

Empowering Vocabulary Retention with Twee: Designing Digital Reinforcement Exercises for High School Students

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Abstract:

In the present 4.0 era, an increasing number of websites are created to help teachers make their teaching process simpler and more efficient. To provide AI-supported learning experiences, the Twee website was created specifically for language instructors and students. To improve content creation, lesson planning, and student assessment, the website offers a variety of AI-powered solutions. In this study, the Twee website was used to design vocabulary reinforcement exercises with the purpose to enhance the vocabulary acquisition and retention of high school students at a high school. Forty-five 11th-grade students participated in the study, which consisted of both experimental and survey components. A pre-test was conducted to evaluate students' existing vocabulary knowledge. Then, vocabulary exercises were assigned on a weekly basis and included a variety of formats such as matching, gap-filling, and sentence completion, all designed to reinforce previously taught vocabulary items that students have just learnt. The main tools for data collection included vocabulary tests and student questionnaires, both administered before and after the intervention. The findings revealed that the use of the Twee website had a positive impact on students' vocabulary retention. Students in the research showed significant improvement in their post-test scores compared to their score in the pre-test. Furthermore, students expressed high levels of satisfaction and motivation when using the Twee-based exercises. This research provides valuable insights into the potential of integrating online platforms like Twee into vocabulary teaching practices which highlights not only the effectiveness of digital tools in reinforcing vocabulary but also their role in increasing student interest and autonomy in learning.

Key Word: *High school students, the Twee website, vocabulary reinforcement exercises, design vocabulary exercises, vocabulary retention*

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I. Introduction

In the present 4.0 era, an increasing number of websites are created to help teachers make their teaching process simpler and more efficient. To provide AI-supported learning experiences, Twee was created specifically for language instructors and students. To improve content creation, lesson planning, and student assessment, the website offers a variety of AI-powered solutions. Considering this, the Twee website appears to be a useful tool for teachers who want to create additional assignments for their students. It assists teachers in creating extra activities on skills like listening, speaking, reading, and writing or grammar and vocabulary depending on what has been taught to their students.

This research aims to examine the effectiveness of using Twee in the vocabulary retention of 11th- grade students, and then explore students' attitudes toward the use of Twee as a supportive tool in their vocabulary learning journey. These objectives are intended to contribute valuable insights to enhance language education practices for 11th-grade students, bridging traditional methodologies with modern digital tools.

The research questions are the followings:

1. To what extent does the use of Twee affect the vocabulary retention of 11th- grade students?
2. What are the students' attitudes toward using Twee in the process of vocabulary retention?

II. Literature review

Vocabulary

Without vocabulary, language acquisition and communication are impossible. It includes any expression used to communicate concepts, ideas, and information. Individuals who can communicate clearly and concisely are better able to engage in written communication, public speaking, and conversations, among other forms of communication.

Vocabulary has been defined in numerous ways, reflecting the complex and multifaceted nature of word knowledge. Early definitions of vocabulary focus on the basic idea of a word collection. Some researchers have

offered similar views regarding the definition of vocabulary. Lewis (1993) and Hornby (1995) defines vocabulary simply as the set of words a person knows and uses in their language. This definition implies a more static view of vocabulary, focusing solely on the words themselves.

However, other scholars have expanded on this foundational definition, emphasizing the various dimensions of vocabulary knowledge. For instance, Nation (2001) presents a more comprehensive definition, suggesting that vocabulary involves not only word meanings but also word forms, grammatical functions, and collocational features. This perspective highlights that vocabulary is not merely a list of words but a complex system that encompasses different linguistic features.

According to some research, vocabulary is defined from a sociocultural perspective. Vocabulary, according to Hatch and Brown (1995), is a list or collection of terms that are specific to a language or that users of that language may employ. According to Neuman and Dwyer (2009), a person's vocabulary consists of the words that are essential to their ability to communicate effectively. Included is the receptive vocabulary as well. McCarthy (1990) defined vocabulary as words that are employed in a language and that require knowledge of their form, meaning, and usage.

Vocabulary, as defined by Richards and Schmidt (2010), is "a set of lexemes, including words, compound words, and idioms, that function as the building blocks of language." Snow (2010) emphasized its importance, stating that vocabulary is "a key element of literacy development, crucial for reading comprehension and academic success." Furthermore, Graves (2006) broadened the definition, explaining that "vocabulary encompasses four components: word meanings, word learning strategies, word consciousness, and effective use in context."

