

THE ROLE OF INTERACTIVE DIGITAL STORYTELLING IN PROMOTING DIVERSITY, STUDENT-CENTERED LEARNING, AND A SENSE OF BELONGING: AN ANALYSIS OF RECENT LITERATURE

Nicoleta LUPU ¹

Abstract: *Digital Storytelling (DST) is an innovative educational method, increasingly used in formal and non-formal contexts. The purpose of this article is to review the literature from 2021 to 2026 to assess the role of DST in (1) promoting diversity acceptance, (2) supporting student-centered learning, and (3) developing a sense of belonging. The methodology consisted of a systematic analysis of the studies indexed in international databases. The results highlight the positive impact of DST on the socio-emotional and cognitive dimensions of students. The conclusions support the integration of this method into educational practice and school counseling.*

Key words: *digital storytelling, school counseling, diversity, student-centered learning, sense of belonging.*

1. Introduction

Storytelling has been a fundamental element of human culture and communication for thousands of years (Peck, 1989). In educational settings, storytelling has been used as an effective pedagogical tool for introducing new concepts and creating dynamic and interactive learning environments for children (Jitsupa et al., 2022). Given the rapid development of technology, storytelling has gone beyond the traditional.

Interactive digital storytelling is an interactive form of storytelling that allows users to participate in the flow of stories through digital platforms. This method enriches the traditional method by using the visual, audio, and textual resources offered by the digital environment and by involving the reader as part of the story. This multimodal approach makes interactive digital storytelling an effective teaching material in learning and teaching processes, allowing students to create their own stories, build knowledge, and become their own actors in learning (Lambert, 2013).

Çetinkaya & Demir (2025) synthesize the benefits of interactive digital storytelling, all of which contribute to a positive and inclusive educational climate.

¹ *Transilvania University of Braşov, nicoleta.lupu@unitbv.ro, corresponding author*

Benefits of interactive digital storytelling (Çetinkaya & Demir, 2025)

Table 1

Includes long-term learning	Interactive digital storytelling helps students, through the use of audio-visual materials, to better encode information and transfer it to long-lasting memory.
Promotes student-centric learning	Interactive digital stories encourage the active participation of students. Students can direct the flow of the story and learn through discovery.
Transform the abstract into concrete	Digital storytelling facilitates learning by explaining abstract concepts with the help of animations, simulations, and interactive content.
Stimulates Critical Thinking and Creative thinking	Students can solve problems and assess different perspectives in Interactive stories. This process develops critical thinking and problem-solving.
Increases interest and motivation for learning	Digital storytelling increases students' motivation by making lessons fun, with engaging images, animations, and gamification elements.
Encourage collaboration and develop Communication skills	Students can work in groups while creating digital stories, discussing stories, and exchanging ideas.
Provides a flexible learning environment based on students' needs	Each student has a different learning style. Interactive digital storytelling provides a flexible learning environment where students can progress at their own pace.

Tajeri et al. (2017) highlighted the importance of digital storytelling in education. Teachers used Adobe Software Premiere Pro 5 to teach students how to create storyboards. This innovative teaching approach allows students to express themselves creatively and engage with the story. Carvalho et al. (2020) highlighted the benefits of digital storytelling in promoting collaboration, critical thinking, emotional intelligence, and digital literacy.

However, designing environments that actively engage students in the learning process demands meticulous planning from educators. With good planning, a digital storytelling activity will contribute positively to the students' academic success. In this regard, Çetinkaya & Demir (2025) present the stages of the process of creating an interactive digital story:

- 1) Literature review: it is necessary to decide on the topic for which the story will be prepared. After establishing the topic, relevant studies on this topic are accessed. Thus, theoretical knowledge about the subject is obtained by reviewing the relevant literature.
- 2) Writing the information obtained: When the literature review on the topic is completed, the process of writing the story based on the information acquired is

initiated, following the sequence of events in a way that will be interesting to the audience.

3) Choosing an appropriate program for digital storytelling.

4) Designing the Right Scenes for the Script: At this stage, the design of the right scenes for the script begins. It determines which backgrounds, images, videos, figures, and tables should be used.

