
Digital Storytelling and Vocabulary Acquisition

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ABSTRACT: Digital storytelling is a good way to help learners acquire and understand new words easier. This study sought to answer the level of digital storytelling and vocabulary acquisition. Furthermore, this study also aimed to determine the significant relationship between digital storytelling and vocabulary acquisition, as well as to identify dimensions of the independent variable that influence learners' vocabulary acquisition. The 225 respondents of the study were selected Grade 6 learners from Tagoloan West District. Descriptive-correlational and causal research methods were utilized in this study with the use of self-made questionnaire and standardized vocabulary test that underwent validity and reliability tests. Vocabulary words were taken from the stories for the third quarter based on curriculum guide. Mean, Standard Deviation, Pearson's Correlation Coefficient and Multiple Linear Regression were utilized. Results revealed that learners assess the use of digital storytelling very satisfactory. Most of the learners fall within a very satisfactory level in vocabulary acquisition. There is a low positive correlation between digital storytelling and vocabulary acquisition. Visual component of digital storytelling best influences the learners' vocabulary acquisition. Thus, digital storytelling helps in learners' vocabulary acquisition. Teachers may employ digital storytelling to help learners improve their vocabulary acquisition to outstanding.

KEYWORDS: audio, digital storytelling, interactive feature, visual, vocabulary acquisition

I. INTRODUCTION

The integration of technology in education has changed traditional teaching approaches in the digital age, particularly in developing the language acquisition of 21st-century learners. The use of digital storytelling helps in facilitating deeper understanding of new vocabulary. Also, the level of comprehension can be attained or measured depending on how deep and wide the vocabulary is. Moreover, when it comes to modern educational practices, merging digital media and its interactive feature creates an impact on acquiring language learning.

The study aimed to explore the relationship between digital storytelling and vocabulary acquisition. It aimed to fill this gap by pursuing the objectives of examining how various components of digital storytelling e.g., visuals, audio and interactive features contribute to vocabulary acquisition and to determine which elements are most effective in facilitating the learning of new words.

In the Philippine educational system, vocabulary development is important, particularly in light of the most recent Programme for International Student Assessment (PISA) findings. Sandoval-Hernandez et al. (2023) argued that although there are differences in the impact variables among countries, children from more developed educational systems perform better on PISA reading literacy assessments. Considering the findings of the most recent PISA cycle and the present patterns in reading proficiency throughout the Asia-Pacific nations. Comparing high-performing nations, like Singapore, with low-performing nations, like the Philippines helps highlight the manner in which factors at the individual, class, and school levels affect a nation's reading literacy performance.

Modern technology offers numerous chances for connecting schools to the outside world. Technology gives a greater and better source of information, but solutions must be mediated through the appropriate means. The current study emphasized the importance and complexities of modern technology, particularly digital storytelling (DST), in education. It discusses the most important features of DST application in language instruction, including the phases and components of good digital tales (Moradi & Chen, 2019).

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Maya et al. (2022) showed that they thought digital storytelling was more interesting, captivating, and inspiring for enhancing vocabulary development. Teachers must use technology into the classroom to engage students who are considered digital natives because of the rapid expansion of technology. Digital storytelling might be an alternate media for vocabulary development. This study evaluated how young learners perceived the adoption of digital storytelling during vocabulary acquisition. Also, Hamdani et al. (2022) revealed that using digital storytelling media to engage learners' vocabulary mastery was successful. It provides opportunities for pupils to practice vocabulary related to language proficiency.

Although vocabulary is frequently overlooked in learning activities, it is crucial when teaching English. Among the engaging learning models that can be utilized to expand learners' vocabulary is digital storytelling. The findings of the study showed that using digital storytelling to teach English to learners improved their vocabulary and made them happier, more at ease, driven, and enthusiastic about the language (Sulistianingsih & Aflahatun, 2020).

