


Teaching Vocabulary Using Digital Storytelling: A Quasi-Experimental Study

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A B S T R A C T

Vocabulary mastery is essential in English language learning because it supports students' ability to understand and express ideas effectively. However, many students still face difficulties in mastering past-tense verbs, particularly when vocabulary instruction relies on memorization-based methods. Although digital storytelling has been widely applied to increase students' engagement in language learning, limited studies have examined its effectiveness in improving vocabulary mastery, especially past-tense verbs in EFL contexts. This study examined the effectiveness of digital storytelling in teaching past-tense verbs to tenth-grade students at SMAN 3 Bengkayang. A quasi-experimental design was employed involving an experimental group and a control group, each consisting of 24 students. The experimental group learned through digital storytelling videos presenting narrative stories with visual and audio elements, while the control group received conventional instruction. The results indicated that students taught through digital storytelling showed significant improvement in vocabulary mastery compared to those taught using conventional methods.

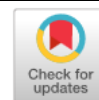
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INTRODUCTION

Vocabulary mastery plays an essential role in language learning because it enables learners to understand and express ideas effectively in communication. In English as a Foreign Language (EFL) contexts, vocabulary knowledge becomes a fundamental component that supports the development of the four language skills: listening, speaking, reading, and writing (Rahmah et al., 2023). Without sufficient vocabulary knowledge, students may experience difficulties in comprehending texts and conveying their ideas accurately. Therefore, vocabulary is considered one of the most important aspects of language learning and a fundamental foundation for language acquisition (Brown, 2007).

Despite its importance, many students still encounter difficulties in learning English vocabulary, particularly in mastering verb forms. One common challenge experienced by students is the use of past-tense verbs. Past verbs are frequently used in narrative texts and everyday communication to describe events that occurred in the past. However, students often struggle to recognize and use these verb forms correctly, especially irregular verbs that require memorization and contextual understanding. In many classrooms, vocabulary instruction is still conducted through conventional teaching methods such as translation and memorization. These approaches may reduce students' motivation and limit their engagement in the learning process. As a result, such instructional limitations often lead to a compartmentalized understanding in which learners struggle to integrate grammatical accuracy with narrative expression, ultimately hindering their ability to recount personal experiences effectively (Riani et al., 2021).

Effective vocabulary instruction requires meaningful contexts and interactive learning activities. Thornbury (2002) states that vocabulary learning becomes more effective when students encounter words repeatedly in meaningful contexts. When vocabulary is presented

through isolated word lists, students may find it difficult to understand and remember the words in real communication. Therefore, teachers need to employ teaching strategies and instructional media that allow students to experience vocabulary in authentic and contextualized situations. In this regard, digital storytelling serves as a promising pedagogical tool because it integrates multimedia elements to facilitate narrative construction and provide meaningful linguistic exposure for learners (Castillo-Cuesta et al., 2021; Ghaithi et al., 2023).

One instructional approach that has recently gained attention in language education is digital storytelling. Digital storytelling refers to the practice of combining traditional storytelling with multimedia elements such as images, audio, video, and narration to present stories in digital formats (Lambert, 2013). By integrating narrative and multimedia elements, digital storytelling provides meaningful contexts for language learning and encourages students' active participation in the classroom. Robin (2008) explains that digital storytelling can enhance students' engagement, creativity, and understanding by presenting learning materials in a more interactive and visually engaging way. In addition, multimedia learning environments may help students process information more effectively by combining visual and auditory elements. This perspective is supported by the Cognitive Theory of Multimedia Learning, which explains that learners process information through two channels – visual and verbal – and meaningful learning occurs when learners actively select, organize, and integrate information from these channels (Mayer, 2024). Furthermore, this multimodal integration moves beyond traditional repetitive vocabulary exercises by engaging multiple senses, which may reduce learner fatigue while strengthening vocabulary retention (Jwair, 2023).

Several previous studies have explored the use of digital storytelling in language learning. Many of these studies have reported positive outcomes in improving students' writing skills, creativity, and cultural awareness (Rodríguez et al., 2021; Schmoelz, 2018). Digital storytelling has also been shown to increase students' motivation and participation during the learning process. However, most previous studies have primarily focused on writing skills and general language engagement rather than vocabulary acquisition. Consequently, relatively limited research has specifically examined the effectiveness of digital storytelling in improving vocabulary mastery, particularly the use of past-tense verbs in EFL classrooms. In addition, empirical studies investigating the implementation of digital storytelling in Indonesian high school contexts remain scarce.

