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The Effect of Using Online Matching Games on Englishclub.com in Enhancing Vocabulary Mastery at SMPN 19 Bekasi

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Abstract

The research investigates the effect of using online matching games on EnglishClub.com in enhancing vocabulary mastery among seventh-grade students at SMPN 19 Bekasi. A quasi-experimental approach with pretest-posttest control group structures was employed. The sample comprised 70 students divided into two groups: experimental (n=35) and control (n=35). Both pre-test and post-test vocabulary assessments were used. The data was analyzed using descriptive statistics, normality tests (Kolmogorov-Smirnov and Shapiro-Wilk), a homogeneity test (Levene's Test), and the Independent Samples T-Test in SPSS. The control class's mean post-test score (68.67) was somewhat higher than the experimental class's (57.33), and the control class's N-Gain Score (mean = 5.17) was slightly higher than the experimental class's (mean = 4.70). The Independent Samples T-Test for the N-Gain Score yielded Sig. (2-tailed) = 0.854, whereas Levene's Test yielded F = 0.461, Sig. = 0.500, demonstrating homogenous variance. The test result was not significant at α = 0.05, with a small effect size (Cohen's d = -.044). These data suggest that, for this population and treatment length, online matching games on EnglishClub.com did not generate a statistically or descriptively significant advantage over conventional education in vocabulary acquisition at the junior high school level..

INTRODUCTION

English has become a vital international language in the age of globalization, being utilized in education, research, technology, and communication. From junior high school to senior high school, English is now a required subject in Indonesia's national curriculum, indicating the government's acknowledgment of English proficiency as crucial for national development and worldwide competitiveness (Pajarwati et al., 2021). However, many students still experience difficulties in mastering English, particularly in vocabulary. Vocabulary is important in language acquisition because it helps students read texts, convey their thoughts, and effectively participate in communication (Brooks et al., 2021). Despite its importance, vocabulary learning is often perceived as challenging and less engaging for students. Learners frequently struggle to retain new words and apply them in meaningful contexts, which may hinder their overall language development. As stated by (Tiansoodeenon et al., 2023) Vocabulary is crucial to language training because it is required for successful communication in a second language. These challenges were evident in preliminary

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observations at SMPN 19 Bekasi, where a number of seventh-grade students demonstrated low vocabulary mastery, suggesting the need for more engaging and effective instructional approaches.

The advent of digital technology and the widespread availability of internet access in Indonesian schools present new opportunities to address these challenges. Scholarly interest in digital game-based learning (DGBL) as a promising method of teaching vocabulary is developing (Jia et al., 2024). Gamified platforms frequently include interactive exercises and challenges that promote active learning and the application of language in context, resulting in higher language competency compared to traditional techniques (Ayana et al., 2024). Game-based techniques can be especially effective for improving vocabulary acquisition and retention since they typically require learners to apply new language in context repeatedly (Zou et al., 2019). Studies on platforms such as Quizizz, Kahoot!, Wordwall, and Bamboozle(Yuliyanto et al., 2025) have demonstrated positive effects on student engagement and motivation (Zhang & Hasim, 2023). For instance, (Putri & Akhiriyah, 2024) discovered that using Wordwall greatly increased junior high school pupils' vocabulary knowledge via a quasi-experimental design. Similarly, (Dwiningrum et al., 2024) reported that Wordwall had a strong effect on students' vocabulary acquisition.