In this study, the researchers choose to use Nation's (2001) definition of vocabulary as the main one, which states that English vocabulary includes not only word meanings but also word forms, grammatical functions, and collocational features. This definition is the most suitable for this study because the participants are high school students.

Reinforcement exercises

Reinforcement exercises, according to Jensen (2005), are meaningful, structured tasks that promote long-term memory and neural connections in brain-based learning. These activities are dynamic and involve students in a way that is frequently more effective for memory retention and neural pathway reinforcement. Benjamin Bloom (1956) further emphasizes this in his *Taxonomy of Learning*, highlighting the importance of reinforcement exercises in achieving comprehension of the information being studied.

Reinforcement exercises, according to Kolb (1984), are active engagement activities that give students the chance to think, realize, and apply the knowledge to their own experiences. Kolb believed that when people actively participate in the learning process, learning is most effective.

Schmitt (1990) highlighted the value of reinforcement exercises for language learning in his *Noticing Hypothesis* because they allow students to actively recognize linguistic patterns and improve their fluency. According to Schunk (2012), reinforcement exercises are prearranged assignments that promote awareness and self-observation, which eventually boosts autonomy and retention.

To sum up, reinforcement exercises are purposeful, structured activities that help you retain what you've learned, enhance your long-term memory, cultivate critical thinking skills, minimize cognitive strain, support learning through discovery, encourage independent learning, and accommodate various learning styles.

The importance of reinforcement exercises

In several areas of learning, skill development, and cognitive development, reinforcement exercises are essential. They support critical thinking, problem-solving skills, knowledge retention, and general academic achievement.

Several studies (Schmitt, 2008; Webb, 2005) have concluded that it is not sufficient for learners to remember a word when they merely use a word once. The process of acquiring vocabulary develops step by step and it is strengthened through multiple contextualized interactions. Reinforcement exercises such as matching, gap-filling, sentence creation, and games provide the necessary repetition in engaging ways.

Various theoretical perspectives are explored with regard to reinforcement exercises. They play a significant role in learning because they support problem-solving, critical thinking, and knowledge retention. These activities stimulate beneficial brain connections, lessen cognitive burden, and transfer abilities to enable successful application of what has been learnt in new situations. Additionally, there are social connections, scaffolding, and support for active learning—all of which are essential for creating durable, deep and powerful learning experiences.

Types of reinforcement exercises.

Reinforcement exercises are necessary for language acquisition since they help with vocabulary recall and retention. Many studies have looked for various methods to improve memory and prolong memory retention.

Based on the ideas of linguistics, cognitive psychology, and educational research, these exercises provide students with structured ways to practice and acquire new words.

According to Nation (2001) and Hulstijn (2001), vocabulary reinforcement can be implemented through various tasks, including:

- Form-focused drills (matching words to definitions, crossword puzzles)
- Contextualized tasks (sentence completion, paraphrasing)
- Communicative reinforcement (role-plays, discussions using target vocabulary)
- Digital games and quizzes (Kahoot, Quizlet, Wordwall, etc.)

Twee website

A website called Twee employs artificial intelligence to help language instructors arrange their classes and develop exercises that reinforce what they have learned. This makes it simple for educators to create educational resources like stories, dialogues, and reinforcement activities like multiple-choice, fill-in-the-gap, and interactive questions. The activities can be modified to accommodate students' proficiency at levels A1 through C2 of the Common European Framework of Reference for Languages (CEFR). In order to reduce workload and enhance student learning, Twee also offers additional tools in the application that let teachers create exercise sets, assign homework, and grade assignments.

In terms of application, Twee serves as a powerful support tool in vocabulary instruction for both teachers and learners. Teachers benefit by saving time in lesson preparation, as they can instantly generate exercises that align with class content and students' proficiency levels. They can also track student performance, adjust instruction accordingly, and ensure consistent vocabulary review over time. For students, the interactive and gamified nature of the tasks increases engagement and motivation, making vocabulary learning more enjoyable and effective. Students can practice independently or as part of a virtual class, and the repeated exposure to target vocabulary in meaningful tasks improves memory retention. Moreover, Twee facilitates formative assessment by providing immediate insight into student progress. By bridging the gap between content creation and delivery, Twee enhances the overall teaching and learning experience, especially in the context of blended or digital classrooms.

