



Tech-Infused Narrative: A Systematic Review of Digital Storytelling in Education

Catherina Ugap^{1,*}, Wan Aida Wan Yahaya², Balamuralithara Balakrishnan¹, Mohd Ekram Al Hafis Hashim¹, Fumihiko Tochinai³, Suraya Md Nasir¹

¹ Faculty of Art, Sustainability and Creative Industry, Universiti Pendidikan Sultan Idris 35900 Tanjong Malim, Perak, Malaysia

² College of Creative Arts, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

³ Shibaura Institute of Technology, Koto City, Tokyo 135-8548, Japan

ARTICLE INFO

Article history:

Received 24 January 2025

Received in revised form 14 March 2025

Accepted 2 May 2025

Available online 16 May 2025

Keywords:

Narrative; technology; digital; storytelling; education

ABSTRACT

Digital storytelling has revolutionized traditional teaching methodologies by merging technology and narrative, creating dynamic learning experiences. This systematic review examines "Technology-Infused Narratives," which emphasize the inseparable relationship between technology and narrative-based educational methods. Addressing a gap in comprehensive analysis, this study evaluates the implementation and impact of digital storytelling across educational levels and disciplines. Utilizing the PRISMA framework, literature from Scopus and ERIC was synthesized, with 30 articles selected for detailed analysis out of an initial 352. Findings reveal that digital storytelling enhances engagement, critical thinking and literacy skills, supporting multilingual learners and fostering creative pedagogy. It also facilitates cultural heritage preservation and promotes innovative teaching strategies. Despite its benefits, challenges such as story selection, legal issues and evaluating student learning persist, along with ethical considerations in social justice pedagogy. The study underscores the transformative potential of digital storytelling, advocating for its recognition as a versatile educational tool. Thoughtful implementation can maximize its effectiveness, addressing diverse learning needs and promoting active student involvement. This review provides a roadmap for educators and policymakers to navigate the integration of narrative-driven technology, highlighting the need for nuanced technology integration, collaboration and personalization in education. Ultimately, digital storytelling offers a significant departure from traditional methodologies, fostering a more engaging and effective educational environment.

1. Introduction

In the ever-evolving educational landscape, the combination of technology and narrative has emerged as a dynamic force, revolutionizing traditional teaching methodologies [19]. At the forefront of this transformative wave is digital storytelling, a powerful combination of storytelling techniques and technological tools.

* Corresponding author

E-mail address: catherina@fskik.upsi.edu.my

<https://doi.org/10.37934/ard.131.1.116a>

As classrooms adapt to the digital age, technology integration has become essential in shaping meaningful learning experiences. Digital storytelling, a versatile and engaging approach, combines narrative principles with contemporary technological advances [23]. This systematic review aims to unravel the complex threads of this intersection, exploring how technology, when intertwined with narrative constructs, catalyses paradigm shifts in educational practice [1].

The research focus of this study goes beyond the confines of traditional digital storytelling, embracing a broader spectrum called "Technology-Infused Narratives." This nuanced concept underlines the inseparable relationship between technology and narrative-based educational methods. Through a careful review of multiple studies spanning educational levels and disciplines, from early childhood to higher education, nursing and beyond, our goal is to discern the patterns, challenges and potential inherent in the marriage of technology and narrative [16].

This systematic review aims to reveal pedagogical nuances, challenges and emerging trends in the field of digital storytelling. This study envisions inspiring a broader discourse on the transformative potential of narrative-driven technology in education. By critically examining challenges, presenting solutions and identifying avenues for future research, this systematic review contributes to a roadmap that envisions a future in which technology-infused narratives are seamlessly integrated into the fabric of contemporary education [20].

In conclusion, this systematic review illuminates the profound impact of technology-infused narratives, particularly through the lens of digital storytelling, on the ever-evolving educational landscape. As technology becomes an indispensable component in classrooms, the versatility and engagement offered by digital storytelling mark a significant departure from traditional teaching methodologies. The broadened scope of our study, encapsulating the concept of "Technology-Infused Narratives," emphasizes the inseparable relationship between technology and narrative-based educational methods. Through an extensive review of studies across educational levels and disciplines, our exploration aimed to discern patterns, challenges and potentials inherent in this symbiotic relationship. Unveiling pedagogical nuances, addressing challenges and envisioning a future where technology-infused narratives seamlessly integrate into education, this systematic review contributes to a comprehensive roadmap for educators, researchers and policymakers navigating the transformative landscape of narrative-driven technology in education.

2. Literature Review

A diverse range of studies on digital storytelling in education, each offering unique insights and applications. In one study, pre-teacher education candidates utilize grounded theory to critically evaluate digital stories, focusing on the seven elements of digital storytelling planning [32]. The aim is to establish digital stories as foundational in 21st-century teaching, providing teachers with practical tools and ideas for implementation. Another study introduces an evolving model for educational experience design, encouraging unscripted narratives and co-authorship among learners. Digital storytelling's widespread use in early childhood education is evident in a Jakarta case study, emphasizing the need for enhanced teacher digital skills and modernized ICT devices [28]. Cultural institutions leverage digital storytelling to transform audiences into stewards of cultural heritage, utilizing travel narratives to enhance engagement and embodiment.

The National League for Nursing advocates for digital storytelling in nursing education, with findings indicating enhanced discussion, engagement and the development of various skills [3]. Adolescence is highlighted as a critical period for exploring identity through digital media, emphasizing multimodal productions and creative pedagogy [25]. Transmedia educational strategies are proposed in the humanities, incorporating narrative-based learning and adaptations of literary

classics to foster creative and critical thinking. The exploration of digital storytelling in post-colonial contexts emphasizes its role in reassessing memory, questioning identity and revealing cultural diversity. An Italian model combines science, narrative thinking and art to actively engage students in meaningful and reflexive learning, particularly in mathematics education [22].