The imperative to study the relationship between digital storytelling and vocabulary acquisition arose from the understanding that multimedia instruction plays a crucial role in developing the learners' vocabulary. While a substantial amount of research has examined the impact of different teaching strategies, there remains a significant gap in understanding the specific influence of digital storytelling on vocabulary acquisition. By focusing on this area, the study aimed to contribute to the existing body of knowledge by exploring how different components of digital storytelling, such as visual, audio, and interactive features, contribute to vocabulary acquisition.

The overarching goal of this study was to improve reading literacy and vocabulary acquisition by integrating digital media, which are essential in motivating learners to actively participate in the learning process. Therefore, this study was both timely and significant in addressing the need for effective, technology-driven pedagogical strategies to improve vocabulary development in the digital age.

The use of digital storytelling in educational settings has gained popularity, notably as a method for improving vocabulary learning. This study was based on Moreno and Mayer's Cognitive Theory of Multimedia Learning (CTML), which states that learning is more effective when information is presented in both verbal and visual formats Chen et al. (2024). This framework guided the study into how digital storytelling can improve vocabulary learning by incorporating multimedia elements such as visual, audio, text, and interactive features.

According to Moreno and Mayer's Cognitive Theory, people learn best when information is presented in both verbal and visual forms. The concepts of Dual Coding Theory, suggests that words and images are processed by the brain independently, are consistent with this dual-channel processing. Digital storytelling increases cognitive engagement and captures learners' attention by combining these two modes. Stories' narrative structures provide new vocabulary meaning and help learners connect words to sounds and pictures, which promotes retention and deeper understanding.

Additionally, digital storytelling engages learners emotionally, which might improve motivation and retention. The narrative components of digital stories provide a fully realized experience that captivates learners, promoting a desire to connect with the content. This kind of interaction is essential for expanding one's vocabulary since it pushes learners to investigate, consider, and discuss new terms in a group setting. Peers' discussions and personal experiences with newly acquired phrases can help to further reinforce vocabulary acquisition through the social component of digital story sharing.

In the twenty-first century, the majority of multimedia materials are verbal and audio-visual representations that, when properly processed, enable the creation of an integrated mental model of learning. Despite being widely used in language education, there are still barriers to overcome before multimedia learning materials may be effectively utilized in second language teaching and learning contexts. More specifically, while the majority of how language learners pick up new information through verbal representations is well established, less is known about how they absorb visual information whether learning a language on its own or in combination with texts (Vu et al., 2021).

Bechtold (2023) added that in multimodal learning settings, learners' pleasure with the content of the lessons and their achievement can be improved by the precise management of multimedia, especially spoken text. The CTML encourages a design structure for listening comprehension by building on the personalizing principle of the cognitive theory of multimedia, which states that learners learn better from spoken words and pictures than from words alone.

The purpose of the study was to investigate the connection between digital storytelling and vocabulary acquisition. It sought to close this gap by investigating the ways in which different parts of digital storytelling as interactive features, audio, and visuals-contribute to vocabulary acquisition and identifying the pieces that work best to make learning new words easier. Moreover, traditional methods of instruction have been transformed in the digital age as a result of the incorporation of technology into educational settings, particularly with regard to the development of language acquisition skills among learners in the 21st century. For the purpose of supporting a deeper understanding of new words, the use of digital storytelling is beneficial.

II. METHODOLOGY

This study employed correlational and causal research approaches. It was correlational because it examined the relationship between the independent variable and dependent variable (Albishi & Alqiawi, 2022). This design enables the analysis of quantitative data through survey questionnaires and vocabulary standardized test.

Additionally, this study integrated the aspects of causal research design to further examine whether the component of the independent variable singly or in combination influence the learners' vocabulary acquisition (Belda-Medina & Goddard, 2024).

The data collected were analyzed using several statistical methods. Descriptive statistics were employed to summarize the components of the digital storytelling variable and the learners' vocabulary acquisition levels.

