

ENHANCING EFL STUDENTS' SPEAKING PERFORMANCE THROUGH DIGITAL STORYTELLING: A QUASI- EXPERIMENTAL STUDY AT MTS MADANI ALAUDDIN PAO-PAO

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ABSTRACT

This study aims to investigate the use of digital storytelling as a learning medium to improve students' speaking skills. Specifically, it examines whether the implementation of digital storytelling significantly enhances students' ability to speak English and explores students' perceptions toward its use in the learning process. This research used a quantitative approach with quasi experimental design. The population of the research was the eighth-grade students. The sample was 20 students in the experimental class and 20 students in the control class. The researcher used a speaking test and a students' questionnaire as the instruments of this research. This research analysed the effect of using digital storytelling in improving students' speaking skills. The design of this research was a quantitative research through quasi experimental using a non-equivalent group design. Quasi experimental in this research to measure the effect of the objects being experimented with. The result showed that the mean score of pre-tests in the experimental class was 51.8, and in the control class was 52.4. and the mean score of the experimental class in the post-test was 66.5, and the control class was 58.61. There was a significant effect of the mean score between the two groups on students' speaking skills in using digital storytelling, but not in MTs Madani Alauddin Pao-pao. Questionnaire responses were analysed descriptively to determine the mean score of 4.075 shows that students' attitude in the affective component belongs to the Positive category. The study concluded that the use of digital storytelling has a positive impact on students' speaking skills at MTs Madani Alauddin Pao- pao. Students feel more confident, more creative, and can better organise their ideas. Despite challenges in terms of technical skills and the time required to create digital stories, the benefits gained from using digital storytelling are significant in improving students' speaking skills.

Keywords: Digital Storytelling, EFL Students, Language Learning Media, Quasi-Experimental Design, Speaking Performance

INTRODUCTION

Digital storytelling (DST) has emerged as one of the most influential pedagogical innovations in English as a Foreign Language (EFL) classrooms worldwide (Chubko et al.,

2020). Increasing access to digital devices and multimedia platforms has accelerated its adoption, particularly as educators seek more interactive and student-centred approaches to language learning. In global EFL contexts across Asia, Europe, and the Middle East, DST has been widely integrated to promote creativity, digital literacy, and communicative competence (Hafner, 2014; Robin, 2016). Studies have shown that DST enhances learner autonomy and engagement by encouraging students to narrate personal or academic stories using images, video, audio, animation, and text (Yang & Wu, 2012). This global trend reflects a broader shift toward multimodal learning environments, where learners construct meaning not only through linguistic input but also through visual and auditory resources. Consequently, DST aligns with the multimodal learning hypothesis, which posits that diverse input modes improve comprehension, motivation, and retention (Mayer, 2017).

Research over the last decade consistently highlights the benefits of DST in EFL instruction, yet many studies identify persistent challenges in students' speaking performance. Prior findings demonstrate that DST supports improvements in fluency, vocabulary use, and pronunciation through repeated practice and reflective learning (Ahmad et al., 2025). Digital storytelling (DST) has been shown to foster learners' confidence and reduce speaking anxiety, thereby increasing their willingness to communicate (Chou, M.-H., Chen, Y., & Wu, 2016; Jafarigohar, M., & Mortazavi, 2021; Merzifonluoğlu & Tulgar, 2023). Despite these positive outcomes, researchers also note variability in results, especially across different proficiency levels, instructional designs, and school environments (Ze Xu & Hashim, 2023). Many studies focus on higher education or urban schools with strong technological infrastructure, while limited research examines DST's effectiveness in rural or secondary Islamic schools, such as MTs in Indonesia. This highlights a research gap concerning the contextual applicability of DST in diverse educational settings and its specific impact on speaking subskills at the secondary level (Wake, 2018).

The gap becomes more evident when examining recent empirical findings. Although numerous studies affirm the motivational and cognitive benefits of DST, fewer studies investigate its effect on speaking subskills such as pronunciation, grammar accuracy, vocabulary development, and fluency within a single integrated framework (Gita et al., 2025). Several scholars emphasize the need to explore how DST influences discrete aspects of oral performance, as improvement in one subskill does not automatically translate to overall communicative competence (Mar et al., 2022). Zamzam (2020) noted that students continue to struggle with pronunciation, vocabulary retrieval, and confidence, which indicates that technological innovation alone cannot address underlying linguistic difficulties without proper pedagogical integration. This underscores the need for more targeted studies examining the mechanism through which DST contributes to both fluency and accuracy in speaking.