The success of digital storytelling is often contingent upon foundational supports, such as visual literacy and infrastructure. A comparative study between Indonesia and Malaysia highlights how visual literacy and facility support shape educational practices, offering critical insights into regional challenges and opportunities for digital storytelling integration [26]. Such studies underscore the importance of establishing robust educational frameworks to leverage digital storytelling's potential in various contexts fully.

Online platforms for living donors and kidney recipients showcase the potential of digital storytelling to supplement traditional education and advocate for living kidney donation. However, ethical concerns arise in social justice pedagogy, leading to the adoption of Joan Tronto's Ethic of Care as a nuanced framework. Additionally, the unique characteristics of promotional videos for MOOC courses are explored, emphasizing their role in capturing student attention and providing valuable educational content [30]. In a South African township, digital storytelling is employed to understand youth resilience, with key lessons focusing on redefining "story" and deeper consideration of technology use.

The South African Higher Education sector undergoes transformation post-Apartheid, emphasizing critical digital literacies and citizenship. In education about migration in Norwegian schools, standardization drivers and material affordances limit diversity in student experiences [20]. Digital storytelling emerges as an empowerment tool for Hungarian high school students with burnout, resulting in a shift towards future-oriented perspectives. Experiential pedagogical tools, such as digital storytelling, challenge preservice teachers' attitudes towards immigration [18,37].

The application of digital storytelling in primary education aims to enable struggling readers to share their literacy stories, supporting preservice teachers in planning meaningful reading instruction. Instructors of large survey classes in history suggest the use of digital storytelling to enhance critical thinking, visual and digital literacy and engagement with historical narratives [7]. Collaboration between science curricula and librarians in supporting digital storytelling underscores the importance of engaging audiences through emotional narratives. Digital adaptations of well-known stories by young children offer learning opportunities, aligning with recent theoretical perspectives on learning.

In primary education, collaborative digital narratives enhance communicative and digital competences, with improvements seen in vocabulary, spelling, punctuation and verb tenses [35]. Multimodality in meaning-making for multilingual students is facilitated through interactive digital storytelling applications like Storyjumper. Storyjumper, an interactive digital storytelling application, is used to engage bi/multilingual learners effectively [11]. A digital storytelling workshop for newcomers in Canada prompts a rethinking of participation in social justice-oriented media projects, emphasizing resistance as a method of participation. The integration of young people's posting habits into formal educational contexts using Personal Digital Storytelling is explored, revealing diverse habits and perceptions [17].

Digital storytelling emerges as a community-engaged pedagogy for creating students' immigration stories in Maryland, challenging assumptions about the disconnect between universities and local communities [6]. The impact of online Digital Storytelling on critical reading, thinking and self-regulated learning skills in Arabic teachers is explored, showing significant improvement compared to the control group. A Design-Based Research workshop on "Visual Storytelling" enhances

teachers' professional competencies in digital narrative documentation, stimulating creative and reflective technology use [33].

Lastly, the integration of video case studies is proposed as an effective learning strategy, particularly in large-class settings where providing detailed feedback is challenging. The use of a robot-based digital storytelling approach in an EFL course significantly reduces communication apprehension and improves various language learning performances, suggesting the potential of incorporating robots in digital storytelling design [21].

3. Methodology

Numerous contemporary studies around the world have focused on systematic evaluations with the purpose of examining various aspects of digital storytelling in education [1,16,23]. Nevertheless, when considering an extensive overview of digital storytelling's role in education, it becomes evident that a systematic analysis of its implementation across different disciplines and its impact on learning outcomes is essential. The following section will detail the methods employed to address research questions formulated by current studies, breaking the review into three segments:

- i. Digital Storytelling in Education Programs
- ii. Digital Storytelling Across Disciplines and Strategies
- iii. Impact and Reflections of Digital Storytelling.

Subsequently, this section will systematically review and synthesize scientific literature to comprehensively analyse the integration and effects of digital storytelling in educational settings. It will conclude by addressing potential actions that can be taken to enhance its application, offering guidance to educators and researchers seeking to contribute to this field. To ensure rigor and consistency, a Pre-recording Systematic Review and Meta-Analysis (PRISMA) approach, which follows established standards, will be utilized for this analysis. The PRISMA framework is vital in conducting systematic literature reviews, as it offers guidelines that ensure the review's accuracy, thoroughness, relevance and completeness. Moreover, PRISMA emphasizes random survey evaluations, a significant aspect of systematic analysis reports for a variety of study types [12] (see Figure 1).

With regards to the tools employed, two primary databases, Eric as well as Scopus, have been selected in evaluating this research methodology, owing to their reliability. Nevertheless, it is crucial to acknowledge that while Scopus and PubMed are valuable resources, no single database is flawless or exhaustive. Additionally, this part offers a summary of four crucial subsections: introduction, screening, qualification as well as data abstraction. These elements collectively contribute to the robustness and comprehensiveness of the research methodology.

3.1 Identification

The systematic review process has three fundamental phases that were employed to choose several pertinent papers for this investigation. In the initial stage, one must identify keywords and search for relevant terms utilizing resources such as thesauri, dictionaries, encyclopaedias and previous research. After selecting all relevant phrases, search strings have been created for the Scopus and ERIC databases (see to Table 1). During the initial stage of the systematic review procedure, the ongoing research effort was able to effectively get 352 papers from both databases.

