

Pedagogical Design of Digital Storytelling in Language Learning: Narrative Construction, Scaffolding, And Multimodal Composition

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ABSTRACT

Digital Storytelling (DST) brings together language use, story development, and meaning making through a range of digital resources. The diversity of DST practices suggests a need to explain more clearly how narrative construction, scaffolding, and multimodal composition are connected within language learning. This study used a Systematic Literature Review, with search and selection procedures reported according to PRISMA 2020 and PRISMA-S. Searches were conducted in Scopus and ERIC for English-language empirical journal articles published between 2016 and 2025. Thirty-four full-text articles met the inclusion criteria and were examined through deductive-inductive coding and methodological appraisal using the 2018 Mixed Methods Appraisal Tool (MMAT). The findings show that narrative construction shapes story content and communicative purpose, scaffolding supports story development and revision, and multimodal composition enables narrative ideas to be represented and, in some cases, reconsidered. These three dimensions interact iteratively through storyboarding, collaboration, feedback, transmediation, revision, publication, and reflection. Their configuration varies across educational levels, language contexts, task structures, collaborative arrangements, and technological environments. Synthesis produces a relational conceptual framework and seven propositions derived from recurring patterns across literature. Together, they explain recurring pedagogical processes in DST without prescribing a fixed instructional sequence or claiming an empirically validated learning model.

ABSTRAK

Digital Storytelling (DST) memadukan penggunaan bahasa, pengembangan cerita, dan pembentukan makna melalui beragam sumber digital. Keragaman praktik DST menunjukkan perlunya penjelasan yang lebih jelas mengenai keterkaitan antara konstruksi naratif, *scaffolding*, dan komposisi multimodal dalam pembelajaran bahasa. Penelitian ini menggunakan *Systematic Literature Review*, dengan prosedur pencarian dan seleksi yang dilaporkan sesuai PRISMA 2020 dan PRISMA-S. Penelusuran dilakukan melalui Scopus dan ERIC terhadap artikel jurnal empiris berbahasa Inggris yang diterbitkan pada periode 2016–

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2025. Sebanyak 34 artikel *full text* memenuhi kriteria inklusi dan dianalisis melalui pengodean deduktif–induktif serta *appraisal* metodologis menggunakan *Mixed Methods Appraisal Tool* (MMAT) 2018. Hasil menunjukkan bahwa konstruksi naratif membentuk isi cerita dan tujuan komunikasi, *scaffolding* mendukung pengembangan serta revisi cerita, sedangkan komposisi multimodal memungkinkan gagasan naratif direpresentasikan dan, dalam kondisi tertentu, dipertimbangkan kembali. Ketiga dimensi tersebut berinteraksi secara iteratif melalui *storyboarding*, kolaborasi, umpan balik, transmediasi, revisi, publikasi, dan refleksi. Konfigurasi hubungan tersebut bervariasi berdasarkan jenjang pendidikan, konteks bahasa, struktur tugas, bentuk kolaborasi, dan lingkungan teknologi. Sintesis menghasilkan sebuah kerangka konseptual relasional dan tujuh proposisi yang diturunkan dari pola-pola berulang dalam literatur. Secara bersama-sama, kerangka dan proposisi tersebut menjelaskan proses pedagogis yang berulang dalam DST tanpa menetapkan urutan pembelajaran yang kaku atau mengklaim suatu model pembelajaran yang telah tervalidasi secara empiris.

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INTRODUCTION

Changes in communication practices in the digital era have expanded the ways in which learners construct, process, and communicate meaning in language learning. The development of digital multimodal composing (DMC) is closely associated with shifts in language and literacy education, particularly as writing is no longer understood solely as the production of written text but also as a process of designing meaning mediated by digital technologies.¹ This shift has encouraged composing activities to involve the selection and integration of language, visuals, audio, video, and other semiotic resources according to specific communicative purposes. A growing variety of multimodal tasks has also emerged, with video-based projects being used more extensively than visual projects.² These developments indicate that language learning needs to address not only linguistic competence but also learners' ability to organize information, select appropriate forms of representation, and construct and communicate meaning through multiple resources in an integrated manner.

¹ Lianjiang Jiang, Shulin Yu, and Icy Lee, "Developing a Genre-Based Model for Assessing Digital Multimodal Composing in Second Language Writing: Integrating Theory with Practice," *Journal of Second Language Writing* 57 (2022): 100869, <https://doi.org/10.1016/j.jslw.2022.100869>.

² M Zhang, M Akoto, and M Li, "Digital Multimodal Composing in Post-Secondary L2 Settings: A Review of the Empirical Landscape," *Computer Assisted Language Learning* 36, no. 4 (2023): 694–721, <https://doi.org/10.1080/09588221.2021.1942068>.

The expansion of multimodal composing practices has positioned Digital Storytelling (DST) as a relevant approach to language learning. DST combines storytelling activities with the use of digital resources, enabling learners to construct and communicate stories through the integration of language, visuals, audio, video, and other forms of representation. Research on DST among adolescents and adults has shown that it has been used in both first- and second-language learning, with particular attention to reading, writing, listening, and speaking skills.³ Among children, DST has been studied most frequently in relation to writing, followed by speaking and reading.⁴ Collaborative DST projects involving pre-service English teachers have also been shown to support language learning, digital skills, and collaboration.⁵ Consistent with these findings, DST has demonstrated positive effects on language learning, although the magnitude of these effects varies according to multimodality characteristics, types of learning activities, intervention duration, and assessment methods.⁶ Such variation suggests that discussion of DST should move beyond questions of benefits or effectiveness and focus more closely on how DST activities are designed, supported, implemented, and evaluated in language-learning contexts.

Attention to design is important because DST involves pedagogical processes that are more complex than simply producing a digital product. Collaborative DST activities may be shaped by the interaction among participants, objectives, tools, community, rules, division of labor, and outcomes, indicating that learning experiences cannot be separated from the ways in which activities are organized.⁷ At the review level, the use of theories or frameworks in DST research remains limited and is not always explained adequately.⁸ Similar design concerns also arise in digital multimodal composing (DMC). DMC task design involves decisions related to purpose, genre, process, scaffolding, the selection of linguistic and semiotic resources, tools, and topics.⁹ Understanding DST therefore

³ Nikki Zhi Li Lim, Azrifah Zakaria, and Vahid Aryadoust, "A Systematic Review of Digital Storytelling in Language Learning in Adolescents and Adults," *Education and Information Technologies* 27, no. 5 (2022): 6125–55, <https://doi.org/10.1007/s10639-021-10861-0>.

⁴ Clare Ong and Vahid Aryadoust, "A Review of Digital Storytelling in Language Learning in Children: Methods, Design and Reliability," *Research and Practice in Technology Enhanced Learning* 18 (2023): 11, <https://doi.org/10.58459/rptel.2023.18011>.

⁵ B Yu and W Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers," *System* 129 (2025): 103577, <https://doi.org/10.1016/j.system.2024.103577>.

⁶ Thi Hue Dong et al., "Voices beyond the Screen: Charting Language Learning with Digital Storytelling," *Language Teaching Research*, 2025, <https://doi.org/10.1177/13621688251387048>.

⁷ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

⁸ Lim, Zakaria, and Aryadoust, "A Systematic Review of Digital Storytelling in Language Learning in Adolescents and Adults."

⁹ L Jiang and C A Hafner, "Digital Multimodal Composing in L2 Classrooms: A Research Agenda," *Language Teaching* 58, no. 4 (2025): 528–46, <https://doi.org/10.1017/S0261444824000107>.

requires attention to the pedagogical processes that underpin it, including how activities are designed, how support is provided, and how instructional decisions are made, rather than focusing solely on technology use or the final product.

Narrative construction constitutes a central component of the DST process because it guides the development of content, the organization of the story, and communicative purposes before the story is realized digitally. Across the studies, story development involved idea exploration, structural organization, script writing, and storyboarding, which connected parts of the story with planned scenes and multimodal resources.¹⁰ These processes help learners transform experiences, information, or themes into a coherent narrative structure that can be developed further. From this perspective, narrative construction should not be treated merely as a technical preparatory stage before production, because decisions concerning content, structure, and communicative purpose subsequently guide the selection of multimodal representations.