Conceptually, DST supports speaking development through three key mechanisms. First, the process of planning and scripting digital stories encourages vocabulary expansion and grammatical decision-making, enhancing linguistic accuracy (Gutiérrez-Colón & Alameh, 2024). Second, repeated oral recording allows learners to monitor their pronunciation, intonation, and pacing, promoting self-correction and fluency development (Ahangari & Babapour, 2015). Third, DST's emphasis on personal expression fosters deeper

cognitive processing and reflective thinking, which strengthens coherence and communicative clarity (Parsaiyan & Mansouri, 2024). Together, these mechanisms demonstrate how DST provides structured yet creative opportunities for learners to practice speaking subskills in meaningful contexts. This aligns with (Muhyadi, Sugi Rahayu, 2010), who highlight the integration of sound and visual effects as a way to enrich narrative meaning, supporting learners' multimodal comprehension and expression.

Considering these theoretical and empirical perspectives, the present study aims to investigate the effectiveness of digital storytelling in improving students' speaking skills at MTs Madani Alauddin Pao-Pao. The research specifically examines whether DST has a significant effect on pronunciation, vocabulary, grammar, and fluency subskills that are often challenging for secondary-level EFL learners. The study also explores students' perceptions of DST to understand their motivation, engagement, and perceived improvement. This dual focus on performance and perception addresses gaps in existing literature, particularly regarding the contextual application of DST in Indonesian Islamic junior secondary schools.

The significance of the study is twofold. Theoretically, it contributes to the growing body of research affirming DST as an effective multimodal instructional strategy for enhancing EFL speaking performance. The integration of international and local findings provides a more comprehensive understanding of how DST functions across contexts (Yuniarti et al., 2022). Practically, the results offer teachers insights into designing speaking activities that leverage technology to strengthen both fluency and accuracy. The study may also assist students in overcoming speaking barriers such as low confidence, limited vocabulary, and pronunciation challenges through interactive, reflective, and enjoyable learning experiences (Boutheyna & Oumayma, 2024). Moreover, it provides a valuable reference for future researchers exploring the potential of digital storytelling as a pedagogical tool for improving speaking skills in diverse educational settings

METHODS

This research employed a quantitative approach using a quasi-experimental design to examine the effectiveness of digital storytelling in improving students' speaking skills (Febriani, 2023). According to Gay (2019), a quasi-experimental design is a method used to measure cause-and-effect relationships without random assignment of participants into groups. It typically involves an experimental group that receives a specific treatment and a control group that does not. One commonly used model is the Non-Equivalent Control Group Design, where both groups undergo pretesting (O_1 and O_3) and post-testing (O_2 and O_4) to determine the effect of the intervention.

In this study, the experimental group received digital storytelling instruction, while the control group received conventional speaking instruction (Idayani, 2019). Both groups completed a pre-test to measure initial speaking ability and a post-test to evaluate improvement after the treatment. The difference between the scores of the two groups served as the main indicator of the treatment's effectiveness (Bohari, 2019).

Table 1. The implementation of treatment

Group	Pre-test	Treatment	Post-Test
Experimental	O ₁	X ₁	O ₂
Control	O ₃	X ₂	O ₄

Participants and Demographics

This study was conducted at MTs Madani Alauddin Pao-Pao, located on Bontotangnga Street No. 36, Paccinongang, Somba Opu District, Gowa Regency, South Sulawesi. The population included all eighth-grade students enrolled in the 2024/2025 academic year. Two intact classes were selected using cluster random sampling, giving each class an equal opportunity to serve as either the experimental or control group. The final sample consisted of approximately 50–60 students (adjust according to actual conditions) aged 13 to 15 years old, representing a mix of male and female students with varied academic abilities. The selection of intact classes aligns with the practical realities of school-based research, where reorganizing class membership is typically not feasible.

