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The Effectiveness of Crossword Labs for Enhancing 10th Grade Students' Vocabulary Mastery at MAN Purworejo

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Abstract. The study aims to examine how is the use of Crossword Labs effective to enhance students' vocabulary outcomes of the tenth-grade students of MAN Purworejo? The research population consisted of 30 students from a total population of 360 students from MAN Purworejo. The researcher uses a pre-experimental design. The data were collected through pre-tests, treatment with Crossword Labs, and Post-tests from March 6, 2024 to March 8th, 2024, on class X-I students at MAN Purworejo. IBM SPSS was used to analyze the data. The results of the computation of the test are Sig. (2-tailed) was 0,000. The researcher used the significance level 0,05. The computation shows that Sig. (2-tailed) value was lower than the significance level (0,000<0,05. It can be concluded that there is a significant difference between the pre-test phase and post-test phase after treatment. It means that the hypothesis null (HO) is rejected, and the hypothesis alternative (Ha) is accepted. The results found that using the Crossword Labs method to enhance vocabulary mastery has a positive impact on tenth-grade students' MAN Purworejo in the 2023-2024 academic year. The findings of this study suggest that using crossword games can be a valuable tool in English language teaching.

Keywords: English Subject, Final Test, Reliability.

1. Introduction

English Vocabulary development is certainly essential in foreign language learning, working as a core skill that language learners constantly need to improve [1]. Regardless of stage or proficiency level, learning and understanding vocabulary is essential for efficient communication in a foreign language. Vocabulary is essential for interpersonal communication, allowing people to convey their thoughts, ideas, and feelings clearly and precisely. The increasing availability of smartphones and personal computers has revolutionized vocabulary study in the digital age. These devices include a variety of language-learning programs and software, providing learners with simple and easily available resources for expanding their vocabulary. For practical purposes, it can make logical to define a word as a basic form, similar to what linguists call a lemma, and exclude certain word forms (proper names and archaic words) from estimations of vocabulary size [2]. Using these technological improvements, students can immerse themselves in a language-rich environment, improving their vocabulary acquisition and retention skills. Furthermore, digital technologies offer interactive and interesting methods for learning vocabulary, making the process enjoyable and effective.

Language's primary goal is to facilitate communication, making it an essential ability to learn considering its importance in human life [3]. It has been explored from multiple perspectives, including its role as a tool for communication and thought, a collection of words and instructions, and a trait that separates humans from other animals [4]. Language serves as a communication tool, conveying messages or meaning from one person to another. Its affiliation and connection to humans makes it unstable and continually transforming in response to changes in human activities in society. Language's flexibility enables it to grow alongside cultural and societal changes, reflecting the dynamic nature of human interaction and thought. As a result, learning and mastering language is essential for effective communication and social interaction, underlining its central significance in human existence.

According to [5] common difficulties encountered in teaching vocabulary are students' and teachers' limited knowledge of the words, techniques, time constraint, and word selection. To solve the difficulties involved with teaching English vocabulary, such as distractions like inattention, smartphone use,

and interactions among peers, educators increasingly turn to engaging media like games. Games, particularly those played on smartphones, stimulate students' curiosity while simultaneously engaged with them in the target language. This strategy improves vocabulary retention and overall language competency while eliminating the strain that is typically associated with traditional learning situations. Furthermore, games offer a dynamic and interactive platform for students to practice and reinforce their vocabulary in a fun and engaging way. They provide quick feedback, which is critical for effective learning, allowing students to correct their errors and continually improve their skills. Games are easily integrated into lesson plans, making them an adaptable tool for teachers for enhancing classroom education. Furthermore, [6] stated that the game-based learning method facilitates student learning, motivates students, enables collaboration with classmates, thereby enhancing their ability to work in groups, and creates a fun learning environment.
Integrating learning media into the educational environment brings several benefits, including improved effectiveness and variety of teaching approaches. According to [7], learning media refers to a collection of tools and resources that have been intentionally constructed to facilitate knowledge delivery while increasing learning outcomes. One important advantage is its capacity to go beyond time and spatial limitations, allowing students to participate in autonomous learning activities without direct teaching. This unique feature not only promotes self-directed learning, but it also cultivates a sense of ownership and accountability in students as they go through educational materials adapted to their specific competencies and learning styles. The use of educational materials with multimedia and interactive elements seems to be a suitable and effective way to master the curriculum [8]. Using a variety of media types, teachers may adapt their instruction to the needs and interests of their students, creating a more inclusive and supportive learning environment. Teachers can successfully analyze and encourage the essential behaviors and cognitive preparation for major knowledge acquisition and application by carefully selecting and integrating learning material, promoting overall growth and academic performance.

