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THE EFFECT OF USING ANAGRAM GAME ON STUDENTS VOCABULARY ACHIEVEMENT IN TENTH GRADE

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Abstract

This research investigated the effect of using the Anagram Game on students' vocabulary achievement in tenth grade at SMK Swasta Karya Jaya, addressing the identified problem of low vocabulary mastery that hinders their overall English language proficiency. Preliminary research indicated that out of 20 students, only 4 reached the minimum passing grade of 75, highlighting the need for effective vocabulary instruction strategies. The objective of this study was to determine whether the Anagram Game significantly affects students' vocabulary acquisition, specifically in nouns, verbs, and adjectives, which are foundational for English communication. Employing a quantitative research design with a pre-test and post-test control group, the study involved 40 tenth-grade students at SMK Swasta Karya Jaya, divided into an experimental group (Anagram Game) and a control group (conventional teaching). The experimental group's pre-test mean score was 72.4, and the post-test mean score was 83.45. The control group's pre-test mean score was 74.8, and the post-test mean score was 79.15. Before the independent samples t-test, data were analyzed using SPSS version 25 to ensure normality and homogeneity. The results of the data analysis indicated that the data were normally distributed and homogeneous. The independent samples t-test revealed a statistically significant difference in vocabulary achievement between the two groups (t-count = 2.108, df = 38, $p < 0.05$, t-table = 2.024), indicating that the Anagram Game had a positive effect on students' vocabulary acquisition. It is recommended that future research further explore different methods of the game in comparison with Anagram Game. This study provides empirical evidence supporting the use of game-based learning strategies for vocabulary instruction in senior high school settings.

Keywords: Anagram game, Vocabulary Achievement, Tenth Grade

Abstrak

Penelitian ini menyelidiki dampak penggunaan Permainan Anagram terhadap pencapaian kosakata siswa di kelas sepuluh di SMK Swasta Karya Jaya, dengan menangani masalah yang teridentifikasi yaitu penguasaan kosakata yang rendah yang menghambat kemampuan bahasa Inggris mereka secara keseluruhan. Penelitian pendahuluan menunjukkan bahwa dari 20 siswa, hanya 4 yang mencapai nilai kelulusan minimum 75, yang menyoroti perlunya strategi pengajaran kosakata yang efektif. Tujuan dari penelitian ini adalah untuk menentukan apakah Permainan Anagram secara signifikan memengaruhi perolehan kosakata siswa, khususnya pada kata benda, kata kerja, dan kata sifat, yang merupakan dasar untuk komunikasi bahasa Inggris. Dengan menggunakan desain penelitian kuantitatif dengan kelompok kontrol pra-tes dan pasca-tes, penelitian ini melibatkan 40 siswa kelas sepuluh di SMK Swasta Karya Jaya, dibagi menjadi kelompok eksperimen (Permainan Anagram) dan kelompok kontrol (pengajaran konvensional). Nilai rata-rata pra-tes kelompok eksperimen adalah 72,4, dan nilai rata-rata pasca-tes adalah 83,45. Nilai rata-rata pra-tes kelompok kontrol adalah 74,8, dan nilai rata-rata pasca-tes adalah 79,15. Sebelum uji-t sampel independen, data dianalisis menggunakan SPSS versi 25 untuk memastikan kenormalan dan homogenitas. Hasil analisis data menunjukkan bahwa data terdistribusi normal dan homogen. Uji-t sampel independen mengungkapkan perbedaan yang signifikan secara statistik dalam pencapaian kosakata antara kedua kelompok (t-hitung = 2,108, df = 38, $p < 0,05$, t-tabel = 2,024), yang menunjukkan bahwa Permainan Anagram memiliki efek positif pada perolehan kosakata siswa. Direkomendasikan agar penelitian di masa mendatang lebih jauh mengeksplorasi metode permainan yang berbeda dibandingkan dengan

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Permainan Anagram. Studi ini memberikan bukti empiris yang mendukung penggunaan strategi pembelajaran berbasis permainan untuk pengajaran kosakata di lingkungan sekolah menengah atas.

