Research Square

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Evidence Based Solutions for Literacy Development in Ecuador through Digital Narratives

Ruth Zambrano Pintado
Universidad Tecnológica Equinoccial
Karina Rivadeneira Roura
Universidad Tecnológica Equinoccial
Elvia Tenechagua Ayora
elvia.tenechagua@educacion.gob.ec

Universidad Bolivariana del Ecuador
Diana Vasquez Niama
Universidad Estatal de Bolivar

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Abstract

This article examines the use of interactive digital narratives as an evidence-based strategy to strengthen disciplinary literacy in Social Studies through digital narrative construction in tenth-grade students in Ecuador. Using a mixed-methods approach that combines surveys and classroom observations among 34 tenth-grade students and four teachers in a secondary school in Quito, Ecuador, the study analyses their impact on reading and writing skills. Findings indicate increased student motivation, participation, and improved comprehension of social studies topics, suggesting positive effects on disciplinary literacy. Digital narratives represent an innovative pedagogical strategy that supports literacy development and promotes more engaging learning environments in Ecuadorian education.

1. Introduction

Digital transformation has emerged as a defining characteristic of contemporary education, profoundly reshaping teaching practices, learning processes, administrative functions, and institutional strategies through the incorporation of digital technologies. This transformation has also intensified the search for evidence-based educational strategies capable of strengthening students' literacy development within digitally mediated learning environments (Timotheou et al., 2023; Zheng & Kim, 2025).

Digital storytelling has established itself as an innovative pedagogical strategy capable of converting passive learning into immersive and meaningful educational experiences, while substantively reinforcing fundamental literacy skills (Maureen et al., 2020). Through the integration of narrative construction, the interpretation of historical events and the elaboration of content in digital media, this approach effectively promotes the development of reading, writing and interpretation skills within academic contexts (Irmayanti et al., 2025). Recent educational research increasingly identifies digital storytelling as an evidence-supported strategy for promoting literacy development, particularly in environments where students engage actively in the construction and interpretation of narratives (Mendoza Arce et al., 2025).

In response to these transformations, educational systems have increasingly integrated digital technologies into teaching practices, especially in subjects that require strong critical analysis and the development of disciplinary literacy, such as Social Studies (Bernardez, 2025; Wulandari & Pratiwi Husain, 2025). Within this field, students must interpret the narratives of history and evaluate primary and secondary sources, in addition to developing clear and coherent explanations for complex social processes. In particular, the use of interactive digital narratives represents an innovative methodology that fosters dynamic and collaborative learning (Burgos-Videla et al., 2025).

According to Filipova y Malakhova (2024), the educational methodologies that are currently applied must adjust to the new demands of students, who operate in a largely digital context. Thus, the use of digital narratives not only makes historical content more accessible but also turns passive learning into an immersive experience that encourages critical reflection and a deeper understanding of social and

historical processes (Qasim et al., 2025). These practices are closely linked to disciplinary literacy, since they require students to develop the ability to read, interpret and elaborate historical narratives through the combined management of textual sources and digital resources.

Teachers often face the difficult task of keeping students engaged and attentive while also fostering the development of core literacy skills, particularly reading comprehension, the critical interpretation of historical sources, and the ability to produce clear, structured written expression (Sitter et al., 2024; Lijuan, 2025). A central difficulty stems from the limitations of available teaching resources: Traditional textbooks are often overloaded with dense information, rely on outdated narratives, and fail to incorporate contemporary issues or perspectives (Scott & Husain, 2021). As a result, this creates a significant disconnect with students, who often perceive history and complex social phenomena as boring or not relevant to their lives because they cannot find something to identify with (Rocel Cimatu, 2025). Under these conditions, complex historical topics are often reduced to repetitive and monotonous memorization exercises, rather than transformed into genuine opportunities for active participation and critical inquiry that truly spark students' interest. Consequently, students' opportunities to cultivate more sophisticated literacy skills, encompassing critical reading, narrative construction, and the analytical interpretation of historical data, are considerably curtailed (Rocel Cimatu, 2025; Shrestha et al., 2025).