For problem number one and two, measures such as the Mean, Standard Deviation, and Frequency distributions are used. As for problem number three, correlation analysis was conducted using Pearson's Correlation Coefficient to determine if there was a significant relationship between the levels of digital storytelling (visual, audio, and interactive features) and vocabulary acquisition, with a significance level set at 0.05. Also, for problem number four multiple regression analysis was used. These statistical treatments provided insight into the use of digital storytelling on vocabulary acquisition and allowed for testing the study's hypotheses.

III. RESULTS AND DISCUSSION

Problem 1. How do learners assess the use digital storytelling in terms of:

- 1.1. visual;
- 1.2. audio, and
- 1.3. interactive feature?

Table 1. Overall Digital Storytelling

Components of Digital Storytelling	Mean	SD	Qualitative Description
Visual	4.25	0.93	Very Satisfactory
Audio	4.10	1.00	Very Satisfactory
Interactive Feature	4.15	0.98	Very Satisfactory
Overall	4.17	0.96	Very Satisfactory

Note: 4.51-5.00 Excellent; 3.51-4.50 Very Satisfactory; 2.51-3.50 Satisfactory; 1.51-2.50 Fairly Satisfactory; 1.00-1.50 Poor

Table 1 shows how the learners assess the overall use of digital storytelling. It reveals that it has an overall Mean of 4.17 with SD = 0.96, which is qualitatively described as Very Satisfactory. This suggests that participants in digital storytelling generally agree with the efficiency or quality of these components. Though still within a constant range, the standard deviations (SDs) for responses range from 0.93 to 1.00, implying a modest variance. With an overall Mean of 4.17, participants found digital storytelling to be satisfactory in all measured aspects. This indicates that they excelled in the selected areas. The relatively high average scores indicate that learners value and enhance the digital narrative process through interactive elements, audio, and images. Since every element scored above 4.0, it suggests that learners value the multimodal features of digital storytelling most of the time. A convincing and captivating experience for users depends much on visual components. Sometimes, improved emotional involvement, understanding, and memorability are associated with excellent images. Also critical in improving the emotional depth and realism of digital storytelling is the immersive experience created by mindful use of audio elements. Lastly, interactive features like user-directed pacing or branching stories help to engage and personalize a work.

Moreover, Robin and McNeil (2019) stated that one of the most widespread applications of digital storytelling is in the field of education, where it has the potential to be an effective tool for educators as well as learners. Among the many advantages that digital storytelling offers to learners is the opportunity to cultivate literacy skills that are relevant to the 21st century. These abilities have been recognized as an essential prerequisite for studying, working, and progressing in the technologically advanced environment of today. In the same way, the results of Yang et al. (2020) underline the real and pertinent learning chances DST offers to properly foster learners' development as competent English speakers and creative thinkers.

Meanwhile, the variable, *Visual*, has the highest Mean of 4.25 with SD = 0.93, which is qualitatively described as Very Satisfactory. This implies that visual elements play a significant role in creating a compelling and engaging experience for users. High-quality visuals are often linked to enhanced emotional engagement, comprehension, and memorability. Images support crucial concepts. persist long after a story has finished since learners are more likely to recall images than words, so improving retention. Moreover, images combined with words form a coherent narrative that improves the total experience and so increases

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the impact and immersion value.

Kien (2024) stated that visual media has been shown at Nguyen Tat Thanh University to be a successful tool for English vocabulary training. The learning environment is interesting; the word memory is reinforced; the learning strategies are improved; the number of settings for word practice is raised; and the meaning of the word presentation is made more practical. In the framework of vocabulary development, the research emphasized the benefits of participatory activities, easily remembered materials, and the use of many senses. This study might help future studies on the application of visual media in English as a Foreign Language vocabulary training.