Kata Kunci : *Permainan anagram, Pencapaian Kosakata, Kelas Sepuluh*

INTRODUCTION

English is a critical language in global communication. It is widely used in various fields, including education, business, and technology. Many libraries provide books in English, making it key to accessing knowledge in many disciplines, such as art, history, science, philosophy, politics, and technology. Therefore, English language skills are essential for self-development and help us daily Sahib (2019). Mastering English opens access to various sources of information, increases career opportunities, and expands social networks. English language skills can be an invaluable tool in an increasingly connected world (Rahmaniar et al., 2019).

One of the crucial things to pay attention to when learning English is vocabulary. Enough vocabulary makes it easier for students to improve their English writing and speaking skills Siregar, Hasibuan, and Tanjung (2019). A vast vocabulary helps students to express ideas and feelings more clearly. The more words students master, the more confident they are when communicating. In addition, an extensive vocabulary also helps in understanding more complex texts (Fridayanti et al., 2021).

One effective way to teach English vocabulary is by using games. This method helps students learn new words in a more fun way. In addition, games also help students remember the material they have learned Sahib (2019). With a more relaxed and fun atmosphere, students will be more motivated to learn. They can interact with friends while learning, which makes the learning process more enjoyable. In addition, using games can create a positive learning experience so that students can absorb new vocabulary more easily and feel more confident speaking English. Based on the observation at SMK SWASTA KARYA JAYA,

The English teacher's interview also revealed that the current teaching methods focused more on theory than practice. The teacher also highlighted the students' lack of interest in learning English as one of the factors causing the low scores. Some students showed a passive attitude during learning, so they did not take the opportunity to ask questions or improve their understanding.

In addition, the teacher suggested the need for a more interactive learning approach to improve students' vocabulary mastery. For example, the use of games like vocabulary-based games could help students better understand and remember new words. The teacher also stated that ongoing evaluation through practice questions and group discussions could help students gradually improve their vocabulary skills (Liando et al., 2022)..

According to Riswanto and Aryani (2017), achievement in learning outcomes is the capability students demonstrate due to cognitive processes and external environmental influences. The researcher interprets achievement as the successful acquisition of language during the learning process, which can be reflected in students' scores on vocabulary assessments. Riswanto and Aryani (2017) mentioned that in Indonesia, there is a positive relationship between students' current conditions and teachers about student achievement. To successfully master vocabulary, schools not only implement various systems but also compete to apply different methods and create effective techniques. During the researcher's mini-interview while teaching tenth-grade students at SMK Swasta Karya Jaya in the 2024/2025 academic year, it was found that the biggest challenge for learners is their lack of vocabulary in learning English (WILDANI, 2021).

Facing this problem, researchers offer a solution to examine students' vocabulary achievement. Anagrams are words produced by rearranging another word's letters to form a new word. Thus, each letter of the original word creates a new phrase or word. Using anagram games,

students' vocabulary achievement increased between the Pretest and post-test. Shows that anagram games effectively improve students' vocabulary skills Muhammad (2021). Although many previous studies have demonstrated the effectiveness of anagram games in enhancing students' vocabulary mastery at the junior high school level, there is a lack of research targeting students at the senior high school level. The studies that have been conducted, such as in SMPN 3 Balaraja Kartikasari, Arjulayana, and Putra (2021) and SMP Negeri 8 Pematangsiantar (Sinaga et al., 2020), generally focus on students at a younger age. However, senior high school students have more mature cognitive abilities, different curriculum pressures, and possibly higher levels of English proficiency. Therefore, it is crucial to explore whether anagram games still affect vocabulary achievement at a higher level of education. This study offers novelty in implementing anagram games on tenth-grade students in a private high school. This study is expected to provide new contributions to understanding how this game-based learning method can be adapted to older age groups and how the differences in context between private and public schools affect learning outcomes (Osipova & Bagrova, 2022).

Based on previous research, high school students have different needs than junior high school students in terms of vocabulary achievement because they need to deal with more complex texts and higher communication in English. My temporary hypothesis is that using anagram games will affect the vocabulary mastery of Tenth-grade students. Anagram games were chosen because, in addition to honing students' critical thinking skills, this game also creates a more enjoyable and interactive learning atmosphere. With that, the researcher would like to conduct research entitled "The Effect of Using Anagram Game on Students' Vocabulary Achievement at the tenth grade of SMK Swasta Karya Jaya."

