# The Use of Crossword Puzzles to Enhance Student's Vocabulary Learning in the Vocational High School

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## Abstract

This classroom action research aimed to improve vocabulary mastery among 12th-grade vocational high school students in Yogyakarta through the use of crossword puzzles. The study involved 32 students and was conducted in two cycles, each comprising problem identification, action planning, implementation, observation, reflection, and revision. Data were collected through vocabulary tests, observations, and interviews. Validity was ensured using democratic, outcome, process, catalytic, and dialogic validity, with triangulation applied through time, investigator, and theory perspectives. Both qualitative and quantitative data were analyzed. Descriptive statistics and paired sample t-tests were used for quantitative analysis, while qualitative data were analyzed thematically. Results showed increased student engagement and improved vocabulary mastery. Engagement improvements were reflected in enthusiasm, focus, group participation, and responsibility. Vocabulary enhancement was evidenced by a rise in test scores from a mean of 42.5 (very poor) in the pre-test to 76.7 (good) in the post-test. These findings indicate that crossword puzzles effectively support vocabulary learning and student participation.

*Keywords: Crossword Puzzle; Engagement; Vocabulary Learning*

## Introduction

Vocabulary plays a crucial role in language learning, serving as the foundation for developing key skills such as reading, writing, speaking, and listening. However, many students at the vocational high school level continue to struggle with low vocabulary mastery. This limitation not only affects their academic performance but also hinders their ability to communicate effectively in both classroom and real-world contexts. According to Richards and Renandya (2002), An essential aspect of mastering a language is understanding the use of vocabulary. It forms a large part of the foundation for students' ability to write, speak, and listen. One's proficiency with vocabulary will influence their ability to use the language in conversation and writing. One of the biggest challenges students face in teaching and learning English as a Foreign Language, particularly in Indonesia, is their limited vocabulary knowledge.

Preliminary observations at a vocational high school in Yogyakarta revealed that 12th-grade students demonstrated insufficient vocabulary knowledge, which impacted their learning outcomes and classroom engagement. Traditional vocabulary teaching methods, which often rely heavily on

memorization and repetition, appeared ineffective in stimulating students' interest or improving their vocabulary acquisition. This is in line with the statement of the English teacher in the interview session who noted that students struggle with vocabulary learning. According to the school's *Kriteria Ketuntasan Minimal* (KKM), the passing grade is set at 75, but many students' learning outcomes still fall below this threshold, with an average score of 45. To address this issue, this study explores the use of crossword puzzles as an alternative instructional strategy to enhance students' vocabulary mastery. Crossword puzzles are interactive and engaging tools that can make vocabulary learning more enjoyable, helping students retain new words more effectively.

Therefore, the objective of this research is to improve the vocabulary learning outcomes of 12th-grade vocational high school students through the implementation of crossword puzzles. The study also seeks to examine the impact of this strategy on student engagement in the English learning process.

## Vocabulary Mastery

It is suggested that mastering vocabulary, a crucial language-processing ability, is a personal accomplishment (Alqathani, 2015, pp. 21-34). The most significant component of vocabulary mastery is self-personal achievement, which is entirely the student's responsibility to develop their vocabulary knowledge (Rivers, 1989). As a result, the study from Mc Carten (2007) established that vocabulary learning as a vocabulary mastery approach primarily involves memory, with students generally needing to see, say, and write newly learned words a few times before it is reasonably assured that they have done. Mastering vocabulary is not always defined as remembering spoken and written forms. Thornbury (2002: 15) also explains that at the most basic level, someone can be said to have mastered vocabulary if they can recognize its form and meaning. To explain, knowing a word's meaning is not just understanding the dictionary meaning (or meanings). It also means knowing the words commonly associated with it (collocation) and the connotation, including register and cultural accretions. To summarize those statements, vocabulary mastery is not just about remembering words or subsets of words.

## Problems in Teaching EFL to Vocational High School Students

### a. Lack of Engagement

Teaching English as a Foreign Language (EFL) in vocational high schools presents unique challenges, one of the most significant being students' low engagement levels. Unlike general high school students, those in vocational programs often focus on career-specific skills and may view English as secondary or even irrelevant to their future professions.

Further research by Dornyei (1994) supports this, noting that many vocational students perceive English as unrelated to their specific job prospects, leading to diminished interest and effort in learning the language. This disconnect is often compounded by the fact that vocational students have limited exposure to the broader academic and professional advantages of English proficiency, which can result in a general disinterest in English classroom activities. Without a clear understanding of how English skills could enhance their future career opportunities, students are less motivated to participate and engage in learning.