The complexity of story development requires learning support, or scaffolding, that can respond to learners' changing needs throughout the creation process. Scaffolding has been identified as an important element of DMC task design and needs to be understood in terms of both the forms of support provided and their contribution to learning processes and outcomes.¹¹ Such support may take the form of modeling, task structuring, collaboration, technological assistance, assessment, feedback, and opportunities for revision. A similar need is evident in assessment practices. Process-based assessment models place assessment at different stages of the design process and integrate formative and summative functions.¹² This perspective is further extended by genre-based assessment models that take into account structure, rhetorical functions, multimodal choices, communicative purposes, and audience.¹³ Together, these approaches indicate that pedagogical support can operate throughout the composing process through assessment, feedback, and opportunities for learners to review and improve the decisions they make.

The story design developed through narrative construction and supported through scaffolding is subsequently realized through multimodal composition. This process involves more than simply combining different media, it requires the selection and organization of linguistic and semiotic resources according to their respective functions in constructing meaning. DMC practices

¹⁰ J Anderson, Y.-C. Chung, and V Macleroy, "Creative and Critical Approaches to Language Learning and Digital Technology: Findings from a Multilingual Digital Storytelling Project," *Language and Education* 32, no. 3 (2018): 195–211, <https://doi.org/10.1080/09500782.2018.1430151>.

¹¹ Jiang and Hafner, "Digital Multimodal Composing in L2 Classrooms: A Research Agenda."

¹² Christoph A Hafner and Wing Yee Jenifer Ho, "Assessing Digital Multimodal Composing in Second Language Writing: Towards a Process-Based Model," *Journal of Second Language Writing* 47 (2020): 100710, <https://doi.org/10.1016/j.jslw.2020.100710>.

¹³ Jiang, Yu, and Lee, "Developing a Genre-Based Model for Assessing Digital Multimodal Composing in Second Language Writing: Integrating Theory with Practice."

encompass diverse task types and uses of technology, while resource selection has been identified as an important dimension of task design.¹⁴ These considerations are also closely related to assessment. DMC assessment needs to attend to the process of designing and orchestrating multimodal resources, while multimodal composition itself is understood as a communicative act oriented toward particular purposes and audiences.¹⁵ This perspective confirms that multimodal composition is not merely a stage for enhancing the appearance of a digital product, but an integral part of designing how story content and meaning are appropriately represented through multiple communicative resources.

The three constructs were assigned primary analytical status because they represent three distinct but connected functions in DST pedagogical design: narrative construction organizes what is to be communicated and how the story is structured, scaffolding concerns how learners are supported while developing and revising the story, and multimodal composition concerns how meaning is realized and reorganized through linguistic and other semiotic resources. This analytical organization is grounded in the DMC task-design and assessment perspectives discussed immediately above, which distinguish purpose, process, and scaffolding,¹⁶ semiotic-resource orchestration,¹⁷ and audience-related decisions,¹⁸ while allowing these elements to interact across the composing process. Collaboration, feedback, assessment, reflection, agency, and audience were therefore retained in the analysis, but treated as cross-cutting relational mechanisms or contextual processes rather than equivalent top-level dimensions. Collaboration, feedback, and assessment can function as sources or forms of support, audience shapes communicative and representational decisions, and reflection and agency help learners review, regulate, and revise decisions across the composing process. This analytical distinction preserves these constructs while clarifying why the synthesis is organized around the three primary pedagogical functions.

Although existing literature has addressed story construction, learning support, task design, assessment, and multimodal composition, these elements have often been examined through different analytical focuses. Previous reviews have mapped research characteristics, task types, technologies, DMC processes, DST use, language skills, research designs, and methodological quality.¹⁹ Other

¹⁴ Zhang, Akoto, and Li, "Digital Multimodal Composing in Post-Secondary L2 Settings: A Review of the Empirical Landscape."

¹⁵ Hafner and Ho, "Assessing Digital Multimodal Composing in Second Language Writing: Towards a Process-Based Model."

¹⁶ Jiang and Hafner, "Digital Multimodal Composing in L2 Classrooms: A Research Agenda."

¹⁷ Hafner and Ho, "Assessing Digital Multimodal Composing in Second Language Writing: Towards a Process-Based Model."

¹⁸ Jiang, Yu, and Lee, "Developing a Genre-Based Model for Assessing Digital Multimodal Composing in Second Language Writing: Integrating Theory with Practice."

¹⁹ Zhang, Akoto, and Li, "Digital Multimodal Composing in Post-Secondary L2 Settings: A Review of the Empirical Landscape."

analyses have focused on the effects of DST and the moderators that account for variation in language-learning outcomes.²⁰ Additional literature has addressed task design, scaffolding, and the development of DMC assessment approaches.²¹ These contributions have expanded understanding of the use, outcomes, design, and assessment of both DST and DMC, yet the relationship among narrative construction, scaffolding, and multimodal composition has not been fully examined as an integrated relational system within the pedagogical design of DST. This gap provides the basis for analyzing how these three processes influence one another during the creation of digital stories.

This study was designed to address this gap through a systematic review of empirical studies on Digital Storytelling (DST) in language learning published between 2016 and 2025. The analysis focused on three main dimensions narrative construction, scaffolding, and multimodal composition as a basis for developing a more comprehensive understanding of the pedagogical processes underlying DST. Narrative construction was examined to understand how stories and meanings are developed, scaffolding was analyzed to identify the forms, sources, and functions of learning support throughout the creation process, and multimodal composition was examined to understand how story designs are realized through the integration of linguistic and semiotic resources. The relationships among these three dimensions were then analyzed to derive a relational conceptual framework and seven relational propositions from recurring patterns across the reviewed literature concerning the pedagogical design of DST in language learning. The framework is not intended as a standardized instructional sequence or an empirically validated model, but rather as a conceptual explanation of how these processes are interconnected and how they may be adapted and empirically tested in specific learning contexts.

METHODS

This study employed a Systematic Literature Review (SLR) to identify, select, and analyze empirical studies addressing Digital Storytelling (DST) in language learning. The study selection process was reported in accordance with PRISMA 2020 to ensure that each stage, from identification and screening to eligibility assessment and final inclusion, could be traced systematically and transparently.²² The search strategy was subsequently reported following PRISMA-S by specifying the databases and platforms used, search formulations and fields, the limits actually applied, export dates, and the number of results produced by each search formulation.²³ The principles of evidence synthesis

²⁰ Dong et al., "Voices beyond the Screen: Charting Language Learning with Digital Storytelling."

²¹ Jiang and Hafner, "Digital Multimodal Composing in L2 Classrooms: A Research Agenda."

²² Melissa L. Rethlefsen et al., "PRISMA-S: An Extension to the PRISMA Statement for Reporting Literature Searches in Systematic Reviews," *Systematic Reviews* 10 (2021): 39, <https://doi.org/10.1186/s13643-020-01542-z>.

²³ Rethlefsen et al.

outlined by JBI were used to structure the processes of data extraction and presentation so that all stages of the analysis could be conducted consistently and systematically.²⁴

Scopus was searched using the Advanced Search feature, while ERIC was accessed through the official interface of the Institute of Education Sciences. In Scopus, the publication-year limit of 2016–2025 was applied directly during the retrieval stage, whereas the criteria relating to journal article status, English language, final publication status, and primary empirical research were verified through administrative screening based on the exported metadata. A similar procedure was applied to ERIC after the export stage because the raw files still contained variations in publication year and document type. The distinction between limits applied directly through the search interface and criteria verified after export was maintained to ensure that the reporting accurately reflected the procedures that were actually carried out.

The retrieval process used two types of search formulation: a primary formulation and a supplementary formulation. The primary formulation combined Digital Storytelling with terms that explicitly referred to language learning, whereas the supplementary formulation used the terms writing, speaking, literacy, language skills, and multilingual to identify relevant studies that did not use the broader label language learning. The terms narrative construction, scaffolding, and multimodal composition were not used as search requirements because they were treated as analytical categories at a later stage. The results of each search formulation were stored separately before deduplication. The final searches were run and exported on 16 September 2026. Full database-specific search strings, search fields, limits actually applied, and raw record counts are reported in Supplementary Table S1. SC-S1 yielded 300 records, SC-S2 588, ER-S1 190, and ER-S2 341, producing 1,419 records at identification before administrative screening, data cleaning, and deduplication.

The inclusion and exclusion criteria were established before the synthesis process to ensure that selection decisions remained consistent with the aims and scope of the study. Eligible studies were required to be primary empirical studies conducted within relevant language-learning or literacy contexts, to position DST as a substantive component of the learning activity, to involve learners actively in the creation or development of digital stories, and to provide sufficient process-related information to enable the analysis of narrative construction, scaffolding, or multimodal composition. The complete inclusion and exclusion criteria are presented in Table 1.