METHOD

This study applied an experimental quantitative design. (John, 2014) described experimental research as a method where researchers deliberately introduced a treatment to observe its effects and understand cause-and-effect relationships. The intent was to determine if the treatment, in this case, using anagram games, impacted students' vocabulary achievement (Kabooha & Elyas, 2018).

The researcher divided the participants into two groups: experimental and control groups. Both groups used the same vocabulary materials but with different instructional methods. The experimental group had received instruction through anagram games, while the control group had followed a traditional, teacher-centered vocabulary lesson. The research design is presented in the table below (Aulia et al., 2020).

In this design, "X1" and "Y1" represented pretest scores for the experimental and control groups, respectively, while "X2" and "Y2" represented post-test scores. This design allowed the researcher to compare the vocabulary achievement of students taught with anagram games to those who received conventional teaching, providing insights into the effectiveness of game-based learning strategies in vocabulary instruction (Hanafiah et al., 2022).

Sugiyono (2017) stated, "Population is the generalization of the area, including objects and subjects that have certain qualities and characteristics determined by the researcher." This definition meant a population could consist of people, objects, or other entities aligning with the research's focus. This study's population included all tenth-grade students at SMK Swasta Karya Jaya. This group comprised 40 students who met this research's vocabulary achievement criteria (Hanif, 2016).

Sugiyono (2017) stated a sample was "a portion of the amount and the characteristics possessed by the population." The researcher selected two classes as the sample from the entire population in this research. These two classes were X-TKJ and X-Logistik. The experimental class was X-TKJ, consisting of 20 students, while X-Logistik, also composed of 20 students, was assigned as the control class. Thus, the total number of samples in this research was 40 students.

Instruments in quantitative research included tests, interviews, observations, and

questionnaires (John, 2014). The instrument that was used in this research was a test. The test consisted of several questions to measure someone's knowledge, ability, and intelligence to determine whether they had achieved the learning material. It assessed how far the students' vocabulary achievement extended. The vocabulary test was given before and after the experiment. The test consisted of 30 multiple-choice questions for both the pre-test and post-test. Before using the Anagram Game, students took a pre-test to measure their initial vocabulary skills. After using the app in the experimental class, students took a post-test to evaluate their vocabulary progress.

This study implemented a pre-test and post-test to collect quantitative data on students' vocabulary, comparing results before and after using the Anagram Game. The results from both tests were analyzed statistically using a recruitment test, and Independent Samples Test through SPSS v.25 to compare students' vocabulary mastery before and after the treatment with the Anagram Game. The t-test was then used to determine if the increase in students' vocabulary scores from the pre-test to the post-test was significantly influenced by the use of the Anagram Game or not.

RESULT AND DISCUSSION

Data

In this chapter, the researcher would like to present the description of the data, findings, and discussion. To find out the effect of an anagram game on students' vocabulary, the researcher identified some results, they are; The scores of students before treatment, the difference between students' scores for the pre-test between students who were taught by anagram game and those who were taught by using conventional teaching.

The Result of the Pre-Test and Post-Test Experimental Class

Table 1. The Score Result of the Pre-Test and Post-Test of Experimental Class

No	Name of Students	Pre-Test	Post-Test
1	JF	67	80
2	FD	67	70
3	WL	80	80
4	EA	73	87
5	MS	63	87
6	ST	80	87
7	DA	80	83
8	CA	77	77
9	RA	70	100
10	RF	73	80
11	KK	70	83
12	DA	73	87
13	SA	80	90
14	AH	83	87
15	NA	63	73
16	DK	63	77
17	MA	70	87
18	KR	83	97
19	NK	60	77
20	RA	73	80
	ΣX_1	1.448	1.669

$M1$	72,4	83,45

The study, "The Effect of Using Anagram Game on Students' Vocabulary Achievement in Tenth Grade of SMK Swasta Karya Jaya," sought to determine how anagram games affected students' vocabulary acquisition. As seen in Table 4.1, the pre-test and post-test results of 20 experimental class students demonstrated that the game had a notable impact. The cumulative pre-test score was 1,448, averaging 72.4, while the post-test total rose to 1,669, averaging 83.45, indicating a mean gain of 11.05 points. Individual analysis showed that the majority of students were positively affected; for instance, RA displayed the most significant increase of 30 points, with MS following closely with a 24-point improvement. Moderate influences were noticeable in students like EA and KK, who obtained between 13 and 14 additional points, whereas FD and AH showed minimal changes with gains of only 3 to 7 points. However, WL and CA's scores remained constant, showing no influence. These positive effects likely stemmed from the anagram game's interactive character, which fostered a more captivating learning environment and helped students retain vocabulary more readily. The game also drew their interest and motivated them to engage more actively in the learning process. While the method generally had a beneficial influence, differences in individual learning preferences and initial skill levels played a role in the outcomes. Ultimately, using anagram games proved advantageous and significantly affected students' vocabulary performance in this study.