Guidelines for using Twee

To create exercises

Teachers should take the following actions when creating exercises:

Step 1: Go to the Twee.com website.

Step 2: Use Gmail to create a Twee account.

Step 3: Teachers can use a variety of workout items that appear on the screen after logging in. Note: A paid subscription is required for the "Pro" tools in the top left corner.

Step 4: Choose any tool, type in the subject or words you want to learn, and then click "Do a magic." The exercises will then be created for you by the AI.

Step 5: Teachers are then allowed to design their own exercises. These exercises are stored in the "My Lessons" area and are available at any time.

To establish a classroom

One of Twee's main benefits is that professors may set up virtual classrooms right on the app, where students can finish tasks with AI-powered grading. Use these steps to create a virtual classroom:

Step 1: Locate the "My Classes" area in the toolbar on the top-left.

Step 2: Click "+ New Class," type the name of the class, and then click "Create."

Step 3: Teachers can use the website's tools to add students after the class has been formed. Students must follow the same steps as teachers to create a Twee account in order to access the class.

Step 4: Teachers can employ AI-powered tools to grade student work automatically, provide assignments, and establish deadlines.

III. Methodology

The participants of the study comprised 45 eleventh-grade students from Khanh Hoa High School, located in Thai Nguyen province, Vietnam. The researchers chose all of them from class 11A1 to take part in the study. Following guidelines set by the Vietnamese Ministry of Education and Training, they were pursuing the grade 11 "I learn smart world" curriculum. Students in the experiment learnt the textbook's Units 7 and 8, which each included three vocabulary sessions.

The duration of the experiment was eight weeks. A pre-test and a post-test were the two primary tests that the researchers developed for the study. The pre-test was administered to evaluate the students' vocabulary during the first week of the investigation. To evaluate the success of the virtual class and Twee's reinforcement exercises, however, a post-test was given in the eighth week following the conclusion of the study. Each test had

20 questions, which was equivalent to B1–B2 level and included both multiple-choice and gap-filling problems. Both assessments were created using the terminology that the students had already learned from the lessons. Furthermore, students were invited to fill out a questionnaire regarding the Twee website's suitability for educational activities during the last week of the investigation.

IV. Result

The effectiveness of using reinforcement exercises designed with the Twee website for the vocabulary retention of 11th – grade students

In this section, we present and interpret the results of the study on the effectiveness of vocabulary reinforcement exercises designed with the TWEE website for 11th-grade students. The data from both the pre-test and post-test are analyzed and compared to determine the impact of the intervention on students' vocabulary retention.

Table 1. Results for Pretest and Posttest Vocabulary Scores

A paired samples t-test was conducted to compare the vocabulary test scores before and after the

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	10.27	45	2.980	.444
	Posttest	13.96	45	2.747	.409

intervention. As shown in table 1, the mean score on the pretest was 10.27 (SD = 2.98), whereas the posttest mean increased to 13.96 (SD = 2.75), out of a total score of 20.

Table 2. Comparison of pre-test and post-test scores to evaluate the effectiveness of the TWEE website for vocabulary reinforcement exercises

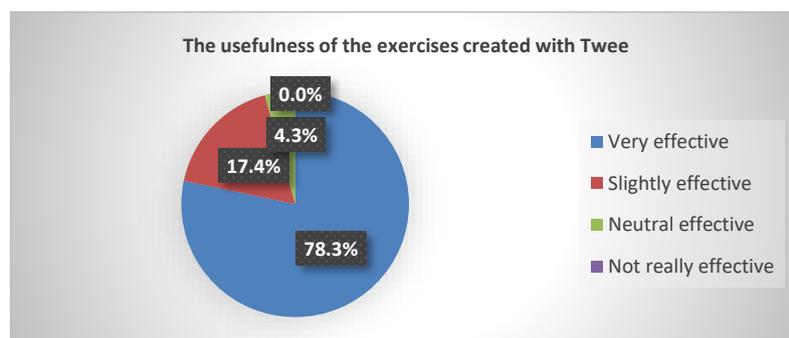
Paired Samples Test									
Paired Differences									
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Pretest - Posttest	-3.689	2.265	.338	-4.369	-3.009	-10.927	44	.000

Table 2 shows the results from the paired samples t-test which indicated a mean difference of -3.69 between pretest and posttest scores. This difference reached statistical significance at the .001 level ($t(44) = -10.93, p < .001$), indicating a robust effect. The 95% confidence interval for the difference in means extended from -4.369 to -3.009, further reinforcing the reliability of the finding. These findings strongly suggest that the use of the TWEE website-based vocabulary reinforcement exercises had a positive and significant effect on students' vocabulary acquisition.

