

# Impact of Digital Storytelling on Motivation in Middle School English Classrooms

Abhipriya Roy

 <https://orcid.org/0000-0002-5794-6193>

*Christ University, India*

## ABSTRACT

Motivation is a key factor in the learning process, especially in language acquisition. This research examines the effects of using digital storytelling (DST) on motivation in English classrooms. The study, which used a mixed methods approach, involved 100 middle school students in Bengaluru selected through convenience sampling. Data collection methods included questionnaires and semi-structured interviews. Students were divided into experimental and control groups, with the former receiving DST-integrated instruction and the latter being taught using traditional methods. The results of the quantitative analysis showed a positive influence on motivation in the experimental group compared to the control group. Qualitative results showed that implementing DST increased students' motivation, engagement, and understanding of the English language more effectively than traditional teaching methods. Further research is encouraged to explore the full potential of DST to improve student language skills and motivation.

## KEYWORDS

Digital Storytelling, Educational Technology, English Classroom, Language Acquisition, Middle School Education, Mixed Methods, Student Motivation

## INTRODUCTION

Advances in information and communication technology are changing educational implications and experiences. Digital learning tools are becoming a promising way to improve learning environments (Ozcinar & Ozturk, 2013). Software developments, the use of internet technology for educational purposes (Cakir & Yildirim, 2009), and easy and instant access to information have increased the importance of digital skills alongside traditional skills. Digital storytelling (DST) has emerged as a tool used for various purposes in various fields such as education, health and communication, and other digital technologies. Derived from traditional storytelling, DST has become an essential element in education (Chung, 2006). Many studies explain how this new form of storytelling is being used by both teachers and students for teaching and learning (Bromberg et al., 2013; Kordaki, 2014).

DST is a powerful pedagogical tool that not only provides guidance and space for students but also helps develop communication skills (Gömleksiz & Pullu, 2017). It is a method widely used in education that covers different levels from the past to the present (Turgut & Kislak, 2015). Nowadays, digital stories, predominantly computer or web-based traditional stories (Ciğerci & Gültekin, 2017), serve as multimedia platforms that promote critical thinking and facilitate innovative learning (Gömleksiz & Pullu, 2017). Educators can use DST as a powerful tool in their teaching practice

DOI: 10.4018/IJCALLT.353434

This article published as an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and production in any medium, provided the author of the original work and original publication source are properly credited.

(Robin, 2008). The use of DST in language teaching is an area of increasing importance but is still in its infancy and thus requires further scientific investigation.

Research on teaching DST is increasing in both first language and second, or foreign, language (L2), but the amount of research specifically on teaching DST in L2 learning remains limited (Castaneda, 2013). While there are numerous studies examining the use of DST instruction, few focus on L2 learning. Overall, the available studies suggest that teaching DST is effective and beneficial for L2 learning (Cloud et al., 2011; Vinogradova et al., 2011). This study aimed to expand existing knowledge on the application of DST teaching in L2 education by examining students' attitudes toward its implementation.

## **LITERATURE REVIEW**

### **Theoretical Background**

Technology has been increasingly integrated into language teaching in recent years, with significant advances and widespread acceptance. The use of digital tools has had a significant impact on language learning. According to Jones (2019), digital tools have transformed language learning through interactive and engaging techniques for students, with mobile-assisted language learning (MALL) playing a role in improving vocabulary and grammar skills. Likewise, Chen and Hwang (2020) emphasized that MALL significantly improves learners' vocabulary acquisition and language skills.

The COVID-19 pandemic accelerated the adoption of online learning tools. Research by Zou et al. (2020) found that platforms such as Zoom and Microsoft Teams helped sustain language learning during lockdown by enabling both synchronous and asynchronous learning. Another study by J. Li and Wang (2021) showed that these platforms promoted collaborative learning and increased student engagement. Several studies have demonstrated the effectiveness of various technological tools in language teaching. Virtual reality (VR) has emerged as a promising resource for language immersion. S. Yang and Bai (2020) showed that VR environments can significantly improve students' speaking and listening skills through immersive and interactive experiences. Lu and Liu (2021) also highlighted the potential of VR in generating realistic language practice scenarios. Additionally, artificial intelligence (AI) is increasingly being integrated into language learning applications. Lu and Liu (2021) discovered that AI-based language learning applications provide customized learning experiences tailored to students' individual needs, resulting in better results. AI also helps develop conversational agents that provide practice opportunities for learners.

In addition, gamification increases motivation and engagement in language learning. Studies by Huang and Soman (2019) showed that integrating game elements into language learning activities can significantly increase student motivation and participation. Likewise, research by Wu and Huang (2022) showed that game-based language learning applications improve students' grammar and vocabulary acquisition. It has been noted that the popularity of MALL has increased due to its convenience and ease of use. Chen and Hwang (2020) found that learners can use mobile devices to access language learning resources at any time and from any location for continuous learning. Zou et al. (2020) also emphasized the importance of developing MALL applications that accommodate different learning styles and preferences. On the other hand, the concept of blended learning, in which online and face-to-face teaching are integrated, is often used in language teaching. According to a study by J. Li and Wang (2021), blended learning methods improve student engagement and provide diverse opportunities for language practice. The adaptability of blended learning enables a tailored learning journey.

Although there are benefits, technology integration into language education presents challenges. According to Zhang and Xu (2019), the digital divide is a major obstacle because unequal access to technology impacts student learning. Liu et al. (2020) also mentioned that teachers often need extensive training to effectively integrate technological tools into their teaching methods. The future

of technology in language education depends on the further integration of new technologies. Q. Li and Zhou (2023) noted that advances in AI, VR, and augmented reality (AR) offer potential for improving the language learning experience. These advances can lead to more engaging and interactive environments and promote better language comprehension and memory. Improved language learning analytics can also provide valuable insights into student progress and areas where improvement is needed.

In recent years, the combination of conventional storytelling and digital technology has led to the emergence of DST, which has transformed the way stories are shared and experienced, improving engagement and learning outcomes in diverse educational environments. Lambert (2019) explained that DST combines narratives with multimedia components such as images, audio, and videos to create a more engaging and immersive experience for viewers, thereby expanding the reach of storytelling. Robin (2020) highlighted how DST promotes critical thinking and creativity and serves as a valuable educational resource. This approach has brought significant benefits to the education sector by encouraging students' creativity and critical thinking and providing an interactive way to express ideas. The academic benefits of DST are well documented. H. Yang and Wu (2021) discovered that DST initiatives in language learning courses improve students' language skills and cultural understanding.

Technological advances have significantly improved DST. Ohler (2022) stated that the combination of AR and VR improves DST and enables more immersive and interactive experiences. These innovations enable storytellers to create dynamic narratives that engage users in new ways. Lu and Liu (2021) discovered that digital stories increase students' motivation and engagement in learning tasks by providing an interactive platform for expression and communication. On the other hand, adding gamification and interactive features to DST is proven to increase user engagement. Research by Huang and Soman (2019) showed that the use of game-based storytelling applications inspires users by making learning fun and rewarding. Wu and Huang (2022) observed that these applications improve users' understanding and recall of story content.