The researchers described the students' affect scores on the Pre-test and Post-test in the experimental class by the graphic as follows:

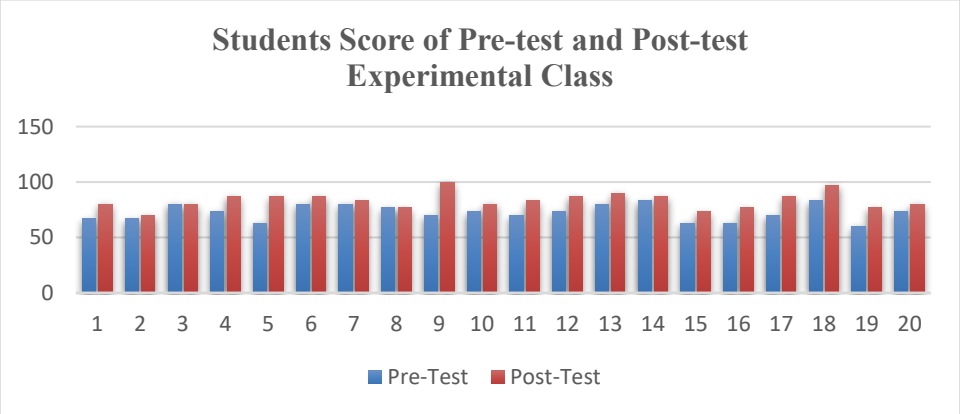

Figure 1. Students Score of Pre-test and Post-test Experimental Class

Graphic 4.1, titled "Students Score of Pre-test and Post-test Experimental Class," visually presented the individual scores of the 20 students in the experimental group. Each student had two bars representing their performance: a blue bar for the pre-test score and an orange bar for the post-test score. A clear trend emerged from the graphic, indicating that most students achieved higher scores on the post-test compared to the pre-test. This was demonstrated by the consistent presence of taller orange bars compared to the blue bars for the majority of students. While some students showed significant gains, evidenced by a large difference in height between their pre-test and post-test bars (e.g., students 9 and 18), others exhibited more modest improvements (e.g., students 2 and 20). The graphic effectively illustrated the overall positive impact of the intervention on the student's vocabulary achievement, with the visual representation underscoring the general increase in scores from pre-test to post-test across the experimental class.

Recruitment test

The requirement test is the test to find out the mean score of the data and also to prove whether the data is normal and homogeneous or not.

The data normality of the two groups was calculated using SPSS v.25. The significant level of the test was 5% or 0.05.

Table 2. Normality Test

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	df	Sig.
Hasil	Pre-Test X-TKj (Experimental Class)	.156	20	.200*	.937	20	.209
	Pre-Test X-Logistik (Control Clas)	.125	20	.200*	.968	20	.710

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table presented the normality test results for the pre-test scores of both experimental and control groups, utilizing the Kolmogorov-Smirnov and Shapiro-Wilk tests. These tests were essential to determine if the data distribution resembled a normal (bell-shaped) curve, a crucial assumption for many statistical analyses. The Shapiro-Wilk test was prioritized due to the sample size of 20 students per group.

The significance (Sig.) value from the Shapiro-Wilk test was the key indicator for normality. A Sig. value greater than 0.05 suggested that the data was normally distributed, while a value less than or equal to 0.05 indicated non-normality. In this case, the Experimental Class (Pre-Test X-TKJ) had a Sig. Value of .209, and the Control Class (Pre-Test X-Logistik) had a Sig. Value of .710. Both values exceeded 0.05.