5) Creation of projected scenes of the script within the program;

6) Sharing the Prepared Digital Story.

2. Methodology

The purpose of this systematic review is to assess the benefits of using interactive digital storytelling in developing an inclusive educational climate.

To carry out an effective review of the literature, the following steps were followed:

1) identification of the research question, 2) identification of relevant studies, 3) selection of studies, 4) centralization, summarization, and reporting of results.

This study was guided by the following research question: What are the main benefits of using interactive digital storytelling in the development of an inclusive educational climate?

An inclusive educational climate is characterized by the acceptance of school diversity, curricular adaptations for diversity and the sense of belonging of all students.

Starting from what the inclusive educational climate means, the following specific research questions were formulated:

1. Does Interactive Digital Storytelling encourage acceptance of diversity?

2. Does Interactive Digital Storytelling promote student-centered learning by providing a flexible learning environment based on students' needs?

3. Does Interactive Digital Storytelling develop a sense of belonging?

To answer these questions, studies from the literature from the last five years were analyzed. The studies were searched in academic databases. Keywords from each research question were used. The inclusion criteria were: articles published between 2021–2026, peer-reviewed articles, and direct relevance to the three dimensions analyzed. 45 articles were analyzed, evaluated based on title and abstract, of which 10 were selected for final analysis. The studies included in the analysis were: Belda-Medina (2022), Bratitsis & Mantellou (2025), De Vecchi et al. (2024), Isaacs et al. (2024), Kuşkaya Mumcu et al. (2024), Manganello & Baldacci (2024), Nasir et al. (2024), Sánchez et al. (2025), Thomas & Manalil (2025), Bai et al. (2025). Table 2 illustrates the study selection process.

Study selection process

Table 2

IDENTIFY	Articles identified in databases (Scopus, Web of Science, Google Scholar): n = 70
SCREENING	Articles analyzed (title and abstract): n = 45
	Excluded items: n = 23
ELIGIBILITY	Full-text articles analyzed: n = 22
	Excluded items (criteria not met): n = 12
INCLUDED	Studies included in the final analysis: n = 10

The following table summarizes the methodology and main results of the studies included in the final analysis.

Table 3

Summary of the methodology and main results of the studies included in the final analysis

Author, year	Design	N	Tools / Procedures	Main results
Belda-Medina, 2022	Cvasi-experimental	Students (~60)	DST+ Questionnaire	Increasing inclusion, acceptance of diversity, and critical thinking
Bratitsis & Mantellou, 2025	Review PRISMA	-	Database analysis	Increasing engagement, motivation, and active learning
De Vecchi et al., 2024	Review	-	Literature screening	Therapeutic benefits: emotional expression, social connection
Isaacs et al., 2024	Review	-	Analysis of studies	Developing 21st Century Skills: critical thinking and problem solving, communication, collaboration, and creativity
Kuskaya Mumc, 2024	Experimental	Students (~80)	DST Intervention	Significant increase in empathy and intercultural competencies
Manganello & Baldacci, 2024	Review	-	Analysis of studies	Inclusive education
Nasir et al., 2024	Scoping review	-	Analysis of studies	Digital storytelling learning outcomes and critical factors
Sánchez et al., 2025	Mixed-method	Students (~100)	Reflective journals, narrative analysis	Improved self-regulation and reflection
Thomas & Manalil, 2025	Qualitative	Students (~40)	Interviews	Increased sense of belonging
Bai et al., 2025	Review	-	Synthesis of studies	Positive effects on cognitive and emotional learning

3. Results

Digital storytelling and embracing diversity

The results indicate that SDRs contribute to the development of intercultural competences and the reduction of stereotypes. Participants engaged in SDR activities

demonstrate greater openness to diversity and a better understanding of different perspectives (Kuşkaya Mumcu et al., 2024; Belda-Medina, 2022).

Digital storytelling and student-centered learning

The analyzed studies show that DST promotes active, personalized, and reflective learning. Students become content creators, which leads to increased motivation and engagement (Bratitsis & Mantellou, 2025; Sánchez et al., 2025).