Table 1. Inclusion and Exclusion Criteria

Aspect	Inclusion	Exclusion
Publication year	2016–2025	Outside 2016–2025

²⁴ E. Aromataris et al., eds., *JBI Manual for Evidence Synthesis* (JBI, 2024), <https://doi.org/10.46658/JBIMES-24-01>.

Publication type	Journal article; final published version	Book, book chapter, conference proceeding, editorial, report, or non-final publication
Language	English	Languages other than English
Study type	Primary empirical study	SLR/review, bibliometric study, meta-analysis, or conceptual paper
Object of study	Digital Storytelling as a substantive learning activity	Non-digital storytelling or studies in which DST is mentioned only peripherally
Context	Relevant language learning or literacy context	Outside language learning or literacy contexts
Learner role	Actively creating, developing, or composing a digital story	Only viewing or consuming digital stories
Pedagogical information	Learning processes and implementation can be identified and examined	Outcome-only studies without information on pedagogical processes
Analytical focus	At least one dimension—narrative construction, scaffolding, or multimodal composition—can be extracted	No extractable data related to any of the three dimensions
Full text	Available and accessible for examination	Unavailable after reasonable retrieval efforts

A total of 1,419 records were identified at the initial stage, comprising 888 records from Scopus and 531 from ERIC. Administrative screening subsequently excluded 130 records published outside the 2016–2025 period, 402 records with ineligible publication types or sources, 19 records published in languages other than English, 10 records that had not reached final publication status, and 33 review publications or studies that were not primary empirical research. This process resulted in 825 records that met the administrative criteria. Deduplication was then conducted using DOI, normalized titles, and author–year matching. A total of 343 duplicate records were identified and removed, leaving 482 unique records for title and abstract screening.

Initial title and abstract screening was conducted by Reviewer 1 using five substantive criteria: DST had to constitute a central learning activity, the study had to be situated within a relevant language learning or literacy context, learners had to be actively involved in creating or developing digital stories, the study had to be primary empirical research, and sufficient information on the pedagogical process had to be available for further assessment. Based on these criteria, 448 records were excluded at the screening stage. The full texts of the remaining 34 articles were successfully retrieved and examined in detail. An external second

reviewer who was not part of the author team then verified the full-text eligibility of all 34 studies using the same predefined criteria. The reviewer recorded that the eligibility assessment was completed without access to Reviewer 1's final eligibility decisions. All 34 studies were retained after verification, therefore, the final corpus and the PRISMA counts were unchanged. Each article excluded at an earlier stage was assigned one primary reason for exclusion to ensure that the selection process remained consistent, transparent, and traceable.

Table 2. Summary of the Article Selection Process

Stage	Number of Records
Scopus records from two search formulations	888
ERIC records from three export files	531
Total records identified	1,419
Excluded: outside the 2016–2025 period	130
Excluded: ineligible publication type/source	402
Excluded: language other than English	19
Excluded: publication status not final	10
Excluded: review/non-primary empirical publication	33
Records remaining after administrative screening	825
Duplicates removed	343
Unique records retained for title–abstract screening	482
Excluded during title–abstract screening	448
Full-text articles sought and successfully retrieved	34

The identification, screening, and final selection of studies are summarized in the PRISMA flow diagram presented in Figure 1. The diagram traces the records retrieved from Scopus and ERIC through administrative screening, duplicate removal, title and abstract screening, detailed substantive assessment, and final inclusion.

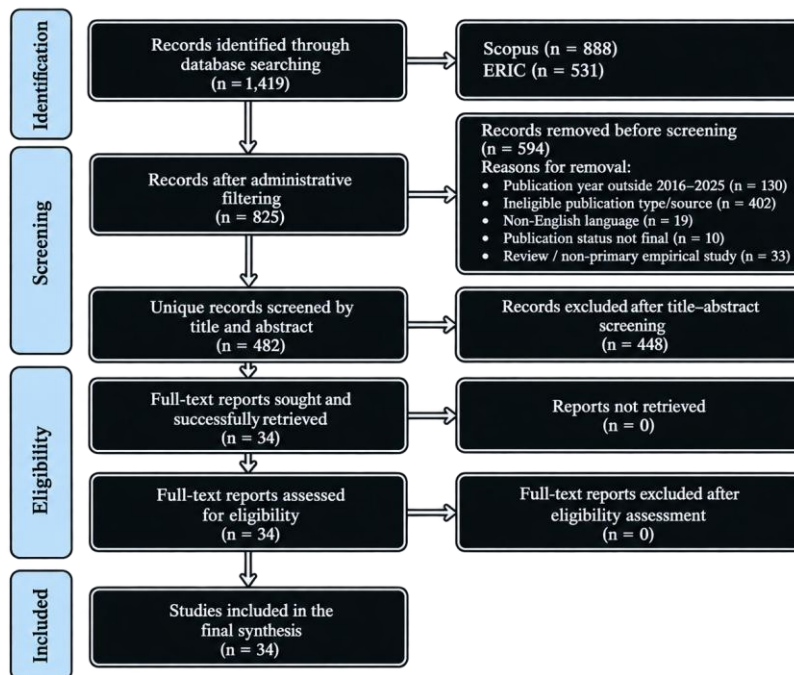


Figure 1. PRISMA Flow Diagram of the Article Selection Process

Data extraction used a structured matrix covering study characteristics, research design, DST activities, technology, duration, narrative construction, scaffolding, multimodal resources, collaboration, feedback, revision, assessment, and relevant findings. The primary reviewer conducted the initial extraction and coding. An external second reviewer then independently verified the eligibility of all 34 included studies and audited the coding and evidence-role classifications using predefined operational definitions. All 34 studies were retained, with 23 classified as core relational, 10 as supporting relational, and 1 as boundary evidence. Because title–abstract screening was not duplicated, this process is reported as an external full-text and analytical audit rather than a fully duplicated screening workflow. Agreement and discrepancies were documented descriptively and resolved using the predefined criteria, code definitions, evidence matrix, and source texts. The analysis combined deductive coding of the three main dimensions with inductively developed subcategories.

The conceptual framework was derived through a transparent analytical sequence. Evidence was first coded under narrative construction, scaffolding, and multimodal composition, while recurring practices were developed into subcodes. Relational codes were assigned when an activity, artifact, or pedagogical event connected two or more dimensions, such as storyboards linking narrative planning with visual and audio decisions or feedback prompting revisions in both narrative and multimodal representation. Cross-study comparison was then used to identify recurring relational patterns while retaining contextual variation and

discrepant cases. These patterns were condensed into seven relational propositions and subsequently organized into the conceptual framework. The arrows therefore represent recurring bidirectional relationships rather than effect size, causal magnitude, or a fixed temporal sequence.

Study relevance to the synthesis was classified separately from methodological quality. Core relational evidence referred to studies with explicit process data linking at least two primary dimensions. Supporting relational evidence informed one or more dimensions or relational mechanisms but provided less direct cross-dimensional evidence. Boundary evidence included eligible studies that introduced mediators or configurations capable of altering the focal DST process. These categories describe each study's analytical role and should not be interpreted as indicators of effect magnitude or methodological quality.

Methodological quality was assessed separately using the 2018 Mixed Methods Appraisal Tool (MMAT) after eligibility had been established.²⁵ All studies completed two screening questions followed by five design-specific criteria rated as Yes, No, or Can't tell, without calculating an overall MMAT score. Qualitative studies were judged according to the appropriateness and coherence of their design rather than sample size alone, while nonrandomized studies were assessed through criteria concerning representativeness, measurement, outcome completeness, confounding, and implementation. Mixed methods studies were evaluated in terms of component quality, rationale, integration, interpretation, and divergence. MMAT was therefore used to calibrate interpretation rather than determine eligibility. The external second reviewer re-examined the appraisal profile and found no methodological issue requiring study exclusion or modification of the relational framework.