As both groups' pre-test scores were determined to be normally distributed, the research could proceed with parametric statistical tests like t-tests. Specifically, an independent samples t-test could have been conducted to compare the initial vocabulary knowledge between the experimental and control groups. A paired sample t-test could have been used to determine the vocabulary development within the group. Had the data failed the normality test, non-parametric alternatives such as the Mann-Whitney U test (for independent groups) would have been necessary (Crosson et al., 2021).

Homogeneity Test

The homogeneity of variance test aims to determine whether the initial value (pre-test) of the sample has a homogeneous variance.

Table 3. Homogeneity Test

Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Hasil	Based on Mean	.045	1	38	.832
	Based on Median	.026	1	38	.873
	Based on Median and with adjusted df	.026	1	37.924	.873
	Based on trimmed mean	.042	1	38	.839

Table "Test of Homogeneity of Variance," presented the results of Levene's test, a statistical test used by the researcher to assess whether two or more groups have equal variances. Simply put, it checked if the spread of scores was similar between the experimental and control groups before the experiment began. Having similar variances is an important assumption for certain statistical tests, such as the independent samples t-test or ANOVA, which might be used later to compare the groups' post-test scores. If the variances are significantly different (not homogeneous), it can affect the validity of subsequent tests (Manihuruk & Siahaan, 2020).

The table provided different versions of Levene's test (Based on Mean, Median, etc.), but the interpretation remained similar across all of them. The key value to focus on was the "Sig." (significance) value, which represents the p-value. The general rule is that if the Sig. Value is greater than 0.05, the assumption of homogeneity of variance is met. Looking at the table, the Sig. Values for all versions of Levene's test (0.832, 0.873, 0.873, and 0.839) were all well above 0.05. This indicated that the variances of the pre-test scores for the experimental and control groups were not significantly different; in other words, they were considered homogeneous (Isterya, 2019).

Because the assumption of homogeneity of variance was met, the researcher could confidently proceed using statistical tests that assume equal variances, such as the independent samples t-test, to compare the post-test scores of the experimental and control groups.

Independent Samples Test

An independent samples t-test was conducted to compare the mean post-test scores of the experiment and control groups. Before the t-test, Levene's Test for Equality of Variances was examined to assess the assumption of homogeneity of variances.

Table 4. Table Independent Samples 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
Nilai	Equal variances assumed	1.678	.203	2.108	38	.042	4.300	2.040	.170	8.430
	Equal variances not assumed			2.108	34.592	.042	4.300	2.040	.157	8.443

After confirming the assumptions of normality and homogeneity, the researcher employed the Independent Samples t-test to explore whether the anagram game intervention had a different effect on vocabulary acquisition compared to the conventional teaching method. The central question was whether the game truly affected how well students learned new words.

The t-test results yielded a t-count of 2.108 with 38 degrees of freedom. To determine the critical t-value, the researcher consulted a standard t-distribution table. With a degrees of freedom (df) of 38 and employing a two-tailed test at a significance level (α) of 0.05, the corresponding critical t-value was identified as 2.024. This value served as the threshold against which the calculated t-statistic would be compared to assess statistical significance (Lin et al., 2018).

Given that the calculated t-count (2.108) > t-table(2.024), the researcher concluded that the anagram game intervention did have a statistically significant effect on vocabulary learning. This bolstered the notion that using anagrams as a teaching tool was more effective than relying on traditional approaches. The numbers suggested that the game positively affected students' vocabulary learning.

Testing Hypotesis

In the research titled "THE EFFECT OF USING ANAGRAM GAME ON STUDENTS' VOCABULARY ACHIEVEMENT IN TENTH GRADE OF SMK SWASTA KARYA JAYA," the following hypotheses were formulated:

1. Alternative Hypothesis (Ha): There is a significant effect of using Anagram Games on students' vocabulary achievement in the tenth grade of SMK Swasta Karya Jaya.
2. Null Hypothesis (Ho): There is no significant effect of using Anagram Games on students' vocabulary achievement in the tenth grade of SMK Swasta Karya Jaya.

To test these hypotheses, a quantitative approach was employed, utilizing an independent samples t-test. The researcher collected data through pre-tests and post-tests administered to both an experimental group, which used anagram games, and a control group, which followed conventional teaching methods. After ensuring that the assumptions of normality and homogeneity of variance were met, the t-test was conducted.

