4225	7225	5525
26	TSS	50	85	2500	7225	4250
27	TYR	60	85	3600	7225	5100
28	WI	75	90	5625	8100	6750
29	WA	65	85	4225	7225	5525
30	WS	50	80	2500	6400	4000
Total	∑**X**=2190	∑**Y**=3040	∑ **X²**=138800	∑**Y²**=264850	∑**XY**=190975	

From the data above, it can be seen that the highest value is 100 and the lowest value is 80. Data is taken from the results of using the discovery learning Model. After being given treatment, it was seen that there was an influence on student learning outcomes. There were 2 students who got a score of 100, namely (SA and YU) and it was observed that there were no students who got a score below the minimum completeness criteria (KKM), namely the lowest score of 80 obtained by 4 students namely (M, ND,WA, WS).

Descriptive statistics Score in Experimental Class

Descriptive Statistics

	N	minimum	maximum	Mean	Std. Deviation
Prp Pre-Test Experiment	30	55	75	49,86	12,514
PosPost-Test Experiment	30	80	100	77,86	13,519
ValValid N (listwise)	30				

Based on the table 4.1 and 4.2 above showed the quantity respondents (N) in the experiment class as many as 30 respondents. From these 30 respondents, it was it can be seen that the smallest (minimum) value for pretest is 55 and for post-test is 80. And the largest (maximum) value in pre-test is 75 and for post-test is 100. The mean of the students' score in pretest was 49,86 and after giving treatment by using discovery learning model, it was increased 56,15% until the score mean was being 77,86 in post-test. The post test scores are higher than the pre-test value,

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indicating that using discovery learning model are significant effect on teaching writing portofolios of Class Experimental.

Score of Pre-test and Post-test in Control Group

No	Initial Name	Score of Pre-Test (X)	Score of Post-Test (Y)	X^2	Y^2	XY
1	AL	55	65	3025	4225	3575
2	A	65	55	4225	3025	3575
3	AI	65	65	4225	4225	4225
4	AZU	65	50	4225	2500	3250
5	A	55	70	3025	4900	3850
6	DS	65	65	4225	4225	4225
7	DA	75	70	5625	4900	5250
8	FI	65	65	4225	4225	4225
9	H	70	80	4900	6400	5600
10	L	65	50	4225	2500	3250
11	MY	70	75	4900	5625	5250
12	M	60	65	3600	4225	3900
13	MI	65	65	4225	4225	4225
14	MS	55	75	3025	5625	4125
15	MA	65	55	4225	3025	3575
16	MR	60	65	3600	4225	3900
17	MR	75	75	5625	5625	5625
18	NA	55	65	3025	4225	3575
19	ND	50	65	2500	4225	3250
20	NC	70	70	4900	4900	4900
21	NA	70	80	4900	6400	5600
22	N	65	55	4225	3025	3575
23	P	55	65	3025	4225	3575
24	PR	65	70	4225	4900	4550
25	RA	65	65	4225	4225	4225
26	RAA	65	70	4225	4900	4550
27	RY	65	65	4225	4225	4225
28	SS	70	55	4900	3025	3850
29	TR	50	70	2500	4900	3500
30	WS	50	65	2500	4225	3250
Total	**∑X**=2060	**∑Y**=2275	**∑ X^2**=139375	**∑Y^2**=149975	**∑XY**=142800	

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From the data above, it can be seen that the highest student learning outcomes were 80 and the lowest were 50, different from the experimental class. Control of learning in class is provided in a conventional way. The results above can be seen that there are differences between the Experimental Classes, because student learning outcomes in the control class are lower.

Descriptive statistics Score in Experimental Class

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Prp Pre-Test Control	30	50	75	46,86	12,312
PosPost-Test Control	30	50	80	76,85	12,316
ValValid N (listwise)	30				

Based on the table 4.3 and 4.4 above showed the quantity respondents (N) in the experiment class as many as 30 respondents. From these 30 respondents, it was it can be seen that the smallest (minimum) value for pretest is 50 and for post test is 75. And the largest (maximum) value in pre test is 50 and for post test is 80. The mean of the students' score in pre test was 46,86 and after giving treatment by using discovery learning model, it was increased 55,15% until the score mean was being 76,85 in post test. The post test scores are higher than the pre test value, indicating that using discovery learning model are significant effect on teaching writing portofolios of Class Control.

Based on the data above, it can be seen that there are differences in student scores. Students who study using the discovery learning model in learning (Experimental Class) obtain better results compared to classes taught conventionally (Control Class).

The hypothesis test was analyzed using the T test to find out whether the discovery learning model had an effect on the ability to write portofolios for students in Grade XII of SMA Negeri 1 Tanjungbalai in 2024/2025 Academic Year. The research conclusion is declared significant if t^{h} (t results) > t^{t} (t-table results) at a significance level of 5% and p value <0.05.