### b. Lack of Vocabulary skills

A significant challenge in teaching English as a Foreign Language (EFL) to vocational high school students is their limited vocabulary knowledge. As Nation (2001) emphasized, a strong vocabulary foundation is essential for language learners to achieve proficiency in reading, writing, listening, and speaking. Without an adequate vocabulary base, students struggle to comprehend instructional materials, articulate their thoughts, and make progress in other language skills. This vocabulary deficiency not only impedes their academic performance but also restricts their ability to communicate effectively, a critical

skill for both personal and professional contexts. In vocational high schools, where students may already feel detached from English as a relevant subject, this vocabulary gap exacerbates their challenges in achieving fluency and success, ultimately limiting their ability to access opportunities that require English proficiency.

## c. Crossword puzzle in Vocabulary Learning

Using crossword puzzles as a group activity can be an effective tool to help students overcome challenges and foster interactions during the learning process. Game-based learning helps enhance student engagement, teamwork skills, and creativity (Adipat et al., 2021). Students' interactions became more dynamic, creating a productive classroom environment that increased their interest in learning vocabulary, refers to Febtrina, Suparman, and Supriyadi (2014). According to Dhand (2008) and Moursund (2007), crossword puzzles engage students mentally and promote critical thinking, making them a valuable tool for enhancing classroom interaction.

Johnson emphasizes that crossword puzzles help in memorizing vocabulary and applying these words in appropriate contexts, which leads to more meaningful and compelling learning experiences. This method is particularly beneficial because it transforms passive vocabulary learning into an active process, where students are challenged to think critically and connect words and their meanings.

Studies by Tambaritji and Atmawidjaja (2020) and Bella and Rahayu (2023) have demonstrated that crossword puzzles significantly improve vocabulary mastery and student engagement. These studies found that students who regularly engage in crossword puzzles show excellent vocabulary retention and a deeper understanding of word meanings, as they are required to think critically and contextually about language. Additionally, research by Nugraheni and Rokhyati (2022) highlights that crossword puzzles make the learning process more enjoyable and interactive, which increases student engagement and reduces anxiety, leading to better learning outcomes. These findings confirm that crossword puzzles are an effective educational tool and a means to make vocabulary learning more engaging and contextually relevant.

Therefore, this study examines whether the use of crossword puzzles can enhance the student's engagement and improve vocabulary mastery of vocational high school students. Two research questions were addressed in this study:

1. How does the use of crossword puzzles enhance the students' engagement in vocabulary learning?

2. How does the use of crossword puzzles improve the students' vocabulary mastery?

## *Methodology*

## Research Design

This study employed a classroom action research (CAR) design, characterized by a cyclical process of planning, acting, observing, and reflecting. This approach was chosen because it is well-suited to educational contexts, allowing for the implementation and evaluation of instructional strategies in real classroom settings. The study was conducted in two cycles to ensure the effectiveness and refinement of the intervention based on students' responses and learning outcomes.
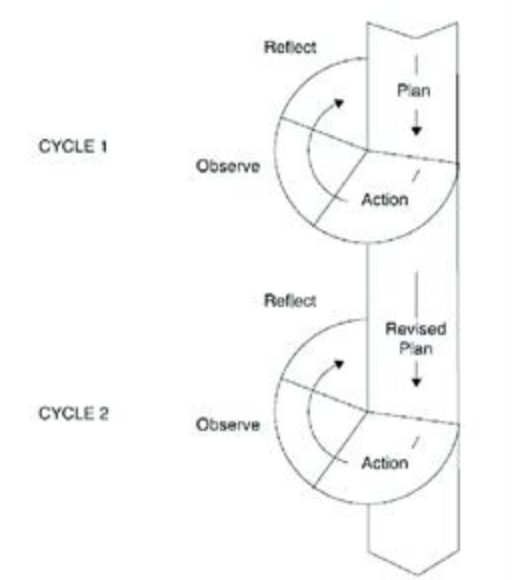
The cyclical process of Classroom Action Research (CAR), which includes planning, action, observation, and reflection, ensures that the research remains flexible and continually evolves. According to Kemmis and McTaggart (2007), this cycle enables ongoing refinement of teaching strategies through constant monitoring and reflection, thereby promoting continual improvement in educational practices. By repeating these cycles, researchers can dynamically respond to challenges and modify interventions to enhance their effectiveness over time.