The results indicated a t-count of 2.108 with 38 degrees of freedom. By consulting a standard t-distribution table, the critical t-value at a significance level of 0.05 was found to be 2.024. Since the calculated t-count (2.108) exceeded the critical t-value (2.024), the null hypothesis (Ho) was rejected, and the alternative hypothesis (Ha) was accepted. This outcome confirmed that there was a statistically significant effect of using anagram games on students' vocabulary achievement, suggesting that incorporating this game into vocabulary instruction can lead to improved learning outcomes for tenth-grade students at SMK Swasta Karya Jaya.

Research Findings and Discussion

Research Findings

The primary objective of this research was to determine the effect of using the Anagram Game on students' vocabulary achievement in the tenth grade at SMK Swasta Karya Jaya. To this end, data were collected through pre-tests and post-tests administered to both the experimental and control groups. These data were then subjected to statistical analysis, including tests for validity, reliability, normality, homogeneity, and an independent samples t-test.

The key findings of the study are presented below. For the experimental group (Anagram Game), the mean score on the pre-test was 58.6, and the mean score on the post-test was 76.1. This showed an increase in the mean score in the experimental class that was taught by using the Anagram Game to the students. As for the Control Group (Conventional Method), the mean score on the pre-test was 55.6, and the mean score on the post-test was 63.5. The control class taught by using the conventional method to the students also showed an improvement in the mean score.

The test instrument exhibited adequate validity, as confirmed by expert judgment and item analysis. The content validity was ensured through alignment with the curriculum, clear instructions, and appropriate tasks. The reliability of the test instrument was assessed using Cronbach's Alpha, yielding a coefficient of 0.812. This indicated strong internal consistency and reliability, suggesting that the instrument produced consistent results (Pratiwi & Nur, 2019).

The data from both pre-tests and post-tests were tested for normality using the Shapiro-Wilk test. The results indicated that the data were normally distributed ($p > 0.05$), which was important for the valid application of parametric statistical tests like the t-test. Levene's test for homogeneity of variances was conducted to determine whether the variances of the two groups were equal. The results showed that the variances were homogeneous ($p = 0.203$), supporting the assumption of equal variances required for the t-test (Ferrah & Nemmouchi, 2018).

The independent samples t-test revealed a calculated t-value (t-count) of 2.108 with 38 degrees of freedom (df). The critical t-value, obtained from a standard t-distribution table at a significance level (α) of 0.05, was determined to be 2.024. As the calculated t-value (2.108) exceeded

the critical t-value (2.024), the null hypothesis (Ho) was rejected. Therefore, the alternative hypothesis (Ha), stating that the use of Anagram Games significantly affects students' vocabulary achievement in tenth grade at SMK Swasta Karya Jaya, was supported. This finding indicated that the Anagram Game had a positive and statistically significant impact on students' vocabulary acquisition (Elfeky et al., 2020).

Discussion

The research findings provided strong support for the use of the Anagram Game as an effective instructional tool for enhancing vocabulary achievement among tenth-grade students at SMK Swasta Karya Jaya. The observed improvement in vocabulary scores among students in the experimental group suggested that the Anagram Game not only facilitated vocabulary acquisition but also fostered a more engaging and effective learning experience (Hijazi & AlNatour, 2020).

This study aligns with previous research demonstrating the benefits of game-based learning in vocabulary acquisition, such as the work of Muhammad(Octaviani et al., 2019) which highlighted the effectiveness of anagram games in improving students' vocabulary skills. Muhammad (2021) found a similar positive effect (mean gain of 15 points) using anagrams in a junior high setting. In contrast, the present study yielded a larger mean gain of 17.5 points (76.1 - 58.6) in the experimental group, suggesting a potentially greater effect among senior high school students. Furthermore, while Muhammad (2021) did not report formal tests of instrument validity, the present research rigorously established the validity and reliability of the test instrument through expert judgment, item analysis, and Cronbach's alpha. This strengthens the reliability of the findings (Fitriani et al., 2023).