Despite an increasing corpus of research on digital game-based learning in EFL conditions (Ray & Ilangovan, 2024), significant gaps remain. Although gamification has been used in over ten non-English-speaking countries, a thorough assessment of the practice in EFL/ESL instruction found that the bulk of studies focused widely on multiple language abilities rather than primarily on vocabulary mastering at the junior secondary level (Zhang & Hasim, 2023). This is also related to CTML (Cognitive Theory of Multimedia Learning), which focuses on how academic content using words and images may help people learn in a meaningful way. (Mayer, 2024) It focuses on methods that stimulate learning-related cognitive processing. When a student constructs a mental model from supplied words and images, multimedia learning takes place. This description is sufficiently wide to encompass computer-based settings with narration and animation, book-based environments with text and images, and virtual game environments with animated microworlds and interactive voice (Nurhatmi, 2025). Vocabulary has an indisputable function in language acquisition as one of the linguistic components. It is regarded as a crucial component in developing strong language proficiency. Its role is similar to that of a foundation that determines a building's durability. Without a strong foundation supporting the entire structure, a building may quickly collapse. Teachers should give careful thought to how best to teach vocabulary in language acquisition. Selecting a method that offers several advantages for students' vocabulary development is recommended. In addition to helping the students meet the learning objectives, the approach should give them engaging and significant tasks.(Sutrisna, 2021)

Previous studies have mainly focused on specific platforms and limited grade levels, leaving other web-based vocabulary game tools relatively underexplored in Indonesian EFL classroom settings. In addition, research examining different online game formats for vocabulary learning, particularly matching games, remains fragmented. While there has been considerable research on the use of digital platforms for learning English vocabulary, there is a lack of empirical studies specifically assessing the effectiveness of EnglishClub.com as a learning resource, particularly in the context of Indonesian junior high schools. Most prior research has concentrated on other platforms like Duolingo, Kahoot, Quizizz, or various game-based learning tools. As a result, the educational effectiveness of EnglishClub.com, particularly in relation to its online matching games and integrated vocabulary-learning functionalities, has not yet been adequately examined.

Thus, this study aims to address this gap by exploring the impact of online matching games on EnglishClub.com to improve vocabulary mastery among seventh-grade students. The platform provides graded vocabulary sets, multimedia support, and instant feedback, making it suitable for both independent and classroom-based learning. Despite the platform's popularity and accessibility, empirical research into how efficient it is in Indonesian junior high school settings is lacking.

As a result, this research aims to fill that gap by examining whether the usage of EnglishClub.com online matching games may significantly improve vocabulary knowledge among seventh-grade students at SMPN 19 Bekasi when compared to traditional vocabulary education. What distinguishes this study is its specific focus on matching game formats within an online platform that has not been empirically tested at the junior secondary level in the Indonesian EFL context. The question that guides this study is: Is there a significant effect of playing online matching games on EnglishClub.com on vocabulary acquisition among seventh-grade students at SMPN 19 Bekasi?

METHOD

Population and sample

This study adopted a quasi-experimental approach with a pretest-posttest control group structure. According to (Creswell & Creswell, 2018) In educational research conducted in intact classrooms, quasi-experimental approaches are acceptable when random assignment is not possible. The design allowed comparison of two instructional approaches, online matching games (experimental group) versus traditional (control group), on vocabulary mastery while controlling for initial differences through pretesting.

Table 1. Research Design

Group	Pre-Test	Treatment	Post-Test
Experimental	O_1	X(EnglishClub.com)	O_2
Control	O_1	-	O_2

The research was conducted at SMP Negeri 19 Kota Bekasi during the second semester of the academic year 2025/2026. The population consisted of all 7th-grade students, totaling 441 individuals. Purposive sampling was used to choose two classes: 35 students each made up the experimental group and the control group (Lestari, 2018), for a total of 70 students.

Instruments

A pre-test and post-test on vocabulary achievement were used in this study (AL-Ameri & Rababah, 2020). The test consists of 30 items divided into three sections: Section A comprises 10 multiple-choice questions, Section B comprises 10 matching questions 10 matching questions, and Section C comprises 10 fill-in-the-blank questions, all of which were designed to measure students` mastery of vocabulary. All correct responses received 1 point, while incorrect answers received 0 points, for a maximum final score of (Number of Correct Answers / 30) x 100. For example, if a student answered 24 out of 30 items correctly, their final score would be (24/30) x 100 = 80. This scoring system ensures that all scores are reported on a standardized 0-100 scale, allowing for consistent comparison between results pre-test and post-test across both the experimental and control

classes. Content validity was confirmed by English education professionals, and reliability was assessed using Cronbach`s Alpha ($\alpha > 0.70$) based on a pilot test with students outside the sample.

