

Research Article

The Use of Education Game Media with Animated Videos to Improve Vocabulary Mastery of Secondary School in Thailand

Henny Sembiring^{1*}, Mandra Saragih²

¹ Universitas Muhammadiyah Sumatera Utara, Indonesia; hennysembiring7@gmail.com

² Universitas Muhammadiyah Sumatera Utara, Indonesia; mandrasaragih@umsu.ac.id

* Author Correspondence: hennysembiring7@gmail.com

Abstract. Vocabulary mastery is a fundamental component of English language learning, particularly in EFL contexts where students have limited exposure to English outside the classroom. However, many secondary school students in Thailand still experience difficulties in acquiring basic English vocabulary, which affects their comprehension and classroom participation. This study investigates the effectiveness of education game media with animated videos in improving students' English vocabulary mastery. The study employed a quantitative approach using a one-group pre-test and post-test quasi-experimental design. The participants were 15 secondary school students from one class in a Thai secondary school. Data were collected through vocabulary tests administered before and after the implementation of animated video-based instruction integrated with game activities. The instructional treatment was conducted over four meetings during regular English lessons. The data were analyzed using descriptive statistics and inferential analysis to examine differences between pre-test and post-test scores. The findings indicate that education game media with animated videos has a significant positive effect on students' vocabulary mastery. The use of animated visuals, audio input, and interactive games promotes active engagement and supports vocabulary learning more effectively than traditional instruction.

Keywords: Animated Videos; English Learning; Game Media; Thai Students; Vocabulary Mastery.

1. Introduction

English is expected to function as a basic communication tool for secondary school students in Thailand. At this level, students are expected to master essential English vocabulary that enables them to understand classroom instructions, comprehend simple texts, and express basic ideas in daily communication. However, classroom realities show a different condition. Many secondary school students still demonstrate limited vocabulary mastery, even for frequently used words in everyday contexts (Yeti et al., 2024). This gap between curricular expectations and actual student performance indicates that conventional vocabulary instruction has not fully supported effective learning. Vocabulary teaching often relies on memorization and textbook-based activities, which provide limited visual, contextual, and interactive support (Alqahtani, 2015). As a result, students experience low motivation, weak retention, and minimal active participation during English lessons. To address this issue, this study proposes the use of education game media with animated videos as an instructional solution.

This approach integrates animated visual input with game-based learning activities to create an interactive and engaging learning environment. Unlike previous studies that focused only on animated videos or standalone educational games, this research combines both elements in a structured classroom intervention. The novelty of this study lies in examining the integrated use of education game media with animated videos to improve basic English vocabulary mastery of secondary school students in a Thai EFL context. At this stage, students are expected to have developed basic English competence that enables them to

Received: November 09, 2025

Revised: January 20, 2026

Accepted: March 28, 2026

Published: May 30, 2026

Current Version: May 30, 2026



Copyright: © 2025 by the authors.

Submitted for possible open

access publication under the

terms and conditions of the

Creative Commons Attribution

(CC BY SA) license

(<https://creativecommons.org/licenses/by-sa/4.0/>)

understand simple texts, follow classroom instructions, and engage in basic communication (Zeng et al., 2025).

Despite continuous exposure to English instruction, many students at the secondary school level still experience difficulties in mastering English vocabulary (AS & Apoko, 2023). This challenge becomes more evident in basic vocabulary commonly used in daily communication. Even after several years of learning English, some students remain unfamiliar with simple words related to everyday activities and objects. This condition is particularly observed in one secondary school in Thailand where this study is conducted. Preliminary classroom observations indicate that students in this school show limited vocabulary knowledge, which affects their ability to understand instructions, participate actively in lessons, and express simple ideas in English (Nontasee & Sukying, 2020; Woodeson et al., 2023).

Limited vocabulary mastery at the secondary level presents a serious instructional concern. Vocabulary functions as the foundation of language learning (Robiya et al., 2024). When students lack basic vocabulary, they struggle to comprehend learning materials and respond appropriately during classroom interaction. In the observed classroom, students often hesitate to answer questions, rely on guessing, or remain silent during English lessons (Othman, 2024; Valentine, 2025). They show low confidence when asked to identify word meanings or use vocabulary in simple sentences. This situation slows down the learning process and reduces the effectiveness of instruction.