RESULTS

The analysis of 34 studies showed variation in DST activities, educational levels, research designs, and language contexts. Most studies were conducted in higher education or pre-service teacher education (24 studies; 70.6%), followed by primary education (5; 14.7%), secondary education (4; 11.8%), and a community-based setting involving school-age learners (1; 2.9%). In terms of language context, 27 studies (79.4%) focused on foreign or second language learning, while 7 (20.6%) addressed first-language, literacy, or multilingual contexts. Based on their role in the synthesis, 23 studies were classified as core relational evidence, 10 as supporting relational evidence, and 1 as boundary evidence. These categories describe analytical relevance rather than methodological quality or relationship magnitude. Because the corpus was dominated by higher-education and L2/foreign-language contexts, transferability

²⁵ Quan Nha Hong et al., "The Mixed Methods Appraisal Tool (MMAT) Version 2018 for Information Professionals and Researchers," *Education for Information* 34, no. 4 (2018): 285–91, <https://doi.org/10.3233/EFI-180221>.

to L1, national-language, primary, and other underrepresented settings should be interpreted cautiously.

Methodological quality was assessed separately using the 2018 Mixed Methods Appraisal Tool (MMAT). All 34 studies passed the two screening questions and proceeded to design-specific appraisal. The 16 qualitative studies generally met the relevant criteria, while small samples and single-site settings were treated as contextual or transferability limitations rather than automatic methodological failures. The four quantitative nonrandomized studies were examined in relation to representativeness, measurement, outcome completeness, confounding, and implementation. The quantitative descriptive study met the applicable criteria, although indirect evidence of learner processes remained an interpretive limitation. Across the 13 mixed methods studies, the main uncertainties concerned methodological rationale, integration, divergence between components, and the use of component quality in interpretation. Reviewer 2 identified no appraisal issue requiring study exclusion. MMAT was therefore used to calibrate interpretation, with more cautious claims applied to evidence affected by incomplete reporting, self-report dependence, unresolved confounding, or limited integration.

External verification also strengthened the robustness of the relational synthesis. Reviewer 2 retained all 34 studies, confirmed the distribution of 23 core relational, 10 supporting relational, and 1 boundary study, and supported all seven relational propositions as analytical generalizations. No proposition was rated as partially supported or unsupported, and no substantive disagreement required changes to Figure 2 or the structure of the Discussion. The claim concerning contextual variation was retained with qualification because the corpus remains concentrated in higher-education and L2/foreign-language settings, a limitation that should continue to guide interpretation across less represented contexts.

Narrative Construction in Digital Storytelling

Story development in Digital Storytelling (DST) shows that narrative material may originate from learners' personal experiences and life contexts,²⁶ local culture and identity representation,²⁷ as well as folktales developed into digital folktales.²⁸ During the exploration stage, learners may also generate multiple story ideas and demonstrate openness to different perspectives and

²⁶ M Kendrick et al., "Digital Storytelling with Youth from Refugee Backgrounds: Possibilities for Language and Digital Literacy Learning," *TESOL Quarterly* 56, no. 3 (2022): 961–84, <https://doi.org/10.1002/tesq.3146>.

²⁷ D Kristiawan, S Ferdiansyah, and M Picard, "Promoting Vocabulary Building, Learning Motivation, and Cultural Identity Representation through Digital Storytelling for Young Indonesian Learners of English as a Foreign Language," *Iranian Journal of Language Teaching Research* 10, no. 1 (2022): 19–36, <https://doi.org/10.30466/ijltr.2022.121120>.

²⁸ E Güvey Aktay, "Writing a Folktale as an Activity of Written Expression: Digital Folktales with StoryJumper," *Educational Policy Analysis and Strategic Research* 15, no. 3 (2020): 159–85, <https://doi.org/10.29329/epasr.2020.270.8>.

feedback.²⁹ Theme selection and story development form explicit parts of the DST process before revision and digital presentation.³⁰ In the design of DST books, brainstorming and prototyping through storyboarding are conducted before peer input, editing, recording, and producing.³¹ These connections indicate that narrative construction establishes the initial direction of meaning development before the story is further realized through digital production.

The selected narrative material is subsequently organized into a more coherent sequence that can be easily followed by an audience. Freytag's pyramid may be used to help writers structure the development of a story.³² Scripted collaborative learning strategies have also been used to structure the collaborative DST creation process.³³ Another pattern appears in DST workshops that deliberately connect prescript writing, video making, and postscript writing to facilitate transmediation.³⁴ Although these activities take different forms, they show that narrative organization is closely related to information sequencing, language use, and message structuring before ideas are realized in multimodal form.

Once ideas have been organized, they are developed into scripts and storyboards to clarify the relationship between narrative design and production decisions. In DST book projects, prototyping through storyboarding forms part of the design process before peer input, editing, recording, and producing. In other projects, a storyboard draft is used as a milestone followed by feedback and revision before the final product is completed.³⁵ Script writing and development are also used in collaborative DST creation and in prescript–video–postscript

²⁹ A I Ahdi, N A Drajiati, and K A Putra, "Exploring the Lived Experiences of Designing Digital Storytelling Among EFL Pre-Service Teachers: A Focus on Creative Thinking," *Electronic Journal of Foreign Language Teaching* 22, no. 1 (2025): 117–33, <https://doi.org/10.56040/ahdp2217>.

³⁰ S Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School," *Education 3-13* 52, no. 8 (2024): 1594–1601, <https://doi.org/10.1080/03004279.2023.2205437>.

³¹ Ais Navila, Dewi Rochsantiningsih, and Nur Arifah Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books," *Indonesian Journal of English Language Teaching and Applied Linguistics* 8, no. 2 (2023): 217–31, <https://doi.org/10.21093/ijeltal.v8i2.1561>.

³² F M Cığerci and M Yıldırım, "From Freytag Pyramid Story Structure to Digital Storytelling: Adventures of Pre-Service Teachers as Story Writers and Digital Story Tellers," *Education and Information Technologies* 29, no. 5 (2024): 5697–5720, <https://doi.org/10.1007/s10639-023-12042-7>.

³³ C.-H. Chen and H.-C. Yeh, "Scripted Synergy: Elevating EFL Writing and Creativity through Collaborative Digital Storytelling," *Technology, Pedagogy and Education* 34, no. 1 (2025): 91–104, <https://doi.org/10.1080/1475939X.2024.2382970>.

³⁴ X Shen, C Hao, and J.-E. Peng, "Promoting EFL Learners' Willingness to Communicate through Transmediation in a Digital Storytelling Workshop," *Journal of Multilingual and Multicultural Development* 45, no. 8 (2024): 3109–26, <https://doi.org/10.1080/01434632.2022.2086257>.

³⁵ Yuki Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling," *Asiatic: IJUM Journal of English Language and Literature* 15, no. 1 (2021): 53–70, <https://doi.org/10.31436/asiatic.v15i1.2310>.

sequences.³⁶ The relationship between planning and production does not always develop linearly. Comparisons between scripts and videos reveal changes in detail, expressions of feeling, and audience awareness,³⁷ while analyses of transduction and transformation show that meaning may be reorganized as learners move across written, spoken, aural, and visual resources.³⁸ These patterns indicate that scripts and storyboards can serve as spaces for revisiting narrative decisions as stories move toward multimodal realization.

Revision further demonstrates the dynamic nature of narrative construction in DST. Teacher feedback provided at project milestones may encourage learners to revisit their storyboards, story content, and language use. Reviews of structure and writing quality may also address idea organization, word choice, sentence fluency, and writing conventions.³⁹ In genre-based DST projects, story revision forms an explicit part of the process after story development and before digital presentation. These findings indicate that a story is not necessarily considered complete once the script or storyboard has been developed. Representational needs, responses to an emerging product, and concerns about message clarity may lead learners back to earlier narrative decisions. This recurring pattern supports narrative orientation, in which narrative serves as an orientation for meaning that guides content, language use, and representational choices while remaining open to adjustment throughout the multimodal composing process.

Table 3. Narrative Construction in Digital Storytelling

No.	Narrative Construction Pattern	Main Findings	References
1	Selection of source/topic	Establishes relevance, experience, identity, and communicative purpose	40; 41; 42

³⁶ Chen and Yeh, "Scripted Synergy: Elevating EFL Writing and Creativity through Collaborative Digital Storytelling."

³⁷ H Kim and J H Lee, "The Value of Digital Storytelling as an L2 Narrative Practice," *Asia-Pacific Education Researcher* 27, no. 1 (2018): 1–9, <https://doi.org/10.1007/s40299-017-0360-3>.

³⁸ C H Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling," *Languages* 7, no. 3 (2022): 222, <https://doi.org/10.3390/languages7030222>.