Added to these pedagogical challenges are persistent and substantial inequalities regarding access to digital technologies, which continue to have a profound impact on educational experiences in diverse contexts (Song, 2025). The digital divide extends beyond unequal access to technological infrastructure; it is also observed in significant differences both in the development of digital literacy skills and in the ability to integrate technology into learning environments in a pedagogically significant and effective way (Ure-de-Oliveira & Bonilla-Algovia, 2025; Sezgin & Fırat, 2024). These inequalities also affect the development of digital literacy and the effective implementation of pedagogical innovations such as digital narratives in the classroom (Adeleye et al., 2024).

Within the Ecuadorian educational system, this methodological approach takes on special relevance, as the country continues to decisively promote the integration of technology in teaching practices, while promoting intercultural perspectives that aims to enrich the teaching-learning process (Chen & Pan, 2024). Not only does it favor compliance with national educational standards, but also addresses the need to develop accessible, high-quality educational materials, and sustainable development that promotes inclusive and equitable education for all levels and forms of learning (Albright et al., 2022). Focusing on the tenth year of basic education, this research addresses the implementation of a digital narrative based on storytelling to teach with the aim of deepening historical understanding and promoting student participation in the educational environment (Behnam-Asl et al., 2024). Consequently, it is intended not only to generate a direct impact on the learning of the students of the Educational Unit "Commander Rafael Morán Valverde" and, in addition, to function as an example for other educational institutions that wish to innovate in their pedagogical approaches through the use of digital technologies.

Although it has been shown in previous research that digital storytelling can significantly increase student motivation and engagement, studies that have explored its potential to support literacy development in specific disciplinary contexts, such as Social Studies, are still very scarce. There is limited empirical evidence on how interactive digital narratives can contribute to strengthening reading comprehension, narrative construction, and interpretive skills among high school students in Latin American educational environments (Orehovački et al., 2021; Rodríguez-Silva, 2021). Moreover, very few studies have explored how tools such as interactive storytelling platforms can help improve student engagement, encourage greater participation, and improve understanding of complex social and literacy development.

Therefore, this study aims to evaluate the role that interactive digital narratives play in promoting literacy development and student participation in Social Studies learning, taking tenth grade students in Quito, Ecuador as a reference. To do this, mixed methods were used that combine surveys, classroom observation and the implementation of storytelling activities through the Inklewriter platform. The research evaluates the pedagogical potential of digital storytelling as an innovative strategy to improve literacy skills.

2. Methodology

This section details the design of the applied research, the profile of the sample, and the data analysis procedures used to evaluate how digital storytelling influences the progress of literacy in Social Studies.

2.1. Research Design

The study employed a mixed-methods research design that combined quantitative and qualitative approaches to achieve a more comprehensive understanding of how digital storytelling influences the teaching–learning process in Social Studies. By combining these two approaches, the mixed methods design facilitated triangulation across multiple data sources, integrating quantitative results with detailed and contextualized classroom observations.

The quantitative component centered on assessing students' and teachers' perceptions of digital storytelling and interactive tools in the classroom through structured surveys. The qualitative component consisted of classroom observations conducted during the implementation of digital narrative activities, which made it possible to identify recurring patterns in student participation, motivation, and engagement with digital learning resources. The study adopts a descriptive–exploratory design, as its primary goal is to examine the current state of use and the perceived effects of digital storytelling as an innovative pedagogical strategy in Social Studies teaching.

2.2. Sample

The research was carried out at the "Comandante Rafael Morán Valverde" Educational Unit, located in Quito, Ecuador. It focused on tenth grade students of Basic General Education, a level in which Social

Studies played a fundamental role in strengthening historical understanding, civic awareness, and the development of critical thinking. The study sample was composed of 34 tenth-grade students, divided across two parallel classes and 4 Social Studies teachers, selected from a total of 14 teachers working at the institution.

Participants were chosen using a non-probabilistic purposive sampling strategy, as the research specifically targeted groups where the digital storytelling methodology could be practically implemented within the teaching process. This sampling method enabled the researchers to closely examine the perceptions and experiences of both students and teachers who were directly engaged in applying digital narrative strategies.