Table 1

The search string

Scopus	TITLE-ABS-KEY ((technology* OR innovation* OR gadget) AND narratives AND digital AND storytelling AND education) AND (LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2023)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (LANGUAGE , "English"))
	Access date : 29 November 2023
ERIC	(+technology*+or+innovation*+or+gadget+) AND narratives AND digital AND storytelling AND (education* OR studies* OR learning*)
	Access date : 29 November 2023

3.2 Screening

It is imperative to remove duplicate articles from consideration during the initial screening phase. Eight publications were rejected in the first phase; however, in the second phase, 55 papers in total were screened using particular inclusion and exclusion criteria that the researchers had set. Since research articles are the primary source of practical information, they were the first category to be considered for selection. Furthermore, the current study includes the exclusion of articles that are organized into book series, books, chapters, reviews, meta-analyses, syntheses and systematic reviews. Furthermore, only academic articles written in English were the review's primary focus. Recognizing that the period chosen, which runs from 2019 to 2023, is crucial. Based on certain criteria, 297 items in total were eliminated.

3.3 Eligibility

As part of the eligibility phase, a comprehensive collection of 48 articles has been compiled. At this stage, a comprehensive examination was conducted on the titles and essential content of each article to verify that they met the inclusion criteria and were relevant to the current study in terms of its research objectives. 18 reports were therefore excluded because they were not in the field of study, their titles were not substantially relevant and their abstracts did not pertain to the study's objective. At last, 30 articles are accessible for examination (refer to Table 2).

Table 2

The selection criterion is searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2019 – 2023	< 2019
Literature type	Journal (Article)	Conference, Book, Review
Publication Stage	Final	In Press

3.4 Data Abstraction and Analysis

One of the assessment procedures in this study was an integrative analysis, which looked at and synthesized a range of research designs (qualitative, mixed and quantitative). The competent study's objective was to pinpoint pertinent subjects and subtopics. The initial phase of the theme's development was the data collection phase. The process by which the authors carefully examined a compilation of 27 publications for claims or information pertinent to the subjects of the current

investigation is depicted in Figure 1. The important research that are currently being conducted on narrative digital storytelling in education were then assessed by the writers. Investigations are being conducted into the research findings and the methods applied in all of the studies. The author then worked with other co-authors to create themes based on the data in the background of this study. Throughout the data analysis process, observations, opinions, puzzles and other ideas pertinent to the interpretation of the data were recorded in a log. In order to determine whether the theme design process was inconsistent in any way, the writers finally compared the outcomes. It's important to note that the authors debate any differences in opinion among the notions with one another. Eventually, the generated themes were adjusted to guarantee coherence. Two professionals in this field conducted the analytical selection to ascertain the problems' veracity. By defining the domain, the expert review step guarantees the significance, appropriateness and clarity of each subtheme.

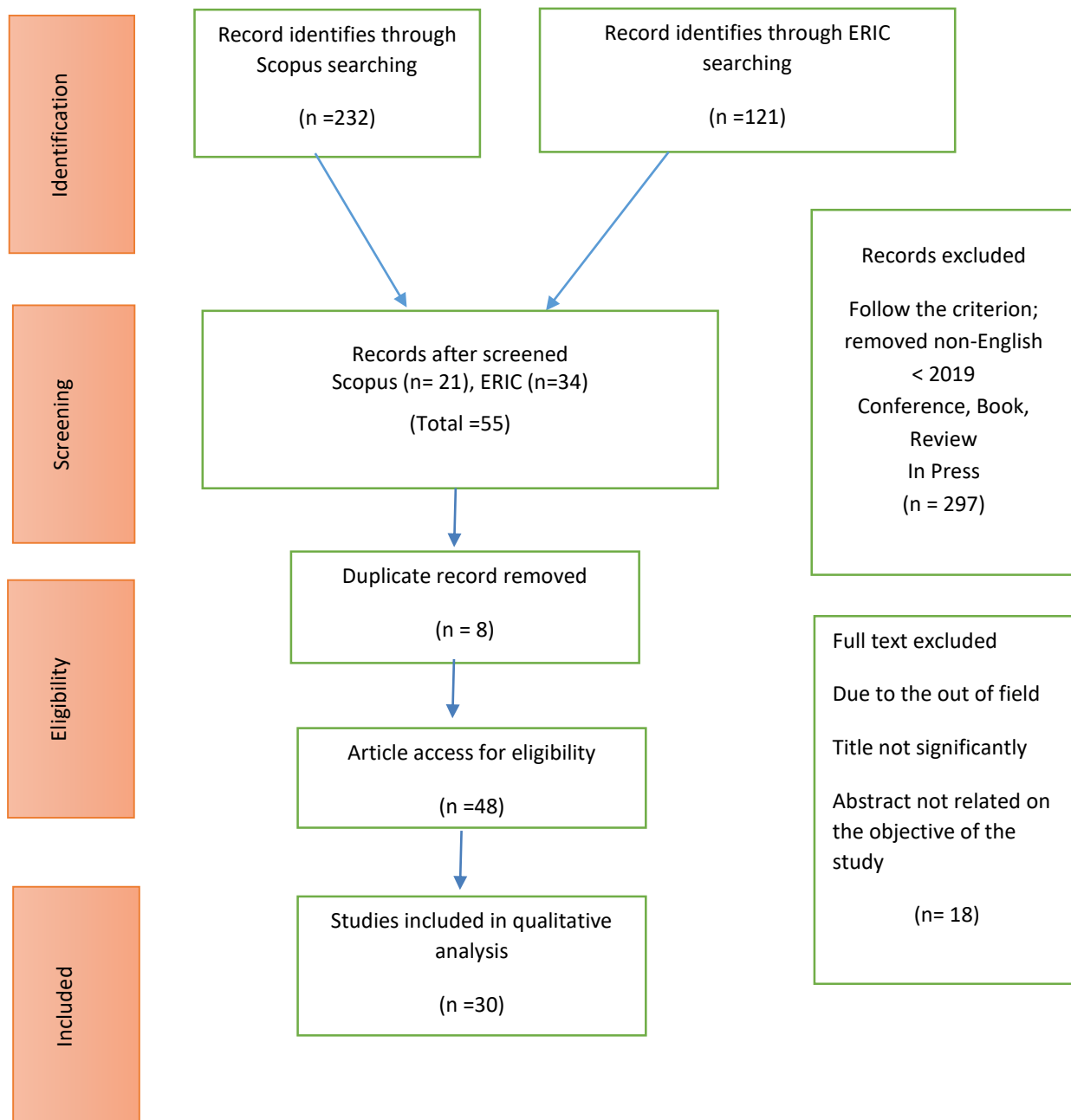


Fig. 1. Flow diagram of the proposed searching study [12]