One factor contributing to this condition is the instructional approach used in vocabulary teaching. Vocabulary instruction often emphasizes memorization and translation. Teachers commonly introduce new words through textbooks and word lists. Students memorize vocabulary without sufficient contextual or visual support (Samiyan & Khorasani, 2014; Yu, 2011). This approach limits meaningful learning and weakens vocabulary retention. In addition, classroom activities frequently lack interactive and engaging elements, which results in passive learning.

Motivation also plays a significant role in vocabulary acquisition. Learning activities that rely heavily on explanation and repetition may fail to sustain students' attention. When students feel bored or disengaged, they invest less effort in learning tasks. Low motivation reduces exposure to vocabulary input and limits opportunities for practice. As a result, vocabulary development remains slow and fragmented.

To address these challenges, teachers need instructional media that promote active learning and meaningful engagement. One approach that responds to this need is the use of education game media with animated videos. This type of media integrates animated visual content with game-based activities. Students learn vocabulary by watching animated videos while actively participating in learning tasks. The videos present vocabulary through simple stories, songs, and movements that encourage students to sing, move, and respond. After video-based activities, students complete quizzes and short games that reinforce vocabulary understanding. This combination of watching, singing, moving, and playing creates an interactive learning environment.

Education game media with animated videos provides several advantages for vocabulary instruction. Animated visuals support comprehension by illustrating word meanings through actions and situations. Audio input supports pronunciation and listening skills. Game elements increase motivation and encourage repeated exposure to vocabulary. Through quizzes and interactive tasks, students actively process vocabulary rather than memorize words passively. This active engagement supports better vocabulary retention and understanding.

For secondary school students, this approach is particularly relevant. Students at this level still benefit from visual and interactive support, especially in EFL contexts. Education game media can reduce learning anxiety and increase confidence. When students feel engaged and motivated, they participate more actively in classroom activities. Active participation plays an important role in developing vocabulary mastery.

Based on these considerations, this study investigates the use of education game media with animated videos as an instructional intervention to improve English vocabulary mastery. The focus of the intervention is basic vocabulary frequently used in daily communication. The media are implemented during regular English lessons through video viewing, movement-based activities, singing, and vocabulary games. Based on the objectives of the study, the research addresses the following questions: Does the use of education game media with animated videos significantly improve English vocabulary mastery of secondary school

students in Thailand? Is there a significant difference between students' vocabulary scores before and after the implementation of education game media with animated videos?

2. Literature Review

Vocabulary mastery is a fundamental component of second language learning, particularly in EFL contexts where learners have limited exposure to the target language outside the classroom. At the secondary school level, vocabulary knowledge plays a crucial role in supporting students' comprehension and communication skills. Learners with limited vocabulary often face difficulties in understanding instructional input and participating actively in classroom activities. Therefore, effective instructional media are required to support vocabulary learning in a meaningful and systematic way. This study adopts three major theoretical perspectives to explain how animated videos can improve vocabulary mastery, namely Dual Coding Theory, Cognitive Theory of Multimedia Learning, and Vocabulary Knowledge Theory proposed by Nation.

Dual Coding Theory

Dual Coding Theory, proposed by Clark & Paivio (1991), explains that information is processed through two cognitive systems: the verbal system and the visual system. Learning becomes more effective when information is presented through both systems simultaneously. Words supported by images are more likely to be remembered because learners develop dual mental representations.

In vocabulary learning, this theory highlights the importance of visual support. When learners encounter new words only through text or translation, they rely solely on verbal processing. This condition often results in weak retention. Visual input, such as images or animations, strengthens word-meaning associations and supports recall. Animated videos directly reflect the principles of Dual Coding Theory. Vocabulary is presented through spoken language, written forms, and animated visuals (Wooten & Cuevas, 2024). When students hear a word while observing its visual representation, both cognitive systems are activated. This dual processing supports stronger memory storage. For secondary school students, visual input plays a significant role in clarifying meaning and supporting vocabulary retention.