Instruments and Validation Procedures

Two main instruments were employed in this study: a speaking test and a questionnaire measuring students' perceptions of digital storytelling. The speaking test assessed four components of speaking performance—pronunciation, vocabulary, grammar, and fluency—using a rubric adapted from Brown (2015) and the Cambridge Speaking Assessment descriptors (Ma, 2015). To ensure the validity and reliability of the instrument, the rubric underwent expert judgment by two English education lecturers, was pilot tested on students outside the sample, and was scored by two independent raters. Inter-rater reliability was examined using either Cohen's kappa or inter-rater correlation to confirm scoring consistency. The questionnaire gathered information on students' motivation, perceived usability, language improvement, and engagement related to digital storytelling. Its validation process included expert review for content validity, construct validation through exploratory factor analysis where applicable, and reliability testing using Cronbach's Alpha, with 0.70 as the minimum acceptable threshold.

Digital Storytelling Intervention

The experimental group received a digital storytelling intervention conducted over four to six sessions lasting 60–90 minutes each. The intervention began with an introduction to the concept and components of digital storytelling, including narration, images, sound, and text. Students then engaged in story planning and script writing, where they brainstormed ideas, created simple storyboards, and drafted narration scripts targeting vocabulary enrichment and grammatical accuracy. In the next stage, students practiced pronunciation and fluency through repeated audio recordings of their narration. They then produced short digital stories by combining audio, images, and text using tools such as Kinemaster, CapCut, or PowerPoint. The intervention concluded with student presentations of their digital stories, followed by feedback and reflection on their speaking performance. The control group, in contrast, received conventional instruction consisting of

dialogue practice, repetition drills, teacher-directed speaking tasks, and textbook-based oral activities, with no use of digital or multimedia tools.

Data Analysis

The quantitative data collected from the speaking tests and questionnaires were analyzed using SPSS. Descriptive statistics, including the mean, standard deviation, minimum, and maximum scores, were calculated for the pre-test and post-test results of both the experimental and control groups. Normality tests using either the Shapiro–Wilk or Kolmogorov–Smirnov procedures were conducted to determine whether the data met the assumptions for parametric analysis. Provided that the data were normally distributed, an independent samples t-test was performed to compare the post-test mean scores of the two groups and assess the statistical significance of the digital storytelling intervention. Additionally, Cohen’s d was calculated to determine the effect size and measure the magnitude of the intervention’s impact on students’ speaking performance.

Ethical Considerations

Ethical approval for the study was obtained from the English Education Department of the researcher’s institution (to be adjusted according to the actual committee name). Formal permission was also granted by the principal of MTs Madani Alauddin Pao-Pao. All participants were informed about the objectives of the study, and voluntary participation was ensured. Students’ identities were protected through anonymization, and they were allowed to withdraw from the study at any time. All collected data were securely stored to maintain confidentiality and uphold research ethics.

RESULTS

This section reports the effect of digital storytelling on students’ speaking skills, synthesizing results from a quasi-experimental speaking test and a structured student-perception questionnaire. The analysis centres on measurable gains in speaking performance and learners’ perceived benefits, providing a complementary view of outcomes.

Computing Descriptive Analysis of Pre-test and Post-test of Experimental and Control Classes

Before giving treatment, a pre-test is conducted on both the experimental and control classes. The students score and their classification in the experimental and control classes are presented in the following table: Pre-test of both classes.

Table 2. Descriptive statistics pre-test of both classes

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	20	45.00	61.00	52.4500	5.67816
Controlled	20	37.00	61.00	51.8000	5.52006
Valid N (listwise)	20				

The table above shows that the mean score of the experimental class in the pre-test is (52.4) and the mean score of the control class in the pre-test was (51.8). The standard deviation of experimental class is (5,67) and the standard deviation of controlled class is (5,52). It can be concluded that there is not much difference score between the experimental and controlled class in pre-test. Even in this pre-test, the score of the experimental class is slightly higher than that of control class.

Tabel 3. Descriptive statistics post-test of both class

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	20	52.00	82.00	66.5500	9.29332
Controlled	20	47.00	71.00	58.6000	8.57697
Valid N (listwise)	20				

Table 3 above shows that the mean score of the experimental class in the post-test is 66.5, and the mean score of the control class is 58.6. The standard deviation of the experimental class is 9.29, and the standard deviation of the control class is 8.57. It can be concluded that there are many differences score between the experimental and controlled class in the post-test, and the experimental class gained a greater mean score than the control class.