2.3. Digital Narrative Intervention

The pedagogical intervention was built around a three-stage model: Technological, methodological, and curricular. During the technological stage, students worked with the Inklewriter tool to create branching narratives, which allowed them to engage actively and directly with historical content (Tejedor et al., 2020; Vinueza, 2023). The methodological stage focused on the application of narration techniques specifically designed to increase the active participation of students and promote contextualized learning with greater personal meaning (García-Mera & Silva-Jiménez, 2023). The curricular stage, on the other hand, was responsible for ensuring that the digital narratives were aligned with the specific competencies and content defined in the official Social Studies curriculum.

The process of implementing the digital narratives in this study is illustrated in Fig. 1.

The process contains the following structure: The initial stage focuses on the required technological characteristics, highlighting the use of the Inklewriter digital tool. The second stage deals with the implementation of the storytelling methodology, underlining its interactive and captivating nature for the generation of stories. Finally, the third stage is linked to the curriculum, indicating that the elaboration of the narratives previously considered the relevant curricular skills and contents. This proposal represents a transformative pedagogical approach that combines technology and interactive narratives to modernize the teaching of Social Studies. The intervention aimed not only to increase engagement but also to support students' literacy development through narrative construction and interpretation of historical events. The implementation of this methodology will not only provide a more engaging learning environment, but will also enrich students' critical and digital skills, preparing the next generation for the challenges of knowledge in a digital world (Robledo-Dioses et al., 2022).

2.4. Data Collection Instruments and Data Analysis

Quantitative data gathered from the surveys were processed using descriptive statistical methods to detect patterns in students' participation, motivation levels, and self-reported learning outcomes.

Structured surveys were administered to both students and teachers in order to collect their perceptions about the use of digital storytelling in the teaching-learning process. The surveys incorporated Likert

scale items that focused on the following main dimensions: the use of digital narratives in Social Studies classes, student motivation and engagement, understanding of complex historical concepts and perceived effects on academic performance.

These questionnaires enabled the collection of quantitative data on participants' experiences with digital narrative methodologies. The qualitative data were collected through direct observations in the classroom and were interpreted using a thematic analysis, with the purpose of exploring how digital narratives configured interactions in the classroom and how they influenced the general dynamics of the learning process. This technique enabled the researchers to analyze: student participation during narrative activities, interaction with digital tools, collaborative learning dynamics and levels of engagement during the learning process. Observation provided qualitative evidence that complemented the survey results.

3. Results

This section details the most relevant findings obtained from both qualitative and quantitative data, focusing on the use, perception, and effect of digital storytelling in Social Studies learning.

3.1. Use of Digital Storytelling Tools in Social Studies Classes

The survey results from students (Table 1) reveal that the use of digital storytelling tools in Social Studies classes continues to be limited, although it is already observed in certain teaching practices. According to the responses, 67% of students reported that digital narratives are used only occasionally during Social Studies lessons, while 13% indicated that these tools are employed consistently in every class. On the other hand, 20% of the students said that digital narratives are never used in their lessons. The interactive story can be accessed online through Inklewriter (Inklewriter, s. f.). These findings point to a moderate level of integration: While digital storytelling is acknowledged and occasionally present in the educational setting, its incorporation into everyday classroom practice is still inconsistent and far from systematic.

Table 1
Student perceptions regarding the use of digital storytelling tools in Social Studies classes

Frequency of use	Percentage of students
Always used in class	13%
Occasionally used	67%
Never used	20%

From the teachers' perspective, the results reflect a similar pattern as observed in Table 2. Seventy-five percent of teachers indicated that they occasionally incorporate digital narratives into their teaching practice, while the remaining 25% stated that they use them regularly, which reflects that educators clearly recognize the pedagogical potential of digital storytelling tools. However, the actual level of implementation seems to be conditioned by practical factors, especially the availability of technological resources and the degree of familiarity and confidence that teachers themselves have with these digital tools. In addition, a considerable percentage of teachers indicated that they encounter significant difficulties when trying to integrate digital storytelling into their classes. These results indicate that, although digital storytelling tools are already present in the classroom, their use continues to be inconsistent by both students and teachers.

Table 2
Teachers' use of digital storytelling tools in Social Studies classes

Frequency of use	Percentage of teachers
Regular use	25%
Occasional use	75%

Overall, the data suggest that digital storytelling tools are beginning to appear in Social Studies classes, however their presence remains far from fully established or routine.

