

Tic Tac Toe Effectiveness in Teaching English Vocabulary for SD Dana Punia Singaraja Fifth Graders

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ABSTRACT

Vocabulary has become an essential element for students to communicate with others. This research intended to analyze students' vocabulary mastery after being exposed to the Tic Tac Toe game as a learning medium. The total number of the class is 17 students of fifth-grade students of SD Dana Punia Singaraja in the 2021/2022 academic year agreed to participate in this study. This research used pre-experimental research in one group pre-test post-test design. The researcher took the accurate data during six meetings of implementation by teaching them using Tic Tac Toe Game. The Tic Tac Toe game was used as a strategy with the familiar nine grid of the Tic Tac Toe board. It used a vocabulary test with multiple-choice as an instrument. The vocabulary mastery was improved from 65.00 to 79.12 in the mean score which means the vocabulary mastery of the students was affected by the implementation of the Tic Tac Toe Game. Besides, Kolmogorov-Smirnov and Levelene Statistic test revealed that the test result was normally distributed and homogeny. Furthermore, the effect size was showing this game has a strong effect on the students' vocabulary mastery. As a result, the Tic Tac Toe game significantly affected students' English vocabulary mastery.

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INTRODUCTION

When it comes to learning a foreign language, vocabulary is critical for young learners. Young learners can be defined as five or six to twelve-year-old children who are still in elementary school (Bayeck, 2020). The skeleton of language attempts to improve young learners' four English abilities, including listening, speaking, reading, and writing, via various activities and experiences

(Syakur, 2020). To be able to express meaning, kids need additional education regarding vocabulary and grammar (Hadryanti and Narius, 2018). Educating the children about language may be a challenging task. Students from non-native nations must practice more than their counterparts from native countries (Bustari, et.al.,2017). Furthermore, the instructor must pique the pupils' attention and motivate them to do their best work (Bayeck, 2020). It was also claimed that these critical components are advantageous to kids in everyday conversation. According to Parmawati and Inayah (2019) ability to communicate in English is critical. As an initial step, communication would need the vocabulary to fulfil the component of language acquisition (Lelawati, et.al., 2018). The acquisition of new vocabulary enhances students' ability to communicate with others. Communication requires the usage of language elements and phrases (Seraj and Habil, 2019).

Every student of English needs vocabulary to communicate with others, and hence language is essential. While doing the study, it was discovered that students in English learning courses struggled with a lack of vocabulary and ignored the teacher's explanation. It was confirmed by another researcher (Sharon and Julie, 2010) that when teachers recognize a problem, they should use the vocabulary teaching strategy to resolve it. Using a game-based learning strategy, teachers may introduce gaming elements into the classroom and aim to motivate students to engage with the material in a fun and engaging way (Pho and Dinscore, 2017). Furthermore, Ghazal and Singh, (2018) said it is not necessarily in the form of a game but is used as a learning activity. It could help the students to express their ideas and reach the purpose of the material. The students could play this game without worrying about the possibility of getting a poor mark

During the implementation of the game, the students would have the possibilities to interact with their friends with the help of gamification (Ružic and Dumancic, 2017). The goal of game-based learning is for participants to compete against their friends and themselves by using points, levels, or time constraints (Liu, et.al.,2020). The experience earned by each player as a result of their actions or choices is what makes a game special. It is expected that students would learn to be courageous in learning from their mistakes (Abdillah, 2017). High Order Thinking Skills (HOTS) are encouraged as a result of game-based learning to solve the challenge (Ding, et.al., 2017).

Tic Tac Toe Game is a way to teach the students by creating a fun and collaborative environment in the classroom. There are many assignments from which students may demonstrate their knowledge in this method, which is called differentiation (Zulfaidah, 2020). There are nine squares on the board, which looks like the board from Tic Tac Toe, and children may be expected to complete "three in a row." (Honarmand, et.al., 2017). Students have different learning styles, interests, and talents, the activities and were presented in the various scenario. Students with more ability utilized it as an extension of activities, a review, and a practice session. It is possible to modify the tic-tac-toe game by using open-ended questions, hints, figures, or other elements that correspond to the level of Bloom Taxonomy (Zainuddin, 2013).