The twenty-first century has seen significant advances in numerous fields, including technology, culture, society, and education. In today's digital age, technology has become commonplace which has caused a fundamental transformation of the teaching and learning environment in the education sector. Information and communication technology (ICT) is the foundation of this paradigm change, including a wide range of tools and resources that assist information collection, processing, delivery, and application [9]. The use of ICT into education presents a number of variables that can either improve or degrade the learning experience. These elements, whether favorable or restricting, have a significant impact on learning results. According to [10], the relevant components differ based on the context and circumstances. These factors include instructional variables, the level of complexity and relevance in learning tasks, student readiness, and the quality of feedback delivered. All of these factors add to the complexity and fluidity of the learning process, highlighting the significance of teachers carefully considering and exploiting these elements to improve learning outcomes.

Teachers need to constantly update their understanding of technology changes in order to properly assist the education system. The rapid pace of technology advancement orders that teaching techniques be inventive, efficient, and internet-integrated, among other characteristics. This adaptability is important because it can increase student involvement, especially in language learning. Teachers can use the broad availability of devices such as mobile phones, laptops, tablets, and a variety of software, including online crossword games, to create dynamic and immersive learning environments. Crossword puzzles, according to [11], are extremely useful for teaching vocabulary, definitions, spelling, and connecting significant concepts with related terms, all of which improve memorization and retention. Implementing such interactive and technology-driven ways to teaching can greatly improve student learning and outcomes, making education more interesting and successful in the digital age.

In the realm of education, a constant difficulty comes from the continuous dependence on traditional teaching approaches, which frequently results in poor learning experiences and poor assessments. This traditional technique, which is mostly based on teacher-led explanations provided by technologies such as whiteboards and PowerPoint presentations, tends to discourage students, resulting in noise and distraction in the classroom. To be able to obtain fluent to master language skills, students must be taught with appropriate materials and instructions [12]. Furthermore, the lack of direct student engagement with learning materials restricts vocabulary growth because they basically receive information passively. Recognizing these limits, the researchers look for additional ways to improve student vocabulary. Web-based games, such as crossword puzzles and word games, are exciting and entertaining exercises that promote vocabulary growth.

The purpose of this study is to determine the effectiveness of using Crossword Labs, a web-based learning platform, to improve the vocabulary outcomes of tenth-grade students at MAN Purworejo. The study aims to answer the following questions: Is Crossword Labs (Web-Based Learning) effective media for improving vocabulary outcomes in tenth-grade students at MAN Purworejo? Furthermore, the study

aims to determine whether the use of Crossword Labs as a teaching tool can result in significant advances in students' vocabulary knowledge. By focusing on these issues, the study intends to provide useful insights regarding Crossword Labs' potential as a tool for improving vocabulary learning among high school students.

To solve this challenge, the writer used online crossword games to attract students' interest and engagement. Instead of passively listening to lectures or explanations, students can acquire vocabulary through active participation in the game. This technique fosters a positive classroom environment that piques students' interest in learning English. Following the study background and methodology presented above, the author offered a hypothesis statement about the usefulness of using Crossword Labs as a learning media to promote vocabulary mastery among 10th-grade students at MAN Purworejo.

H0: The use of crossword labs (web-based learning) as a media of teaching is not effective in improving students' vocabulary mastery to MAN Purworejo 10th grade students.

HA: The use of crossword labs (web-based learning) as a media of teaching is effective in improving students' vocabulary mastery to MAN Purworejo 10th grade student.

2. Method

From March 6th to March 8th, this research was conducted at MAN Purworejo, with the goal of determining if the integration of Crossword Labs as a teaching tool can lead to significant improvements in students' vocabulary mastery. During the second semester of the school year 2023-2024, students from Tenth Grade MAN Purworejo participated in this study. The writer employed purposive sampling, a non-probability sampling technique, based on several considerations, there were 30 students in total who took part in this study, all of them were in tenth grade.

2.1. Research Design

The goal of this study was to determine the effectiveness of using Crossword Labs (Web Based Learning) as a media for improving students' vocabulary mastery in MAN Purworejo tenth-grade students. The Researchers used a pre-experimental research method with pre-test and post-test procedures.

Pre-Test	Treatment	Post-Test
O_1	X	O_2

Figure 1: One group Pre-Test and Post-Test Design [13]

According to the figure above, a pre-test (O1) was given to the X-I class to determine students' knowledge before treatment. Furthermore, Crossword Labs was used as a treatment (X), and a post-test (O2) was used to measure student achievement. Scores will be examined to determine whether there has been any progress.

2.2 Participants

The research included 360 tenth-grade students. The sample was drawn by purposive sampling from the X-I class, which had 30 students. This sampling approach was designed to guarantee that the selected students were typical of the greater population and could provide useful insights into the effectiveness of Crossword Labs as a tool for improving vocabulary outcomes. By focusing on a single class and grade level, the study attempted to collect specific and relevant data that could be used to analyze the effectiveness of this instructional method in improving students' vocabulary mastery.