3.2. Students' Perception of Digital Narratives for Learning Social Studies

Students' perceptions of digital narratives in Social Studies were overwhelmingly positive as observed in Table 3. According to the survey, students recognize the value of these tools in making learning more engaging and approachable. When asked if digital narratives would make the subject more interesting, 67% of respondents said they would sometimes enhance the learning experience, while 33% felt they would always do so. Notably, no student chose the option suggesting that digital narratives would never improve the learning process.

Table 3
Student perceptions of digital narratives and learning interest in Social Studies

Perceived impact on interest in the subject	Percentage of students
Always increases interest	33%
Sometimes increases interest	67%
Never increases interest	0%

Students also held highly favorable views on how storytelling and the Inklewriter platform help them understand complex topics in Social Studies. According to the survey responses, 67% of students felt

that these tools could sometimes make the subject clearer, while 33% believed they would always improve comprehension as shown in Table 4. Taken together, the results show that students view digital narratives as a valuable educational resource, one that strengthens conceptual understanding and opens up fresh, engaging ways to explore historical and social content.

Table 4
Student perceptions of digital narratives and comprehension of Social Studies topics

Perceived impact on understanding	Percentage of students
Always improves understanding	33%
Sometimes improves understanding	67%
Never improves understanding	0%

Table 5 shows that students also place significant value on the inclusion of interactive and audiovisual resources in their learning environment. Close to half of the respondents reported that they understand Social Studies concepts more effectively when these are presented through practical activities and visual or auditory examples. These responses demonstrated improvements in the ability of students to interpret historical narratives and articulate their understanding through structured storytelling, reflecting progress in disciplinary literacy skills.

Table 5
Student perceptions of interactive and audiovisual resources in Social Studies learning

Learning preference	Percentage of students
Learn better through interactive/visual activities	~ 50%
Prefer traditional methods	~ 50%

3.3. Impact on Students' Engagement and Participation

The findings also demonstrate that digital narratives exert a positive influence on student engagement and participation in Social Studies classes. More than half of the surveyed students (53%) reported feeling noticeably more motivated when the material is presented in interactive formats, while 40% indicated that this occurs sometimes. Only a small percentage of students felt that interactive teaching strategies rarely affect their motivation as observed in Table 6.

Table 6
Student perceptions of digital narratives and comprehension of Social Studies topics

Level of motivation	Percentage of students
Always more motivated	53%
Sometimes more motivated	40%
Rarely affected	7%

Students also reported participating more actively in class when interactive digital resources are integrated into the learning process. Survey data show that 54% become more involved at times when these resources are used, and 33% do so consistently. Students demonstrated greater engagement with historical texts and narratives, suggesting improvements in disciplinary literacy and comprehension as observed in Table 7.

Table 7
Student perceptions of digital narratives and comprehension of Social Studies topics

Participation level	Percentage of students
Always participate more	33%
Sometimes participate more	54%
Rarely participate more	13%

3.4. Teacher's Observations

Teachers' responses strongly support these observations. Most participants reported that students showed more motivation and better academic results when digital narratives and storytelling methods were used in teaching. Furthermore, all teachers agreed that the incorporation of practical activities and audiovisual resources makes the understanding of Social Studies topics clearer for the student. Consequently, the findings suggest a correlation between the use of interactive digital narratives and greater student motivation and engagement within the context of Social Studies teaching (Table 8.).

Table 8
Teachers' perceptions of the impact of digital narratives on learning

Teacher perception	Percentage of teachers
Students show greater motivation and performance	Majority
Interactive activities improve topic comprehension	100%

Overall, the statistical results and classroom observations suggest that the implementation of digital narratives significantly improves student engagement and supports literacy development within the context of social studies learning.

4. Discussion

The findings suggest that digital storytelling can function not only as an engagement strategy but also as a mechanism for strengthening disciplinary literacy in Social Studies. The implementation of digital storytelling and interactive tools has a positive impact on the teaching and learning process of social studies among tenth-grade students in basic education. The prevailing trend indicates that both students and teachers regard digital narratives as efficacious strategies for enhancing motivation, as well as for improving comprehension, academic participation and literacy development. This suggests that digital storytelling, rather than being a mere complementary technological resource, is a pedagogical strategy with the potential to transform traditional teaching.