Students' attitudes on the TWEE website exercises

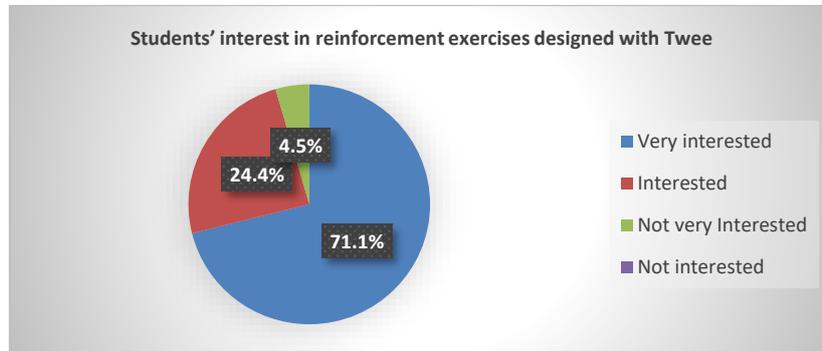
The purpose of the survey was to get feedback from students regarding their experiences on vocabulary reinforcement exercises using the Twee website.

Figure 1: The usefulness of the exercises created with Twee



Students' assessments of the usefulness of Twee's reinforcement exercises are shown in the bar chart. It is evident from the statistics that 78.3% of respondents think these reinforcement exercises are very beneficial, indicating how effectively they improve learning. The idea that most students find the exercises helpful is further supported by the fact that 17.4% of students felt they were just marginally helpful. Despite the small proportion of responses that are neutral or less beneficial, the high degree of pleasure encourages the incorporation of these digital platforms into vocabulary-reinforcement techniques.

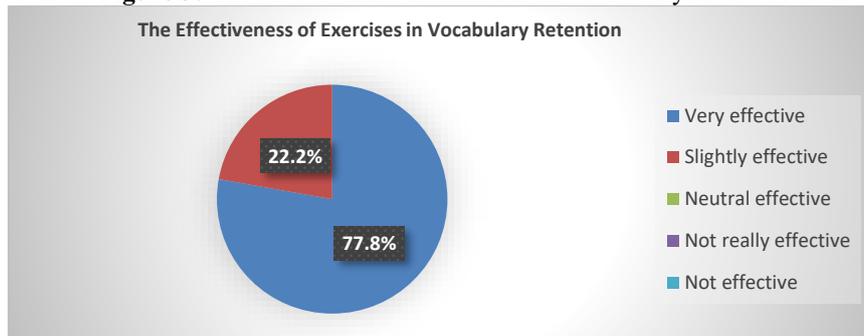
Figure 2: Students' interest in reinforcement exercises designed with Twee



The chart illustrates students' level of interest in vocabulary reinforcement exercises designed with Twee. Particularly, 71,1% of students reported being highly interested, indicating that the majority found the activities engaging and stimulating. Additionally, 24,4% expressed slight interest, further supporting the idea that most learners perceived the exercises as beneficial and enjoyable. Only a small proportion (4,5%) indicated low or no interest in the tasks.

Overall, the results suggest that Twee-based exercises are positively received, contributing to increased student motivation and active participation in the vocabulary learning process.

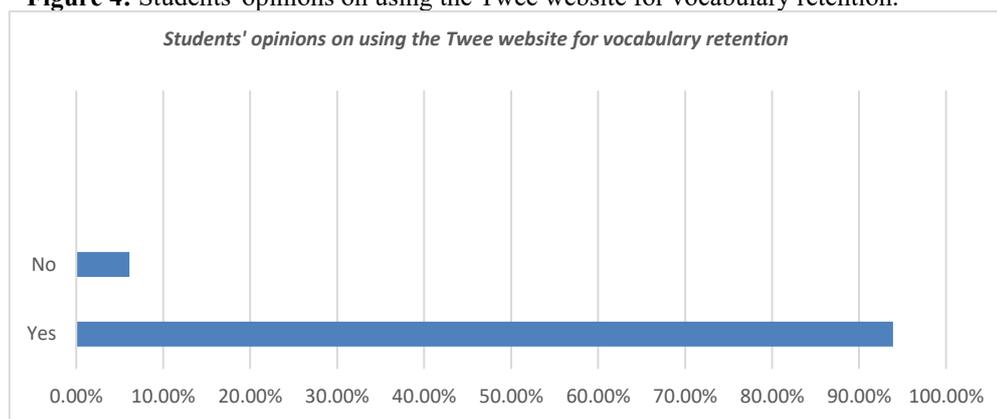
Figure 3: The effectiveness of exercises in vocabulary retention