4. Results

Table 3 list the related article findings from journals based on the certain criteria.

Table 3

The research article finding based on the proposed searching criterion

No.	Authors	Journal	Title	Scopus	ERIC	Remarks
1.	[11]	Teaching English with Technology	Multimodal Spaces for Digital Translanguaging: Using "Storyjumper" to Engage Bi/Multilinguals in Interactive Storytelling		/	Digital Storytelling in Education Programs
2.	[32]	English Teaching	Digital stories, material transformations: reflections of education students in a pre-teacher program	/		Digital Storytelling in Education Programs
3.	[31]	Electronic Journal of e-Learning	Emergent narratives in remote learning experiences for project-based education	/		Digital Storytelling in Education Programs
4.	[29]	International Journal of Child Care and Education Policy	Storytelling in early childhood education: Time to go digital	/		Digital Storytelling in Education Programs
5.	[36]	Literacy	Using Digital Storytelling as a Turn-Around Pedagogy		/	Digital Storytelling in Education Programs
6.	[17]	Education	Digitally Retelling the Tale: Children's Learning Encounters and Materiality		/	Digital Storytelling in Education Programs
7.	[4]	Frontiers in Communication	From Readership to Usership: Communicating Heritage Digitally through Presence, Embodiment and Aesthetic Experience	/		Digital Storytelling Across Disciplines and Strategies
8.	[2]	Educational Studies Mosco	A Transmedia Turn in Educational Strategies: Storytelling in Teaching Literature to School Students	/		Digital Storytelling Across Disciplines and Strategies
9.	[8]	Media and Communication	Storytelling as Media Literacy and Intercultural Dialogue in Post-Colonial Societies	/		Digital Storytelling Across Disciplines and Strategies
10.	[22]	International Journal of Innovation in Science and Mathematics Education	Digital storytelling and mathematical thinking: An educational psychology embrace	/		Digital Storytelling Across Disciplines and Strategies

11.	[19]	Journal of Educational Sciences	The Use of Digital Storytelling to Address School-Related Burnout among 10-11 Grade Students	/	Digital Storytelling Across Disciplines and Strategies
12.	[7]	History Teacher	Digital Storytelling: A Beneficial Tool for Large Survey Courses in History	/	Digital Storytelling Across Disciplines and Strategies
13.	[14]	Issues in Science and Technology Librarianship	Academic Librarians Supporting Digital Storytelling in the Sciences	/	Digital Storytelling Across Disciplines and Strategies
14.	[10]	Computer Assisted Language Learning	Teachers' Perception about the Contribution of Collaborative Creation of Digital Storytelling to the Communicative and Digital Competence in Primary Education Schoolchildren	/	Digital Storytelling Across Disciplines and Strategies
15.	[33]	Tuning Journal for Higher Education	Hybrid Solutions for Didactics in Higher Education: An Interdisciplinary Workshop of 'Visual Storytelling' to Develop Documentation Competences	/	Digital Storytelling Across Disciplines and Strategies
16.	[27]	Journal of College Science Teaching	Creating a Video Case Study	/	Digital Storytelling Across Disciplines and Strategies
17.	[21]	Computers and Education	A robot-based digital storytelling approach to enhancing EFL learners' multimodal storytelling ability and narrative engagement	/	Digital Storytelling Across Disciplines and Strategies
18.	[3]	CIN - Computers Informatics Nursing	Digital Storytelling: A Qualitative Study Exploring the Benefits, Challenges and Solutions Theme 3	/	Impact and Reflections of Digital Storytelling
19.	[38]	British Journal of Religious Education	Nurturing identity formation in adolescence through narrative learning: a dialogue between the pedagogies of media literacy and religious education	/	Impact and Reflections of Digital Storytelling

20.	[15]	PEC Innovation	Findings of living donation experiences shared on a digital storytelling platform: A thematic analysis	/	Impact and Reflections of Digital Storytelling
21.	[13]	Reading and Writing (South Africa)) The elephant in the room: Tensions between normative research and an ethics of care for digital storytelling in higher education	/	Impact and Reflections of Digital Storytelling
22.	[30]	Publications	Knowledge in images and sounds: Informative, narrative and aesthetic analysis of the video for MOOC	/	Impact and Reflections of Digital Storytelling
23.	[20]	Qualitative Research Journal	Digital Storytelling with South African Youth: A Critical Reflection	/	Impact and Reflections of Digital Storytelling
24.	[24]	International Journal of Mobile and Blended Learning	Developing Critical Digital Literacies through Digital Storytelling: Student Attempts at Re-Telling the District Six Story	/	Impact and Reflections of Digital Storytelling
25.	[37]	Learning, Media and Technology	Røkenes, Fredrik Migration Narratives in Educational Digital Storytelling: Which Stories Can Be Told?	/	Impact and Reflections of Digital Storytelling
26.	[18]	Journal of Experiential Education	Transforming Preservice Teacher Perceptions of Immigrant Communities through Digital Storytelling	/	Impact and Reflections of Digital Storytelling
27.	[5]	International Journal of Qualitative Studies in Education (QSE)	Resistance as Method: Unhappiness, Group Feeling and the Limits of Participation in a Digital Storytelling Workshop	/	Impact and Reflections of Digital Storytelling
28.	[34]	Journal of New Approaches in Educational Research	Youths' Posting Practices on social media for Digital Storytelling	/	Impact and Reflections of Digital Storytelling
29.	[9]	Journal of Community Engagement and Higher Education	Learning with Maryland's Immigrant Communities: Digital Storytelling as Community Engagement	/	Impact and Reflections of Digital Storytelling
30.	[1]	Cypriot Journal of Educational Sciences	Digital Storytelling for Improving Critical Reading Skills, Critical Thinking Skills and Self-Regulated Learning Skills	/	Impact and Reflections of Digital Storytelling