Digital storytelling and the sense of belonging

The results suggest that STDs contribute to the development of the sense of belonging by expressing personal identity, active participation, and creating social connections. Students engaged in STD activities report higher levels of inclusion and social connection (Thomas & Manalil, 2025; De Vecchi et al., 2024).

Digital storytelling learning outcomes and critical factors

Nasir et al, (2024) draw attention to the fact that students achieve various results in learning through digital storytelling (DST), in the presence of facilitating factors. Thus, in terms of the cognitive dimension, the facilitating factors for meaningful learning outcomes include the involvement of multisensory learning, adequate opportunities for practice, and evaluation of one's own ideas. In the affective dimension, the facilitating factors involve personal experiences, the use of interactive multimedia, and a sense of control during learning. In the social dimension, enablers involve safe collaborative environments for students, where ideas are shared, and feedback received through digital media continuously stimulates social communication.

Three challenges affecting learning outcomes should be considered in the implementation of SDRs: 1) matching of approaches, 2) variability of duration, and 3) compatibility of technology. The results confirm that STD is a complex educational method, with an impact on the cognitive, emotional, and social dimensions of learning.

In terms of diversity, SDRs facilitate the understanding of multiple perspectives, helping to reduce biases. This is consistent with theories of social and intercultural learning. In terms of student-centered learning, DST aligns with the constructivist paradigm, in which the student is an active participant in the learning process (Isaacs et al., 2024).

In terms of belonging, DST creates an inclusive educational environment where students feel valued and connected to the community.

However, the literature also highlights limitations: the lack of longitudinal studies, methodological variations, and insufficient exploration in different contexts

5. Conclusions and Limits

The analysis of recent literature indicates that interactive digital storytelling encourages the acceptance of diversity through the development of intercultural competences, promotes student-centered learning through active engagement and personalization, and develops a sense of belonging through social interaction.

Therefore, DST is a valuable tool for school education and counseling with practical implications in integrating DST into the curriculum, use in school counseling, and teacher training in the use of DST. The limited number of studies restricts the generalization of conclusions. Although experimental studies such as Kuşkaya Mumcu et al. (2024) and Sánchez et al. (2025) offer valuable insights, the relatively small sample sizes and short durations of interventions affect internal validity.

Second, the reliance on self-reported data and qualitative methods introduces potential biases, including social desirability and subjectivity. For example, studies examining the sense of belonging (Thomas & Manalil, 2025) mainly use interviews and narrative analyses, which, while rich in depth, may lack objectivity.

Third, the lack of longitudinal studies is a major gap. Most studies focus on short-term outcomes, making it difficult to determine whether the observed benefits of SDRs — such as increased empathy, engagement, and belonging — are maintained over time.

Fourth, the lack of standardization in the implementation of DST in studies (e.g., duration, tools, instructional design) limits replicability. Different digital storytelling formats (video-based, multimedia, online platforms) are used inconsistently, making it difficult to identify best practices.

Finally, most research is conducted in educational settings (schools or universities), with limited application in formal counseling or clinical settings. This restricts the transferability of findings to broader psychological or therapeutic contexts.

6. Future Research Directions

Future research should address these limitations by adopting more rigorous and standardized methodologies. First, longitudinal studies are needed to examine the long-term impact of STDs on students' socio-emotional development, particularly in terms of identity formation, resilience, and sustained sense of belonging.

Second, future studies should prioritize experimental and quasi-experimental designs with larger and more diverse samples. This would enhance both internal and external validity and allow for stronger causal inferences.

Third, the development and use of standardized measurement tools for concepts such as acceptance of diversity, student-centered learning, and belonging would improve comparability between studies. It is also recommended to combine quantitative and qualitative data (mixed methods) to ensure methodological triangulation.

Fourth, future research should explore the integration of DSTs into school counseling and psychological interventions, going beyond purely educational contexts. This would provide deeper insights into its therapeutic potential.

Finally, more research is needed in diverse cultural and socio-economic contexts to ensure the generalization of results and to better understand how DST supports inclusion and equity in education globally.