Based on these considerations, this study aims to examine the effectiveness of digital storytelling in teaching past-tense verbs to tenth-grade students at SMAN 3 Bengkayang. The findings of this study are expected to contribute to the existing literature by providing empirical evidence on the use of digital storytelling as an alternative instructional medium for improving students' vocabulary mastery in EFL classrooms.

METHOD

This study employed a quantitative approach using a quasi-experimental design to examine the effectiveness of digital storytelling in teaching past-tense verbs. Quasi-experimental research is commonly applied in educational settings where random assignment of participants is not feasible (Creswell & Guetterman, 2019). The study used existing classes as research groups without randomly assigning individual students. Specifically, a pretest-posttest nonequivalent control group design was applied, involving an experimental group that received the treatment and a control group that continued with conventional instruction. Both groups were administered a pre-test to measure their initial vocabulary mastery and a post-test to assess learning outcomes after the treatment. The comparison of pre-test and post-test scores was used to determine the effect of the treatment. In this study, two classes at SMAN 3 Bengkayang were selected, in which class XB served as the experimental group and received instruction using digital storytelling, while class XC functioned as the control group and was taught using conventional teaching methods.

The population of this study consisted of all tenth-grade students at SMAN 3 Bengkayang in the academic year 2024/2025, totaling 176 students distributed across five

classes (XA-XE). From this population, two intact classes were selected as the research sample using a purposive sampling technique, in which the researcher selected classes considered suitable for the implementation of the research design and with relatively similar learning conditions. The final sample consisted of 48 students, with 24 students in the experimental group and 24 students in the control group. Some students from the original classes were excluded from the final sample because they were absent during the pre-test or post-test sessions or did not complete the test properly. The participants were tenth-grade students with an approximate age range of 15–16 years old.

Data were collected using a measurement technique, which involves identifying and organizing research data for analysis (Omisile, 2020). The instrument used in this study was a vocabulary cloze test consisting of 30 items related to past-tense verbs in narrative texts. The test was administered as both a pre-test and a post-test. The items were adapted from the Grade 10 English textbook Bahasa Inggris untuk Siswa SMA/MA Kelas X Kurikulum Merdeka by Otong Setiawan Dj. To ensure the validity of the instrument, the test items were examined through content validity by three validators, who were English teachers at SMAN 3 Bengkayang.

The research procedure began with administering a pre-test to both the experimental and control groups to determine students' initial vocabulary mastery. After the pre-test, the experimental group received instruction using digital storytelling through narrative video materials, while the control group was taught using conventional teaching methods commonly applied in the classroom. Following the treatment sessions, a post-test was administered to both groups using the same test format to measure students' improvement in vocabulary mastery.

The collected data were analyzed using descriptive and inferential statistical techniques. Descriptive statistics were used to calculate students' mean scores, while inferential analysis was conducted using a t-test to determine whether there was a significant difference between the experimental and control groups. In addition, effect size analysis was used to measure the strength of the treatment effect, which indicates the magnitude of the difference between groups in quantitative research (Cohen et al., 2007; Creswell & Guetterman, 2019).

FINDINGS AND DISCUSSION

Findings

This study aimed to examine the effectiveness of Digital Storytelling in improving students' vocabulary acquisition, particularly in mastering past verbs, among tenth-grade students of SMAN 3 Bengkayang. The data were collected through pre-test and post-test administered to both the experimental group and the control group, each consisting of 24 students. The experimental group received instruction using Digital Storytelling, while the control group was taught using conventional teaching methods.

Pre-test Results

Table 1. Descriptive Statistics of Students' Vocabulary Pre-test Scores

Group	N	Mean	Minimum	Maximum	Standard Deviation
Experimental	24	30.13	13.30	80.00	21.64
Control	24	61.25	20.00	96.70	26.85

Based on Table 1, the experimental group obtained a mean score of 30.13 with a standard deviation of 21.64, while the control group obtained a higher mean score of 61.25 with a standard deviation of 26.85. The results indicate that the control group demonstrated higher initial vocabulary mastery compared to the experimental group before the implementation of the treatment.

Post-test Results

After the implementation of the treatment, a post-test was administered to measure students' improvement in vocabulary mastery. The descriptive statistics of the post-test scores are shown in Table 2.

Table 2. Descriptive Statistics of Students' Vocabulary Post-test Scores

Group	N	Mean	Minimum	Maximum	Standard Deviation
Experimental	24	61.53	3.30	90.00	23.01
Control	24	55.56	3.30	96.70	28.29

As shown in Table 2, the experimental group demonstrated a substantial improvement in vocabulary mastery. The mean score increased from 30.13 in the pre-test to 61.53 in the post-test, with a standard deviation of 23.01. In contrast, the control group showed a slight decrease in performance, with the mean score declining from 61.25 in the pre-test to 55.56 in the post-test, and a standard deviation of 28.29. These results suggest that students who received instruction through digital storytelling showed greater improvement compared to those who were taught using conventional teaching methods.