A survey of pupils in grade 5 at Dana Punia Elementary School in Singaraja revealed that a significant issue they were experiencing was a sense of monotony, and difficulties communicating since they do not possess an extensive vocabulary. As the phenomena mentioned earlier, the researchers wish to perform a study named "The Effectiveness of Tic Tac Toe Game in Teaching English Vocabulary." Tic Tac Toe has been chosen as a learning medium for various reasons.

First, it is well recognized in Indonesia, and because no primary school teacher in Bali has yet to introduce this game to their students. Then, their emotions would be affected, and they would have the opportunity to communicate with their peers. Furthermore, Tic Tac Toe has not been implemented at Dana Punia Elementary School. Consequently, to teach English to young learners, the Tic Tac Toe game would be employed.

The tic-tac-toe game matches two players who use a 3x3 grid to put either X or O in vertical, horizontal, or diagonal (Zulfaidah, 2020). It has been the subject of comparable studies undertaken by other researchers. A recent study conducted by (Diyaningrum, 2018; Hasan 2018; Zulfaidah, 2020; Risnawati, 2019) found that the pupils' vocabulary increased as a result of the therapy in junior high school. It indicated both flashcards and Tic Tac Toe had influenced students' vocabulary mastery compare to the traditional method (Honarmand et al., 2017). Other than that, the research by Amelia (2017) stated that before using Tic Tac Toe is accessible, such as differentiate between simple past and simple present tense. The subsequent research, (Hasanah, 2021) conducted a study on the usage of Tic Tac Toe in teaching high school pupils how to talk.

Dana Punia Elementary School in Singaraja is the setting for the study. The writers intend to use the tic-tac-toe game to teach English vocabulary to young learners. It is primarily concerned with improving pupils' vocabulary knowledge, which limits their ability to comprehend new words. Deriving from the background of this study, this following question is searching for an answer: Is there any significant effect in implementing the Tic Tac Toe game for fifth-grade students at SD Dana Punia Singaraja?

Additionally, there are the implications of the study, which include theoretical and practical significance. Theoretically, this research was used to determine the impact of Tic Tac Toe implementation. While practically, this research determined to provide a broader knowledge in teaching English vocabulary. Thus, the researcher used the null hypothesis (H_0) and alternative hypothesis (H_a) as follows:

H_0 : There is no significant effect on students' vocabulary mastery after implementing Tic Tac Toe game ($N_1 = N_2$)

H_a : There is a significant effect on students' vocabulary mastery after implementing Tic Tac Toe game ($N_1 > N_2$)

METHODS

This research used a quantitative method that measures the data objectively (Ary, et.al., 2010). The quantitative data were collected using a pre-experimental research approach using a one-group pretest-posttest design (Cresswell, 2012). Students were tested before and after playing Tic Tac Toe games to see their improvement. In addition, the researchers counted the mean, mode, median, range, and standard deviation using statistical analysis, which is a descriptive statistical analysis. There were 17 students of fifth-grade students from SD Dana Punia Singaraja who participated in this research. Fifth-graders were chosen because they were still relatively new English learners. Besides, they had already had a more extended period of exposure to the

language. As a bonus, fifth-graders already know how to communicate and operate as a team, making the tic-tac-toe game much more straightforward to teach.