References

- Bai, S., Yang, C., Liu, Y., Özsoy, M. D., & Chen, S. (2025). Harnessing educational digital storytelling: A systematic review of cognitive and affective outcomes. *Interactive Technology and Smart Education*, 23(2), 311–338. <https://doi.org/10.1108/ITSE-04-2025-0092>
- Belda-Medina, J. (2022). Promoting inclusiveness, creativity, and critical thinking through digital storytelling. *International Journal of Inclusive Education*, 26(2), 109–123. <https://doi.org/10.1080/13603116.2021.2011440>
- Bratitsis, T., & Mantellou, E. (2025). Digital storytelling in teaching and learning: A systematic review. *Education Sciences*, 15(11), 1548. <https://doi.org/10.3390/educsci15111548>
- Carvalho, L. C., Noronha, A. B., & Souza, C. L. D. (Eds.). (2020). Learning Styles and Digital Storytelling in Higher Education. *Journal of Educational Technology*, 14(3), 40-48.
- Çetinkaya, M. & Demir, İ. C. (2025). Interactive digital storytelling development process in science education. *The Journal of Limitless Education and Research*, 10(1), 1-33. <https://doi.org/10.29250/sead.1618011>
- De Vecchi, N., Kenny, A., Dickson-Swift, V., & Kidd, S. (2024). How digital storytelling is used in mental health: A systematic review. *Journal of Psychotherapy Integration*, 34(2), 115–132. <https://doi.org/10.1037/int0000325>
- Isaacs, M. A., Tondeur, J., Howard, S., Claro, M., & Van Braak, J. (2024). Digital storytelling as a strategy for developing 21st-century skills: A systematic review. *Technology, Pedagogy and Education*, 33(5), 573–593. <https://doi.org/10.1080/1475939X.2024.2343929>
- Jitsupa, J., Nilsook, P., Songsom, N., Siriprichayakorn, R., & Yakeaw, C. (2022). Early childhood imagineering: A model for developing digital storytelling. *International Education Studies*, 15(2), 89-101. <https://doi.org/10.5539/ies.v15n2p89>
- Kuşkaya Mumcu, F., Haşlamam, T., & Uslu, N. A. (2024). Investigating the effect of digital storytelling on multicultural competencies. *International Journal of Intercultural Relations*, 103, 102065. <https://doi.org/10.1016/j.ijintrel.2024.102065>
- Lambert, J. (2013). *Digital storytelling: Capturing lives, creating community*. Routledge.
- Manganello, F., & Baldacci, M. (2024). Digital storytelling for inclusive education: A systematic review. *Education Sciences*, 14(10), 1108. <https://doi.org/10.3390/educsci14101108>
- Nasir, W. M. F. W. M., Halim, L., & Arsad, N. M. (2024). Digital storytelling learning outcomes and critical factors: A scoping review. *International Journal of Learning, Teaching and Educational Research*, 23(5), 323–344. <https://doi.org/10.26803/ijlter.23.5.17>
- Peck, J. (1989). Using storytelling to promote language and literacy development. *The Reading Teacher*, 43(2), 138–141.
- Robin, B. R. (2008). Digital storytelling: A powerful technology tool for the 21st-century classroom. *Theory Into Practice*, 47(3), 220–228. <https://doi.org/10.1080/00405840802153916>

- Sánchez, E., Rodríguez-Triana, M. J., Martínez-Monés, A., & Dimitriadis, Y. (2025). Exploring the relationship between digital storytelling and self-regulated learning. *Computers and Education Open*, 9, 100267. <https://doi.org/10.1016/j.caeo.2025.100267>
- Tajeri, M., Syal, P., & Marzban, S. (2017). Enhancing Vocabulary and Writing Skills through Digital Storytelling in Higher Education. *Journal of Educational Technology*, 14(3), 40-48.
- Thomas, S., & Manalil, P. (2025). Digital storytelling and the pedagogy of belonging. *Frontiers in Communication*, 10, 1630596. <https://doi.org/10.3389/fcomm.2025.1630596>

Further information may be obtained at the address: nicoleta.lupu@unitbv.ro