5. Discussion

The main finding can be summarized as following discussion provided spans a wide range of subjects related narrative, technology, digital and storytelling. The first finding is digital storytelling in education programs:

- i. The use of digital storytelling tools like Storyjumper has shown significant improvement in engagement and literacy development among multilingual learners [11]. Furthermore, the integration of digital narratives across various educational levels demonstrates its versatility and effectiveness [29,32]. Active student involvement is emphasized to maximize language and literacy development opportunities. The article also discusses the importance of reflective peer review practices in leveraging 21st-century technologies for educational purposes.
- ii. The practical resources for educators at all grade levels, providing ideas for implementing digital storytelling in classrooms. It advocates for the recognition of digital storytelling as a pedagogical tool across educational levels, promoting in-depth discussions beyond classrooms and reaching into the broader community. The authors emphasize the importance of prioritizing the voices and lives of children through various storytelling avenues.
- iii. The virtual museum applications and cultural heritage transmission, highlighting the unique form of citizen engagement that can be achieved through mixed reality (MR) applications. Transmedia adaptations of classic literature are highlighted as tools fostering critical and creative thinking in pupils. Digital storytelling is also used for interculturality and literacy, promoting interculturality in modern cultures.
- iv. The temporal shifts and future orientation through digital storytelling, demonstrating its ability to foster determination and optimism among students. Digital storytelling is also used in historical research and education to enhance critical thinking and literacy skills.
- v. The integration of digital storytelling in language learning is emphasized, with the session encouraging students to use technology critically, creatively and reflectively. Video case studies are presented as a way to leverage instructors' existing abilities to stimulate curiosity in students.

The second major finding was related to digital storytelling across disciplines and strategies. There are different perspectives according to the disciplines and strategies.

- i. The potential of digital storytelling in various educational domains, including cultural heritage preservation, literature education, interculturality promotion, mathematics learning, historical research, language education and innovative teaching methodologies. It suggests that utilizing Mixed Reality (MR) applications can inspire a unique form of citizen engagement, characterized by individual assessments of legacy resulting from aesthetic experiences.
- ii. Transmedia adaptations of classic literature can foster critical and creative thinking in pupils, leading to a deeper understanding of historical and everyday circumstances.
- iii. Digital storytelling can also promote interculturality and literacy, as well as enhance critical thinking and literacy skills in students. It can also be used in mathematics education to encourage students' participation in learning activities and improve their commitment to mathematics education.
- iv. The importance of technology use, collaboration and personalization in education, as well as the potential of video case studies for teaching. The robots can be used in language learning

through digital narrative design, offering insights for further study.

The third finding is related to the impact and reflections of digital storytelling. The mentioned excerpts and findings address various aspects of gender stereotypes, gender roles and their evolution in different contexts, such as the workplace, politics, media and communication.

- i. The challenges and potential of digital storytelling in various educational settings, including the integration of digital narratives into religious education, living kidney donation experiences and ethical considerations. It also highlights the potential of creative pedagogy and digital storytelling tools in religious education, particularly in the Maltese context. The study also discusses the use of digital storytelling in facilitating access to real-life experiences, such as living kidney donation.
- ii. The importance of technology integration in storytelling, emphasizing the need for defining "story" in context, slower processes, competent facilitators and sophisticated consideration of technology applications. It also explores the interaction between indigenous traditions and digital approaches in low-resource situations, counter-storytelling in architectural education, standardization challenges in migration narratives and the impact of digital storytelling on preservice teachers' attitudes.
- iii. The need for nuanced conceptualizations of participation in digital storytelling, the potential of personal digital storytelling in young people's social media experiences and the collaborative narrative approach in teaching and learning. It also advises caution in online learning, emphasizing the importance of considering technology infrastructure and digital literacy in blended learning.

In conclusion, the study highlights the multifaceted nature of digital storytelling and its potential across various domains. While e-learning may face challenges in delivering professional Shariah audit training, it can still be a valuable tool if well-prepared and delivered effectively:

- i. Challenges in Digital Storytelling Implementation:
 - Selection and Legal Matters: The study acknowledges challenges in digital storytelling, such as selecting suitable stories and dealing with related legal matters. These challenges highlight the complexity of integrating digital narratives into educational settings.
- ii. Student Learning Evaluation: Evaluating student learning through digital storytelling is identified as a challenge. Despite these challenges, the study recognizes that students are engaged in the learning process when digital storytelling is employed as a new pedagogy.
- iii. Creative Pedagogy, Digital Storytelling and Religious Education (RE):
 - Feasibility Enhancement: The essay explores how the creative pedagogy of Multiliteracies Education (MLE) and digital storytelling tools, particularly photography and film, enhance functions in Religious Education (RE). These tools stimulate imagination, interpretation, meaning-making and critical reflection, making MLE's inventiveness constructive in RE, especially in the Maltese context.
- iv. Living Donation Experiences through Digital Narratives:
 - Facilitating Access to Experiences: Digital storytelling is used to recount experiences related to living kidney donation, facilitating access to real-life narratives. The study emphasizes the intimate nature of these stories and suggests innovative campaigns that leverage personal

stories to encourage living kidney donation.