From the students' perspective, the high percentages indicate greater motivation and increased comprehension with the use of interactive resources, revealing that narrative tools promote active learning.

The observation that a significant proportion of students report higher levels of motivation in interactive classes suggests that conventional pedagogical methods may not adequately address the cognitive and emotional requirements of contemporary students. Constructivist approaches to learning, which highlight the central role of personal experience, active participation and contextualization in the construction of knowledge, find clear support in students' marked preference for practical activities and the use of audiovisual resources. The results of this study highlight the value of digital storytelling as a particularly effective educational environment for fostering student engagement and for placing knowledge in meaningful and relevant contexts.This vision is in line with the proposals presented by Núñez Michuy et al. (2025) who highlight that the implementation of digital narratives in educational contexts reinforces the relationship between academic topics and students' personal experiences, thus promoting a more relevant and emotionally binding learning experience.

From the perspective of educators, digital storytelling is gaining increasing acceptance as it is seen as a truly innovative pedagogical strategy, as demonstrated by the highly positive evaluation it receives from teachers. The majority of teachers recognize the effectiveness of these tools in increasing student motivation and making the understanding of complex concepts more accessible, which improves active and committed participation in the classroom. This observation is directly linked to the contribution of Barcia et al. (2024), who argues that the teacher's digital competence and his favorable attitude towards innovation constitute key factors to achieve an effective and significant integration of technological tools in the classroom.

However, the systematic and consistent implementation of these technologies faces significant challenges, creating a clear gap between their pedagogical potential and their effective application in practice. This reality highlights the urgency of strengthening teacher training in digital skills and ensuring adequate and equitable technological infrastructure in educational centers. Therefore, the results indicate that technological integration should not be understood solely as the incorporation of tools, but rather as a structured process that requires training, institutional support, and curricular alignment.

In the context of Ecuador, these findings contribute to the modernization of social studies teaching. The present study offers empirical evidence demonstrating the positive impact of digital narratives on motivation and comprehension. These findings support the transition to other student-centered educational models focused on the development of digital literacy. Furthermore, it proposes a structured model with three dimensions: technology, methodology, and curriculum. These models have the potential to serve as replicable references for other educational institutions seeking to innovate their teaching practices.

5. Conclusion

The research shows empirical evidence demonstrating how effective interactive digital narratives are as a pedagogical strategy, as they improve and strengthen disciplinary literacy in Social Sciences among tenth-grade students in Basic General Education in Ecuador. The results show that, by employing storytelling techniques and digital tools like Inklewriter, students exhibit an increase in their motivation, participation, and engagement. Additionally, improvements have been achieved in other aspects, such as interpretation, the construction of contextualized historical narratives, and comprehension.

One of the most significant results of the study was that digital narratives not only helped to increase student motivation but also served as a cognitive mechanism that stimulates and enhances active learning and the development of critical reading and writing skills. Its pedagogical value was recognized by teachers and students, confirming that this is a strategy that helps transform conventional teaching models into more interactive, participatory, and student-centered approaches.

The study has significant implications in the context of Ecuador and Latin America, from a practical standpoint. Digital narratives, which are organized and incorporated into the educational field, represent a model that can be reproduced and has the potential to innovate education in educational organizations that aim to reinforce disciplinary literacy and foster more inclusive and dynamic learning environments.

However, this study also identified limiting factors that must be considered. First, the results cannot be extended to a broader context because the sample is small and was conducted in only one educational institution. Likewise, the use of self-report instruments can generate biases in the participants' perceptions. Finally, due to the brief nature of the intervention, no analysis was conducted to establish the long-term impacts on the development of reading and writing skills.

For this reason, to examine the sustained impact of digital narratives on disciplinary literacy, future studies should consider the use of larger and more varied samples over longer periods of time. Likewise, it is suggested to examine the implementation of emerging technologies such as adaptive systems and artificial intelligence, with the aim of optimizing personalized learning and enhancing the pedagogical advantages of digital narratives.

In conclusion, digital narratives have a great capacity to revolutionize the teaching of Social Sciences and to develop critical skills, promote active participation, and address the needs of students in

digitalized educational environments.