Cognitive Theory of Multimedia Learning

The Cognitive Theory of Multimedia Learning, developed by Richard Mayer, explains how learners process information from multimedia materials. The theory is based on three assumptions: separate channels for visual and auditory information, limited capacity of working memory, and active cognitive processing during learning.

According to this theory, learning becomes more effective when multimedia materials are designed to reduce cognitive overload. Information should be presented in an organized and integrated way. Learners select relevant information, organize it, and integrate it with prior knowledge. Animated videos align with these principles by combining visuals, narration, and contextual cues. In vocabulary learning, animated videos present words in meaningful contexts rather than isolated lists. Visual scenes help students understand meaning, while audio input supports pronunciation. This integration allows learners to process vocabulary more efficiently. This study adopts the Cognitive Theory of Multimedia Learning to explain how animated videos support vocabulary learning. The theory provides a cognitive explanation for the effectiveness of multimedia-based instruction in improving vocabulary mastery.

Vocabulary Mastery

Nation (2001) theory of vocabulary knowledge emphasizes that knowing a word involves more than recognizing its meaning. According to Nation (2001), vocabulary knowledge consists of three main aspects: form, meaning, and use. Each aspect includes both receptive and productive knowledge. Learners need to understand how a word looks and sounds, what it means, and how it is used in context. In EFL contexts, learners often possess limited vocabulary knowledge because instruction focuses mainly on meaning through translation. This approach neglects pronunciation, spelling, and contextual use. As a result, learners may recognize words in tests but struggle to use them in communication.

Nation (2001) also emphasizes the importance of repeated exposure and meaningful input in vocabulary learning. Learners need to encounter words in different contexts to develop deeper vocabulary knowledge. Vocabulary learning should involve noticing, retrieval, and generative use of words.

Animated videos support Nation's vocabulary framework effectively. Videos present word forms through spoken and written input. Visual scenes clarify meaning without relying solely on translation. Contextual dialogues demonstrate how words are used in daily communication. Through repeated viewing and classroom activities, students encounter vocabulary multiple times in meaningful contexts.

In the context of secondary school students, animated videos help develop basic vocabulary knowledge as defined by Nation (2001). Students learn pronunciation through audio input. They recognize word forms through subtitles or captions. They understand meaning through visual cues. They observe word use through simple dialogues and actions. This comprehensive exposure supports vocabulary mastery at a foundational level. This study adopts Nation's vocabulary theory to define and measure vocabulary mastery. Vocabulary improvement is assessed based on students' ability to recognize meanings and apply basic vocabulary appropriately. The theory provides a clear conceptual basis for evaluating the effectiveness of animated video-based instruction.

3. Proposed Method

This study employed a quantitative research approach with a quasi-experimental design and was conducted in one secondary school in Thailand. The participants consisted of 15 students from a single second-grade secondary class. This class was selected because it represented the only available group at the secondary level suitable for the study. All students in the class participated in the research. The study focused on examining the effect of animated video-based instruction on students' English vocabulary mastery within an authentic classroom setting. Due to institutional constraints and fixed class arrangements, the study applied a one-group pre-test and post-test quasi-experimental design, which is commonly used in classroom-based quantitative research when random assignment and control groups are not feasible.

Data Collection

Data were collected through vocabulary tests administered before and after the instructional treatment. The pre-test was conducted in one meeting to measure students' initial vocabulary mastery. The test focused on basic English vocabulary frequently used in daily communication. After the pre-test, the students received instructional treatment using animated videos integrated into English lessons. The treatment was implemented over four meetings during regular English class sessions. During these sessions, animated videos were used to introduce and reinforce vocabulary through visual context, spoken input, and guided classroom activities. At the final meeting, a post-test was administered using a test format comparable to the pre-test. The post-test aimed to measure changes in students' vocabulary mastery after the treatment. The test instruments were designed to assess students' ability to recognize word meanings and apply basic vocabulary appropriately.