However, this research extends beyond existing studies in several important ways. Kartikasari, Arjulayana, and Putra (Br Simamora & Oktaviani, 2020) examined the use of anagram games primarily at the junior high school level. This study specifically targeted senior high school students, an age group with potentially different learning needs and cognitive abilities. The findings suggest that the benefits of game-based learning extend to older learners, even in the context of a more challenging curriculum. For instance, Sinaga, Herman, and Pasaribu (2020) noted that their participants struggled with complex anagrams, but the senior high students in the current study demonstrated a higher capacity to handle more challenging word puzzles. Moreover, both Kartikasari et al. (Cerezo et al., 2019) relied primarily on qualitative data (observations and interviews), whereas the present study relied on a quantitative analysis, The researcher's test has been proven through validity, reliability, homogeneity, normality and t-test that supports the research, it makes this research stronger to proved this research is good for vocabulary in the field of study (Jia et al., 2022).

Moreover, this study adds a unique perspective by investigating the effect of the Anagram Game in a private senior high school setting (SMK Swasta Karya Jaya). Existing studies, such as those mentioned above, were largely conducted in public schools. The students at this private school may have a higher level of intrinsic motivation and are, therefore, more responsive to a game-based approach to learning. By transforming a traditionally tedious task into a stimulating and enjoyable activity, the Anagram Game proved effective in reinforcing vocabulary retention and improving overall language skills. Therefore, future research should consider the role of student motivation and learning preferences when implementing and evaluating game-based interventions (Palupi, 2021).

The findings of this research contribute to the growing body of evidence supporting the use of game-based learning in vocabulary instruction. Specifically, the study demonstrates that the Anagram Game can be an effective strategy for enhancing vocabulary achievement among tenth-grade students at SMK Swasta Karya Jaya. These results suggest that educators should consider incorporating interactive games, such as the Anagram Game, into their teaching practices to promote more engaging and effective vocabulary learning experiences for senior high school students (Simanungkalit et al., 2019). The present study also suggests a need for further exploration of

contextual factors such as school type and student motivation to better understand and optimize the effect of game-based interventions

CONCLUSION

In this study, the effect of using the Anagram Game on students' vocabulary achievement in the tenth grade at SMK Swasta Karya Jaya was investigated. The research was motivated by the observed challenges students face in acquiring vocabulary, which is essential for their overall language proficiency. The introductory chapter highlighted the significance of vocabulary learning and its impact on student's ability to communicate effectively in English. It established a framework for understanding how innovative teaching methods, such as game-based learning, could address these challenges.

The research employed a quantitative approach, utilizing pre-tests and post-tests to measure vocabulary achievement among two groups: an experimental group that used the Anagram Game and a control group that received conventional instruction. The findings revealed that the experimental group had a mean score of 76.1 on the post-test compared to 63.5 for the control group. This significant difference indicated that the Anagram Game effectively enhanced students' vocabulary acquisition, supporting the alternative hypothesis that game-based learning can lead to improved educational outcomes.

The statistical analysis conducted in this study included tests for the validity and reliability of the assessment instruments, ensuring that the results were credible. The Cronbach's Alpha coefficient of 0.812 indicated strong internal consistency, while normality and homogeneity tests confirmed that the data met the assumptions required for parametric testing. The independent samples t-test yielded a t-count of 2.108, which exceeded the critical t-value of 2.024, leading to the rejection of the null hypothesis and further validating the effectiveness of the Anagram Game.

The discussion section elaborated on how these findings align with previous research on game-based learning, particularly studies by Muhammad (2021) and others that focused on younger students. This research extended existing literature by demonstrating that older students, specifically those in senior high school, could also benefit significantly from interactive learning strategies like anagram games. The study emphasized that engaging students through enjoyable activities not only enhances vocabulary retention but also fosters a positive learning environment.

Moreover, this research contributed valuable insights into the implementation of game-based learning in a private school setting, contrasting with many studies conducted in public schools. The unique context of SMK Swasta Karya Jaya provided an opportunity to explore how intrinsic motivation among students might influence their responsiveness to innovative teaching methods. The findings suggested that incorporating interactive games into vocabulary instruction could be a powerful strategy for educators aiming to improve student engagement and achievement.

In conclusion, this study confirmed that using the Anagram Game significantly impacts vocabulary achievement among tenth-grade students at SMK Swasta Karya Jaya. The positive outcomes highlight the importance of integrating game-based approaches into educational practices to enhance language learning experiences. Future research should continue to explore various contextual factors influencing game-based interventions and examine their effectiveness across different educational settings and age groups to further enrich our understanding of effective teaching methodologies in language education.

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