Additionally, the study of Sariani et al. (2021) intended to assess vocabulary acquisition in language learners by means of visual images included into writing tasks. Data were gathered using a mix method comprising semi-open-ended interviews and the Vocabulary Size Test (VST) Monolingual Version A. According to the study, including visual pictures into writing assignments greatly raised vocabulary count. The creative learning approach, which meets the demands of language learners, can help them to overcome their fear and enhance vocabulary acquisition. The study emphasized the possibilities of including visual aids into e-learning.

Conversely, the variable, audio, got the lowest Mean of 4.10 with SD = 1.00, and qualitatively described as Very Satisfactory. This suggests that even though audio components like narration, music, and sound effects play a vital part as one of the multimedia elements of digital storytelling, there are a number of factors that need to be taken into consideration in order to improve the overall experience that the learners have. One of the most crucial things to take into consideration is making sure that the volume of the audio is not either too loud or too low. The quality of the narrator's voice is another key feature that should be taken into consideration. The others are audio; it must not be annoying and should be coordinated with the pictures in a smooth manner.

According to Lawson-Adams and Dickinson (2019) learners who included sound effects in their vocabulary understood those terms more deeply than those without sound effects. For words with sound, they offered more gestural responses and contextual information, implying that adopting common techniques known to educational music teachers will help to promote vocabulary learning during specialized music subjects. Even though audio got the lowest ratings, it still received a very satisfactory interpretation, and said to have space for improvement. Moreover, audio components should carefully be integrated in digital stories to enhance the overall experience and this way learners will have better understanding and retention.

Problem 2. What is the level of learners' vocabulary acquisition?

Table 2. Learners' Vocabulary Acquisition

Range	Description	Frequency	Percentage	Overall Performance	Interpretation
24-30	Outstanding	77	34.07	19.10	Very Satisfactory
18-23	Very Satisfactory	49	21.68		
13-17	Satisfactory	64	28.32		
6-11	Fairly Satisfactory	36	15.93		
0-5	Needs Improvement	-	-		
		225	100.00		

Table 2 shows the learners' level of vocabulary acquisition. It reveals that it has an overall performance of 19.01% and interpreted as Very Satisfactory. This indicates that while the learners have achieved a Very Satisfactory level, continuous vocabulary development is necessary to help all learners reach the "Outstanding" category. Given that the most essential aspects of language learning is the development of vocabulary since it has a significant impact on the ability of learners to communicate effectively and comprehend both written and oral communication. It is possible for learners to express their thoughts and ideas, in a precise and understandable manner if they have a broad range of words.

Also, Nation (2019) stated that having knowledge of a word encompasses a variety of aspects of knowledge, including its form, meaning, and application. This information can be developed through the use of language as well as through deliberate teaching and learning, and it is important to have a balanced combination of both forms of learning possibilities. This chapter also provides a comprehensive overview of the many learning opportunities and activities that are available for each component. Vocabulary acquisition requires specific conditions, including repetition and the level of interpreting, while the diverse opportunities for learning through language utilization and intentional activities vary in their effectiveness in applying these conditions.

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Moreover, the result with highest performance shows that 34.07% or 77 learners achieved an "Outstanding" level, demonstrating excellent vocabulary skills. This indicates that having a strong vocabulary allows for more fluent discussions, which boosts confidence in social and professional settings. It improves one's ability to think critically. Understanding difficult concepts and developing reasoning and problem-solving skills are easier when one is familiar with a wide range of terms. Also, good vocabulary enables individuals to write more persuasively, creatively, and precisely, enhancing the quality of essays, reports, and stories. In the long run, it also boosts academic success.

In the same manner, the findings in the study of De Alicante Departamento De Filología Inglesa (2024) revealed a favorable impact on children's vocabulary learning in relation to inclusive and diverse education. This finding contributes to a better understanding of the role that digital storytelling plays in enhancing vocabulary acquisition and supporting the incorporation of inclusive digital narratives into language education. In addition, Effective communication, understanding, and language mastery all depend on vocabulary skills. They enhance reading comprehension, make reading fun and instructive, develop writing skills, and enable precise and clear presentation of thoughts, emotions, and ideas.