DST faces various challenges, including barriers related to digital literacy and access to technology, as highlighted by Lambert (2019). Ohler (2021) also mentioned the significant learning curve that educators and students must overcome in acquiring basic technology skills. The future of DST depends on the incorporation of new technologies and creative methods. AI and machine learning can improve personalized storytelling by tailoring content to individual preferences and learning needs (Y. Li & Zhang, 2023). Furthermore, as McLellan (2025) highlighted, there is an emphasis on collaborative DST platforms that enable the co-creation and shared narrative of diverse global communities.

The use of DST has been proven to increase student engagement in language learning. H. Yang and Wu (2020) found that incorporating digital stories provides an interactive and immersive experience that captures students' attention and maintains their interest. This engagement is critical to language acquisition because it encourages active participation and sustained effort. Numerous studies have highlighted the importance of DST in promoting intrinsic motivation. Ohler (2019) found that students show higher motivation to learn when they are actively involved in creating and sharing digital stories. This creative approach allows them to express themselves and make a personal connection to the learning material, strengthening their intrinsic motivation.

In addition, DST has a positive impact on students' self-efficacy in learning languages. Robin (2020) stated that creating digital stories helps students increase their confidence in their language skills. When they see their progress and receive positive feedback, their belief in their ability to succeed in language learning grows, which motivates them even more to continue. The use of digital stories in foreign language lessons helps to improve cultural understanding and increase motivation. According to Iseke (2021), digital stories often include cultural aspects and provide students with a deeper context for language learning. This cultural immersion increases the relevance and engagement of the learning process, thereby increasing students' motivation to learn. In addition, DST promotes cooperative learning and thus leads to increased motivation. Hartley and McWilliam

(2021) emphasized in their study that creating digital narratives often requires teamwork, allowing students to collaborate and gain knowledge from each other. This display of community engagement and peer encouragement plays an important role in motivation and fosters a sense of community and shared goals among students.

On the other hand, DST's multimodal approach takes into account different learning styles and increases accessibility and motivation for all students when learning a language. As Liu and Xu (2020) noted, digital stories integrate visual, auditory, and kinesthetic elements to engage and motivate students with diverse learning preferences. Finally, participation in DST projects is associated with improved academic performance in foreign language learning. A study by Lu and Liu (2021) found that students who participate in such projects perform better on language tests than their peers who do not. The positive results are due to the combination of engagement, motivation, and personalized learning.

Despite its advantages, DST faces obstacles in foreign language. Lambert (2021) emphasized that challenges such as the digital divide and the need for adequate teacher training can affect the success of DST, especially in less privileged areas. Furthermore, Liu et al. (2020) pointed out that both teachers and students may experience difficulties in acquiring basic technological skills, resulting in a significant learning curve. These difficulties may impact the implementation and success of DST, potentially limiting its ability to increase motivation. It is important for future studies to focus on removing these barriers and exploring new methods for integrating DST into foreign language teaching. Additionally, further research is needed to understand the lasting effects of DST on motivation and language skills.

## **Theoretical Framework**

The study is based on the technological pedagogical content knowledge (TPCK) theory. Pierson (2001), along with Mishra and Koehler (2006) and others, have suggested that the use of a concept-based theoretical framework can improve teacher training, influence instructional practices, and shape research inquiries in the field. The TPCK concept emphasizes the interaction between content knowledge, teaching methods, and technological skills. Mishra and Koehler (2006) examined the application of TPCK in educational institutions in depth and outlined the various elements: (a) Technology: use of digital tools (such as video editing software and storytelling applications) to produce and share multimedia narratives. (b) Pedagogy: implementation of interactive teaching strategies, including narrative structures and multimedia components, to engage students and improve learning outcomes. (c) Content: integration of themes into digital narratives, ensuring alignment with curriculum and educational goals. This combination ensures that technology improves teaching methods and effectively delivers content through compelling digital storytelling.

## **Previous Studies**

Turner (2011) emphasized the importance of using multimedia to teach new skills to students at all grade levels to increase engagement and promote information and communication technology skills. This method offers students advantages in the educational, professional, social, and civic areas. Similarly, Gilakjani (2012) found that multimedia teaching can improve the educational journey of language learners by catering to diverse learning preferences. Educators should assess students' multimedia perceptions to increase concentration and academic performance. Cahyani and Cahyono (2012) discovered that teachers' positive attitude toward technology significantly influences language learning and highlighted the crucial role of various technological forms in education.

On the other hand, Gasigijtamong (2013) discovered that the inclusion of multimedia significantly increases vocabulary retention in English-as-a-foreign-language (EFL) learners, especially when words are paired with pictures, resulting in a 31% increase in recall when multimedia components present are used in the material. Yunus (2013) confirmed this finding by showing that English-language-learner teachers positively evaluate the inclusion of visual media as motivational tools, which helps improve

students' creative and critical thinking skills. Furthermore, Nomass (2013) and Nishioka (2016) recognized the crucial role of technology, particularly the internet and computer technologies, in promoting approaches to language teaching. Yilmaz and Durak (2018) also found that integrating technology into education enriches students' learning experiences and effectively meets their educational needs.

Storytelling has played a crucial role in human life throughout history by transmitting culture, knowledge, values, and wisdom while preserving heritage (Bromberg et al., 2013; Razmi et al., 2014). It served as a primary educational method before written sources existed (Turgut & Kışla, 2015; Uslupehlivan & Erden, 2016) and continues to be a fundamental pedagogical tool (Smeda et al., 2010). Educators use storytelling to simplify complex ideas for students, which impacts memory and cognitive processes (Sarica & Usluel, 2016). Traditional storytelling has evolved with technological advancements, giving rise to the digital version (Rahimi & Yadollahi, 2017; Turgut & Kışla, 2015), which is considered a modernized form of traditional storytelling.

Teachers have the opportunity to use or produce digital stories to convey ideas, improve their understanding of topics, and revisit content (Sarica & Usluel, 2016). The development process of DST includes different phases with different learning tasks (Yilmaz & Durak, 2018). As Demirer (2013) noted, DST allows storytellers to communicate key messages in a personal way and elicit emotional responses such as joy or sadness, thereby maintaining audience engagement and avoiding monotony.

DST is now a valuable tool in foreign-language teaching and has a major influence on the motivation of learners. Hadžimehmedagić and Akbarov (2014) emphasized the importance of motivation in language acquisition, especially with the integration of technology in the 21st century that increases student motivation. Research shows that modern technology increases motivation (Divaharan & Lim, 2010), and incorporating content that resonates with students' experiences can further facilitate learning (Dreon et al., 2011). DST stands out as an extremely effective tool due to its user-friendly features that promote active student participation and thus strengthen students' self-confidence and motivation (Hung et al., 2012; Neo & Neo, 2010). Narrative stories play an important role in simplifying complex topics and engaging students emotionally and imaginatively (Turgut & Kışla, 2015). DST, which focuses on specific themes and viewpoints (Turan & Seker, 2018), can encourage students to develop their own narratives and foster curiosity and drive. Consequently, student engagement in learning improves comprehension (Bromberg et al., 2013) and interpersonal skills through a student-centered method and increases enthusiasm to excel in the target language (Razmi et al., 2014). Recent studies show that integrating traditional storytelling with digital tools can lead to meaningful change and demonstrate the benefits of DST in increasing motivation in foreign-language teaching.