Data analysis procedures

Data were analyzed using IMB SPSS Statistics 27. Descriptive statistics(Mohd Tahir et al., 2020) Pre-test, post-test, and N-Gain scores were computed for both groups. The normality of data distribution was assessed using the Shapiro-Wilk test (appropriate for $n < 50$ per group) (Katemba & Indonesia, 2022). Homogeneity of variance was examined using Levene`s Test. The hypothesis was tested with the independent Sample T-Test at a significance level of $\alpha = 0.05$.

FINDINGS

Descriptive Statistic

Descriptive statistics analysis for each class's pre-test, post-test, and N-Gain scores. are displayed in Table 2. All 35 students in each class participated, yielding 100% valid data with no missing cases.

Table 2. Descriptive Statistics of Pre-test, Post-test, and N-Gain Score

Variable	Class	N	Min	Max	Mean	Std. Deviation
Nilai Pretest	1 (Experiment)	35	10.00	86.67	51.71	23.52
	2 (Control)	35	20.00	84.00	53.91	20.82
Nilai Posttest	1 (Experiment)	35	10.00	96.67	57.33	27.20
	2 (Control)	35	36..67	93.33	68.67	16.85
N_Gain Score	1 (Experiment)	35	-1.49	37.65	4.70	9.62
	2 (Control)	35	-1.20	42.65	5.17	11.82

According to Table 2, The experimental class's mean pre-test scores (51.71) and the control class's (53.91) were comparable, suggesting that the two groups' beginning vocabulary competence was similar. The control group had a higher mean post-test score (68.67) than the experimental group (57.33) after the therapy. Similar trends may be seen in the N-Gain Score, where the experimental class (mean = 4.70) had a somewhat lower gain than the control class (mean = 5.17). According to descriptive analysis, both groups showed improvement from the pre-test to the post-test; nevertheless, the control class's gain was marginally more than the experimental class's. This trend is further investigated using inferential statistics below.

Normality Test

The normality test uses the Kolmogorov-Smirnov and Shapiro-Wilk tests, which were used to determine whether the data distribution was normal. The outcomes are shown in Table 3.

Table 3. Tests of Normality

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Nilai Pretest	Eksperiment	.138	35	.091	.929	35	.027
	Kontrol	.177	35	.007	.911	35	.008
Nilai Posttest	Eksperiment	.165	35	.017	.916	35	.011
	Kontrol	.168	35	.013	.911	35	.008
NGain	Eksperiment	.363	35	<.001	.557	35	<.001
	Kontrol	.398	35	<.001	.525	35	<.001

a. Lilliefors Significance Correction

According to Table 3, the Shapiro-Wilk test results show that all variables in both classes yielded Sig. < 0.05 (range from.000 to.027), except for the Kolmogorov-Smirnov result for the pre-test scores of the experimental class (Sig. =.091). The general pattern suggests that the data are not normally distributed, especially the N-Gain Score (Sig. =.000 for both classes, with skewness values above 2.5), as the Shapiro-Wilk test is better suitable for a sample size of n < 50 (Katemba & Indonesia, 2022). Theoretically, a non-parametric option would be taken into consideration because the data defied the normalcy assumption. However, the Independent Samples T-Test was still used as a robust analysis strategy because each group's sample size is 35 (approaching n = 30+, when the Central Limit Theorem begins to apply) and in accordance with the original study plan.

C. Homogeneity Test

The homogeneity test uses the independent sample T-Test in SPSS, which yielded Levene's Test for Equality of Variances, which was used to assess variance homogeneity between two groups on the N-Gain Score. Table 4 displays the results.