2.3. Instrument

The instruments used in this study were: Crossword Labs, pre-test, and post-test.

a. Crossword Labs: The website that allows to create a personal crossword and share it with others, or select a random crossword to solve directly from smartphone.

b. Pre-test and Post-test: Pre-test is the test given before the treatment. Post-test is the test that was given after the treatment.

2.4. Data Collection

Pre-Test

Before beginning the treatment phase, the writer conducted a pre-test to students to determine their level of vocabulary mastery. This test consists of 30 vocabulary questions and some cloze tests, which students must finish within time limit of 45 minutes.

Treatment

The researchers started by introducing students to English terminology and the notion of crossword puzzles. They then examined students' existing knowledge of the material. Following that, the researchers explained how Crossword Labs may be used as a learning tool, including how to access and use it on smartphones. Finally, the researchers gave a link to Crossword Labs containing 20 questions and displayed how the platform corrected students' answers.

Post-Test

After the treatment phase, the writer gave the students a post-test to measure their vocabulary mastery after being taught by Crossword Labs. This test consisted of the same 30 questions as the pre-test, but with the answer options shuffled. Students were given time limit of 45 minutes to finish the test.

2.5. Data Analysis

Quantitative analysis was used for this purpose, focusing on computations to address problems and test hypotheses. The researchers employed appropriate methodologies to evaluate the effectiveness of the study variables. The data collected from the sample was analyzed using the following techniques:

4. Discussion

Based on the analysis shows that there is a positive influence between the pre-test and post-test. Pre-test results for the X-I class revealed that 0 students (0%) were included in the excellent category for their ability to write descriptive texts, 6 students (20%) were included in the good category, 15 students (50%) were included in the sufficient category,
9 students (30%) were included in the fairly sufficient category, and none of the students
were included in the low category. While the post-test descriptive text writing abilities were found in the excellent category by as many as 0 students (0%), the good category by 22 student (73%), the sufficient category by 8 students (27%), and in the post-test, none of the students were included in the fairly sufficient category, and the low category. Based on data analysis, the experimental class's mean learning result for vocabulary mastery in the pre- test was 58.00, while the post-test phase was 69.33. This situation illustrates that the application of using the Crossword Labs method affects increasing learning outcomes in vocabulary mastery in English subjects.

The previous analysis presented the computational normality test results, and hypothesis test results. Based on the table 4, it is known that the significance value of pre- test is 0.125, and the post-test significance value is 0,126. It means that the data distribution is normal. Furthermore, based on the table 5, t-value is lower than t-table (-6.720 > 2.045) and the p-value is much smaller than the significance level α (0.000 <0.05), so the results of hypothesis testing for alternative hypothesis (Ha) is accepted. It means that using the Crossword Labs method is effective in improving vocabulary mastery for class X-I students of MAN Purworejo in the 2023/2024 academic year. After knowing that the hypothesis is accepted, the theory fulfils the facts in this case. Then, from the calculations in the previous section, The Researchers concluded that using the Crossword Labs method is effective in improving vocabulary mastery for class X-I students of MAN Purworejo in the 2023/2024 academic year.

This finding is supported by another researcher [16] which found out that although it is used as a method in the teaching and learning process of English, the game Cross Word application has significant advantages in developing student vocabulary, and it is also suggested that the game Cross Word application be used as a tool in English teaching and learning process at SD Advent Bendungan Hilir. Furthermore, [17] discovered that using crossword puzzles to teach vocabulary promotes a pleasant classroom environment by motivating students to be interested in learning vocabulary, particularly in the context of Personal Recount material.

The findings above showed a significant improvement in students' vocabulary scores from the pre-test to the post-test, with an average increase from 58 to 69.33. This finding is in line with [18] which found

that Electronic Crossword Puzzle (E-CP) learning media has several advantages that make students more active in participating in the learning process and directly influences student learning outcomes in online learning. Furthermore, [19] found that that better vocabulary learning outcomes using crossword puzzles were obtained compared to those using conventional techniques of vocabulary instruction. The research proves that teaching vocabulary through crossword has helped students remember and use the new words easily.

5. Conclusion

Based on the research findings and analysis, it can be concluded that using Crossword Labs as a medium to teach vocabulary has a positive impact on tenth-grade students' vocabulary mastery at MAN Purworejo. The data showed a significant improvement in students' vocabulary scores from the pre-test to the post-test, with an average increase from 58 to 69.33. Descriptive analysis revealed more students achieving higher levels of vocabulary mastery, with a decrease in the "fairly sufficient" category and an increase in the "good" category. Inferential analysis, including normality testing and hypothesis testing, supported the conclusion that Crossword Labs is effective in improving students' vocabulary mastery. Overall, the findings suggest that Crossword Labs can be a valuable tool in English language teaching at MAN Purworejo.

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