T-test Results

To determine whether the improvement in students' vocabulary mastery was statistically significant, a paired sample t-test was conducted. The results are presented in Table 3.

Table 3. Paired Sample t-test Results

Group	Mean Difference	Standard Deviation	t-test	df	t-table (0.05)
Experimental	31.389	23.01	5.654	23	2.068
Control	-5.694	28.29	-1.017	23	2.068

The results indicate that the experimental group obtained a t-test value of 5.654, which is higher than the t-table value of 2.068 at the significance level of 0.05, indicating a statistically significant difference between the pre-test and post-test scores. Therefore, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted. In contrast, the control group obtained a t-test value of -1.017, which is lower than the t-table value of 2.068, indicating that there was no significant improvement in students' vocabulary mastery in the control group.

In addition, the effect size analysis using Cohen's d produced a value of 0.218, which falls into the small effect size category. Although the magnitude of the effect is relatively small, the result still indicates that digital storytelling had a positive impact on students' vocabulary acquisition.

Discussion

The findings of this study indicate that digital storytelling contributes positively to students' vocabulary acquisition, particularly in mastering past verbs. The significant improvement observed in the experimental group suggests that integrating storytelling with multimedia elements can support vocabulary learning in a more engaging and meaningful learning environment. Through digital storytelling, students are exposed to vocabulary in narrative contexts supported by visual and auditory elements, which may help them understand the meaning and usage of words more effectively. This type of learning environment encourages students to actively participate in the learning process and enables them to connect new vocabulary with contextualized language use.

These findings are consistent with previous studies that highlight the benefits of digital storytelling in language learning. Belda-medina and Goddard (2024) reported that digital storytelling can enhance students' vocabulary learning by providing meaningful visual and narrative contexts that support language comprehension. Similarly, Jwair (2023) found that digital storytelling improves students' vocabulary retention because multimedia elements allow learners to process information through both visual and auditory channels. The integration of these multimedia components enables learners to engage multiple senses during the learning process, which may strengthen memory and improve vocabulary recall.

Furthermore, Robin (2008) explains that digital storytelling increases students' engagement and motivation during the learning process. When students are exposed to stories presented through digital media, they are more likely to pay attention and remain interested in the learning activities. In the present study, the use of narrative videos allowed students to encounter past verbs within meaningful story contexts rather than through isolated

vocabulary lists. This contextual exposure may help students understand how past verbs function within sentences and narratives, thereby facilitating deeper comprehension and more effective vocabulary acquisition.

However, the effect size obtained in this study was categorized as small ($d = 0.218$). This indicates that although digital storytelling had a positive impact on students' vocabulary learning, the magnitude of the effect was relatively limited. One possible explanation is the relatively short duration of the treatment, which may not have been sufficient to produce a stronger learning effect. In addition, other factors such as students' prior vocabulary knowledge, differences in learning motivation, and classroom learning conditions may have influenced the results. Therefore, future studies may consider implementing digital storytelling over a longer instructional period or combining it with other interactive teaching strategies to maximize its potential impact on students' vocabulary development.

Overall, the findings of this study support previous research indicating that digital storytelling can serve as an effective instructional strategy for improving vocabulary mastery in EFL classrooms. By integrating narrative elements with multimedia resources, digital storytelling provides students with meaningful and engaging learning experiences that may enhance both their motivation and their ability to understand and retain new vocabulary.

CONCLUSIONS

This study examined the effectiveness of digital storytelling in improving students' vocabulary mastery, particularly past-tense verbs, among tenth-grade students at SMAN 3 Bengkayang. The findings indicate that the use of digital storytelling contributed positively to students' vocabulary learning, as students who were taught using this approach showed better improvement compared to those who learned through conventional teaching methods. The integration of narrative elements with multimedia features created a more engaging and meaningful learning environment, which helped students understand vocabulary within contextualized language use. These findings suggest that digital storytelling can serve as a supportive instructional strategy for vocabulary teaching in EFL classrooms. However, the impact of digital storytelling may depend on several factors, such as the duration of implementation, classroom conditions, and students' learning characteristics. Therefore, future studies are recommended to explore the use of digital storytelling over a longer instructional period or combine it with other interactive learning strategies to further enhance students' vocabulary development.

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