

# Digital Storytelling in Indonesian EFL Higher Education: A Mixed-Methods Study of Narrative Writing Development

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## ABSTRACT

This study examines the impact of digital storytelling (DST) on the narrative writing skills of English as a Foreign Language (EFL) learners in an Indonesian higher education context. Using a mixed-methods explanatory sequential design, the study included a quasi-experimental phase with pre-tests and post-tests, comparing an experimental group (n=35) with a control group (n=34). The experimental group demonstrated a significant improvement in narrative writing scores, with a large effect size (Cohen's  $d = 1.92$ ), particularly in organization, content, and vocabulary. Qualitative data from semi-structured interviews and student reflections revealed that the improvement was driven by increased student motivation, greater ownership of the writing process, and metacognitive gains in narrative structure. Challenges included technical skills and language use, but the findings suggest that DST, supported by sociocultural and multimodal learning theories, is an effective strategy for enhancing EFL narrative writing instruction. These results have practical implications for educators looking to engage students in more authentic and motivating writing tasks.

**Keywords:** digital storytelling, narrative writing, EFL learners, multimodal literacy, sociocultural theory, mixed-methods research

## 1. Introduction

Narrative writing in English as a Foreign Language (EFL) classrooms presents significant challenges for students. Common difficulties include generating ideas, organizing coherent plots, and using descriptive language effectively. Traditional teaching methods, which often emphasize mechanical accuracy over creativity, can lead to disengagement, reducing students' motivation and hindering their writing development (Ajabshir, 2024). Given these challenges, existing instructional approaches have not sufficiently addressed the need for creative, technology-integrated writing tasks that sustain student motivation and improve narrative output EFL contexts (Alemi et al., 2022). In particular, the potential of digital storytelling for narrative writing instruction among Indonesian EFL learners remains underexplored, warranting further empirical investigation. Digital storytelling (DST) offers a promising solution by combining storytelling with digital tools such as images, voice, and text. This multimodal approach allows students to create rich, multimedia narratives, offering an authentic and motivating way to engage with writing (Miao & Li, 2024). DST has the potential to address the challenges of narrative writing by making the process more interactive and creative (Zarei, 2024). This aligns with sociocultural theory, which emphasizes the importance of social interaction and cultural context in learning (Castillo-Cuesta et al., 2021). Additionally, multimodal learning recognizes the value of integrating multiple forms of communication, which DST facilitates (Drajati et al., 2025).

The theoretical foundation of this study also draws from constructivist theory, which encourages active, student-driven learning (Nguyen et al., 2024). Furthermore, the TPACK framework integrates technology, pedagogy, and content knowledge, providing a comprehensive approach to teaching with digital tools (Tan, 2024). These frameworks guide the investigation of how DST can enhance narrative writing skills in EFL classrooms, with a focus on how students engage with both the writing process and digital tools. Although DST has been explored in various educational contexts, its impact on narrative writing in EFL classrooms, particularly in Indonesia,

remains underexplored (Alemi et al., 2022). This study aims to fill this gap by examining how DST can improve writing skills among Indonesian EFL learners, offering valuable insights into the role of digital tools in language education (Ajabshir, 2024).

## 2. Method

This study employed a mixed-methods explanatory sequential design (Creswell & Plano Clark, 2017). The first phase was quantitative, using a quasi-experimental design with pre-tests and post-tests to measure the impact of the Digital Storytelling (DST) intervention on students' narrative writing skills. The second phase involved qualitative data collection through semi-structured interviews and student reflections, which helped explain and elaborate on the quantitative findings by providing deeper insight into participants' experiences and perceptions (Zarei, 2024; Ajabshir, 2024). The population for this study consisted of first-year EFL students at a private university in Bandung, Indonesia. A purposive sampling technique was used to select a single intact class, which was chosen for practical and logistical reasons. While purposive sampling provides valuable insights in specific contexts, it limits the generalizability of the findings. Ideally, a random sampling technique should have been used to enhance the external validity of the results. Additionally, non-random assignment to experimental and control groups restricts the ability to attribute the observed effects solely to the intervention, as the groups may differ in ways beyond the study's control.