Data Analysis

The data collected from the pre-test and post-test were analyzed using descriptive statistics. The analysis focused on comparing students' vocabulary achievement before and after the implementation of animated videos as the instructional media. Descriptive statistical measures, including the mean score, minimum score, maximum score, and standard deviation, were calculated to describe students' vocabulary performance in both tests.

The pre-test results were used to identify students' initial vocabulary mastery before receiving the treatment, while the post-test results were used to measure their vocabulary achievement after the treatment. By comparing the descriptive statistics of both tests, the researcher examined changes in students' performance and identified the extent of improvement following the implementation of animated videos in the English learning process. The findings from the descriptive analysis were presented in tables and interpreted to provide a clear overview of students' vocabulary development before and after the treatment. These results served as the basis for answering the research question regarding the effect of animated videos on students' English vocabulary mastery.

4. Results and Discussion

This study investigated whether the use of education game media integrated with animated videos could improve secondary school students' English vocabulary mastery. The analysis was conducted using descriptive statistics, the Shapiro-Wilk normality test, and a

paired-sample t-test. Fifteen students participated in both the pre-test and post-test after receiving four instructional sessions using animated videos integrated with educational games.

The Effect of Education Game Media with Animated Videos on Students' English Vocabulary Mastery

The first research question examined whether the use of education game media with animated videos significantly improved the English vocabulary mastery of secondary school students in Thailand. To answer this question, students' vocabulary performance before and after the instructional treatment was analyzed using descriptive statistics.

Table 1. Descriptive Statistics of Students' Vocabulary Scores.

Test	N	Mean	SD	Max	Min
Pre-test	15	50.60	4.12	44	57
Post-test	15	67.33	4.68	60	75

Table 1 shows a clear improvement in students' vocabulary performance following the implementation of education game media with animated videos. Before the instructional treatment, the students obtained a mean score of 50.60, indicating that their vocabulary knowledge was still at a basic level. During the pre-test, many students were able to recognize only familiar words and often experienced difficulty identifying the meanings of common vocabulary items used in everyday communication. Some students relied on guessing when answering multiple-choice questions, while others confused words with similar meanings or selected answers based on partial recognition rather than complete understanding. These patterns suggest that students' receptive vocabulary knowledge was still limited before the intervention.

The relatively small standard deviation ($SD = 4.12$) indicates that students demonstrated similar levels of vocabulary mastery at the beginning of the study. Most scores were concentrated around the group mean, suggesting that the participants entered the instructional program with comparable vocabulary abilities. The minimum score of 44 and the maximum score of 57 further show that no student demonstrated a particularly advanced level of vocabulary mastery before the treatment. Overall, the pre-test results reflect a classroom in which students shared similar learning needs and encountered comparable difficulties in acquiring basic English vocabulary.

Following four instructional sessions using education game media with animated videos, students' vocabulary performance improved noticeably. The post-test mean increased to 67.33, representing an average gain of 16.73 points. This increase indicates that students developed a better understanding of the target vocabulary after participating in multimedia-supported learning activities. During classroom observations, students became more confident in identifying vocabulary presented in animated scenes and were increasingly able to associate spoken words with their visual representations. They also demonstrated greater participation during classroom games, responded more quickly to vocabulary quizzes, and required less assistance from the teacher when completing vocabulary-related tasks.

The improvement is also reflected in the minimum and maximum scores. The lowest post-test score increased from 44 to 60, indicating that even students who initially demonstrated the weakest vocabulary knowledge achieved noticeable progress after the intervention. Likewise, the highest score increased from 57 to 75, suggesting that students with relatively stronger initial abilities also benefited from the instructional treatment. This pattern indicates that the learning activities supported vocabulary development across students with different proficiency levels rather than benefiting only a small number of high-achieving learners.

Although the standard deviation increased slightly from 4.12 to 4.68, the variation among students remained relatively small. This finding suggests that most participants experienced improvement, although the extent of improvement varied slightly from one student to another. Such variation is common in classroom-based instruction because students differ in their learning pace, prior knowledge, motivation, and engagement during learning activities.