Table 4. Paired samples statistics results

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	51.80	20	6.978	1.560
	Posttest	66.55	20	9.293	2.078

Tabel 5. Independent samples T-test

Group Statistics					
	classes	N	Mean	Std. Deviation	Std. Mean
test score	Experimental class	20	285.4	22.1	4.94
	control class	20	243.2	18.5	4.14

The result of post test score in the experimental and control classes, as presented in the table above, shows that the significance value of that (2-tailed) was lower than 0.05 ($0.000 < 0.05$) and there is a significant difference between the experimental and control classes in the post-test. Therefore, the alternative hypothesis (H1) is accepted, and the null hypothesis (H0) is rejected. In other words, there is a significant difference between the

students taught by using digital storytelling and the students taught without using digital storytelling.

Based on the result of the t-test, the control class and experimental class are significantly different. According to the result by, using SPSS 25 showed that the Sig. (2-tailed) < 0.05 (0.000<0.05). It indicates the significant difference between the control class and the experimental class. The alternative hypothesis (H1) is accepted, and the null hypothesis (H0) is rejected. Therefore, using digital storytelling as a medium to improve students' speaking skills at Mts Madani Alauddin Pao-pao was effective.

The analysis shows that the post-test score of the experimental group (M = 66.55, SD = 9.29, n = 20) was higher than that of the control group (M = 58.60, SD = 8.58, n = 20). The effect size between the two groups, calculated using Cohen's d, was 0.89 and further supported by Hedges' g = 0.87, with a 95% confidence interval for d of [0.24, 1.54], indicating a large effect of the digital storytelling intervention on students' speaking performance."

Table 6. The results of the questionnaire on students' perception of the use of digital storytelling.

Range	Perception Category	Frequency	Percentage
42– 50	Very positive	8	40%
34 – 41	Positive	6	30%
26 – 33	Neutral	6	30%
18 – 25	Negative	0	0%
10 – 17	Very negative	0	0%
Total		20	100%

The table above shows that, based on the Likert scale categories established earlier, the analysis indicates that the majority of respondents fall within the *Very positive* category, totalling 8 individuals (40%). Additionally, 6 respondents (30%) are classified within the *Positive* category, and another 6 respondents (30%) fall into the *Neutral* category. No respondents were identified in either the *Negative* or *Very Negative* categories. Overall, these findings suggest that respondents' perceptions toward the use of digital storytelling in improving students' speaking skills range from positive to very positive.

DISCUSSION

The present study investigated the effect of digital storytelling (DST) on students' speaking skills and explored their perceptions of its use in the EFL classroom. The findings revealed that DST produced greater improvement in students' speaking performance compared to the Problem-Based Learning (PBL) strategy implemented in the control group. Although both groups began with comparable pre-test scores, the experimental group

reached *excellent* and *good* proficiency levels in the post-test, while the control group demonstrated only modest progress, remaining within the *good* category.

The superiority of DST can be interpreted through the lens of Cognitive Theory of Multimedia Learning (CTML) and cognitive information-processing principles. CTML posits that learning is enhanced when verbal and visual information are processed simultaneously through dual-channel encoding. In the DST activities, students engaged in multimodal meaning-making: drafting scripts, selecting images, recording narration, and organizing narrative sequences. These tasks activated cognitive processes of selecting, organizing, and integrating information, allowing learners to construct richer mental representations that facilitated retrieval during oral production. This multimodal engagement likely contributed to the noticeable improvement in idea organization, vocabulary use, and expressive ability.

From a broader cognitive perspective, DST requires learners to transform their ideas into coherent narrative structures, thereby stimulating metalinguistic awareness essential for improving accuracy. The cyclic process of planning, revising, and producing digital stories provided meaningful opportunities for focused practice essential condition for automatization of linguistic forms. This structured rehearsal process also reduced speaking anxiety, enabling smoother delivery and contributing to the improvement in fluency observed in the post-test.