## Overview of the Study

The current study addressed the motivating aspects of digital storytelling in L2 teaching. Motivation is a theoretical framework for explaining the initiation, direction, and quality of behavior, particularly goal-directed behavior (Brophy, 2004). It refers to a person's efforts to exhibit behaviors consistent with the goal to satisfy his or her needs. Motivation is generally considered the cornerstone of almost all learning activities (Tugan, 2015) and a crucial element in language acquisition.

The DST method of teaching English is becoming increasingly popular in India. Organizations like Pratham Books, Story Bird, Kahani Tree, and Tata Class Edge use DST to improve language learning. Some YouTube channels in India also focus on teaching English using DST. However, DST is not yet part of regular English classes in India, although it is a common teaching method in other countries. In India, there is a lack of national research on the use of DST in second-language acquisition, particularly from the learner's perspective. Additionally, in many of these studies, students were tasked with creating DST themselves to demonstrate the effects of DST on various aspects of language learning. This gap highlights the need for this study, the aim of which was to examine the influence of digital stories on motivation in foreign-language teaching, where the researcher uses the

DST developed to teach students. This study could make a significant contribution to the relevant literature that would help educators make informed decisions about whether to incorporate DST into their teaching practices to improve motivation and learning outcomes.

Considering these objectives, this research attempted to investigate three research questions and two research objectives.

## **Research Questions**

1. What are students' perceptions of learning motivation using the traditional teaching method in English classrooms?
2. What are students' perceptions of learning motivation using the digital storytelling method in English classrooms?
3. Are the posttest motivational results significantly different between the experimental group and the control group?

## **Research Objectives**

1. To determine students' perceptions of learning motivation when using the digital storytelling method in their English lessons.
2. To determine students' perceptions of learning motivation when the traditional teaching method is used in their English lessons.

## **METHODOLOGY**

### **Research Design**

This research used a sequential explanatory mixed-methods design. In a sequential explanatory mixed-methods design, quantitative data are first collected and analyzed, followed by the collection and analysis of qualitative data. The qualitative data are used to further explain or improve the initial quantitative findings. A survey collected quantitative data on participants' perceptions of improving English learning motivation through DST and the traditional methods. These data allow for a comprehensive overview of motivational changes in a structured and quantifiable way. It is efficient in collecting large-scale data from multiple participants and facilitates statistical analysis, making it easy to perform, evaluate, and compare results from different groups. In addition, semi-structured interviews were conducted with 10 students in the experimental group to supplement data from quantitative sources. These qualitative results provide a deeper understanding of participants' experiences and perceptions that quantitative data alone cannot fully capture. It provides context and insight to clarify the reasons for the observed changes. Its advantages include the flexibility to address new topics during the interview, the wealth of detailed data, and the ability to capture participants' personal experiences and motivations. By combining these methods, the study used both quantitative and qualitative approaches and provided a comprehensive understanding of the influence of digital storytelling on students' motivation to learn English.

### **Participants**

Quantitative data were collected in this study using the convenience sampling method. Convenience sampling selects participants who are readily available and willing to participate. They are suitable for this study because they can efficiently provide the required sample size. However,

there may be some bias as it may not represent the entire population. A total of 100 samples were collected and divided into two groups of 50 participants each (control and experimental group). Qualitative data, on the other hand, were collected through purposive sampling, with 10 students from the experimental group being selected for group interviews. The selection of 10 participants from the experimental group is intended to expand the research objective by providing greater insight into their experiences and perspectives regarding the DST approach. This helps clarify the quantitative results, enriching the overall scope and depth of the study. The study examined a population of 100 eighth-grade students at a middle school in Bengaluru during the 2022-2023 academic year. The participants were 13 to 14 years old and of both genders.

## Tools

Quantitative data were collected through questionnaires, while qualitative data were collected through semi-structured interviews. For this research, a student survey questionnaire was developed, which consists of 12 question items. Responses were rated on a Likert scale of 1 to 5, including options such as “strongly disagree” (1), “disagree” (2), “neutral” (3), “agree” (4) and “strongly agree” (5). The survey question items were tailored from previous studies (Ahmad & Yamat, 2020) and modified accordingly. The questionnaire is divided into two parts, one for students taught using traditional methods and one for students taught using DST. This division ensures a clear distinction in the students’ perceptions. The study used closing questions to address the challenges that weaker students face in effectively articulating their thoughts. For the DST method, a module was created from a story included in the eighth-grade syllabus of the Indian Certificate of Secondary Education Board Middle School using the online video editing tool Canva.

The interview technique is the most effective way to understand individuals’ perceptions and collect qualitative data (Punch, 2014). In addition to questionnaires, conducting group interviews, particularly with young children, can result in more detailed responses due to the comfortable environment (Gibbs, 2012). Against this background, in addition to the use of postintervention questionnaires, semi-structured interviews were conducted with 10 students in the experimental group to determine the effectiveness of integrating digital stories into language learning for the specific focus areas using three open-ended questions.

1. What is your opinion on digital storytelling in general?
2. How do you approach digital storytelling when learning English?
3. Do you think digital storytelling is an effective method for learning English? If not, what are your reasons?

## Procedure

This study examined eighth-grade English classes in a middle school in Bengaluru with 100 participants. Data were collected from two different groups: one using traditional teaching methods and the other using DST methods. Both groups were taught the same topic using specific teaching strategies. To avoid confusion, the questionnaires were completed separately for both teaching methods. To gain new insights from students, it was crucial to get answers quickly using each method. The data collection process and period are shown in Table 1.

All study participants submitted informed consent forms before participation. Both the participants and their parents or legal guardians were informed in detail about the research process in advance. The students’ participation in the study was voluntary, and they had the opportunity to withdraw at any time. Anonymity was maintained for all participants. In addition, the research details were discussed in detail with the participants, the teacher, and the school principal.

Table 1. Data collection process and period

Period	Data collection process
The first week	Participants were introduced to the definition, components, advantages, and disadvantages of the digital storytelling teaching method. The study objectives and instructions were then clearly communicated, and their consent was subsequently obtained.
The second week	The control group was taught the language using the traditional method.
The third week	At the end of the third week, questionnaires were distributed to the students in the control group to assess their learning success.
The fourth week	The experimental group was taught language using the DST method.
The fifth week	At the end of the fourth week, questionnaires were distributed to the experimental group to assess their learning success.
The sixth week	At the end of the study, ten students from the experimental group were interviewed in groups to assess the efficiency of the DST method.

## Data Analysis

The analysis was carried out separately on the basis of qualitative and quantitative data. Both types of data were collected to answer the research questions aimed at examining the effects of DST and traditional teaching methods on learners' motivation in language learning. The quantitative data came from a survey administered to both groups and were analyzed using R programming (version 4.3.3). The quantitative data set under study consists of 12 variables and a sample size of 100. The normality of the data set was assessed using the Shapiro-Wilk test, which reveals that none of the variables are normally distributed (all  $p$ -values are less than 0.05). Therefore, it can be confirmed that the variables under study do not follow a normal distribution. Additionally, the data set does not exhibit homogeneity of variance. While conducting the Wilcoxon test, homogeneity of variance is not a strict requirement because the test is nonparametric and does not assume normality or equal variances. Therefore, for the given data set that is not normally distributed and does not have equal variances, the Wilcoxon test is appropriate and can be used effectively.