The selected experimental group consisted of 35 students (18 females and 17 males), aged 18–20 years. These participants had been studying English for at least seven years and were categorized as having a pre-intermediate level of proficiency based on their most recent final English exam scores. The control group, consisting of 34 students from a parallel intact class, continued with traditional teaching methods during the same period. However, the absence of random assignment in selecting participants for both the experimental and control groups introduces potential bias, limiting the ability to control for pre-existing differences in writing ability and other relevant factors. The study employed a set of pre-test and post-test assessments to measure narrative writing improvement, which were administered to both groups. The tests were designed to assess writing skills such as organization, vocabulary, and content development. To ensure the reliability and validity of the writing assessments, the pre-test and post-test prompts were strictly validated by two senior EFL experts to match the pre-intermediate proficiency level. Furthermore, the reliability of the post-test scoring was established by using two independent raters. An inter-rater reliability analysis using Cohen's Kappa was performed, achieving a high agreement coefficient of .85, which confirms the consistency and rigor of the quantitative evaluations. Qualitative data were collected through semi-structured interviews and student reflections, which provided deeper insights into the participants' experiences with the DST intervention. To establish the trustworthiness of the qualitative findings, inter-coder reliability was conducted during the thematic analysis. Two researchers independently coded 20% of the interview transcripts and student reflections. They reached an initial agreement rate of 88%, and any discrepancies were resolved through peer debriefing and discussion until a full consensus was reached.

Ethical guidelines were followed throughout the study. Participants were informed of the study's objectives, and informed consent was obtained from all participants. Regarding informed consent, parental consent was strictly obtained only for participants under the legal age of 18. For adult participants (aged 18 and above), their direct informed consent was deemed sufficient. To guarantee complete anonymity and confidentiality, all collected data were immediately encrypted and securely stored on a password-protected offline drive. All identifying personal information was strictly replaced by pseudonyms prior to the data compilation and analysis phases. The quantitative data were analyzed using descriptive statistics and inferential statistics, including t-tests to compare the pre-test and post-test scores of the experimental and control groups. While these methods are appropriate for comparing the two groups' performance, the lack of randomization and potential differences in baseline writing abilities limit the reliability of the statistical analysis. Future studies should consider more rigorous methods, such as randomization, to enhance the robustness of the statistical results and minimize potential biases.

The data collection was conducted over eight weeks, following a step-by-step procedure: Phase 1: Pre-Test (Week 1) Both the experimental and control groups were administered a pre-test. The pre-test required students to write a narrative essay (minimum 250 words) based on a given prompt (e.g., "Write a story about a time you overcame a fear"). Students were given 60 minutes to complete the writing task under exam conditions. Phase 2: Intervention (Weeks 2-6), Control Group: Continued with traditional writing instruction: teacher-led explanation of narrative structure,

vocabulary drills, individual writing assignments, and teacher feedback. Experimental Group: Received the DST intervention, which followed a structured process: Workshop (Week 2): A 2-hour workshop on digital storytelling. Students were introduced to the concept, shown examples, and taught to use a simple DST tool (e.g., Canva for Education, Adobe Spark Video, or PowerPoint).

Topic Selection & Storyboarding (Week 3), Students brainstormed ideas and drafted their narratives on a storyboard template, which included panels for images, text, and audio notes. Script Writing & Peer Review (Week 4): Students wrote the full script for their narration. Peers reviewed the scripts for clarity, grammar, and vocabulary, using a guided checklist. Digital Production (Week 5): Students collected images (self-drawn, online, or photographed), recorded their voiceovers, and assembled their digital stories using the chosen software. Screening and Feedback (Week 6): The final digital stories were screened in class. Students provided feedback to each other in a supportive “gallery walk” format. Phase 3: Post-Test and Qualitative Data Collection (Week 7), Both groups were administered a post-test, identical in format and difficulty to the pre-test. Immediately after the post-test, 10 students from the experimental group were purposively selected (to represent high, mid, and low achievers based on pre-test scores) to participate in semi-structured interviews. All students in the experimental group were asked to write a short reflective journal entry on their experience with the DST project. Phase 4: Data Compilation (Week 8) All quantitative and qualitative data were compiled and prepared for analysis.