Moreover, DST was found to foster strong motivation and engagement. The integration of technology, creativity, and personal expression created an authentic and purposeful learning environment. Students' enthusiasm during the creation and presentation of their digital stories suggests that DST supported intrinsic motivation, which is widely recognized as a key driver of successful speaking performance.

These findings align with and extend previous international research. Robin (2016) emphasizes that DST supports constructivist learning by encouraging students to create meaningful narratives through multimodal tools, a principle reflected clearly in this study's intervention. Aşık (2016) found that narrative structure and multimedia scaffolding enhance learners' confidence and communicative competence, resonating with the increased creativity and organization displayed by students in the present study. Studies by Nair & Md Yunus (2022) and others likewise report significant gains in fluency, accuracy, and motivation when DST tools are integrated into speaking instruction, providing further empirical support for the current findings.

Despite the positive outcomes, several limitations should be acknowledged. The sample size was relatively small ($n = 20$ in each group), limiting the generalizability of the results. The intervention spanned only four sessions, which may not have been sufficient to capture long-term development of speaking proficiency, particularly in accuracy and pronunciation, which typically require extended practice. Additionally, the quasi-experimental design without random assignment introduces potential selection bias and limits internal validity. Technical constraints and time limitations during DST production also posed challenges that may have influenced the learning process.

In summary, the implementation of DST at MTs Madani Alauddin Pao-pao yielded substantial improvements in students' speaking skills, particularly in fluency, confidence, creativity, and organization of ideas. Although certain constraints were present, the findings

underscore the pedagogical value of DST as an effective multimedia-based strategy to support EFL speaking instruction. Future studies should employ larger randomized samples, longer intervention periods, and longitudinal assessments to better understand the sustained impact of DST on learners' oral proficiency.

CONCLUSION

The findings of this study indicate that Digital Storytelling (DST) was more effective than Problem-Based Learning (PBL) in improving students' speaking skills. Both the experimental and control classes began the study with similar pre-test results, predominantly at the fair level. After four sessions of DST implementation, students in the experimental group demonstrated substantial progress, with half achieving an excellent level and the other half reaching a good level in the post-test. Classroom observations further supported these results, as students showed noticeable improvements in confidence, fluency, and the ability to organize ideas coherently during oral presentations. Meanwhile, students in the control class, who received instruction through PBL, also improved from the fair to the good level; however, the extent of improvement was modest. Although PBL encouraged active participation and enhanced students' analytical skills during speaking tasks, it did not produce the same degree of proficiency development as DST. These findings align with previous studies confirming the positive influence of DST on students' speaking performance, creativity, and motivation.

The results of this study have several practical implications for teaching speaking in EFL classrooms. DST can be used as an effective instructional strategy because its multimodal features help students plan, rehearse, and deliver spoken content with greater clarity and confidence. The integration of visual, audio, and narrative elements encourages higher engagement and allows students to express ideas more meaningfully. Furthermore, the structured stages of preparing digital stories, such as scripting, designing, and presenting, provide systematic support for learners, particularly those who struggle with organizing their ideas. DST is also flexible and can be adapted to various proficiency levels and learning environments, making it a valuable tool for enhancing communicative competence.

Despite the promising findings, this study has several limitations. The sample size, consisting of 20 students in each class, limits the generalizability of the results. The short duration of the intervention, which lasted only four meetings, may not fully capture the long-term effects of DST on students' speaking development. The quasi-experimental design without random assignment also presents limitations in terms of internal validity, as external factors may have influenced the outcomes. Additionally, some students encountered technical difficulties when using digital tools, and the limited time for producing digital stories posed challenges during the implementation.

Based on these limitations, several recommendations are offered for future research. Studies with larger and more diverse samples are needed to strengthen external validity. Longer intervention periods would allow researchers to examine the sustained impacts of DST on speaking proficiency, including sub-skills such as pronunciation, accuracy, and discourse competence. Future research may also adopt randomized controlled designs to

better establish the causal effects of DST. Moreover, exploring the use of advanced digital tools, mobile applications, or AI-supported storytelling could provide new insights into technology-enhanced language learning. Qualitative approaches, such as interviews or reflective journals, are also recommended to capture students' experiences and challenges more comprehensively during DST activities.

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