Descriptive statistics were used to calculate the mean and standard deviation for each of the 12 questions in both groups. This enables an initial performance comparison between them by highlighting differences in means and data distribution. Wilcoxon tests were used to assess the statistical significance of differences between groups and to measure the magnitude of these differences. A Wilcoxon test ( $p < 0.05$ ) rejects the null hypothesis, indicating a statistically significant difference between the paired samples. If the  $p$ -value exceeds the chosen significance level, the null hypothesis cannot be rejected, indicating that there is insufficient evidence to confirm differences between the paired samples.

In addition to quantitative data, qualitative data were also collected for more detailed analysis. At the end of the experiment, semi-structured interviews were conducted with 10 students in the experimental group. Thematic analysis was conducted on the semi-structured interview data to identify common themes, insights, and patterns in the responses.

## FINDINGS

Students were assigned to complete a 12-item questionnaire to assess their opinion on whether the teaching method (traditional or DST) can increase learning motivation in EFL students. The quantitative data collected were analyzed using descriptive statistics, particularly examining means and standard deviations. Average scores were interpreted based on the revised student learning experience questionnaire categories: 1.00 to 2.33 (low), 2.34 to 3.66 (medium), and 3.67 to 5.00 (high).



**Table 2. Descriptive statistics of perceived level of learners' motivation with traditional method of teaching**

Question items	N	Mean	Std. Dev.
The traditional teaching method helps me to improve my <i>vocabulary</i> knowledge.	50	3.22	1.23
The traditional teaching method is important for improving my <i>pronunciation</i> .	50	3.33	1.26
The traditional teaching method helps me to <i>understand</i> the content better.	50	3.17	1.20
The traditional teaching method helps me to <i>concentrate</i> on the spoken text.	50	3.48	1.26
The traditional teaching method improves my <i>speaking skills</i> .	50	2.98	1.38
The traditional teaching method makes learning English <i>fun and enjoyable</i> .	50	3.21	1.23
The traditional teaching method means I am more <i>involved</i> in the lesson.	50	2.89	1.39
The traditional teaching method sparks my <i>interest</i> in learning English.	50	3.4	1.15
The traditional teaching method makes me feel <i>confident</i> when learning English.	50	3.49	1.26
I would like to <i>participate</i> in the future traditional teaching method.	50	3.4	1.31
The traditional teaching method makes me more <i>satisfied</i> with the reading process and reading activity.	50	3.31	1.39
The traditional teaching method increased my <i>motivation</i> to learn English.	50	3.18	1.44

### Results Related to the First Question

What are students' perceptions of learning motivation using the traditional teaching method in English classrooms?

To answer this question of the study, means and standard deviations of students' motivation to learn English based on the traditional teaching method were calculated and are presented in Table 2 including number (N), mean (M), and standard deviation (Std. Dev.).

### Results Related to the Second Question

What are students' perceptions of learning motivation using the digital storytelling method in English classrooms?

To answer this question of the study, means and standard deviations of students' motivation to learn English based on the DST teaching method were calculated and are presented in Table 3. including number (N), mean (M), standard deviation (Std. Dev.)

The data from Tables 2 and 3 suggest that the DST method may be more effective in increasing student motivation. The lower mean scores in the control group suggest that students taught using traditional methods perform worse than those taught using the DST method. In addition, the experimental group has a lower standard deviation compared to the control group, indicating that the performance of students in the experimental group is more consistent, while the performance of the control group fluctuates more. The higher standard deviation in the control group indicates increased variability in student performance and points to inconsistencies in learning outcomes associated with traditional teaching approaches. These descriptive statistics provide an initial comparison of performance between the two groups and highlight the differences in the averages and distribution of the data.

### Results Related to the Third Question

Are the posttest motivational results significantly different between the experimental group and the control group?

To answer this question, the Wilcoxon signed-rank test was used to determine whether the differences in posttest scores between the control and experimental groups are statistically significant,

**Table 3. Descriptive statistics of perceived level of learners' motivation with DST method of teaching**

Question items	N	Mean	Std. Dev.
The DST teaching method helps me to improve my <i>vocabulary</i> knowledge.	50	4.15	0.74
The DST teaching method is important for improving my <i>pronunciation</i> .	50	3.93	0.94
The DST teaching method helps me <i>understand</i> the content better.	50	4.05	0.86
The DST teaching method helps me to <i>concentrate</i> on the spoken text.	50	4.07	0.92
The DST teaching method improves my <i>speaking skills</i> .	50	4	1.06
The DST teaching method makes learning English <i>fun and enjoyable</i> .	50	4.03	0.87
The DST teaching method means I am more <i>involved</i> in the lessons.	50	3.93	0.96
The DST teaching method sparks my <i>interest</i> in learning English.	50	4.11	0.72
The DST teaching method makes me feel <i>confident</i> when learning English.	50	3.95	1.00
I would like to <i>participate</i> in the <i>future</i> DST teaching method.	50	3.83	1.06
The DST teaching method makes me more <i>satisfied</i> in the reading process and activity.	50	3.89	1.06
The DST teaching method increased my <i>motivation</i> to learn English.	50	4.11	0.80

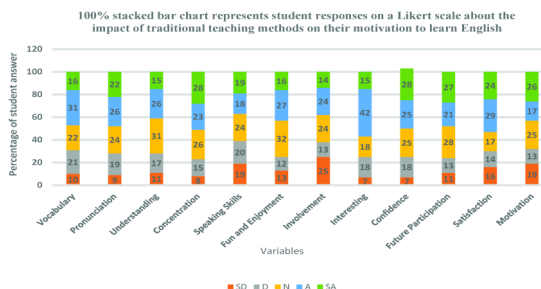
**Table 4. Wilcoxon sign rank test (paired test for comparison of response between traditional and DST methods)**

Variables	P-value
Vocabulary	0.0000
Pronunciation	0.0000
Understanding	0.0000
Concentration	0.0002392
Speaking Skills	0.0000
Fun and Enjoyment	0.0000
Involvement	0.0000
Interesting	0.0000
Confidence	0.001645
Future Participation	0.007528
Satisfaction	0.0006897
Motivation	0.0000

suggesting that the intervention (DST method) influences the results and is not influenced by chance. This nonparametric test was selected due to its suitability for Likert scale data, small sample size, nonnormal data distribution, and nonparametric variables in the study. The significant differences in all variables between the experimental and control groups shown by the Wilcoxon test ( $p < 0.05$ ) in Table 4 confirm the effectiveness of the DST approach in improving motivation to learn English compared to traditional methods. These results suggest that the variations in mean scores are likely influenced by the different teaching methods.

Because there are no pretest data, the tool is unable to directly quantify improvement from pre- to postintervention. Nevertheless, certain conclusions can be drawn based on three observations: (a) Effectiveness of the teaching method: The DST approach appears to outperform the traditional method in improving student outcomes, as evidenced by higher average scores and lower variability within the experimental group. (b) Performance consistency: The lower standard deviation within

Figure 1. Frequency of response using traditional method



the experimental group implies that students taught using the DST method have a more consistent level of performance. (c) Statistical significance: The remarkable results of the Wilcoxon test confirm the statistical significance of the observed differences and demonstrate the superiority of the DST approach compared to the traditional method.