The chart presents students' perceptions of how effectively Twee-based reinforcement exercises support vocabulary retention. According to the chart, 77.8% of students considered the activities extremely useful, highlighting their strong perceived impact on vocabulary learning. An additional 22.2% rated them as slightly effective, which reinforces the overall positive reception of the exercises.

Notably, no respondents rated the exercises as neutral or ineffective, suggesting a unanimous agreement on their educational value. These findings underscore the role of TWEE-based activities as a valuable tool for enhancing vocabulary retention in language learning.

Figure 4: Students' opinions on using the Twee website for vocabulary retention.



The graph presents fascinating viewpoints on how students feel about utilizing the Twee website to aid in word recall. Interestingly, the majority of respondents (93.9% of all comments) thought it was a good idea to use Twee as a tool to help with learning new vocabulary. The fact that this website provides a structured and interactive approach to reinforce vocabulary acquisition in a digital format and highlights the Twee's capacity to support conventional learning methods highlights how effective it is believed to be at helping students recall vocabulary.

Interestingly, a small proportion of respondents (6.1%) expressed dissatisfaction regarding the use of the TWEE website for vocabulary retention. While this represents a minority view, it underscores the importance of acknowledging diverse learner preferences and experiences. Such feedback highlights the need for digital learning tools to be flexible and inclusive, ensuring they accommodate a wide range of learning styles, needs, and goals.

V. Discussion

The purpose of this study was to assess the efficiency of vocabulary reinforcement tasks created with the website Twee in assisting students with vocabulary retention. The findings show that students who practiced vocabulary on Twee's virtual classroom and reinforcement exercises performed much better on the post-test than they did in the pre-test. Moreover, after engaging with the digital exercises, students felt more motivated and engaged.

The interactive and gamified character of the Twee workouts possibly explains this improvement. Matching, gap-filling, and quizzes, according to several students, not only made learning fun but also made it easier for them to remember the new vocabulary. These results are in agreement with previous studies that emphasize the importance of frequently and interactive contact in vocabulary development (Nation, 2001; Webb, 2007). Twee activities' contextualization and repetition could have improved students' recall by improving their memory footprints.

When compared to typical paper-based vocabulary reviews, the Twee proved to reduce student tiredness. It seems that using digital tools to acquire vocabulary seemed "less like studying" and "more like playing," which similar to the studies by Hung (2015) and Klimova (2019) - highlighted the motivating advantages of using online resources for vocabulary acquisition.

By showing the combined significance of reinforcement in vocabulary learning (Nation, 2001; Schmitt, 2008) and the educational value of AI in language instruction (Chen & Li, 2021), this work strengthens prior research. This study is different in that it focuses on a newly created AI tool in an actual classroom over a period of eight weeks, offering deeper, a long-term observation on the educational potential of an AI tool.

VI. Conclusion

Overall, some conclusions were drawn on the use of the Twee website to improve English vocabulary memory during the research process. To address the two study questions, data analysis was performed using the information gathered from questionnaires, pre-tests, and post-tests.

First, there was a noticeable difference between the pre-test and post-test scores of the experiment's participants. This implies that the Twee website enhanced pupils' vocabulary acquisition and retention.

Second, the researchers found that the TWEE website was beneficial for students not only because it enhanced their motivation to learn vocabulary, but also because it provided varied and engaging reinforcement tasks to support vocabulary acquisition.

These results suggest that digital tools like TWEE should be considered as an effective supplement in vocabulary teaching and learning, especially in blended learning classrooms. Teachers are encouraged to explore such platforms not merely for their teaching method improvement, but for their sustain vocabulary learning. Future

studies may expand this research by applying TWEE across different proficiency levels, different language skills, exploring long-term retention, and comparing its impact with other digital vocabulary tools.

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