On the other hand, the result with the lowest performance shows that 15.93% or 36 learners fell into Fairly Satisfactory level, indicating a need for vocabulary improvement. Although, no learners scored in range of (0-5) which means that all learners have at least basic vocabulary knowledge, but still there is a need for vocabulary improvement. Because continuous vocabulary development is important in order to learn how to communicate and express your thoughts well. Additionally, understanding a wide range of words helps readers grasp the meaning of texts, making reading more enjoyable and informative.

Similarly, in the study of Permana (2020) revealed that when teaching vocabulary in elementary school, teachers are obliged to use interactive media such as pictures, games, and songs to help learners increase their vocabulary. Also, interactive media has a significant impact on learners' motivation and involvement in the vocabulary acquisition process.

Problem 3. Is there a significant relationship between the use of digital storytelling and learners' vocabulary acquisition?

Table 3. Test of Correlation Between Digital Storytelling and Vocabulary Acquisition

Independent Variables	r-value	p-value	Description	Decision on Ho	Interpretation
Visual	0.434**	0.000	Low Positive	Reject	Significant
Audio	0.243**	0.000	Low Positive	Reject	Significant
Interactive Feature	0.299**	0.000	Low Positive	Reject	Significant

** . Correlation is significant at the 0.01 level (2-tailed)

The correlation analysis examines the relationship between digital storytelling components namely Visual, Audio, and Interactive Features and learners' vocabulary acquisition. The results are interpreted based on the r-value or correlation coefficient and p-value or statistical significance. The p-values for all variables indicate that the relationships are statistically significant, meaning that digital storytelling has a measurable impact on vocabulary acquisition. The r-values range from 0.243 to 0.434, showing a low but positive correlation between digital storytelling features and vocabulary acquisition. Since the null hypothesis is rejected, it is confirmed that Visual, Audio, and Interactive Features contribute to vocabulary learning, though at a low level.

Furthermore, Visuals with computed r-value of 0.434 and interpreted as significant, as with the highest correlation suggests that images, animations, and videos in digital storytelling have the greatest impact on vocabulary acquisition. Learners better understand and remember words when they are paired with visual cues. The result implies the emphasis of the visual learning. Since visuals have the highest impact, teachers should incorporate images, animations, and videos when introducing new vocabulary.

The low positive correlation aligns with studies that show visuals are beneficial but require reinforcement for long-term retention. Kien (2024) emphasized that visual communication, including diagrams and infographics, plays a positive role in vocabulary retention, which supports the current result's low positive correlation. Moreover, it is beneficial for the learners to see clear images, well suited story's theme and eye-catching animations, that will make the video or digital story more engaging.

Audio has a computed r-value of 0.243 and interpreted as significant, as with the lower correlation suggests that audio alone has a weaker impact on vocabulary learning compared to visuals. While hearing words improves pronunciation and listening comprehension, learners may struggle to retain new vocabulary without visual reinforcement. This highlights the need for multisensory approaches, combining both sound and imagery for better retention. Having two or more senses during the learning process enhances engagement and promote better understanding.

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A study by Amirreza (2019) underlined how well using audio-visual materials improved vocabulary acquisition. The findings also revealed how audio-visual resources might assist in increasing target language vocabulary knowledge of language learners. Additionally, audio helps with pronunciation and listening comprehension, learners could find it difficult to keep new vocabulary without visual support. Thus, learning using two or more senses increases involvement and helps to improve understanding. This underlines the importance of multimodal strategies, which combine sound and picture for improved memory.

As for Interactive Features it has a computed r -value of 0.299 and interpreted as significant, as with the positive correlation indicates that interactive elements help learners acquire vocabulary. Interaction allows learners to engage actively with words, reinforcing retention through practice and repetition. While the correlation is lower than visuals, it suggests that active participation enhances learning more than passive listening.