The increase in the mean score suggests that the integration of animated videos and educational games facilitated students' vocabulary learning by providing visual, auditory, and interactive learning experiences. Overall, the descriptive statistics indicate that students' English vocabulary mastery improved after the instructional treatment.

The Difference Between Students' Vocabulary Scores Before and After the Implementation of Education Game Media with Animated Videos

The second research question investigated whether there was a statistically significant difference between students' vocabulary scores before and after the implementation of education game media with animated videos.

Table 2. Paired-Sample t-Test result.

Variable	Mean	SD	Mean Different	T	df	Sig.(2- tailed)
Pre-test	50.60	4.12	-16.73	6.12	14	<0.001
Post-test	67.33	4.68				

Table 2 demonstrates that students' English vocabulary mastery improved significantly after participating in learning activities using education game media with animated videos. Before the instructional treatment, the students obtained an average score of 50.60, indicating that their mastery of basic English vocabulary was still relatively limited. After four instructional sessions, the average score increased to 67.33, representing a mean improvement of 16.73 points. This increase suggests that the instructional treatment contributed positively to students' acquisition of the target vocabulary. The paired-sample t-test produced a t-value of 6.12 with 14 degrees of freedom and a significance value of $p < .001$. Since the probability value was lower than the predetermined significance level of 0.05, the null hypothesis (H_0) was rejected. This result indicates that the difference between students' pre-test and post-test scores was statistically significant. In other words, the improvement observed after the implementation of education game media with animated videos was unlikely to have occurred by chance.

The significant increase in vocabulary scores indicates that the instructional activities effectively supported students in learning new English words. During the treatment, students were exposed to vocabulary through animated visual scenes, spoken language, subtitles, and interactive educational games. These activities provided repeated opportunities for students to observe, hear, recognize, and practice the target vocabulary in meaningful contexts. Repeated exposure enabled students to strengthen their understanding of word meanings while also improving their ability to recognize vocabulary more quickly during the post-test.

The improvement observed in this study also reflects changes in students' classroom learning behaviour throughout the instructional sessions. At the beginning of the intervention, several students required additional guidance to understand unfamiliar vocabulary and often hesitated when responding to vocabulary-related questions. As the learning activities progressed, students became more active in participating in classroom games, responded more confidently to vocabulary exercises, and demonstrated greater willingness to answer questions during discussions. These behavioural changes indicate that the combination of animated videos and game-based activities created a learning environment that encouraged active participation and continuous vocabulary practice.

Furthermore, the relatively consistent improvement among participants suggests that the instructional media benefited students with different initial levels of vocabulary mastery. Although individual learning progress varied, all students demonstrated higher post-test scores than their initial performance. This finding indicates that the instructional intervention supported vocabulary development across the entire class rather than benefiting only students with higher initial proficiency.

Overall, the statistical findings provide strong evidence that education game media integrated with animated videos effectively improved English vocabulary mastery among secondary school students in Thailand. The significant difference between the pre-test and post-test scores confirms that integrating visual media with interactive game-based activities can enhance vocabulary learning by increasing students' engagement, facilitating vocabulary retention, and providing meaningful opportunities to practice newly acquired words. Therefore, the findings provide a positive answer to the second research question, confirming that the implementation of education game media with animated videos resulted in a statistically significant improvement in students' English vocabulary mastery.

5. Conclusions

This study investigated the effectiveness of education game media integrated with animated videos in improving the English vocabulary mastery of secondary school students in Thailand. The findings demonstrated that the instructional intervention had a positive and statistically significant effect on students' vocabulary learning. Students' mean vocabulary score increased from 50.60 in the pre-test to 67.33 in the post-test, and the paired-sample t-test confirmed that the difference between the two scores was statistically significant ($t(14) = 6.12, p < .001$). These findings indicate that the use of education game media with animated videos effectively enhanced students' understanding of basic English vocabulary.