Declarations

Ethical approval

The study protocol was approved by the Ethics Committee of the Universidad Tecnológica Equinoccial, in accordance with institutional guidelines and ethical standards for research involving human participants.

Consent to participate

Informed consent was obtained from all participants involved in the study. Additionally, written informed consent was obtained from the parents or legal guardians of all minor participants prior to their inclusion in the research.

Consent to publish

Not applicable.

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Author Contribution

Ruth Zambrano wrote the main manuscript text, Karina Rivadeneira wrote methodology and results, Elvia Corina prepared figures and tables, Diana Vasquez reviewed and applied corrections to the manuscript. All authors reviewed the manuscript.

Data availability

The datasets generated and/or analyzed during the current study are not publicly available due to ethical considerations related to participant confidentiality but are available from the corresponding author on reasonable request.

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Figures

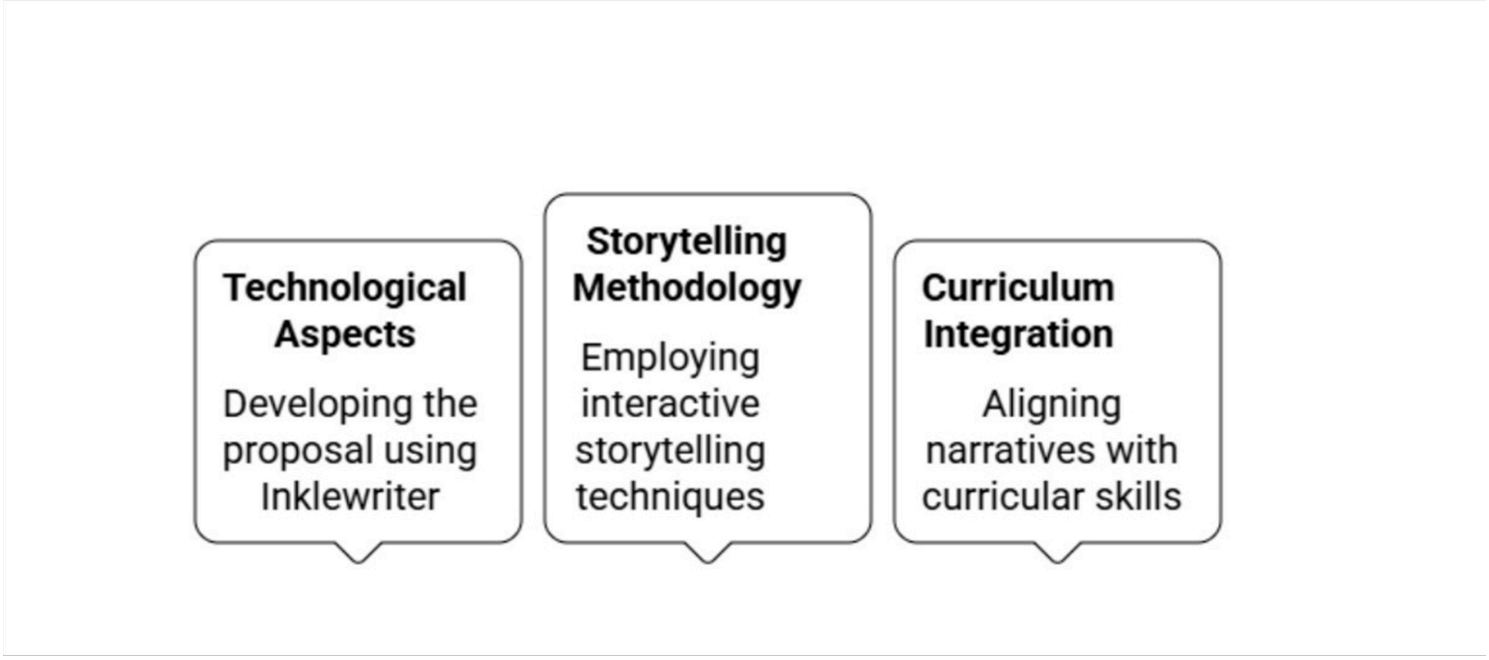


Figure 1

Digital narrative process

Note: Based on storytelling, aimed at learning social studies in tenth grade students of basic education.