Ploetzner (2022) revealed as well that interactive features have a moderate impact on learning, but their effectiveness depends on the learners' engagement, reinforcing the low positive correlation in the current study. Also, engaging learners in interactive digital storytelling tools can boost vocabulary retention. The findings suggest that a combination of visuals, audio, and interactivity is the most effective way to teach vocabulary.

Problem 4. Which of the components of the independent variable singly or in combination influence the learners' vocabulary acquisition?

The multiple linear regression analysis in Table 4 examines the relationship between visual, audio, and interactive features and vocabulary skills. The model has an R -value of 0.439, indicating a moderate correlation, and an R^2 of 0.193, suggesting that 19.3% of the variance in vocabulary skills can be explained by these three independent variables and 80.7% can be attributed to other variables not included in the study.

Visual Features ($B = 5.421$, $p = 0.000$): A significant positive effect on vocabulary learning, meaning that incorporating visual aids improves vocabulary acquisition. The significant positive effect of visual learning ($B = 5.421$, $p = 0.000$) aligns with research showing that visual aids enhance vocabulary retention by helping learners connect words with images. Moreover, audio features have a negative but non-significant effect ($B = -0.996$, $p = 0.332$), meaning audio alone does not significantly improve vocabulary skills; suggesting that audio-based learning alone does not contribute meaningfully. The non-significant negative effect of audio ($B = -0.996$, $p = 0.332$) suggests that audio alone does not significantly enhance vocabulary learning, supporting studies that indicate listening without visual or interactive reinforcement is less effective, and that audio alone is not sufficient for vocabulary retention without visual or interactive reinforcement. Also, interactive features show a positive but non-significant effect ($B = 1.142$, $p = 0.272$), implying that interactivity alone is not a strong predictor of vocabulary skills in this model. It also signifies that while interaction helps, it does not strongly predict vocabulary improvement. Although interactive features show a positive effect, they are not significant, suggesting that interactive elements enhance learning but require high engagement.

Table 4. Multiple Linear Regression Between Digital Storytelling and Vocabulary Acquisition

Independent Variables	Unstandardized Coefficients		Standard Coefficient Beta	T	Sig.
	B	Std. Error			
Constant	-4.604	3.432		-1.342	0.181
Visual	5.421	1.020	0.423	5.315	0.000
Audio	-0.996	1.025	0.094	-0.972	0.332
Interactive Feature	1.142	1.038	0.108	1.100	0.272
	R=0.439		R ² =0.193	F=17.626	Sig=0.000

a. Dependent Variable: Test Score

b. Independent Variables: Visual, Audio, Interactive Feature

Zhang and Zhang (2024) investigated at how learning vocabulary from multimedia is affected by different types of information, such as verbal-only, verbal plus content-related nonverbal, and verbal plus paralinguistic-related nonverbal. The results showed that multimodal input, which includes nonverbal information as well, was better for effective vocabulary gains than standard verbal-only input. More than that, understanding the input was the most important factor in determining the learning gains, especially when the input included nonverbal information linked to paralinguistic.

IV. CONCLUSIONS

Based on the findings, the following conclusions were drawn:

1. Learners enjoy the use of digital storytelling.
2. Learners have vocabulary acquisition.
3. Digital storytelling helps in the learners' vocabulary acquisition.
4. Visual input significantly enhances vocabulary acquisition.

V. RECOMMENDATIONS

Based on the conclusions presented above, the researcher has elaborated the following recommendations;

1. Teachers may employ digital storytelling to help learners improve their vocabulary acquisition to outstanding.
2. Continue strengthening vocabulary instruction to help learners reach the outstanding level.
3. Incorporate digital storytelling to support vocabulary acquisition.
4. Emphasize the use of visual materials to improve further the vocabulary skills of learners.

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