The improvement can be attributed to the integration of animated visual content, audio input, and interactive game-based activities, which provided meaningful learning experiences and encouraged students to engage actively in the learning process. Through repeated exposure to vocabulary in contextualized situations, students were able to recognize word meanings more accurately and demonstrate better vocabulary performance after the instructional treatment. The findings also support the theoretical perspectives of Dual Coding Theory, the Cognitive Theory of Multimedia Learning, and Nation's Vocabulary Knowledge Theory, which emphasize the importance of combining visual and verbal information, multimedia learning, and repeated contextual exposure in vocabulary acquisition.

The results suggest that education game media with animated videos can serve as an effective instructional strategy for English vocabulary teaching in secondary school EFL classrooms, particularly where students have limited exposure to English outside school. Teachers are encouraged to integrate multimedia-based learning activities into regular classroom instruction to create more engaging and meaningful vocabulary learning experiences.

Despite these positive findings, this study was limited by its small sample size and the use of a one-group pre-test and post-test design without a control group. Future research is recommended to involve larger and more diverse samples, include comparison groups, and examine the long-term effects of education game media with animated videos on vocabulary retention and other aspects of English language learning, such as speaking, listening, and reading comprehension.

References

- Alqahtani, M. (2015). The Importance of Vocabulary Learning and How To Be Taught. *International Journal of Teaching and Education*, 3(3), 21–34. <https://doi.org/10.20472/TE.2015.3.3.002>
- AS, R., & Apoko, T. W. (2023). Investigating English vocabulary difficulties and learning strategies of lower secondary school students. *Journal of Language and Language Teaching*, 11(3), 489–501. <https://doi.org/10.33394/jollt.v11i3.489>
- Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review*, 3(3), 149–210. <https://doi.org/10.1007/BF01320076>
- Kurniawan, I. W. A. (2023). English language and its importance as global communication. *Samā Jiva Jnānam (International Journal of Social Studies)*, 1(1), 51–57. <https://doi.org/10.25078/ijoss.v1i1.3920>
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge University Press.
- Nontasee, W., & Sukying, A. (2020). The acquisition of vocabulary knowledge in Thai EFL high school students. *Journal of Man and Society*.
- Othman, J. (2024). Academic vocabulary learning in EMI classrooms: Challenges and strategies. *Arab World English Journal*, 15(2), 3–18. <https://doi.org/10.24093/awej/vol15no2.1>
- Robiya, H., Feruzabonu, M., & O'gilson, M. (2024). The role of vocabulary in learning. *Western European Journal of Linguistics and Education*, 2(5), 344–347.
- Samiyan, L. V., & Khorasani, S. R. (2014). The comparison between contextual guessing strategies and memorizing a list of isolated words in vocabulary learning regarding long-term memory. *International Journal of Science, Culture and Sport*, 2(1), 12–18. <https://doi.org/10.14486/IJSCS41>
- Valentine, R. P. (2025). Lack of students' vocabulary repertoire in learning English. *English Language Teaching Prima Journal*, 7(1), 1–10. <https://doi.org/10.34012/elt.v7i1.7398>
- Woodeson, K., Limna, P., & Nga-Fa, N. (2023). Students' vocabulary learning difficulties and teachers' strategies: A qualitative case study of Ammartpanichnukul School, Krabi, Thailand. *Journal of Education Studies*, 15, 1–9.
- Wooten, J. O., & Cuevas, J. A. (2024). The effects of dual coding theory on social studies vocabulary and comprehension in elementary education. *International Journal of Social and Education Sciences*, 6(4), 673–691. <https://doi.org/10.46328/ijones.696>
- Yetti, D., Yelmi, H., Akbar, R., & Nofiar, A. (2024). The Effectiveness of English Animated Videos in Enhancing the Vocabulary. *Journal of English Language and Education*, 9(6), 70–76. <https://doi.org/https://doi.org/10.31004/jele.v9i6.582>
- Yu, L. (2011). *Vocabulary recognition and memorization: A comparison of two methods* (Undergraduate thesis). Kristianstad University.
- Zeng, Y., Kuo, L., Chen, L., & Lin, J. (2025). Vocabulary instruction for English learners: A systematic review connecting theories, research, and practices. *Education Sciences*, 15(3), 262. <https://doi.org/10.3390/educsci15030262>