³⁹ F Tanrikulu, "Students' Perceptions about the Effects of Collaborative Digital Storytelling on Writing Skills," *Computer Assisted Language Learning* 35, no. 5–6 (2022): 1090–1105, <https://doi.org/10.1080/09588221.2020.1774611>.

⁴⁰ Kristiawan, Ferdiansyah, and Picard, "Promoting Vocabulary Building, Learning Motivation, and Cultural Identity Representation through Digital Storytelling for Young Indonesian Learners of English as a Foreign Language."

⁴¹ Kendrick et al., "Digital Storytelling with Youth from Refugee Backgrounds: Possibilities for Language and Digital Literacy Learning."

⁴² Reni Puspitasari Dwi Lestariyana and Handoyo Puji Widodo, "Engaging Young Learners of English with Digital Stories: Learning to Mean," *Indonesian Journal of Applied Linguistics* 8, no. 2 (2018): 489–95, <https://doi.org/10.17509/ijal.v8i2.13314>.

2	Exploration and development of ideas	Expands story material and establishes a clear focus	43; 44; 45
3	Organization of narrative structure	Organizes plot, relationships among information, and points of emphasis	46; 47; 48
4	Script writing	Translates ideas into language prepared for spoken or visual presentation	49; 50; 51; 52
5	Storyboarding/scene planning	Connects parts of the story with visuals, audio, sequencing, and duration	53; 54; 55
6	Narrative revision	Reviews story content and organization, language use, and the quality of presentation	56;57; 58

Table 3 shows that narrative construction in DST develops through a set of interconnected processes, beginning with the selection of story sources and

⁴³ Ahdi, Drajiati, and Putra, "Exploring the Lived Experiences of Designing Digital Storytelling Among EFL Pre-Service Teachers: A Focus on Creative Thinking."

⁴⁴ Güvey Aktay, "Writing a Folktale as an Activity of Written Expression: Digital Folktales with StoryJumper."

⁴⁵ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

⁴⁶ Cigerci and Yıldırım, "From Freytag Pyramid Story Structure to Digital Storytelling: Adventures of Pre-Service Teachers as Story Writers and Digital Story Tellers."

⁴⁷ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

⁴⁸ Kim and Lee, "The Value of Digital Storytelling as an L2 Narrative Practice."

⁴⁹ Chen and Yeh, "Scripted Synergy: Elevating EFL Writing and Creativity through Collaborative Digital Storytelling."

⁵⁰ Shen, Hao, and Peng, "Promoting EFL Learners' Willingness to Communicate through Transmediation in a Digital Storytelling Workshop."

⁵¹ H.-T. D Huang, "Examining the Effect of Digital Storytelling on English Speaking Proficiency, Willingness to Communicate, and Group Cohesion," *TESOL Quarterly* 57, no. 1 (2023): 242–69, <https://doi.org/10.1002/tesq.3147>.

⁵² N Y Suryani et al., "Integration Technology of Project-Based Learning on Digital Story-Writing to Help Students Writing Skills," *Asian Journal of Human Services* 29 (2025): 318–37, <https://doi.org/10.14391/ajhs.29.318>.

⁵³ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

⁵⁴ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

⁵⁵ Anderson, Chung, and Macleeroy, "Creative and Critical Approaches to Language Learning and Digital Technology: Findings from a Multilingual Digital Storytelling Project."

⁵⁶ Tanrikulu, "Students' Perceptions about the Effects of Collaborative Digital Storytelling on Writing Skills."

⁵⁷ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

⁵⁸ A Yamaç and M Ulusoy, "The Effect of Digital Storytelling in Improving the Third Graders' Writing Skills," *International Electronic Journal of Elementary Education* 9, no. 1 (2016): 59–86.

continuing through idea development, structural organization, script writing, storyboarding, and revision. These processes do not form a completely linear sequence. Planning, development, revision, and digital presentation may be connected within a single workflow,⁵⁹ while prototyping, peer input, editing, recording, and producing illustrate the possibility of moving back and forth during the design process.⁶⁰ Changes between scripts and videos, together with transduction across semiotic resources, show that multimodal production can reshape the way a story is developed.⁶¹ This relationship indicates that narrative construction does not end with the development of the initial story but continues to function as an orientation for meaning throughout the DST process.

Scaffolding in the Digital Storytelling Process

Scaffolding in Digital Storytelling (DST) functions as a support system that can operate throughout the learning process rather than as assistance provided at only one stage. Collaborative interaction gives learners opportunities to discuss language-related issues with peers and jointly construct knowledge of the target language.⁶² Group-work structures can also organize the community, rules, and division of labor according to members' roles and strengths.⁶³ Evaluative support may be provided through rubric-based peer and teacher assessment of DST products.⁶⁴ These patterns indicate that scaffolding does not originate solely from teachers but may also be provided through peers, task structures, planning tools, and the organization of collaborative work.

The need for clear direction from the outset makes modeling and explicit instruction important forms of support. In the design of DST books, a DMC framework and digital templates help structure the design process.⁶⁵ Training in story structures such as Freytag's pyramid provides a framework for organizing story writing.⁶⁶ In foreign-language projects, the DST process may be divided into storyboard milestones, narration recording, and final film production, with

⁵⁹ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

⁶⁰ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

⁶¹ Kim and Lee, "The Value of Digital Storytelling as an L2 Narrative Practice."

⁶² H Nishioka, "Analysing Language Development in a Collaborative Digital Storytelling Project: Sociocultural Perspectives," *System* 62 (2016): 39–52, <https://doi.org/10.1016/j.system.2016.07.001>.

⁶³ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

⁶⁴ M R Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling," *International Journal of Educational Methodology* 6, no. 3 (2020): 555–69, <https://doi.org/10.12973/ijem.6.3.555>.

⁶⁵ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

⁶⁶ Cigerci and Yildirim, "From Freytag Pyramid Story Structure to Digital Storytelling: Adventures of Pre-Service Teachers as Story Writers and Digital Story Tellers."

relevant guidance and feedback provided at each stage.⁶⁷ Scripted collaborative learning has also been used to structure interaction during DST creation.⁶⁸ The relationship among these forms of support shows that scaffolding can be embedded directly into activity design and therefore does not always depend on teacher intervention whenever learners encounter difficulties.

The role of technology further extends the forms of support available when application features help learners manage both the story and the production process. Toontastic has been used as an application with embedded scaffolding principles to support DST production; scaffolding and topic familiarity were identified as important mechanisms contributing to improvements in speaking competence.⁶⁹ In the context of EFL pre-service teachers, digital story creation has also been used to develop awareness of the functions of linguistic and visual modes in multimodal teaching materials.⁷⁰ Technology therefore functions as part of scaffolding when its features and use help learners understand task demands, manage the creation process, or coordinate representational resources, rather than simply because technology is present in the learning environment.

These forms of support continue through feedback and reflection, which connect creation with revision. Rubric-based peer and teacher assessment provides an evaluative basis for reviewing DST products. Feedback provided at project milestones and subsequent story revision show that support can lead learners back to narrative content, language use, and organization. Reflection during DST creation is associated with the use of metacognitive skills such as planning and monitoring,⁷¹ while collaborative DST projects have also been reported to enhance autonomous learning practices and learners' awareness of their own learning processes.⁷² Role-based division of labor further shows that learner autonomy can develop within a collaborative structure. Based on these patterns, progressive scaffolding is conceptualized in this study as the adjustment of the form and intensity of support in response to changing learning demands.

⁶⁷ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

⁶⁸ Chen and Yeh, "Scripted Synergy: Elevating EFL Writing and Creativity through Collaborative Digital Storytelling."

⁶⁹ J S Fu, S.-H. Yang, and H.-C. Yeh, "Exploring the Impacts of Digital Storytelling on English as a Foreign Language Learners' Speaking Competence," *Journal of Research on Technology in Education* 54, no. 5 (2022): 679–94, <https://doi.org/10.1080/15391523.2021.1911008>.

⁷⁰ N A Drajati et al., "Digital Storytelling Projects for Developing Indonesian EFL Pre-Service Teachers' Metasemiotic Awareness and Professional Competence," *Indonesian Journal of Applied Linguistics* 13, no. 2 (2023): 392–406, <https://doi.org/10.17509/ijal.v13i2.63084>.