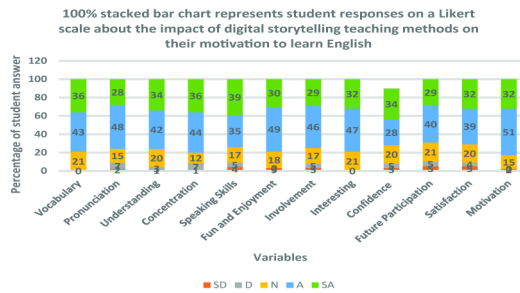
Figure 1 shows the frequency of participants' responses to each question item of the 12-item questionnaire using the traditional method. They are encouraged to give their final agreement on a Likert scale from 1 to 5, where "strongly disagree" is 1 (SD), "disagree" is 2 (D), "neutral" is 3 (N), "agree" is a value of 4 (A), and "strongly agree" is a value of 5 (SA).

The 100% stacked bar chart provided in Figure 1 illustrates students' feedback on a Likert scale about the influence of traditional teaching methods on their motivation to learn English. Variables evaluated include vocabulary, pronunciation, understanding, concentration, speaking skills, fun and enjoyable, involvement, interest, confidence, future participation, satisfaction, and motivation. For most variables, a significant number of students respond positively (agree or strongly agree). In particular, the "interesting" aspect receives the highest agreement (57% agree), indicating a positive influence of traditional teaching methods on students' interest in learning English. Several variables receive a significant percentage of neutral responses, suggesting that students are uncertain or indifferent about the effectiveness of traditional teaching methods in these aspects. Both "speaking skills" and "involvement" show higher percentage of disagreement (39% and 38%, respectively), suggesting that traditional methods may not be effective in improving speaking skills or engaging students. Responses regarding motivation are mixed, with a significant proportion of students strongly agreeing (26%), while a significant proportion strongly disagree (19%). Essentially, the diagram reflects different perceptions of traditional teaching methods. While many students acknowledge some benefits, particularly in promoting satisfaction and interest, there are obvious concerns about satisfaction with speaking skills and engagement, both of which are critical to effective learning. Addressing these areas can potentially increase the overall effectiveness of traditional teaching methods in motivating students to learn English.

Figure 2 shows the frequency of participants' responses to each question item of the 12-item questionnaire using the DST method. They are encouraged to give their final agreement on a Likert scale of 1 to 5, where "strongly disagree" is a value of 1 (SD), "disagree" is a value of 2 (D), "neutral" is 3 (N), "agree" is 4 (A), and "strongly agree" is 5 (SA).

The 100% stacked bar chart in Figure 2 illustrates students' feedback using a Likert scale on the influence of DST teaching methods on their motivation to learn English. Variables examined include vocabulary, pronunciation, understanding, concentration, speaking skills, fun and enjoyment, involvement, interest, confidence, future participation, satisfaction, and motivation. A majority of students express a positive opinion (agree or strongly agree) about the DST methods for most variables. High agreement is observed in motivation (83%), concentration (80%), vocabulary, fun and enjoyment, interesting (79%), pronunciation, comprehension (76%) and involvement (75%),

Figure 2. Frequency of response using DST method



indicating a positive perception of DST. Variables such as vocabulary, interest, and future participation receive mostly neutral responses (21%), suggesting that some students are uncertain about the effectiveness of DST in these aspects. In general, there is little disagreement on most variables, with vocabulary, interesting (0%), motivation (2%), and fun and enjoyment (3%) having the lowest levels of disagreement. While responses to the topic of motivation are mixed, they tend to be positive with a significant proportion of agreement (83%), alongside a notably neutral response (15%). Overall, the graph shows a positive attitude toward DST methods for learning English, with students showing high levels of motivation, concentration, enjoyment, interest, engagement, as well as improvements in vocabulary, pronunciation, and understanding. This approach appears to significantly increase student motivation and concentration. However, uncertainty remains regarding its effectiveness in improving specific language skills such as vocabulary and comprehension. Considering these areas can further optimize the effectiveness of DST in motivating students to learn English.

### Analysis of Qualitative Study of Semi-Structured Interviews to Explore Participants’ Perspectives on the DST Method to Increase Learning Motivation

After the intervention, a semi-structured interview was conducted with 10 students in the experimental group to explore their views, experiences, and feedback on the DST method for increasing language-learning motivation. Using a purposive sample, students with different experiences and viewpoints on the DST method were selected to obtain a comprehensive understanding of the effectiveness of the teaching method.

Thematic analysis was conducted to identify common themes, insights, and patterns in the responses. This included a thorough review of the transcripts to become familiar with the content. Codes were then applied to identify recurring themes and the data were organized by combining codes with similar characteristics to conduct the analysis of the study. Students’ overlapping responses were grouped into four themes: increased understanding, increased engagement, motivation, and usefulness, which reflected their perceptions of DST. Participants express the belief that DST has the greatest positive impact on motivation. Students demonstrate high levels of motivation when they feel satisfaction and confidence, which encourages them to continue their English learning. Student testimonials offer insight into why they are inspired by DST. Table 5 shows the four themes for coding with corresponding sample excerpts from respondents’ responses to the open-ended interview questions.

As shown in Table 5, research participants express their enjoyment of learning English through digital stories with multimedia elements. They find the DST method motivating and engaging. The visual and narrative aspects of DST are thought to improve their understanding of the English language. In contrast to traditional language courses and printed picture books, the main advantage of DST is seen as its ability to inspire students to excel in English classes, leading to better academic performance. In addition, a significant portion of students support the integration of DST in English

**Table 5. Themes and corresponding example excerpts from interviewees' answers to open-ended questions about the interview**

Themes	Respondents' answers
Increased understanding	<i>"I enjoy engaging in activities that are cute, fun, and challenging because they stimulate my thinking and creativity. This inclination also motivates me to further explore and understand topics that fascinate me, especially English."</i>
Increased engagement	<i>"I prefer not to sit at my desk and read books for long periods of time. However, a new approach may keep my interest longer. Unlike other courses where we simply follow the teacher's instructions, this one stood out."</i>
Motivation	<i>"Yes, I loved it from the start, and I would rate it four and a half to five stars. It encourages me to improve my English skills. It motivates me and improves my speaking skills."</i>
Usefulness	<i>"Digital storytelling is essential for teaching English and should be implemented in other subjects to increase student concentration. It's fun and highly recommended for daily English lessons."</i>

and other subjects, while some students consider occasional technical challenges as a disadvantage of the DST method.

The qualitative data analysis shows that the use of the DST method increases students' motivation, engagement, and understanding of the English language more than traditional teaching approaches. Although there are some technical difficulties, DST proves to be a successful teaching tactic.

### Integrated Interpretation

The higher mean scores and lower standard deviation observed in the experimental group, as well as the statistically significant results of the Wilcoxon test, suggest that the DST approach outperforms traditional teaching methods. Furthermore, the reduced variability within the experimental group suggests that the DST method can lead to more consistent learning outcomes, while the larger standard deviation in the control group suggests inconsistent results associated with traditional approaches, perhaps due to different teaching styles, student engagement, or other factors. In addition, findings from qualitative data collected through interviews provide insight into the effectiveness of the DST technique with evidence of increased student engagement, improved understanding, and increased motivation reflecting the quantitative improvements.