The researchers collected data by administering a vocabulary test to determine the pupils' vocabulary mastery. This test contained the English material based on the blueprint given by the school as follows part of the human body, illness, symptoms, and activity. The vocabulary test served as both a pre-and post-test. In other words, the pre-and post-test questions were identical. Twenty multiple-choice items comprise the vocabulary test. The researchers conducted pre-and post-tests to determine the effect of introducing the Tic Tac Toe game to fifth-grade students at Dana Punia Elementary School. The pretest was administered immediately at Dana Punia Elementary School on October 21st. On November 25th, 2021, the researcher passed the post-test to the students. The pre-and post-tests consisted of twenty multiple-choice questions. Students were given those questions based on a template provided by SD Dana Punia's teacher. Students had 45 minutes to complete both the pre-and post-tests. After measuring students' scores, the researchers gathered their results to determine the difference between before and after treatment.

Quantifiable data was analyzed quantitatively to determine how implementing the Tic Tac Toe Game among fifth-grade pupils in SD Dana Punia Singalja affects their vocabulary development. Descriptive statistics analysis and inferential analysis were used to examine the data. IBM Statistics 23 was used to analyze this study's result to figure out the mean, median, mode, range, variance, standard deviation, normality, homogeneity, and paired t-test. Then, the researchers also find the effect size of the treatment.

Before data analysis was carried out, the research instrument was examined using the Gregory formula. A panel of industry experts evaluated the goods to see whether they were appropriate for testing. The Gregory formula was used to assess the researchers' judgment. Here relevant means the point of each instrument does not need to be revised, meanwhile irrelevant means the point of the instrument needs to be revised or omitted. The result of the content validity can be seen in Table 1.

Judge 1		Judge 2	
Relevant	Irrelevant	Relevant	Irrelevant
25	0	25	0

Table 1: Content Validity Analysis

Every single item in the vocabulary test had been evaluated, with the results revealing the whole 25 items are entirely relevant. The results are further accumulated by using Gregory's formula afterwards.

$$\text{Content Validity} = \frac{25}{0+0+0+25} = 1$$

Using the Gregory method, the content validity was 1.0, which means that all of the questions were relevant and highly valid because their high content validity could be tested out on 30 fifth-grade students in SD N 3 Banjar Jawa.

To know the detail of the empirical validity test result, the researcher put the impact on a table to see the comparison between the R count and R table. There were 25 items with df (degree of freedom) 25, and the significance level used in this study was 0.01. From the result, the r-table of this study was 0.361. Twenty items were found and valid. Besides, the researcher also looking for the result of the reliability of the test. The result can be seen in Table 2 below:

Reliability Statistics	
Cronbach's Alpha	N of Items
.745	25

Table 2: Result of Try-out Reliability Analysis

The reliability of an item was determined by examining the dependability criterion or range. The Alpha-Cronbach test was used to determine the experiment's level of dependability. For reliability concerns, sample test data were put into SPSS and evaluated using statistical tools. The reliability of the test was determined to be 0.745. If the category for reliability tests was adequate, then so be it. The results of the trial suggested that it was valid. The researcher then assessed students' effects using a legitimate instrument.

RESULTS AND DISCUSSION

The researchers then used IBM Statistics 23 to analyze the data to determine how SD Dana Punia's fifth-grade students performed on pre- and post-tests. The IBM Statistics 23 was used to know the mean, median, mode, range, variance, sum, max, min, and the standard deviation from the pre-test and post-test scores of the fifth-grade pupils. The pre-and post-test scores were employed in this descriptive analysis. After an in-depth analysis, the researchers could determine if the Tic Tac Toe Game impacts pupils' language comprehension.

Descriptive Statistics		
	Pretest	Posttest
N	Valid	17
	Missing	0
Mean	65.00	79.12
Median	70.00	80.00
Mode	75	60 ^a
Std. Deviation	15.910	16.321
Variance	253.125	266.360
Range	50	60
Minimum	40	40
Maximum	90	100
Sum	1105	1345

a. Multiple modes exist. The smallest value is shown

Table 3: Descriptive Statistic of Student's Vocabulary Mastery Before and After the Implementation of Tic Tac Toe Game