- v. Ethical Considerations in Digital Storytelling Initiatives:
 - Ethical Challenges: The reflection on digital storytelling initiatives raises crucial ethical considerations, including data collection and interpretation, anonymity and confidentiality, ownership of stories, sampling, consent and upholding the principle of "do no harm." The study advocates for an Ethic of Care approach to address these intricate ethical issues.
- vi. Educational Videos, Branding and Communication:
 - Educational and Branding Potential: Examination of educational videos indicates that they often adopt a classroom staging style but leverage audiovisual and advertising communication potential to enhance visual appearance and capture attention. The videos also serve educational purposes, inform about course characteristics and contribute to institutional branding.
- vii. Insights from Technology Integration in Storytelling:
 - Four Important Takeaways: The report shares insights from technology integration in storytelling. It emphasizes the importance of defining "story" in context, the value of slower processes for significant results, the role of a competent facilitator and the need for a more sophisticated consideration of technology applications for insightful study findings.
- viii. Indigenous Traditions, Storytelling and Digital Media:
 - Interaction Between Traditions and Digital Approaches: The research explores the interaction between ancient indigenous traditions of storytelling and modern digitally mediated approaches in a low-resource situation. It emphasizes the originality and worth of the study, highlighting the need for nuanced understanding of participation and engagement.
- ix. Counter-Storytelling in Architectural Education:
- x. Challenging Popular Narratives: The study examines how students in Architectural Technology and Interior Design challenge popular narratives through digital storytelling. Framed by Critical Race Theory, the analysis uses multimodal analysis to highlight students' attempts to offer counter-narratives rooted in their unique connections with the past and present.
- xi. Standardization Challenges in Migration Narratives:
 - Drivers of Standardization: The study identifies drivers of standardization in narratives about the refugee experience, including discursive blueprints, challenges in conveying traumatic experiences through imagery and material affordances in the production process. It emphasizes the need for critical engagement with modalities and standardizing drives in digital storytelling.
- xii. Impact of Digital Storytelling on Preservice Teachers' Attitudes:
 - Resilience Stories and Improved Attitudes: The findings categorize into themes such as resilience stories, improved attitudes and rewarding experiences. The study demonstrates how digital storytelling and real-world clinical experiences challenge preconceived notions and problematic beliefs, providing guidance for teacher education programs.

xiii. Nuanced Conceptualizations of Participation in Digital Storytelling:

- Nuanced Conceptualizations of Participation: The study suggests that nuanced conceptualizations of participation are necessary to capture forms of agency exhibited by participants in digital storytelling workshops. It emphasizes the need for more nuanced approaches to understanding participation beyond conventional perspectives.

xiv. Social Media Storytelling Experiences of Young People:

- Potential of Personal Digital Storytelling: The study examines various posting behaviours, driving forces, viewpoints and content types in young people's social media storytelling experiences. It highlights the interpretive analysis of findings in the context of the Personal Digital Storytelling instructional methodology.

xv. Collaborative Narrative Approach in Teaching and Learning:

- Student-Centred Collaborative Narrative Approach: The collaborative narrative approach is presented as shaping teaching and learning into student-centred activities. It emphasizes that immigration becomes a topic studied both within and outside the classroom through this collaborative narrative approach.

xvi. Blended Learning and Digital Literacy in Underserved Communities:

- Caution in Online Learning: The study advises caution in using online learning to address community needs in underserved communities. It stresses the importance of considering technology infrastructure and digital literacy in blended learning and suggests careful consideration to enhance multiliteracy abilities in language acquisition.

In conclusion, the diverse range of studies highlights the multifaceted nature of digital storytelling, its challenges and its potential across various domains

In conclusion, while e-learning may face challenges in delivering professional Shariah audit training, it can still be a valuable tool if the content is well-prepared and delivered effectively. To make e-learning more suitable for this type of training, it is essential to address the challenges and implement practical solutions as suggested in the study's findings. Ultimately, the success of e-learning in this context depends on careful planning and adaptation to the specific needs of the training program.

6. Conclusion

In conclusion, this comprehensive study underscores the multifaceted nature and potential applications of digital storytelling across diverse educational domains. Storyjumper, an interactive digital storytelling application, is highlighted as an effective tool for multilingual learners, promoting active student involvement to enhance language and literacy development. The study advocates for the recognition of digital storytelling as a valuable pedagogical tool across educational levels, offering practical resources for educators and promoting its integration into classrooms and broader community discussions. Digital storytelling shows significant potential in various fields, including cultural heritage preservation, literature education, interculturality promotion, mathematics learning, historical research and language education. Mixed Reality (MR) applications and transmedia adaptations of classic literature foster unique forms of citizen engagement and critical and creative thinking in students.

The study also explores how digital storytelling fosters determination, optimism and critical thinking skills, emphasizing the importance of technology integration in language learning. While challenges such as story selection, legal issues, evaluation of student learning and ethical considerations exist, these do not diminish the effectiveness of digital storytelling when thoughtfully implemented. The transformative potential of digital storytelling in education is clear, requiring a nuanced approach to technology integration, collaboration and personalization to enhance student engagement, critical thinking and literacy skills.