## DISCUSSION

The study aimed to evaluate how the teaching approach of DST affects motivation to learn English. Using a sequential mixed-methods approach, the research ensured a thorough evaluation of the DST method, taking into account statistical significance and personal experience. The study combined convenience sampling for quantitative data with purposive sampling for qualitative data to effectively answer research questions within the limitations of the study. Although pretest data are lacking, the study suggests that the DST method may be more effective than traditional methods based on higher posttest results. Furthermore, the lower standard deviation in the experimental group indicates more consistent student performance when using the DST method. Significant results of the Wilcoxon test further support the conclusion that the observed differences are statistically significant and provide evidence for the effectiveness of the DST method. The qualitative data analysis shows that, despite some technical challenges, the DST approach significantly increases students' motivation, engagement, and English comprehension compared to traditional teaching methods. In summary, the mixed-methods approach, which combines quantitative posttest survey data and qualitative insights from interviews, provides a robust framework for evaluating the effectiveness of the DST method by providing a nuanced understanding of both its statistical impact as well as its experiential aspects. While further research is needed to confirm and extend these findings, the results suggest that this

innovative teaching method can improve students' English language proficiency and motivation compared to traditional approaches.

The main goal of this research was to examine the influence of DST on motivation to learn English. The results show significant differences in English learning motivation between the two groups, with DST being preferred. The study suggests that the use of DST significantly increases students' motivation to learn English compared to traditional approaches. The higher means and lower standard deviations in the experimental group as well as the significant results of the Wilcoxon test support this claim. The qualitative analysis of the study data also shows that the DST method significantly increases students' motivation, participation, and understanding of the English language compared to traditional teaching methods. Despite some technical difficulties, DST proves to be a successful teaching method.

Motivation is considered crucial for language teaching by various researchers (Tugan, 2015), and DST has been found to support this motivational trend (Bromberg et al., 2013; Smeda et al., 2010; H. Yang & Wu, 2012). More specifically, researchers such as Smeda et al. (2010) found that DST increases students' motivation and problem-solving skills.

The current study results are consistent with Malita and Martin (2010), who indicated that incorporating DST as a pedagogical tool improves various aspects of learning, such as motivation, communication skills, and general academic performance. Similarly, H. Yang and Wu (2012) showed that using DST as a student-centered activity increases learning motivation, critical thinking, and English language proficiency. The study's interviews highlight the significant educational value of DST, with both faculty and students noting that DST improves students' understanding of course materials, their willingness to explore, and their critical thinking skills. Stockwell (2013), in addition, emphasized the frequent use of technology in language learning to motivate students, where DST can serve as an effective tool to increase student motivation. Furthermore, the results of the current study are consistent with those of Tahriri et al. (2015), who show that DST teaching methods improve the motivation and speaking skills of EFL students. Their findings highlight the importance of integrating digital software into language teaching as an important part of the EFL curriculum.

The results of the present study are consistent with previous studies by Bredvick (2016), Kasami (2017), and Shernoff et al. (2003), who show that incorporating DST into the teaching and learning process increases student motivation and engagement. Students are more likely to spend more time on assignments and improve their completion rates when they use technology to interact with and learn from their peers. This result can be compared with information from previous literature, suggesting that students worldwide show a preference for fun and interactive learning methods such as videos and DST. Previous studies (Connie, 2017; Ivala et al., 2013) showed that motivation plays a crucial role in English language learning. As a result, this type of learning approach encourages students in the experimental group to engage with English content in a more motivated manner than students in the control group who were taught using conventional, traditional, or face-to-face methods. While many students recognize the diverse potential of DST as an effective tool, they also encounter certain challenges in its implementation. One of these challenges is the technical difficulties associated with using it in the classroom. The laptop, as the primary study device, does not always function properly, occasionally freezing or slowing down for inexplicable reasons. As shown, in a classroom environment where technology is used, it is common to have an assistant teacher, staff member, or mentor available to provide support to both students and teachers. Below is an excerpt from a student's complaint regarding a technical issue.

*“Using the Canva application wasn't too difficult but, due to a sudden computer crash on my teacher's computer, I had a negative experience and she didn't know what to do. Regardless, our computer teacher helped with the reset.”*

Finally, the majority of respondents agree and support the implementation of DST in other disciplines. Papadimitriou (2003) emphasized that DST is an influential tool for learning in various academic areas such as mathematics, art, language arts, and music. By creating interactive stories and lessons, students can actively participate in the learning process, diverging from the potentially monotonous experience of traditional paper books. This highlights the adaptability and effectiveness of DST as a teaching tool across numerous disciplines.

The research highlights the potential of DST as a new method for language learning. The significant increase in student motivation and engagement suggests that DST can overcome certain disadvantages of traditional teaching techniques. Nevertheless, the technical issues uncovered suggest that strong support systems are needed to ensure seamless technology integration in education. Subsequent studies should focus on addressing these challenges and examine the lasting effects of DST on various aspects of learning and student development.

## **CONCLUSION**

### **Pedagogical Implications**

The results provide language teachers and educators with a valuable resource for language acquisition, particularly in terms of vocabulary, grammar, and speaking and listening comprehension. In addition, these results provide alternatives for teachers who have problems motivating their students in their classrooms. However, technology alone does not define teaching method. Therefore, teachers who wish to implement DST in their classrooms must ensure that it is effectively structured and anchored in an appropriate theoretical framework, and they must make meaningful contributions to its development.

### **Practical Recommendations**

The results of the study are beneficial to educators, curriculum developers, and policy makers. The positive effects of DST on language acquisition argue for the adoption of such technologies as a viable approach to improving the language skills of EFL learners. Additionally, the detailed insights into participants' experiences with DST serve as a valuable resource for educators seeking to incorporate DST into their teaching and learning strategies.

### **Limitations**

Sampling bias may limit the generalizability of the results in this study because of the use of convenience samples. Furthermore, the lack of pretest data hinders the ability to establish a direct cause-and-effect relationship between the DST approach and improved English-learning outcomes. Other factors such as teacher quality, student motivation, or classroom environment may have influenced the observed differences between groups. Technical issues, such as occasional problems with the DST method, may impact the overall experience and results.

### **Recommendations for Future Research**

Research was conducted using random sampling and a pretest/posttest design to verify results and establish initial group equity, validate these results, and assess actual progress. Further research is needed to examine the long-term effects, the effectiveness of the approach in different subjects, and its impact on different student groups. Further research with larger sample sizes and in other contexts can help generalize these results. Teachers should be trained on how to effectively implement DST to improve teaching quality and student outcomes.

Given the positive results, it is recommended that the use of the DST method be expanded in comparable educational settings. To maintain the effectiveness of the DST method, continuous assessment and review of student performance are required. This requires collecting student

feedback through surveys and self-reflection logs to improve the DST teaching approach. In addition, improvement of the technical infrastructure is required to provide sufficient support and reduce disruptions during DST operations. Finally, teachers should be trained on how to effectively implement DST to improve teaching quality and student outcomes.

### **CONFLICT OF INTEREST**

The author of this publication declares there are no competing interests.

### **FUNDING STATEMENT**

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. Funding for this research was covered by the author of the article.