The hypothesis test by using SPSS version 22 program can be seen in the following table.

Table 4.3 Hypothesis t test

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Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Students Learning Result	Equal variances assumed	5,681	,020	9.894	68	,000	11,000	2,730	5,552	16,448
	Equal variances not assumed			9.894	58,563	,000	11,000	2,730	5,537	16,463

Based on the data above t_{hitung}= 9.894. So, $t_{hitung} > t_{table}$ or 9.894>2.042and sig. (2 tailed) 0,000 < 0,05, Ho is rejected and Ha accepted the hypothesis thereis Sig. Effect.

Summary of Post-test Experimental Class T-Test Result and Post-Test Control Class.

T-Test

[DataSet3]

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post_Experimental	86,86	35	4,864	,822
	Post_Control	67,4286	35	9,18530	1,55260

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Post_Experimental & Post_Control	35	-,301	,078

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Post_Experimental - Post_Control	19,42857	11,61714	1,96366	15,43794	23,41920	9,894	34	,000

(References: SPSS 22)

Based on the calculation results of the Independent Sample t-test, it is known that the average increase in the experimental group was 86.86, while the increase in the control class was 67.4286, so the increase is known. the learning outcomes for the experimental class were 19.42857 greater than those for the

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control class. It is also known that the t^{h} value is 9.894 with a significance of 2.042. The value of t^{t} is 2.042. it can be concluded that $t^{h} > t^{t}$ (9.894 > 2.042) and the significance value is more than 0.05 (p= <0.05). So it can be stated that there is a significant difference in the increase in learning outcome scores in the experimental group and the control group. Thus it can be concluded that H0 is rejected and Ha is accepted. This means that there are differences in the learning outcomes of students who are taught using the Discovery learning model which are better compared to the learning outcomes of students who are taught not using the Discovery learning model in ability to write Grade XII SMA Negeri 1 Tanjung balai Academic Year of 2024/2025

CONCLUSION

The learning activities of students who are taught using a discovery learning model are better than students who are taught not using a discovery learning model. This can be seen from the results of the average percentage of the two classes, namely the experimental class with a percentage score of 86.86 and the control class of 67.42. There are differences in the learning outcomes of students who are taught using the discovery learning model and the learning outcomes of students who are taught not using discovery learning model in class X SMA Negeri 1 Tanjung Balai, this can be seen from the test results. hypothesis by using the t test to obtain a value. it can be concluded that $t^{h} > t^{t}$ (9.894 > 2.042) and the significance value is more than 0.05 (p= <0.05). Thus, it can be concluded that H0 is rejected and Ha is accepted, meaning that there is an influence of the use of the discovery learning model on students' ability in writing portofolios at grade XII of SMA Negeri 1 Tanjung Balai Academic Year of 2024/2025.

BIBLIOGRAPHY

Atmaja. (2020). Linguistics: An introduction to language and communication. Indonesia: Penerbit Universitas.

Baker, J. (2020). Intercultural awareness and intercultural communication through English: an investigation of Thai English language users in higher education. Thailand: Journal of Language and Culture, 2(4), 90–167.

Brown, H. D. (2022). Writing instruction that works: Proven methods for middle and high school classrooms. USA: Pearson Education, 4(8), 125.

Burner, K. (2023). The potential formative benefits of portfolio assessment in second and foreign language writing contexts: A review of the literature. USA: Journal of Language Assessment, 1(2), 89–156.

Burner, K. (2024). The potential formative benefits of portfolio assessment in second and foreign language writing contexts: A review of the literature. USA: Journal of Language Assessment, 1(2), 99–178.

Carkl, R. (2024). Visualizing revision: Leveraging student-generated between-draft diagramming data in support of academic writing development. USA: Journal of Educational Research, 3(1), 99.

Vol. 4 No. 1, Januari 2026, p. 12 – 21
Available online http://jurnal.una.ac.id/index.php/jeeli/index

Chelsie, L. (2024). Social and physical characterization of urban contexts: Techniques and methods for quantification, classification and purposive sampling. USA: Urban Planning Journal, 2(6), 111.

Chia, Y. (2020). Problem-based learning: Using students' questions to drive knowledge construction. Singapore: Journal of Educational Innovation, 4(8), 345.

Clark, K. (2024). Concepts in composition: Theory and practice in the teaching of writing. USA: Academic Press.

Felder, R. M. (2024). Inductive teaching and learning methods: Definitions, comparisons, and research bases. USA: Journal of Engineering Education, 2(4), 111–189.

Griffin, T. (2024). Coherence On and Off the Page: What writers can know about writing coherently. USA: Writing Studies Quarterly, 2(1), 45–89.