⁷¹ S.-T. A Hung, "Creating Digital Stories: EFL Learners' Engagement, Cognitive and Metacognitive Skills," *Educational Technology & Society* 22, no. 2 (2019): 26–37, [https://doi.org/10.30191/ETS.201904_22\(2\).0004](https://doi.org/10.30191/ETS.201904_22(2).0004).

⁷² Napat Jitpaisarnwattana, "Fostering Learner Autonomy through a Collaborative Digital Storytelling Project in English for Specific Purposes Classrooms," *LAFOR Journal of Education* 13, no. 1 (2025): 69–91, <https://doi.org/10.22492/ije.13.1.03>.

Table 4. Forms and Functions of Scaffolding in Digital Storytelling

No.	Scaffolding Pattern	Main Findings	References
1	Modeling/examples	Clarifies target quality, genre, and expected product form	73; 74
2	Explicit instruction	Explains story structure, language, technology, and task requirements	75;76
3	Scripts/task structure	Organizes workflow and collaborative interaction	77; 78
4	Collaboration/peer support	Provides support for language, ideas, negotiation, and technical skills	79; 80; 81; 82; 83
5	Technological support	Supports story management and the production process	84; 85
6	Feedback and assessment	Guides revision of language, content, and representation	86; 87; 88

⁷³ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

⁷⁴ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

⁷⁵ Cigerci and Yıldırım, "From Freytag Pyramid Story Structure to Digital Storytelling: Adventures of Pre-Service Teachers as Story Writers and Digital Story Tellers."

⁷⁶ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

⁷⁷ Chen and Yeh, "Scripted Synergy: Elevating EFL Writing and Creativity through Collaborative Digital Storytelling."

⁷⁸ Huang, "Examining the Effect of Digital Storytelling on English Speaking Proficiency, Willingness to Communicate, and Group Cohesion."

⁷⁹ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

⁸⁰ Nishioka, "Analysing Language Development in a Collaborative Digital Storytelling Project: Sociocultural Perspectives."

⁸¹ Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling."

⁸² Ali Uslu and Nilüfer Atman Uslu, "Improving Primary School Students' Creative Writing and Social-Emotional Learning Skills through Collaborative Digital Storytelling," *Acta Educationis Generalis* 11, no. 2 (2021): 1–18, <https://doi.org/10.2478/atd-2021-0009>.

⁸³ M E Del-Moral-Pérez, L Villalustre-Martínez, and M D R 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): 342–65, <https://doi.org/10.1080/09588221.2018.1517094>.

⁸⁴ Fu, Yang, and Yeh, "Exploring the Impacts of Digital Storytelling on English as a Foreign Language Learners' Speaking Competence."

⁸⁵ Drajiati et al., "Digital Storytelling Projects for Developing Indonesian EFL Pre-Service Teachers' Metasemiotic Awareness and Professional Competence."

⁸⁶ Tanrikulu, "Students' Perceptions about the Effects of Collaborative Digital Storytelling on Writing Skills."

⁸⁷ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

⁸⁸ Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling."

7	Reflection and agency	Promotes awareness of the learning process and independent decision-making	89; 90; 91
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Table 4 shows that scaffolding in DST consists of multiple layers of support, ranging from modeling, explicit instruction, and task structure to collaboration, technological support, feedback, and reflection. Frameworks, templates, and milestones can make the creation process more clearly structured.⁹² Scripted collaboration, division of labor, and peer/teacher assessment help organize interaction and provide a basis for reviewing both the process and the product.⁹³ These patterns indicate that scaffolding in DST is progressive, as it adapts to learners' changing needs throughout the process. These forms of support are closely connected to how learners select, combine, and orchestrate different resources when a story is realized as a digital product.

Multimodal Composition in Digital Storytelling

Multimodal composition shows that Digital Storytelling (DST) is a process of meaning-making that involves the interconnection of multiple semiotic resources rather than simply written text supplemented with media elements. Models for analyzing digital stories encompass representational, interpersonal, compositional, and sociocultural dimensions.⁹⁴ Transformation and transduction in DST may occur when learners integrate written, spoken, aural, and visual resources.⁹⁵ Among EFL pre-service teachers, digital story creation has also been used to develop metasemiotic awareness through attention to linguistic and visual modes.⁹⁶ Other practices have incorporated combinations of text, images, video, podcasts, and infographics in the creation of digital stories.⁹⁷ Theme-based multimodal DST projects have likewise demonstrated literacy practices that

⁸⁹ Hung, "Creating Digital Stories: EFL Learners' Engagement, Cognitive and Metacognitive Skills."

⁹⁰ Jitpaisarnwattana, "Fostering Learner Autonomy through a Collaborative Digital Storytelling Project in English for Specific Purposes Classrooms."

⁹¹ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

⁹² Navila, Rochsantiningsih, and Drajadi, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

⁹³ Chen and Yeh, "Scripted Synergy: Elevating EFL Writing and Creativity through Collaborative Digital Storytelling."

⁹⁴ D Kim, D K Yatsu, and Y Li, "A Multimodal Model for Analyzing Middle School English Language Learners' Digital Stories," *International Journal of Educational Research Open* 2 (2021): 100067, <https://doi.org/10.1016/j.ijedro.2021.100067>.

⁹⁵ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

⁹⁶ Drajadi et al., "Digital Storytelling Projects for Developing Indonesian EFL Pre-Service Teachers' Metasemiotic Awareness and Professional Competence."

⁹⁷ E Meletiadiou, "Using Educational Digital Storytelling to Enhance Multilingual Students' Writing Skills in Higher Education," *IJFOR Journal of Education* 10, no. 2 (2022): 111–30, <https://doi.org/10.22492/ije.10.2.06>.

integrate digital tools with multimodal resources.⁹⁸ Taken together, these findings indicate that multimodal decisions should be understood in terms of the function of each resource in constructing meaning rather than simply the number of elements used.

Transmediation further clarifies the relationship between narrative and multimodal composition. The process of transmediation involves transformation and transduction as learners move across written, spoken, aural, and visual resources. A similar pattern can be seen in the use of prescript–video–postscript sequences, which encourage learners to reorganize meaning as they move from one form of representation to another.⁹⁹ Comparisons between learners’ scripts and videos also show that movement toward multimodal forms may be associated with changes in detail, expressions of feeling, audience awareness, and topic development within the narrative.¹⁰⁰ These relationships indicate that multimodal composition is not merely a final stage of production but part of a process that enables learners to reconsider how stories are understood, developed, and communicated.

The selection of multimodal resources is also related to learners’ voice and identity. Among multilingual ESL university students, linguistic and multimodal resources have been used to construct authorial voice in digital stories.¹⁰¹ The use of DST with learners from refugee backgrounds has also provided opportunities to connect personal experience, language learning, digital literacy, and self-representation.¹⁰² Transmediation further shows that movement across forms of representation can encourage learners to reorganize how they communicate meaning. Findings across these contexts support the view that purposeful multimodality is not determined by the number of resources used, but by the alignment among message, audience, learner identity, communicative purpose, and the function of each semiotic resource.

Publication and the presence of an audience strengthen the communicative function of multimodal composition. In genre-based DST projects, digital presentation and publication form explicit parts of the process following story development and revision.¹⁰³ Comparisons between linguistic narratives and DST also show increased learner awareness of audience when

⁹⁸ Huan Wang, “Multimodal Digital Storytelling as Literacy Learning and Moral Cultivation Practices for University EFL Students,” *Arab World English Journal* 16, no. 1 (2025): 366–83, <https://doi.org/10.24093/awej/vol16no1.23>.

⁹⁹ Shen, Hao, and Peng, “Promoting EFL Learners’ Willingness to Communicate through Transmediation in a Digital Storytelling Workshop.”

¹⁰⁰ Kim and Lee, “The Value of Digital Storytelling as an L2 Narrative Practice.”

¹⁰¹ A Krasova and O Moroz, “Multilingual English Second Language Students’ Voice in Digital Storytelling,” *Computers and Composition* 74 (2024): 102886, <https://doi.org/10.1016/j.compcom.2024.102886>.

¹⁰² Kendrick et al., “Digital Storytelling with Youth from Refugee Backgrounds: Possibilities for Language and Digital Literacy Learning.”

¹⁰³ Ferdiansyah, “Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School.”

stories are enacted multimodally. The presence of an audience therefore provides a communicative reason for learners to consider message clarity and review their work before it is presented.