### **PROCESSING DATES**

08, 2024

This manuscript was initially received for consideration for the journal on 06/26/2024, revisions were received for the manuscript following the double-anonymized peer review on 07/28/2024, the manuscript was formally accepted on 07/28/2024, and the manuscript was finalized for publication on 08/09/2024

### **CORRESPONDING AUTHOR**

Correspondence should be addressed to Abhipriya Roy; [abhipriya.roy@res.christuniversity.in](mailto:abhipriya.roy@res.christuniversity.in)



## REFERENCES

- Ahmad, W., & Yamat, H. (2020). Students' perception on learning English language through conventional and digital storytelling. *International Journal of Academic Research in Business & Social Sciences*, 10(2), 484–504. DOI:10.6007/IJARBS/v10-i2/6945 PMID:36146293
- Bredvick, R. (2016). *The effects of digital storytelling on student motivation and student engagement*. Graduate Research Paper, 89. <https://scholarworks.uni.edu/grp/89>
- Bromberg, N. R., Techatassanasoontorn, A. A., & Andrade, A. D. (2013). Engaging students: Digital storytelling in information systems learning. *Pacific Asia Journal of the Association for Information Systems*, 5(1), 1–22. DOI:10.17705/1pais.0510
- Brophy, J. (2004). *Motivating students to learn* (2nd ed.). Routledge., DOI:10.4324/9781410610218
- Cahyani, H., & Cahyono, B. Y. (2012). Teachers' attitudes and technology use. *TEFLIN Journal*, 23(2), 130–148.
- Çakır, R., & Yıldırım, S. (2009). What do computer teachers think about the factors affecting technology integration in schools? *İlköğretim Online*, 8(3), 952-964. <http://ilkogretim-online.org.tr/index.php/io/article/download/1965/180>
- Castaneda, M. E. (2013). "I am proud that I did it, and it's a piece of me": Digital storytelling in the foreign language classroom. *CALICO Journal*, 30(1), 44–62. DOI:10.11139/cj.30.1.44-62
- Chen, C. M., & Hwang, G. J. (2020). Mobile-assisted language learning: Effects of multi-modal annotations and learning styles on vocabulary learning. *Educational Technology & Society*, 23(2), 49–60.
- Chung, S. K. (2006). Digital storytelling in integrated arts education. *The International Journal of Arts Education*, 4(1), 33–50.
- Çigerci, F. M., & Gültekin, M. (2017). Use of digital stories to develop listening comprehension skills. *Issues in Educational Research*, 27(2), 252–268. <https://www.iier.org.au/iier27/cigerci.pdf>
- Cloud, N., Lakin, J., & Leininger, E. (2011). Learner-centered teaching: The core of effective practices for adolescent English language learners. *TESOL Journal*, 2(2), 132–155. DOI:10.5054/tj.2011.250377
- Connie, S. (2017). *Teachers' and students' perceptions of storytelling as a language teaching and learning resource* [Unpublished doctoral dissertation]. University of Sheffield, England.
- Demirer, V. (2013). İlköğretimde e-öyküleme kullanımı ve etkileri [Use of e-stories in primary education and its effects]. <https://acikerisim.erbakan.edu.tr/xmlui/handle/20.500.12452/768>
- Divaharan, S., & Lim, C. P. (2010). Secondary school socio-cultural context influencing ICT integration: A case study approach. *Australasian Journal of Educational Technology*, 26(6), 741–763. DOI:10.14742/ajet.1040
- Dreon, O., Kerper, R. M., & Landis, J. (2011). Digital storytelling: A tool for teaching and learning in the YouTube generation. *Middle School Journal*, 42(5), 4–10. DOI:10.1080/00940771.2011.11461777
- Gasigijtamrong, J. (2013). Effects of multimedia annotations on Thai EFL readers' words and text recall. *English Language Teaching*, 6(12), 48–57. DOI:10.5539/elt.v6n12p48
- Gibbs, A. (2012). Focus groups and group interviews. In Arthur, J., Waring, M., Coe, R., & Hedges, L. V. (Eds.), *Research methods and methodologies in education* (pp. 186–192). Sage.
- Gilakjani, A. P. (2012). The significant role of multimedia in motivating EFL learners' interest in English language learning. *Modern Education and Computer Science*, 4, 57–66.
- Gömlüksiz, M. N., & Pullu, E. K. (2017). Toondoo ile dijital hikâyeler oluşturmanın öğrenci başarısına ve tutumlarına etkisi [The effect of digital stories developed by using ToonDoo on students' academic achievement and attitudes]. *Electronic Turkish Studies*, 12(32), 95–110.
- Hadžimehmedagić, M., & Akbarov, A. (2014). The importance of frequent usage of various motivational strategies in second language acquisition. *Linguistics, Culture and Identity in Foreign Language Education*, 11-57.

- Hartley, J., & McWilliam, K. (2021). Digital storytelling and its role in community building. *Journal of Media and Culture*, 34(2), 199–213.
- Huang, W. H., & Soman, D. (2019). Gamification of education. *Interactive Technology and Smart Education*, 16(3), 254–269.
- Hung, C.-M., Hwang, G.-J., & Huang, I. (2012). A project-based digital storytelling approach for improving students' learning motivation, problem-solving competence and learning achievement. *Educational Technology & Society*, 15(4), 368–379.
- Iseke, J. (2021). Cultural understanding through digital storytelling in foreign language education. *Journal of Language and Cultural Education*, 14(2), 67–82.
- Ivala, E., Gachago, D., Condy, J., & Chigona, A. (2013). Enhancing student engagement with their studies: A digital storytelling approach. *Creative Education*. Advance online publication. DOI:10.4236/ce.2013.410A012
- Jones, R. G. (2019). Emerging technologies in language learning. *Language Learning & Technology*, 23(1), 4–8.
- Kasami, N. (2017). The comparison of the impact of storytelling and digital storytelling assignments on students' motivations for learning. In Borthwick, K., Bradley, L., & Thouesny, S. (Eds.), *CALL in a climate of change: Adapting to turbulent global conditions—short papers from EUROCALL 2017*, 177-183., DOI:10.14705/rpnet.2017.eurocall2017.709
- Kordaki, M. (2014). On the design of educational digital stories: The Ed-W model. *Procedia: Social and Behavioral Sciences*, 116, 1631–1635. DOI:10.1016/j.sbspro.2014.01.447
- Lambert, J. (2019). New directions in digital storytelling: Embracing technology. *International Journal of Multimedia Learning*, 8(4), 123–135.
- Lambert, J. (2021). Overcoming challenges in digital storytelling for language learning. *Journal of Educational Media*, 16(4), 245–259.
- Li, J., & Wang, Y. (2021). Online learning platforms in language education: Impact on student engagement and outcomes. *Journal of Educational Technology*, 42(4), 365–379.
- Li, Q., & Zhou, Z. (2021). Future trends in language education: The role of AI and immersive technologies. *Computer-Assisted Language Learning*, 36(2), 123–140.
- Li, Y., & Zhang, X. (2023). The future of digital storytelling in language education: AI and VR integration. *Journal of Emerging Technologies in Language Education*, 8(1), 56–70.
- Liu, M., Jin, Q., & Fu, X. (2020). Teacher training for technology integration in language education. *Journal of Educational Computing Research*, 57(6), 1345–1363.
- Liu, M., & Xu, Q. (2020). Catering to diverse learning styles through digital storytelling. *The Journal of Educational Research*, 45(2), 123–136.
- Lu, Y., & Liu, L. (2021). Enhancing student engagement with digital storytelling. *The Journal of Educational Research*, 35(3), 220–230.
- Malita, L., & Martin, C. (2010). Digital storytelling as web passport to success in the 21st century. *Procedia: Social and Behavioral Sciences*, 2(2), 3060–3064. DOI:10.1016/j.sbspro.2010.03.465
- McLellan, H. (2025). Collaborative digital storytelling platforms: A global perspective. *Journal of Educational Media*, 49(1), 15–30.
- Mishra, P., & Koehler, M. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
- Neo, M., & Neo, T. K. (2010). Students' perceptions in developing a multimedia project within a constructivist learning environment: A Malaysian experience. *The Turkish Online Journal of Educational Technology*, 9(1), 176–184. <https://files.eric.ed.gov/fulltext/EJ875781.pdf>
- Nishioka, H. (2016). Analyzing language development in a collaborative digital storytelling project: Sociocultural perspectives. *System*, 62, 39–52. DOI:10.1016/j.system.2016.07.001