Table 3 shows the result of the descriptive statistical analysis for both pre-test and post-test. It can be seen that Tic Tac Toe affects students' vocabulary mastery. The result shows that the average student's score before the test increased by 14.12 from 65.00 to 79.12 after being treated by Tic Tac Toe Game. It is indicated that students had successfully learned using the Tic Tac Toe game in increasing their vocabulary mastery. The following index is median. The pre-test score has a median score of 70.00, while the post-test has a median score of 80.00. It proves that the post-test score has a higher mid-point score in the distribution. Then, the following index is the mode. In the Table, the pre-test score mode is 75. Meanwhile, the post-test has several modes, including 60, 75, 80, 90, and 100, yet the Table only shows the smallest value.

To see the variation of the data around the median and mean, the researchers also analyze the standard deviation for the vocabulary test for fifth-grade students of SD Dana Punia Singaraja. The data showed that the standard deviation for the post-test was higher than the standard deviation on the pre-test was 15.910, while the post-test standard deviation was on the value 16.321. It proves that there is an improvement in the student score distribution. The higher the standard deviation means that the distance between the mean and the data of the student result is also farther in line with the standard deviation. The variance of the data also shows an increase. It shows how various data are distributed. It is increased from 253 to 266. Thus, it shows the distribution of the score also increases.

The following index, namely range, follows it. This index shows the range is raised from 50 to 60. The lowest score in the pre-test is 40, while the best is 90. While the post-test best score is 100 and the lowest score is 40. This range might be indicating the more considerable substantial disparity, although the score has improved on the post-test demonstrated by the 100 scores. Last, the cumulative value of the score likewise increases from 1105 to 1345. It shows that the student score of the student increases. To sum up, student performance improves after using the Tic Tac Toe game.

Most of the students got 60 on the pre-test, although on the post-test, most of them got 80. This Tic Tac Toe Game's success was shown by the gap in the treatment given to the kids 16,11 (82.50-66.39). (82.50-66.39). The score demonstrated changes in their language competence before and after utilizing Tic Tac Toe Game. From the Table, a poor score came from the score before the therapy, yet after treatment showed a satisfactory score. Thus, Tic Tac Toe Game positively enhanced students' English vocabulary mastery.

After analyzing the data through descriptive statistics, the researchers used inferential statistical analysis to achieve the final result. To find the result, the researchers used paired t-test to compare both before and after the result of the treatment in one sample group. To conduct the t-test, a requirement had to be done, namely normality and homogeneity test. Specifically, the test named Kolmogorov-Smirnov / Shapiro-Wilk statistic test and Levene Statistic. The result of the normality test was categorized as generally distributed if the significance value (.Sig) was above the value of 0.05. Besides, the result of the Homogeneity test was used to identify the students' results homogeneity. It is homogeneity when the significance value was not lower than 0.05.

a. Result of Normality Test Before and After Implementing Tic Tac Toe Game

The normality test was used to know whether the data is distributed normally. To determine whether the data from both groups is normal or not, a statistical technique known as the normality test is utilized. The SPSS 23 application for Windows was used to perform the normality test in this study.

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest	.153	17	.200*	.940	17	.324
Posttest	.111	17	.200*	.942	17	.344

Table 4: The Normality Test Result of Fifth-Grade Students of Dana Punia towards the Implementation of Tic Tac Toe

Based on Table 4. the data showed that the significant value for both pre-test and post-test was 0.200. It showed that the p-value is more effective than 0.05, which means the data is typically distributed.

b. Homogeneity test

Test of Homogeneity of Variances			
Levene Statistic	df1	df2	Sig.
.060	1	32	.809

Table 5: Homogeneity Result of pre-test and post-test in Implementing Tic Tac Toe Game

The homogeneity test of pre and post-test showed that the significance value was higher than 0.05, which means the variable was homogeny.

c. T-Test

After the data was analyzed using the normality test as the criteria in holding the t-test, the researchers then analyzed the paired t-test to know the significant effect of the pre and post-test. Paired t-test was used because the subject of this research is using one class pre-post-test design. The result of this research can be seen in Table 6.