Table 4. Levene`s Test

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
NGain	Equal variances assumed	.461	.500	-.185	68	.854	-.47553	2.57601	-5.61589	4.66482
	Equal variances not assumed			-.185	65.304	.854	-.47553	2.57601	-5.61973	4.66867

The Levene's Test result indicate F = 0.461 and Sig. = 0.500. Given that Sig. = 0.500 > 0.05, the equal variance null hypothesis is upheld. This suggests that the variance of N-Gain Scores across the experimental and control groups is homogenous, and the Independent Samples T-Test's "Equal variances assumed" row should be interpreted.

Hypothesis Test

The hypothesis test used the independent sample T-test to determine whether there is a significant difference in N-Gain Scores between the control and experimental classes. The result is shown in Table 5.

Table 5. Independent Sample Test Result

Variable	Assumption	t	df	Sig.(2-tailed)	Mean Diff.	Std. Error Diff.
N-Gain Score	Equal variances assumed	-.185	68	.854	-0.48	2.58
	Equal variances not assumed	-.185	65.304	.854	-0.48	2.58

The Independent Samples t-test revealed that there was no statistically significant difference in the N-Gain scores between the experimental group, which used Online Matching Games on EnglishClub.com, and the control group. The analysis produced a value of t(68) = -0.185 with a significance level of p = 0.854, which exceeded the 0.05 threshold. Therefore, the null hypothesis (H_0) was accepted, indicating that the use of Online Matching Games on EnglishClub.com did not significantly enhance students' vocabulary mastery compared to the conventional learning method. Furthermore, the mean difference was only -0.48, suggesting that both groups achieved relatively similar improvements in vocabulary mastery. These findings imply that although students in the experimental group showed improvement, the increase was not significantly greater than that of the control group.

Although the Independent Samples t-test indicated that the difference in N-Gain scores between the experimental and control groups was not statistically significant ($t(68) = -0.185$, $p = 0.854$), statistical significance alone does not reflect the magnitude of the treatment effect. Therefore, an effect size analysis was conducted to determine the practical impact of using Online Matching Games on EnglishClub.com in enhancing students' vocabulary mastery. Effect size provides information on the strength of the treatment effect regardless of statistical significance. In this study, Cohen's *d* was used as the measure of effect size. According to Cohen (1988), effect size values of approximately 0.20 indicate a small effect, 0.50 a medium effect, and 0.80 or above a large effect. Thus, the effect size analysis complements the hypothesis testing by showing whether the intervention had meaningful educational value, even if the difference was not statistically significant.

Table 6. Independent Sample Effect Sizes

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval Lower	95% Confidence Interval Upper
NGain	Cohen's d	10.77624	-.044	-.513	.425
	Hedges' correction	10.89694	-.044	-.507	.420
	Glass's delta	11.82051	-.040	-.509	.429

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control group.

Based on Table 6, the Independent Samples T-Test returns t = -.185, df = 68, and Sig. (2-tailed) = 0.854 using the "Equal variances assumed" row (because Levene's Test proved homogeneity, Sig. = 0.500 > 0.05). The alternative hypothesis (Ha) is rejected and the null hypothesis (H0) is accepted since Sig. = 0.854 > 0.05. This suggests that, at the $\alpha = 0.05$ significance level, there is no statistically significant difference in N-Gain Scores between the experimental and control classes.

The effect size analysis (Table 7) shows Cohen's d = -.044, Hedges' correction = -.044, and Glass's delta = -.040. The non-significant result is further supported by the fact that all impact size measurements' 95% confidence ranges encompass 0.

Descriptively, the control class had a slightly higher mean N-Gain Score (5.17) and mean post-test score (68.67) than the experimental class (4.70 and 57.33, respectively). However, given the small effect size and the large, overlapping confidence intervals, this difference should be viewed as insignificant rather than proof that the control condition was more beneficial. In other words, both classes improved by similar amounts, and the inferential test finds no statistical support for a significant advantage in either direction.

DISCUSSION

The outcomes of this study indicate that the usage of online matching games on EnglishClub.com did not result in a statistically significant improvement in students' vocabulary mastery when compared to traditional education. Contrary to the study's directional expectation, the descriptive data show that the control class has a slightly higher mean post-test and N-Gain score than the experimental class; however, this difference is not statistically significant, and the corresponding effect size is negligible (Cohen's d = -.044).