- Nomass, B. B. (2013). The impact of using technology in teaching English as a second language. *English Language and Literature Studies*, 3(1), 111–116. DOI:10.5539/ells.v3n1p111
- Ohler, J. (2019). The impact of digital storytelling on intrinsic motivation in language learning. *Journal of Digital Learning*, 12(1), 78–91.
- Ohler, J. (2021). Digital literacy and storytelling in education. *Journal of Digital Learning*, 14(2), 110–125.
- Ohler, J. (2022). The future of digital storytelling: AR and VR integration. *Journal of Emerging Technologies*, 5(3), 88–100.
- Ozcinar, H., & Ozturk, H. T. (2013). Methods for analyzing computer-mediated communication in educational sciences. In Sappleton, N. (Ed.), *Advancing research methods with new media technologies* (pp. 228–249). IGI Global., DOI:10.4018/978-1-4666-3918-8.ch013
- Papadimitriou, C. (2003). MythematiCS: In praise of storytelling in the teaching of CS and math. In *Proceedings of the International Conference on CS Education, ITICSE, Thessaloniki, Greece*.
- Pierson, M. E. (2001). Technology integration practice as a function of pedagogical expertise. *Journal of Research on Computing in Education*, 33(1), 413–430.
- Prensky, M. (2001). Digital natives, digital immigrants: Part 1. *On the Horizon*, 9(5), 1–6.
- Punch, K. F. (2014). *Sosyal arařtırmalara giriř: Nicel ve nitel yaklařımlar* [Introduction to social research: Quantitative and qualitative approaches.]. (Akyüz, Z., Bayrak, D., & Bader Aslan, H., Trans.). Siyasal. (Original work published 2014)
- Rahimi, M., & Yadollahi, S. (2017). Effects of offline vs. online digital storytelling on the development of EFL learners' literacy skills. *Cogent Education*, 4(1), 1285531. DOI:10.1080/2331186x.2017.1285531
- Razmi, M., Pourali, S., & Nozad, S. (2014). Digital storytelling in EFL classroom (oral presentation of the story): A pathway to improve oral production. *Procedia: Social and Behavioral Sciences*, 98, 1541–1544. DOI:10.1016/j.sbspro.2014.03.576
- Robin, B. (2020). Digital storytelling in education: An overview. *Educational Technology Research and Development*, 68(3), 205–220.
- Robin, B. R. (2008). Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory into Practice*, 47(3), 220–228. DOI:10.1080/00405840802153916
- Sarıca, H. C., & Usluel, Y. K. (2016). The effect of digital storytelling on visual memory and writing skills. *Computers & Education*, 94, 298–309. DOI:10.1016/j.compedu.2015.11.016
- Shernoff, D. J., Csikszentmihalyi, M., Schneider, B., & Shernoff, E. S. (2003). Student engagement in high school classrooms from the perspective of flow theory. *School Psychology Quarterly*, 18, 207–231. DOI:10.1521/scpq.18.2.158.21860
- Smeda, N., Dakich, E., & Sharda, N. (2010). Developing a framework for advancing e-learning through digital storytelling. In *IADIS international conference e-learning* (pp. 169–176). Academic Press.
- Stockwell, G. (2013). Technology and motivation in English-language teaching and learning. In *International perspectives on motivation* (pp. 156–175). Palgrave Macmillan., DOI:10.1057/9781137000873\_9
- Tahriri, A., Tous, M., & Movedfar, S. (2015). The impact of digital storytelling on EFL learners' oracy skills and motivation. *International Journal of Applied Linguistics and English Literature*, 4(3), 144–153.
- Tugan, S. E. (2015). *The relationship among foreign language classroom anxiety, motivation and achievement of Turkish EFL students*. Yayınlanmamış Yüksek Lisans Tezi. Fatih Üniversitesi.
- Turan, T., & Şeker, B. S. (2018). The effect of digital stories on fifth-grade students' motivation. *Journal of Education and Future*, 13, 65–78. <http://dspace.balikesir.edu.tr/handle/20.500.12462/5869>
- Turgut, G., & Kışla, T. (2015). The use of computer-aided story in education: Literature review. *Turkish Online Journal of Qualitative Inquiry*, 6(2), 97–121. DOI:10.17569/tojq.57305

- Turner, K. C. N. (2011). Rap universal: Using multimodal media production to develop ICT literacies. *Journal of Adolescent & Adult Literacy*, 54(8), 613–624. DOI:10.1598/jaal.54.8.6
- Uslupehlivan, E., & Erden, M. K. (2016). *Usage of digital storytelling method in higher education. International Conference on Quality in Higher Education*, Sakarya, Turkey.
- Vinogradova, P., Linville, H. A., & Bickel, B. (2011). “Listen to my story, and you will know me”: Digital stories as student-centered collaborative projects. *TESOL Journal*, 2(2), 173–202. DOI:10.5054/tj.2011.250380
- Wu, T. T., & Huang, Y. M. (2022). The effectiveness of gamified language learning applications: A meta-analysis. *British Journal of Educational Technology*, 53(1), 45–59.
- Yang, H., & Wu, X. (2020). Enhancing student engagement with digital storytelling in foreign language classes. *Educational Technology & Society*, 23(2), 45–59.
- Yang, H., & Wu, X. (2021). The impact of digital storytelling on language learning. *Journal of Educational Technology & Society*, 24(2), 27–39.
- Yang, S., & Bai, Y. (2020). The role of virtual reality in language education: A review of current research. *Educational Technology Research and Development*, 68(5), 2403–2420.
- Yilmaz, F. G. K., & Durak, H. (2018). Examining pre-service teachers’ opinions about digital story design. *Education and Information Technologies*, 23(3), 1277–1295. DOI:10.1007/s10639-017-9666-2
- Yunus, M. (2013). Using visual aids as a motivational tool in enhancing students’ interest in reading literary texts. In *Proceedings of the 4th International Conference on Education and Educational Technologies (EET 13)*. Cambridge, MA, USA.
- Zhang, H., & Xu, Q. (2019). Digital divide in language education: A critical review. *Computers & Education*, 139, 16–27.
- Zou, D., Xie, H., & Wang, F. L. (2020). The impact of COVID-19 on language education: A review of online learning practices. *Educational Technology & Society*, 23(4), 56–68.