In this study, the researcher followed these procedures. The process began with a preliminary investigation to identify and understand the problem. Following that, a strategic plan was developed and put into action. The subsequent phase involved observing and analyzing the collected data. The final stage was reflection. The CAR method is based on the framework developed by Kemmis and McTaggart (1998).

**Participants**

The participants in this study were 32 12th-grade students from a state vocational high school in Yogyakarta. They were selected based on initial vocabulary assessments, which revealed low levels of vocabulary mastery and limited engagement in English language learning. These students represented a typical sample of learners in need of vocabulary improvement strategies.

**Data Collection and Analysis**

Data were collected through multiple instruments to obtain both quantitative and qualitative insights. Vocabulary tests (pre-test and post-test) were used to measure students' vocabulary mastery before and after each cycle. Observations and interviews were conducted to gather information on student engagement, behavior, and participation during the learning process.

Quantitative data were analyzed using descriptive statistics and paired sample t-tests to evaluate changes in vocabulary scores across the two cycles. Qualitative data were analyzed thematically by identifying patterns and categories related to student involvement and response to the crossword puzzle activities. To ensure the validity and reliability of the findings, the study applied democratic, process, outcome, catalytic, and dialogic validity criteria, as well as triangulation techniques, including time, investigator, and theoretical triangulation.

### Findings and Discussion

**Findings**

At this stage, the researchers gathered data to identify existing issues in the classroom related to teaching English, particularly in speaking. This was accomplished through observations and interviews conducted in one of vocation high school in Yogyakarta. The interviews were carried out on two separate occasions, starting with an initial interview with the English teacher, followed by a subsequent interview with the students. The diagram presented provides a detailed overview of the approach used for teaching and learning the English language. These findings are based on the researcher's observations of the classroom during the teacher's execution of the learning process.

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**Observation**
Thursday/ September 5, 2024
R = Researcher
ET= English Teacher
S= Student
As the class began, the ET greeted the students and asked how they were feeling that morning. The students responded softly to the greeting and questions from the ET while some began to prepare their books for the day's lesson. Since the initial response lacked enthusiasm, the ET greeted the students again, and this time, they responded more energetically.

The ET then proceeded to take attendance, calling each student one by one. After taking attendance, the ET began the lesson by asking the students what they had learned in the previous session. However, none of the students responded and appeared preoccupied with their activities. The ET then randomly called on students to ask what they had learned previously. The selected student remained silent and started asking their neighbor for help. Since the student could not answer, claiming they had forgotten, the ET asked another student, who then responded to the question. The ET briefly reviewed the previous topic to remind the students what had been covered.

The ET then projected the material for the day's lesson on the screen using a PowerPoint presentation. Some students began to look at and read what was displayed. The ET started explaining the day's lesson, but some students were noisy and inattentive, while others were busy using their phones to watch videos on social media. The ET admonished the students, urging them to pay close attention during the explanation.
After the ET explained the material briefly, the students were asked to work on an assignment the ET had prepared. The students' responses varied: some immediately agreed and prepared their books, some refused, claiming they did not understand the material, while others continued to be noisy and play on their phones, ignoring the teacher's instructions. The ET emphasized that each student must take responsibility for their work. The et al. reminded the students that they could ask questions if there was anything they still did not understand.
When the bell rang, only a few students had submitted their assignments. The ET asked those who had not yet collected their work to complete it at home and collect it at the next meeting. The ET then asked everyone to pray before ending the lesson and said goodbye.

**Field Notes 1, Observation**

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Based on the observations and interviews, the researcher determined some problems that arose in the English learning process. These problems must be fixed in order to achieve English learning objectives.

**Incorporation of Crossword puzzles in Vocabulary learning to Enhance Student's Engagement**

The integration of crossword puzzles into vocabulary learning can enhanced student engagement among 12th-grade vocational high school students. The findings indicated that this interactive approach not only improved vocabulary mastery but also fostered a more dynamic and enthusiastic classroom environment.

Crossword Puzzles in the learning process have been shown to significantly increase students' engagement. This finding is consistent with research that emphasizes the role of interactive medium in enhancing students' engagement, aligning with Bella and Rahayu (2023) statement. Bella and Rahayu notes that "the using crossword puzzle are a valuable tool for enhancing engagement in learning". Students were also enthusiastic about reading the clues in order to complete the given crossword puzzle.