	Paired Samples Test								
	Paired Differences								
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1 pretest – posttest	-14.118	11.488	2.786	-20.024	-8.211	-5.067	16	.000	

Table 6: Paired T-test's Result of pre-test and post-test in Implementing Tic Tac Toe Game

The Tic Tac Toe game had a considerable influence on students' vocabulary mastery, and the study's statistical findings can be accepted. The observed (to) and crucial values of t establish the

conclusion (tcv). As can be seen from the paired t-test result in Table 7, the value of Sig. (2-tailed) is 0.000. It signifies that the t-value was less than the statistically significant alpha ($\alpha= 0.05$), implying that the null hypothesis (H_0) was rejected. While this was occurring, the opposing hypothesis was accepted. To summarize, the alternative hypothesis was accepted, indicating that the Tic Tac Toe game had a considerable effect on pupils' vocabulary mastery ($N_1 > N_2$).

d. Effect Size

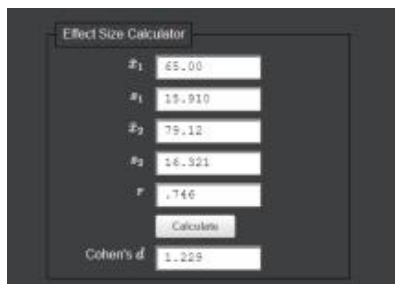


Figure 1: The effect size result of Tic Tac Toe implementation

The effect size test result of Cohen's value was 1.229. This result showed that the level of treatment effectiveness between pre-test and pos-test of fifth-grade students at SD Dana Punia Singaraja was strong. It considers a substantial effect because it is above 1.00.

According to Aldabbus (2012), young learners are part of the learner who is enthusiastic and easy to be stimulated. The learning process used in this study was teaching vocabulary using games based on the theory of Bakhsh (2018) which interpreted the game as a proper medium to give unpredictable moments to challenge the students and increase their communicative skills. In line with this statement, the researchers found that the subject of this research the fifth-grade students of SD Dana Punia Singaraja were enthusiastic and attracted by the Tic Tac Toe game.

The game is used to fulfil the gap between the teacher and the students aimed to improve student's communication skills. It was aligned with the 21st-century learning theory that attracts the students to have 4C, including communication, collaboration, creativity, innovation, and critical thinking.

Vocabulary is the foundation upon which pupils' English learning is built. The researchers discovered that the students lacked activity, confidence, and vocabulary. They could not comprehend a basic query and consistently misspelt most words. These data corroborated the hypothesis of acquiring English vocabulary (Risnawati, 2019). The researchers chose the Tic Tac Toe game to help children improve their language mastery. According to Imama's idea, the Tic Tac Toe game connects students and teachers and encourages collaboration (Imama et al., 2017). Two large groups play this game dubbed the X and O. By cooperating in groups, the kids could talk and collaborate freely. According to Agustia's view, games should be introduced as a kind of competition to stimulate students throughout teaching and learning activities (Agustia & Amri, 2013).

This Tic Tac Toe game was taught to pupils in the fifth grade at SD Dana Punia Singaraja. The Tic Tac Toe game was utilized as the independent variable, and language competence was employed as the dependent variable. This class conducted a pre-test before the therapy on the same subject, e.g., a human body section, demonstrating sympathy, describing symptoms, and engaging

in a simple discussion. Additionally, the test was administered in the form of a vocabulary test. This study aimed to determine the effect of installing the Tic Tac Toe game. The study topic explained the considerable influence of Tic Tac Toe adoption through descriptive statistics, normality testing, paired t-tests, effect size, and hypothesis testing. The researchers concluded that the Tic Tac Toe game had a significant effect on pupils' vocabulary mastery.