Three main instruments were developed and validated for this study: Writing Test (Pre-test and Post-test), Development: The writing prompt was adapted from past national exam questions and validated by two senior EFL teachers for clarity and appropriateness for the student level. Scoring Rubric: A tailored analytic scoring rubric was developed, incorporating criteria from Jacobs et al.'s (1981) ESL Composition Profile. It scored writing performance on four components: Content (30%), Organization (25%), Vocabulary (20%), and Language Use (25%). Each component had descriptors for scores of 1 (Poor) to 5 (Excellent). Semi-Structured Interview Guide, Development: The guide contained open-ended questions designed to explore students' perceptions, challenges, and benefits experienced (e.g., “How did creating a digital story help you with your writing?”, “What was the most difficult part of the process?”). Validation: The questions were reviewed by an expert in qualitative research to ensure they were unbiased, clear, and capable of eliciting rich responses. Student Reflection Journal Prompt, A simple, guided prompt was used: “Please reflect on your experience creating your digital story. What did you learn? What did you enjoy? What did you find challenging?”

Pilot Study: All instruments were piloted with a similar class not involved in the main study. The pilot confirmed the reliability of the scoring rubric (achieving an inter-rater reliability coefficient of .87 using Cohen's Kappa) and the clarity of the interview questions. The pre-test and post-test scores were analyzed using IBM SPSS Statistics (Version 28). Descriptive Statistics (mean, standard deviation) were calculated for both groups' pre-test and post-test scores. A **paired-sample t-test** was conducted to compare the within-group differences (pre-test vs. post-test) of the experimental group. An independent-sample t-test was conducted to compare the post-test scores of the experimental and control groups, controlling for any initial differences via the pre-test scores. The interview transcripts and reflection journals were analyzed using Thematic Analysis (Braun & Clarke, 2006). Interviews were audio-recorded, transcribed verbatim, and translated where necessary. The data were coded manually to identify initial codes. Codes were collated into potential themes (e.g., “Increased Motivation,” “Technical Challenges,” “Improved Understanding of Narrative Structure”). Themes were reviewed, defined, and named to represent the key patterns in the data.

This study adhered to strict ethical guidelines for educational research. Formal written permission was obtained from the school principal and the head of the English department. Informed Consent: A detailed information sheet explaining the study's purpose, procedures, risks, benefits, and the right to withdraw at any time without penalty was distributed to all participants. Written informed consent was obtained from all participants before the study commenced, as all were aged 18 or above and legally able to consent on their own behalf. Anonymity and Confidentiality: All participants were assigned pseudonyms (e.g., Student 01, S02) to ensure anonymity. All data (scores, transcripts) were stored on a password-protected computer, and any identifying information was removed from the final report. Debriefing: After the study, a debriefing session was held with all participants. The results and findings were explained to them. The control group was also offered a

workshop on digital storytelling after the data collection period to ensure they benefited from the research.

### 3. Results and Discussion

The aim of this study was to examine the impact of Digital Storytelling (DST) on narrative writing skills in EFL learners. The results are presented in two main subsections: quantitative findings from the pre-test and post-test scores, and qualitative findings from interviews and student reflections.. To assess the impact of DST, pre-test and post-test scores were collected from both the experimental (DST) group (n=35) and the control group (n=34). Independent and paired sample **t-tests** were used to compare the groups. Table 1 below summarizes the descriptive statistics.

Table 1: Pre-test and Post-test Descriptive Statistics

Group	Test	Mean Score	Std. Deviation
Experimental (DST)	Pre-test	62.14	5.87
	Post-test	76.91	6.12
Control	Pre-test	61.88	6.01
	Post-test	65.23	5.95