This aspect of crossword puzzles usefulness is directly relevant to the student interviews, which focus on how incorporating crossword puzzles into vocabulary learning affects students' vocabulary ability. These interviews aimed to thoroughly analyze how crossword puzzles help students to enhance their participation and engagement in the teaching and learning process. By exploring how these features contribute to enhances students' engagement, the interviews align with experts' insights into the practical benefits of crossword puzzles.

Student A: "*I really liked using crossword puzzles in our lessons. It made learning new words fun! I used to find vocabulary boring, but now I look forward to it.*"

Student B: "*Working with my friends to solve the puzzles helped me understand the words better. We would talk about the clues, and it made me remember the meanings."*

Student C: "*The puzzles helped me see how words are used in sentences. I learned more than just memorizing definitions; I can actually use the words now.*"

Student D: "*It was less stressful to learn vocabulary this way. I felt more engaged and part of the class. I think I can speak English better because of it."*

Student E: "*I used to struggle with vocabulary tests, but after doing the crossword puzzles, my scores improved. I feel more confident now."*

These interviews reflect the positive impact of crossword puzzles on students' vocabulary learning experiences, highlighting increased engagement, collaboration, and improved vocabulary skills. Overall, the incorporation of crossword puzzles proved to be a strategy for enhancing student engagement in vocabulary learning within the classroom.

**Crossword Puzzles as a Teaching Tool to Improve Vocabulary Mastery**.

The quantitative data from vocabulary tests showed a significant improvement in students' performance across the two cycles. In the pre-test, the average score was 42.5, which falls into the 'very poor' category. As stated by Alqahtani (2015), vocabulary plays a fundamental role in language learning, acting as the building block for communication and comprehension. Limited vocabulary knowledge can hinder students' ability to convey their thoughts clearly or understand others, highlighting the importance of mastering vocabulary in acquiring language skills. Following the implementation of crossword puzzles in Cycle 1, the mean post-test score increased to 65.3, indicating moderate improvement. After revising and refining the intervention in Cycle 2, the average score rose further to 76.7, classified as 'good'. A paired sample t-test confirmed that the improvement was statistically significant, indicating that the use of crossword puzzles effectively enhanced students' vocabulary mastery. This repetition reinforced their understanding and retention of vocabulary. The clues within the puzzles encouraged students to think critically about word meanings and their usage in sentences. This contextual approach facilitated deeper learning, making it easier for students to recall and apply new vocabulary in their writing and speaking.

The following excerpts from student interviews highlight their experiences and perceptions regarding the use of crossword puzzles in improving vocabulary mastery:

Student A: "*Before, I struggled with remembering vocabulary, but when we started doing crossword puzzles, everything changed. I can remember the words better now.*"

Student B: "*The puzzles helped me see how words fit together in sentences. It made learning feel more real and practical.*"

Student C: "*I didn't just memorize the words; I learned how to use them. After the puzzles, I felt more confident in my vocabulary tests.*"

Student D: "*I liked the challenge of solving the puzzles. It pushed me to think about the words more deeply, and I ended up learning a lot.*"

These interviews illustrate the positive impact of crossword puzzles on students' vocabulary mastery, emphasizing improvements in retention, understanding, and overall motivation to learn. The use of crossword puzzles as a teaching tool effectively enhanced students' vocabulary skills, leading to greater confidence and success in their language learning journey.

**Quantitative Data**

The quantitative analysis focused on the vocabulary test scores collected from the pre-test and post-test assessments. The mean pre-test score for the students was 42.5, indicating a low level of vocabulary mastery. After the intervention, the mean post-test score increased to 76.7. This improvement was statistically significant, as determined by a paired sample t-test, which revealed a p-value of less than 0.01. These results suggest that the use of crossword puzzles led to a notable enhancement in students' vocabulary knowledge.

*(Pre-test and Test in Cycle 1)*

| Number of Students | Pre-test | | Test in Cycle 1 | |
|---|---|---|---|---|
| | Mean | Classification | Mean | Classification |
| 32 | 42.5 | Very Poor | 59.0 | Fair |

*(Test in Cycle 1 and Post test)*

| Number of Students | Test in Cycle 1 | | Post test | |
|---|---|---|---|---|
| | Mean | Classification | Mean | Classification |
| 32 | 59.0 | Fair | 76.7 | Good |

Table 4 1: The Results of Pre-test and Post-test Score

| Test | Frequency | Mean | Classification |
|---|---|---|---|
| Pre- test | 32 | 42.5 | Very Poor |
| Post- test | 32 | 76.7 | Good |
| **Gain Score** | 34.2 | | |

The vocabulary test results conducted in Cycle 1 also highlight the benefits of using crossword puzzles. Since there was an improvement between the pre-test and the vocabulary test in Cycle 1. The score of the pre-test and post-test, by vocabulary test in cycle 1 and in cycle 2 also reflect the student's improvement in vocabulary mastery.