Table 5. Multimodal Composition in Digital Storytelling

No.	Multimodal Composition	Main Findings	References
1	Selection of semiotic resources	Determines the media most appropriate to the message and audience	104; 105; 106
2	Integration of text–visual–audio resources	Builds cohesion and connections among elements	107; 108; 109
3	Transmediation	Transforms and reinterprets meaning when moving across forms of representation	110; 111
4	Voice narration/video	Realizes language performance and communication with an audience	112; 113
5	Representation of identity/voice	Expresses learners' positions, experiences, and distinctive forms of expression	114; 115
6	Publication and audience	Strengthens communicative purpose and provides a reason to revise the work	116; 117

¹⁰⁴ Kim, Yatsu, and Li, "A Multimodal Model for Analyzing Middle School English Language Learners' Digital Stories."

¹⁰⁵ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

¹⁰⁶ Drajati et al., "Digital Storytelling Projects for Developing Indonesian EFL Pre-Service Teachers' Metasemiotic Awareness and Professional Competence."

¹⁰⁷ Drajati et al.

¹⁰⁸ Wang, "Multimodal Digital Storytelling as Literacy Learning and Moral Cultivation Practices for University EFL Students."

¹⁰⁹ Meletiadou, "Using Educational Digital Storytelling to Enhance Multilingual Students' Writing Skills in Higher Education."

¹¹⁰ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

¹¹¹ Shen, Hao, and Peng, "Promoting EFL Learners' Willingness to Communicate through Transmediation in a Digital Storytelling Workshop."

¹¹² Huang, "Examining the Effect of Digital Storytelling on English Speaking Proficiency, Willingness to Communicate, and Group Cohesion."

¹¹³ Fu, Yang, and Yeh, "Exploring the Impacts of Digital Storytelling on English as a Foreign Language Learners' Speaking Competence."

¹¹⁴ Krasova and Moroz, "Multilingual English Second Language Students' Voice in Digital Storytelling."

¹¹⁵ Kendrick et al., "Digital Storytelling with Youth from Refugee Backgrounds: Possibilities for Language and Digital Literacy Learning."

¹¹⁶ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

¹¹⁷ F Çakmak and A Andujar, "Exploring Foreign Language Learning and Contextualization through Digital Storytelling Projects and Personal Digital Learning Narratives," *Educational Technology & Society* 28, no. 1 (2025): 109–22, [https://doi.org/10.30191/ETS.202501_28\(1\).RP06](https://doi.org/10.30191/ETS.202501_28(1).RP06).

Table 5 shows that multimodal composition in DST does not simply involve adding visual or audio elements to a completed story, but requires decisions about how meaning is distributed and connected across different semiotic resources. Processes of transformation and transmediation show that movement among written, spoken, aural, visual, and video resources can reshape how meaning is communicated.¹¹⁸ Linguistic and multimodal choices can also serve as resources for expressing learners' experiences, identities, and voices.¹¹⁹ Digital presentation and increased audience awareness further provide a communicative direction for the process of presenting a story.¹²⁰ The interconnection among these patterns indicates that the quality of multimodal composition does not depend on the number of resources used, but on how appropriately each resource functions in relation to the story, message, identity, and intended audience.

The Relationship among Narrative Construction, Scaffolding, and Multimodality

Cross-study analysis shows that narrative construction, scaffolding, and multimodal composition are interconnected rather than functioning as three separate components. Narrative construction provides direction for story content, communicative purpose, and organization, while scaffolding helps learners develop, review, and refine the decisions made throughout the creation process. Multimodal composition, in turn, provides a means of realizing the story design through the selection and organization of language, visuals, audio, video, and other semiotic resources. These interconnections indicate that Digital Storytelling (DST) develops through the relationship among story development, learning support, and meaning-making, rather than merely through the use of technology as something separate from language activity.

The relationship between narrative construction and scaffolding becomes evident when pedagogical support is provided throughout the story-development process. In genre-based DST, theme selection, story development, revision, and digital presentation form a structured sequence of activities.¹²¹ In another foreign-language project, storyboard drafts, narration recordings, and final films were used as milestones accompanied by relevant teacher guidance and feedback.¹²² In collaborative projects involving pre-service teachers, rules, community structures, and the division of labor organized members'

¹¹⁸ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

¹¹⁹ Kendrick et al., "Digital Storytelling with Youth from Refugee Backgrounds: Possibilities for Language and Digital Literacy Learning."

¹²⁰ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

¹²¹ Ferdiansyah.

¹²² Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

responsibilities during DST creation.¹²³ These findings indicate that scaffolding becomes particularly relevant when it responds to needs that emerge during narrative development and production.

A further relationship becomes apparent when story designs begin to be realized through multiple multimodal resources. Narrative structure and scene planning provide learners with a basis for determining which parts of a story should be communicated through text, audio, images, or video. The use of story structure helps guide planning before digital production begins,¹²⁴ while transmediation shows that movement from writing to audio, visual, and video forms can reshape how ideas are organized.¹²⁵ Changes in duration, scene sequence, or representational choices may prompt adjustments to the script or to particular aspects of the story that learners wish to emphasize. This pattern positions the storyboard as a bridge between narrative design and multimodal decisions rather than merely as a technical tool for planning visual presentation.

Scaffolding is also connected to multimodal composition when learners encounter challenges in selecting resources, editing, integrating different elements, and evaluating the final product. Role-based division of labor helps organize responsibilities during collaborative production.¹²⁶ In the design of DST books, peer input is positioned after storyboard-based prototyping and before editing and production.¹²⁷ Rubric-based peer and teacher assessment is also used to evaluate DST products.¹²⁸ These relationships indicate that scaffolding continues to play an important role as learners determine how stories should be represented and refined.

Movement back and forth among story development, learning support, and representation suggests that DST is better understood as an iterative process than as a completely linear sequence of stages. The sequence of theme selection, story development, revision, and digital presentation shows that revision is embedded within the creation process rather than occurring only after the product has been completed.¹²⁹ Storyboard-based prototyping, peer input, editing, recording, and producing also provide opportunities to reconsider the design

¹²³ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

¹²⁴ Cigerci and Yildirim, "From Freytag Pyramid Story Structure to Digital Storytelling: Adventures of Pre-Service Teachers as Story Writers and Digital Story Tellers."

¹²⁵ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

¹²⁶ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

¹²⁷ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

¹²⁸ Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling."

¹²⁹ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

before the final product is completed.¹³⁰ At the representational level, transmediation through movement among writing, video, audio, and visual resources can reshape meaning.¹³¹ Collaboration and division of labor further show that production decisions are also influenced by how shared activities are organized.¹³² Variations across contexts indicate that the relationships among these three dimensions do not form a single sequence that applies universally.

Table 6. Interdimensional Relationships and Digital Storytelling Activities

N o.	Interdimensional Relationship	Related Activities	Relational Meaning
1	Narrative construction and scaffolding	Idea exploration, story structure, script, storyboard, feedback	Support helps learners develop, organize, and review narratives.
2	Narrative construction and multimodal composition	Storyboard, scene planning, transmediation, production	Narrative guides representational choices; media-related decisions may prompt changes to the story.
3	Scaffolding and multimodal composition	Modeling, technological support, collaboration, feedback, revision	Support facilitates media selection, resource integration, problem solving, and improvement of the work.
4	Cross-dimensional relationships	Publication, audience, reflection, self/peer assessment	Communicative purposes and reflection connect meaning, support, representation, and agency.

Table 6 shows that a single DST activity may involve more than one dimension at the same time. A storyboard, for example, contributes not only to story development but also provides a space in which learners can consider visual elements, audio, and the sequence of presentation. Feedback likewise functions not only as a form of support during learning but may also prompt changes to the script and multimodal composition. Publication and reflection further extend these relationships because learners need to consider the audience, communicative purpose, quality of representation, and the learning experiences they have undergone. These interconnections indicate that narrative construction, scaffolding, and multimodal composition influence one another in shaping the dynamic pedagogical processes of DST. Their implementation may vary across contexts; therefore, the relationships among the three dimensions are better understood as relational patterns rather than as a sequence of activities that must be applied uniformly.

¹³⁰ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

¹³¹ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

¹³² Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

These relational patterns are subsequently summarized visually to clarify the position of each dimension and the relationships that develop throughout the DST process. Figure 2 is not intended to represent a fixed instructional sequence, but rather a conceptual representation of the interconnections among narrative development, learning support, and multimodal composition in the process of creating digital stories.