Further research should explore the long-term impacts on engagement and literacy, compare its effectiveness with other teaching methods and examine its application across various subjects. Future studies should also consider cultural and socio-economic contexts, advanced technologies like VR and AI and the effectiveness of teacher training programs. Investigating student-centred approaches, inclusive education practices and the development of soft skills through digital storytelling is essential. Additionally, integrating digital storytelling into educational policies and curricula is crucial to maximize its transformative potential. This study highlights the profound impact of digital storytelling on educational practices, paving the way for innovative educational approaches that enhance engagement, critical thinking and creativity.

References

- [1] Al-Shaye, Shaye. "Digital storytelling for improving critical reading skills, critical thinking skills and self-regulated learning skills." *Kıbrıslı Eğitim Bilimleri Dergisi* 16, no. 4 (2021): 2049-2069. <https://doi.org/10.18844/cjes.v16i4.6074>
- [2] Архангельский, Александр Николаевич and Анна Алексеевна Новикова. "Трансмедийный поворот в стратегиях обучения: нарративные практики на уроках литературы." *Вопросы образования* 2 (2021): 63-81.
- [3] Beck, Melissa Schwartz and Janice A. Neil. "Digital storytelling: A qualitative study exploring the benefits, challenges and solutions." *CIN: Computers, Informatics, Nursing* 39, no. 3 (2021): 123-128. <https://doi.org/10.1097/CIN.0000000000000667>
- [4] Bertrand, Stéphanie, Martha Vassiliadi, Paul Zikas, Efstratios Geronikolakis and George Papagiannakis. "From readership to usership: communicating heritage digitally through presence, embodiment and aesthetic experience." *Frontiers in Communication* 6 (2021): 676446. <https://doi.org/10.3389/fcomm.2021.676446>
- [5] Brushwood Rose, Chloë. "Resistance as method: unhappiness, group feeling and the limits of participation in a digital storytelling workshop." *International journal of qualitative studies in education* 32, no. 7 (2019): 857-871. <https://doi.org/10.1080/09518398.2019.1609120>
- [6] Cachelin, Adrienne and Emily Nicolosi. "Investigating critical community engaged pedagogies for transformative environmental justice education." *Environmental Education Research* 28, no. 4 (2022): 491-507. <https://doi.org/10.1080/13504622.2022.2034751>
- [7] de Chantal, Julie. "Digital Storytelling." *The History Teacher* 54, no. 4 (2021): 709-729.
- [8] Cruz, Maria Teresa and Madalena Miranda. "Storytelling as media literacy and intercultural dialogue in post-colonial societies." *Media and Communication* 10, no. 4 (2022): 294-304. <https://doi.org/10.17645/mac.v10i4.5814>
- [9] Davaslioglu, Thania Muñoz and Tania Lizarazo. "Learning with Maryland's Immigrant Communities: Digital Storytelling as Community Engagement." *Journal of Community Engagement and Higher Education* 14, no. 1 (2022): 41-56.
- [10] Del-Moral-Pérez, María Esther, Lourdes Villalustre-Martínez and María del Rosario Neira-Piñeiro. "Teachers' perception about the contribution of collaborative creation of digital storytelling to the communicative and digital competence in primary education schoolchildren." *Computer Assisted Language Learning* 32, no. 4 (2019): 342-365. <https://doi.org/10.1080/09588221.2018.1517094>
- [11] Ezeh, Chioma. "Multimodal spaces for digital translanguaging: Using storyjumper to engage bi/multilinguals in interactive storytelling." *Teaching english with technology* 20, no. 2 (2020): 118-130.
- [12] Falagas, Matthew E., Eleni I. Pitsouni, George A. Malietzis and Georgios Pappas. "Comparison of PubMed, Scopus, web of science and Google scholar: strengths and weaknesses." *The FASEB journal* 22, no. 2 (2008): 338-342. <https://doi.org/10.1096/fj.07-9492LSF>
- [13] Livingston, Candice and Daniela Gachago. "The elephant in the room: Tensions between normative research and an ethics of care for digital storytelling in higher education." *Reading & Writing-Journal of the Reading Association of South Africa* 11, no. 1 (2020): 1-8. <https://doi.org/10.4102/rw.v11i1.242>