According to the results, the average of the students' scores before the exam went from 65.00 to 79.12 after they were treated with the Tic Tac Toe Game. The Tic Tac Toe game helped kids improve their vocabulary is a strong indication. The median is the following metric. The median pre-test score is 70.00, whereas the median post-test score is 80.00. Post-test scores have a more excellent mid-point score in the distribution than pre-test scores, as shown by this data Pre-test standard deviation is 15.910, whereas the post-test standard deviation is 16.321. The results demonstrated that the post-test standard deviation was more significant than the pre-test standard deviation. It shows that the distribution of student grades has improved. Higher standard deviations suggest a more considerable disparity between the student's data and the mean, keeping with the range of possibilities. Also, the data's variability is growing. The variance is a measure of how widely dispersed the data are. From 253 to 266, the number has risen. Consequently, this suggests that the score distribution is likewise increasing.

Following that, the following index, range, is displayed. The index fluctuated between 50 and 60 points, indicating an increase in value. When taking the pre-test, the lowest possible score is 40, and the highest possible score is 90. However, the most significant post-test score is 100, and the least effective is 40. Finally, the cumulative score increased from 1105 to 1345. It demonstrates an increase in the student's grade point average. In summary, the Tic Tac Toe game has enhanced student achievement.

Most children achieved a pre-test score of 60 but an 80 on the post-test. Using this Tic Tac Toe Game, it is possible to observe a variance in the therapy delivered to pupils 16,11 before and following the game (82.50-66.39). The student's language skills had improved both before and after playing Tic Tac Toe. The Table demonstrates that the score before therapy was insufficient, whereas the score following treatment was adequate. As a result of playing Tic Tac Toe, learners' English language proficiency increased. Thus, by incorporating the Tic Tac Toe game into SD Dana Punia Singaraja, kids could grasp the vocabulary of empathy, human anatomy, symptoms, and rudimentary communication. The Tic Tac Toe game allows kids to collaborate with their peers while answering the grid's questions. When the pre-and post-test scores of fifth-grade pupils at SD Dana Punia Singaraja were compared, the normality and homogeneity test values were 0.200 and 0.809, respectively. This indicates that the Tic Tac Toe test results were regularly distributed and homogeneous.

Additionally, the paired t-test revealed a significant value of 0.000, less than 0.05. As a result, the alternative hypothesis (H_a) has been accepted, while the null hypothesis (H_0) has been rejected. As a result, the Tic Tac Toe game affected pupils' vocabulary acquisition. This result was supported by several studies. Hasanah (2021) found that the use of the Tic Tac Toe game has excellently improved students' vocabulary mastery, especially for vocabulary instruction. Then, (Hasan, 2018) also found that the students did not have enough vocabulary to express their ideas, yet after getting the Tic Tac Toe game treatment in the classroom, they found the t-table value is lower than the t-test which means this game has impacted their performance. In 2020, Zulfaidah

researched the use of Tic Tac Toe in students' vocabulary competency (Zulfaidah, 2020). It also indicated an improvement has been found after the treatment. Thus, the researchers also found that the effect size was above 1.00. To sum up, the results showed that the Tic Tac Toe game has had a strong effect and has significantly affected students' vocabulary mastery.

CONCLUSION

The purpose of this research was to identify the implementation of the Tic Tac Toe Game in teaching English vocabulary for the fifth-grade students at SD Dana Punia Singaraja. Based on the findings and discussions, the students significantly affected their vocabulary mastery after implementing the Tic Tac Toe game. It can be seen by the significantly increasing score for their vocabulary mastery after they were learning using Tic Tac Toe Game. The alternative hypothesis (H_a) has been accepted, while the null hypothesis (H_o) has been rejected. As a result, the Tic Tac Toe game affected pupils' vocabulary acquisition. This game can help the students with their vocabulary mastery and improve students' activeness in the classroom. The results showed that the Tic Tac Toe game has had a strong effect and has significantly affected students' vocabulary mastery.

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