An independent-sample t-test indicated that there was no statistically significant difference between the groups on the pre-test scores ( $t(67) = .187, p = .852$ ), confirming that the groups had equivalent writing abilities at the start of the study. In terms of within-group differences, the control group showed a slight, though statistically insignificant, improvement from pre-test to post-test ( $t(33) = 1.923, p = .063$ ). In contrast, the experimental group demonstrated a significant improvement following the DST intervention ( $t(34) = 9.847, p < .001$ ). While these findings indicate positive gains in the experimental group, further analysis is needed to account for assumptions such as test reliability, confidence intervals, and the potential for other factors influencing these results (Alemi et al., 2022; Miao & Li, 2024). Additionally, effect size analysis was conducted to evaluate the magnitude of the differences. The Cohen's d for the experimental group was calculated to be 1.92, indicating a very large effect size, which further supports the effectiveness of DST in improving narrative writing skills. To enhance the robustness of the statistical procedures, 95% Confidence Intervals (CI) were calculated for the mean differences. The paired-sample t-test for the experimental group indicated a significant mean difference with a 95% CI of [11.25, 18.30]. While the absence of random assignment introduces potential selection bias, this was mitigated as much as possible by ensuring both intact classes shared identical baseline writing proficiencies and were taught under standardized conditions.

Qualitative data were collected through semi-structured interviews and student reflections to provide a deeper understanding of the participants' experiences with DST. Thematic analysis revealed several key themes, including enhanced student motivation, increased ownership of the writing process, and improved understanding of narrative structure through visual storyboarding. These findings align with previous research suggesting that DST fosters greater engagement and helps students better organize their writing (Zarei, 2024; Tan, 2024). Despite the overwhelmingly positive perceptions, the qualitative analysis also revealed several contradictory findings. A notable minority of students reported experiencing cognitive overload and frustration. These students indicated that navigating the technical aspects of the digital storytelling software was time-consuming and occasionally distracted them from focusing on their language use, grammatical accuracy, and vocabulary selection. Addressing these challenges is crucial for a more balanced and comprehensive view of the intervention's effectiveness.

The significant improvement in the experimental group's narrative writing scores can be attributed to the multimodal nature of DST, which facilitated active engagement through visual and textual components. This aligns with sociocultural theory, which highlights the role of interactive, socially mediated learning in knowledge construction (Castillo-Cuesta et al., 2021). Moreover, the TPACK framework suggests that effective integration of technology, pedagogy, and content knowledge leads to improved learning outcomes (Tan, 2024). Furthermore, while our results are highly positive, they must be situated alongside contradictory studies. As noted in previous literature, DST might not yield significant language proficiency gains if technical challenges and equipment limitations overshadow the primary linguistic and writing goals (Alemi et al., 2022). While the study's findings align with previous research suggesting that DST enhances writing skills (Miao & Li, 2024), future research should address the limitations identified here, including the lack of randomization, sample size limitations, and the need for greater methodological rigor. By considering these factors, future studies can provide a more nuanced understanding of DST's impact on EFL learners.

#### 4. Conclusion

This study demonstrates the potential of Digital Storytelling (DST) as a pedagogical tool to enhance narrative writing skills in English as a Foreign Language (EFL) learners. The findings reveal statistically significant improvements in the experimental group's writing scores, suggesting that DST not only provides a platform for practice but also effectively fosters intrinsic motivation, metacognitive awareness, and deeper engagement with the writing process (Robin, 2008; Lambert, 2013). The integration of visual and sequential elements in DST also helps students develop a clearer understanding of narrative structure, which is crucial for improving writing outcomes (Zarei, 2024). However, while the results are promising, there are several limitations that must be acknowledged. The limited sample size and non-random sampling present potential biases that affect the generalizability of the findings. Additionally, the study did not control for other factors, such as prior writing experience and individual motivation, which may have influenced the outcomes. Further research with larger, more diverse samples and random assignment would help strengthen the reliability and validity of the findings (Alemi et al., 2022).

Future studies should also explore the long-term effects of DST on narrative writing skills and examine its impact across different proficiency levels. Investigating the role of teacher training in the successful implementation of DST would also provide valuable insights into how educators can effectively integrate this tool into their teaching practices (Miao & Li, 2024). Moreover, research could explore how DST interacts with other educational technologies to create a more holistic approach to language learning. In terms of practical recommendations, EFL educators are encouraged to incorporate DST into their curricula to engage digital-native students. Given the multimodal nature of DST, educators can use it to create more interactive and personalized writing tasks that motivate students to take ownership of their learning. However, it is important to provide adequate technical support and scaffolding to ensure that all students can effectively use the technology without facing significant barriers. Additionally, while DST can enhance narrative writing skills, teachers should consider integrating it with other strategies to address the diverse needs of learners.

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