**Qualitative Data**

The qualitative data collected through interviews and classroom observations provided deeper insights into the students' experiences and the factors contributing to their improved vocabulary mastery.

1. **Student Engagement**:

- Observations indicated a marked increase in student engagement during vocabulary lessons. Students displayed higher levels of enthusiasm, actively participating in discussions and collaborating with peers while solving crossword puzzles.
- Interview responses revealed that students found the crossword puzzles enjoyable and engaging, which motivated them to learn new words and their meanings. Many students expressed that the interactive nature of the puzzles made vocabulary learning feel less daunting and more enjoyable.

2. **Collaboration and Communication**:

- Students reported that working in groups to complete crossword puzzles fostered collaboration and communication skills. They enjoyed discussing clues and sharing knowledge about vocabulary, which contributed to a supportive learning environment.
- This collaborative aspect not only enhanced their vocabulary skills but also improved their confidence in using English in a social context.

3. **Contextual Learning**:

- The clues provided in the crossword puzzles helped students learn vocabulary in context, allowing them to understand how words are used in sentences. This contextual approach was identified by students as a critical factor in their ability to recall and apply new vocabulary effectively.

*Discussion*

The findings of this classroom action research indicate that the use of crossword puzzles significantly improved students' vocabulary mastery and engagement in English learning. The results from both quantitative and qualitative data support this conclusion.

In the pre-test, the majority of students scored below the minimum competency standard, highlighting their limited vocabulary knowledge. After the implementation of crossword puzzles in Cycle I, there was a notable improvement, although the success criteria had not yet been fully achieved. Refinements made in Cycle II, including clearer instructions and more collaborative learning strategies, led to a substantial increase in student performance, with 87.5% of students achieving scores above the standard and the class average rising from 56 (pre-test) to 83 (Cycle II post-test).

Qualitative data reinforced these outcomes. Observations and interviews revealed increased student motivation, active participation, and improved focus during the crossword activities. These behavioral changes suggest that crossword puzzles not only served as an engaging vocabulary learning tool but also fostered a positive classroom atmosphere.

The success of this intervention can be attributed to several factors: the interactive nature of crossword puzzles, the use of meaningful contexts, and the integration of group work that promoted peer learning. These elements made vocabulary learning more enjoyable and accessible for students who previously struggled with traditional methods.

## Conclusion

The study concludes that crossword puzzles are an effective instructional strategy for improving vocabulary mastery among vocational high school students. They also promote higher student engagement and participation. Given these findings, it is recommended that English teachers incorporate crossword puzzles into vocabulary instruction, especially for learners with low motivation or limited vocabulary skills.

The qualitative data collected through student interviews further supports these findings, revealing that students found the crossword puzzles engaging and enjoyable. The collaborative nature of the activity encouraged peer interaction, which not only strengthened their vocabulary skills but also built a sense of community within the classroom. Students reported increased motivation and a greater understanding of vocabulary in context, which enhanced their ability to apply new words in practical situations.

In conclusion, the use of crossword puzzles as a teaching tool is a valuable strategy for educators seeking to improve vocabulary learning outcomes in the classroom. This approach not only addresses the challenges of low vocabulary mastery but also promotes a positive and engaging learning experience. Future research may explore the long-term effects of using crossword puzzles on vocabulary retention and overall language proficiency, as well as adaptations for diverse educational contexts. By embracing innovative and interactive methods in vocabulary instruction, educators can significantly enhance students' language learning experiences and outcomes.

## Disclosure Statement

No potential conflict of interest was reported by the author(s).

## Author Statement

I, Helpia Addina K., as the corresponding author of the manuscript titled "The Use of Crossword Puzzles to Enhance Students' Vocabulary Learning in the Vocational High School," confirm that this work is original and has not been published or submitted for publication elsewhere. All co-authors have significantly contributed to the research and preparation of this manuscript, and each has read and approved the final version submitted. We declare no conflict of interest regarding the research, authorship, and publication of this article.

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