Both groups started the research with a similar level of vocabulary knowledge, according to the pre-test averages of the two courses (51.71 for the experimental class and 53.91 for the control class), which were quite comparable. Both classes improved following the intervention, however the experimental class did not see a greater improvement. This trend deviates from the general expectations of digital game-based learning theory, which holds that interactive and captivating activities like matching games should improve vocabulary retention through repetition and instantaneous feedback (Zou et al., 2019; Ayana et al., 2024)

This non-significant and reversed descriptive trend might be explained by a number of causes. First, the N-Gain Score data significantly deviated from the assumption of normality (Shapiro-Wilk Sig. =.000 for both classes, with skewness exceeding 2.5), indicating a few extreme scores that can mask a true group difference even when a parametric test is employed Second, both classes' N-Gain standard deviations (Eksperiment = 9.62; Kontrol = 11.82) were rather high, suggesting significant variation in each student's reaction to the two teaching strategies. This increases the confidence interval surrounding the mean difference and lowers the power to identify a real effect. Third, the matching-game intervention may not have produced a discernible benefit over the control class's normal teaching due to the short treatment time.

Since the experimental group did not exhibit the descriptive advantage expected by Krashen's Input Hypothesis, Vygotsky's Sociocultural notion, or the notion of game-based learning in this specific sample, these results do not directly support these theories. It's possible that other classroom-level elements (such as instructor delivery and students' past exposure to English media) contributed to the control class's equivalent, or perhaps somewhat larger, improvements, or that the control class's traditional education was relatively successful in and of itself. This suggests that, given the particular circumstances of this study, the online matching games on EnglishClub.com did not outperform

traditional teaching methods, but it does not necessarily refute the larger theoretical justification for digital game-based vocabulary acquisition.

Overall, the results indicate that online matching games and traditional instruction achieved statistically equal increases in vocabulary knowledge among seventh-grade students, at least under the circumstances and time evaluated here. To determine whether the descriptive pattern seen here would continue, reverse, or resolve into a meaningful impact, more study with a longer treatment period, a bigger sample, and tighter control of unrelated classroom factors is advised.

CONCLUSION

This experiment used a quasi-experimental approach to explore the influence of online matching games on EnglishClub.com on vocabulary mastery among seventh-grade students at SMPN 19 Bekasi. The analysis of pre-test, post-test, and N-Gain Scores using IBM SPSS Statistics 27 yielded the following conclusions.

First, The results of the Shapiro-Wilk and Kolmogorov-Smirnov tests showed that the data for both the experimental and control classes did not generally follow a normal distribution (Sig. =.000 for the N-Gain Score in both classes, and Sig. < 0.05 for almost all variables). Second, Levene's Test ($F = 0.461$, Sig. = 0.500 > 0.05) indicated that the variance between the two groups on the N-Gain Score was homogenous. Third, using the Independent Samples T-Test, $t = -.185$, $df = 68$, Sig. (2-tailed) = 0.854, revealed that there was no statistically significant difference in N-Gain Scores between the experimental and control groups at $\alpha = 0.05$. The small effect size (Cohen's d = -.044; 95% CI: -.513 to.425) supported this conclusion.

However, According to descriptive analysis, the control group's mean post-test (68.67 vs. 57.33) and N-Gain (5.17 vs. 4.70) scores were marginally higher than those of the experimental group, but this difference is negligible and not statistically significant. These findings suggest that using EnglishClub.com matching games did not result in a statistically significant or descriptively relevant increase in vocabulary mastery over traditional education within this sample and treatment length. The results of this study suggest that more research with larger samples, longer treatment periods, and tighter control of confounding variables is required before drawing conclusions about their comparative effectiveness against traditional teaching methods, even though digital game-based vocabulary tools like EnglishClub.com may still be valuable as entertaining supplemental resources.

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