- [14] Gowen, Elise. "Academic librarians supporting digital storytelling in the sciences." *Issues in Science and Technology Librarianship* 93 (2019). <https://doi.org/10.29173/istl35>
- [15] Ho, Erica W., Ariana L. Murillo, LaShara A. Davis, Yaquelin Arevalo Iraheta, Shailesh M. Advani, Ashley Feinsinger and Amy D. Waterman. "Findings of living donation experiences shared on a digital storytelling platform: a thematic analysis." *PEC innovation* 1 (2022): 100023. <https://doi.org/10.1016/j.pecinn.2022.100023>
- [16] Jang, So-Youn, Jisu Park, Maria Engberg, Blair MacIntyre and Jay D. Bolter. "RealityMedia: immersive technology and narrative space." *Frontiers in Virtual Reality* 4 (2023): 1155700. <https://doi.org/10.3389/frvir.2023.1155700>
- [17] Jessel, John and Mirela Dumić. "Digitally retelling the tale: children's learning encounters and materiality." *Education 3-13* 50, no. 3 (2022): 375-388. <https://doi.org/10.1080/03004279.2020.1853194>
- [18] Kolano, Lan and Anna Sanczyk. "Transforming preservice teacher perceptions of immigrant communities through digital storytelling." *Journal of Experiential Education* 45, no. 1 (2022): 32-50. <https://doi.org/10.1177/1053825920988738>
- [19] Lanszki, Anita and Nóra Kunos. "The Use of Digital Storytelling to Address School-Related Burnout among 10-11 Grade Students." *Journal of Educational Sciences* 22 (2021): 3-17. <https://doi.org/10.35923/JES.2021.1.01>
- [20] Levine, Diane and Linda Theron. "Digital storytelling with South African youth: a critical reflection." *Qualitative Research Journal* 22, no. 4 (2022): 528-547. <https://doi.org/10.1108/QRJ-03-2022-0037>
- [21] Liang, Jia-Cing and Gwo-Jen Hwang. "A robot-based digital storytelling approach to enhancing EFL learners' multimodal storytelling ability and narrative engagement." *Computers & Education* 201 (2023): 104827. <https://doi.org/10.1016/j.compedu.2023.104827>
- [22] Marsico, Giuseppina, Monica Mollo, Giovannina Albano and Anna Pierri. "Digital storytelling and mathematical thinking: An educational psychology embrace." *International Journal of Innovation in Science and Mathematics Education* 27, no. 6 (2019). <https://doi.org/10.30722/IJISME.27.06.004>
- [23] McIntyre, Christina, Emily Reeves, Sally Henschel and Leslie Pierce. "Digital Storytelling Workshop: A PDS Community Collaboration." *PDS Partners: Bridging Research to Practice* 17, no. 1 (2022): 15-19.
- [24] Noble, Alex and Daniela Gachago. "Developing critical digital literacies through digital storytelling: Student attempts at re-telling the District Six story." *International Journal of Mobile and Blended Learning (IJMBL)* 14, no. 3 (2022): 1-19. <https://doi.org/10.4018/IJMBL.312184>
- [25] Pienimäki, Mari. "Facilitating creative media production through the pedagogy of multiliteracies: A case study with vulnerable young people." *The International Journal of New Media, Technology and the Arts* 13, no. 3 (2018): 9. <https://doi.org/10.18848/2326-9987/CGP/v13i03/9-20>
- [26] Prameswari, Nadia Sigi, Vannie Naidoo, Mohd Ekram Alhafis Hashim and Menchie A. Dela Cruz. "Overview of visual literacy and facility support in higher education-case of Indonesia and Malaysia." *Journal of Advanced Research in Computing and Applications* 37, no. 1 (2024): 34-49. <https://doi.org/10.37934/arca.37.1.3349>
- [27] Prud'homme-Généreux, Annie, J. Phil Gibson and Melissa Csikari. "Case Study: Creating a Video Case Study." *Journal of College Science Teaching* 48, no. 4 (2019): 46-53. https://doi.org/10.2505/4/jcst19_048_04_46
- [28] Putri, Angelita Afina Arif, Utami Wahyuningsih and Ibnu Malkan Bakhrul Ilmi. "Comparison of the Effectiveness of E-Booklets And Animation Videos on Knowledge and Attitude of Anemia in Adolescent Girls in Senior High School in Bogor, Indonesia." *Malaysian Journal of Medicine & Health Sciences* 19 (2023).
- [29] Rahiem, Maila DH. "Storytelling in early childhood education: Time to go digital." *International Journal of Child Care and Education Policy* 15, no. 1 (2021): 4. <https://doi.org/10.1186/s40723-021-00081-x>
- [30] Rajas-Fernández, Mario, Manuel Gétrudix-Barrio and Miguel Baños-González. "Knowledge in images and sounds: Informative, narrative and aesthetic analysis of the video for MOOC." *Publications* 9, no. 3 (2021): 32. <https://doi.org/10.3390/publications9030032>
- [31] Recke, Moritz Philip and Stefano Perna. "Emergent narratives in remote learning experiences for project based education." *Electronic Journal of e-Learning* 19, no. 2 (2021): 59-70. <https://doi.org/10.34190/ejel.19.2.2142>
- [32] Romero-Ivanova, Christina Louise, Paul Cook and Greta Faurote. "Digital stories, material transformations: reflections of education students in a pre-teacher program." *English teaching: Practice & critique* 20, no. 2 (2021): 245-260. <https://doi.org/10.1108/ETPC-07-2020-0066>
- [33] De Rossi, Marina and Emilia Restiglian. "Hybrid solutions for didactics in higher education: An interdisciplinary workshop of 'Visual Storytelling' to develop documentation competences." *Tuning Journal for Higher Education* 6, no. 2 (2019): 175-203. [https://doi.org/10.18543/tjhe-6\(2\)-2019pp175-203](https://doi.org/10.18543/tjhe-6(2)-2019pp175-203)
- [34] Rubio-Hurtado, María-José, Marc Fuertes-Alpiste, Francesc Martínez-Olmo and Jordi Quintana. "Youths' posting practices on social media for digital storytelling." *Journal of new approaches in educational research* 11, no. 1 (2022): 97-113. <https://doi.org/10.7821/naer.2022.1.729>
- [35] Schlauch, Michael, Cristina Sylla and Maitê Gil. "Investigating Social Emotional Learning at Primary School through Guided Interactive Storytelling." In *Extended Abstracts of the 2022 Annual Symposium on Computer-Human Interaction in Play*, pp. 240-245. 2022. <https://doi.org/10.1145/3505270.3558313>

-
- [36] Schmier, Stephanie Anne. "Using digital storytelling as a turn-around pedagogy." *Literacy* 55, no. 3 (2021): 172-180. <https://doi.org/10.1111/lit.12250>
- [37] Svendsen, Stine H. Bang, Kristine Ask, Kristine Øygardslia, Christian Engen Skotnes, Priscilla Ringrose, Gunnar Grut and Fredrik Røkenes. "Migration narratives in educational digital storytelling: which stories can be told?." *Learning, Media and Technology* 47, no. 2 (2022): 201-215. <https://doi.org/10.1080/17439884.2021.1954949>
- [38] Wright, Edward. "Nurturing identity formation in adolescence through narrative learning: a dialogue between the pedagogies of media literacy and religious education." *British Journal of Religious Education* 42, no. 1 (2020): 14-24. <https://doi.org/10.1080/01416200.2018.1484696>