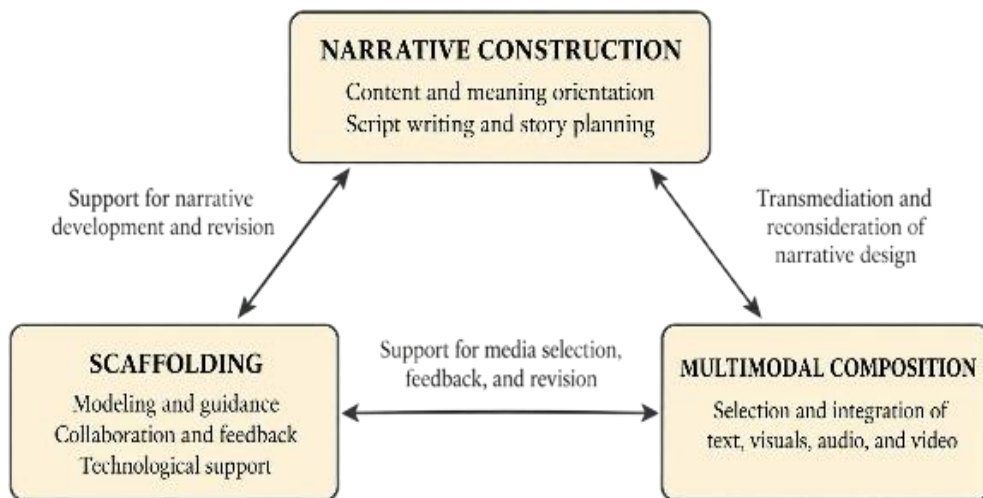


Figure 2.
The Relationship among Narrative Construction, Scaffolding, and Multimodal Composition

Figure 2 illustrates the interconnections among narrative construction, scaffolding, and multimodal composition as mutually influential relationships throughout the DST process. Narrative construction guides story content and communicative purpose, while scaffolding supports learners in developing, reviewing, and refining decisions made during story creation. Multimodal composition then provides a means of realizing the story through different forms of representation while also allowing earlier narrative decisions to be reconsidered. The bidirectional arrows indicate that changes in one dimension may affect the others as the process develops. For this reason, the figure should be understood as a conceptual representation of recurring relational patterns identified across the corpus, rather than as a fixed sequence of stages, a measure of the magnitude of influence among dimensions, or evidence of causal relationships. The derivation of the seven propositions is summarized in Table 7, which makes the transition from coded evidence to conceptual claims more explicit by linking each proposition to the recurring cross-study pattern from which it was developed and to representative studies that provide relevant process evidence.

Table 7. Traceability from Cross-Study Evidence to Relational Propositions

Relational proposition	Recurrent cross-study pattern
Narrative orientation	Theme selection and story development establish an initial narrative direction before revision and digital presentation. ¹³³ Story-structure training and narrative planning help learners organize ideas before developing them into digital stories. ¹³⁴ Storyboards and related planning artifacts can remain open to feedback and revision as production progresses. ¹³⁵ Multimodal production may subsequently enrich story detail, expressions of feeling, and awareness of the audience. ¹³⁶
Progressive scaffolding	Pedagogical support can be distributed across storyboard development, narration, production, and revision, with guidance and feedback provided as learners move through these activities. ¹³⁷ Story planning, prototyping, peer input, editing, and production also create different points at which learners receive or negotiate support. ¹³⁸ Collaborative interaction can support discussion of language problems and the co-construction of target-language knowledge, ¹³⁹ while peer and teacher assessment, reflection, and collective scaffolding extend support into evaluation and revision. ¹⁴⁰
Storyboard-as-bridge	Storyboards provide a planning space that connects the organization of ideas with subsequent peer input, editing, recording, and production decisions. ¹⁴¹ They can also link an initial story plan with narration, feedback, revision, and development of the final digital product. ¹⁴²
Purposeful multimodality	Movement across written, spoken, aural, and visual resources can transform or redistribute meaning as learners develop a digital story. ¹⁴³ Attention to linguistic and visual resources also supports learners in considering how different semiotic resources

¹³³ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

¹³⁴ Cigerci and Yildirim, "From Freytag Pyramid Story Structure to Digital Storytelling: Adventures of Pre-Service Teachers as Story Writers and Digital Story Tellers."

¹³⁵ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

¹³⁶ Kim and Lee, "The Value of Digital Storytelling as an L2 Narrative Practice."

¹³⁷ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

¹³⁸ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

¹³⁹ Nishioka, "Analysing Language Development in a Collaborative Digital Storytelling Project: Sociocultural Perspectives."

¹⁴⁰ Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling."

¹⁴¹ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

¹⁴² Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

¹⁴³ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

	contribute to meaning. ¹⁴⁴ Multimodal and linguistic choices can further contribute to the expression of authorial voice and identity, showing that resource selection serves representational and communicative purposes rather than simply increasing the number of media elements. ¹⁴⁵
Iterative feedback and revision	Feedback provided at different project milestones can lead learners to revisit storyboards, narration, language, and other production decisions before the digital story is finalized. ¹⁴⁶ Revision may therefore occur within the creation process, between story development and digital presentation, rather than only after production has been completed. ¹⁴⁷ Peer and teacher assessment, together with reflective activity, provide additional opportunities to review and refine the developing work. ¹⁴⁸
Collaborative meaning-making	Collaborative DST enables learners to discuss language-related problems with peers and jointly construct knowledge while developing their stories. ¹⁴⁹ Collaboration also connects participants, tools, rules, community, and division of labor, helping groups respond to challenges that arise during digital story production. ¹⁵⁰ Processes of consensus-building and collective scaffolding further show that meaning-making and problem solving can be distributed across members of the group. ¹⁵¹
Reflection and agency	Reflection during digital story creation engages metacognitive processes such as planning and monitoring, allowing learners to review how they approach multimodal composing tasks. ¹⁵² Collaborative DST can also strengthen independent learning practices and learners' awareness of their own learning processes, indicating that agency may develop alongside collaborative participation. ¹⁵³

¹⁴⁴ Drajati et al., "Digital Storytelling Projects for Developing Indonesian EFL Pre-Service Teachers' Metasemiotic Awareness and Professional Competence."

¹⁴⁵ Krasova and Moroz, "Multilingual English Second Language Students' Voice in Digital Storytelling."

¹⁴⁶ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

¹⁴⁷ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

¹⁴⁸ Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling."

¹⁴⁹ Nishioka, "Analysing Language Development in a Collaborative Digital Storytelling Project: Sociocultural Perspectives."

¹⁵⁰ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

¹⁵¹ Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling."

¹⁵² Hung, "Creating Digital Stories: EFL Learners' Engagement, Cognitive and Metacognitive Skills."

¹⁵³ Jitpaisarnwattana, "Fostering Learner Autonomy through a Collaborative Digital Storytelling Project in English for Specific Purposes Classrooms."

DISCUSSION

The findings indicate that the pedagogical design of Digital Storytelling (DST) is better understood through the interconnections among meaning development, learning support, and representational decisions rather than solely through technology-based production stages. Narrative construction provides direction for story content, organization, and communicative purpose, while scaffolding helps learners develop, review, and refine decisions throughout the creation process. Multimodal composition enables ideas to be realized and reorganized through a range of semiotic resources. The interconnection among planning, development, revision, and digital presentation is evident in genre-based DST sequences and projects structured around milestones and feedback.¹⁵⁴ Prototyping through storyboarding, peer input, editing, recording, and producing further illustrates that DST design involves a series of interconnected decisions throughout the process.¹⁵⁵ This understanding is consistent with the DMC task-design agenda, which emphasizes purpose, process, scaffolding, the selection of semiotic resources, and task characteristics.¹⁵⁶ The present analysis extends this focus by placing the relationships among story development, learning support, and multimodal decision-making at the center of the synthesis.

The role of scaffolding is important because learners' needs may change as the process moves from story development to production and revision. The same form of support does not necessarily serve an identical function at every stage of the process. Collaborative dialogue can be used to discuss language-related issues and jointly construct knowledge of the target language.¹⁵⁷ Rubric-based peer and teacher assessment provides evaluative support for DST products.¹⁵⁸ Division of labor, rules, and community structures organize members' roles within collaborative DST activities.¹⁵⁹ These findings are consistent with the view that scaffolding is a component of task design that needs to be adjusted to task characteristics and learners' needs.¹⁶⁰ Based on the patterns identified across the corpus, progressive scaffolding is better understood as an adjustment in the form and intensity of support in response to changing learning demands rather than as a linear reduction of assistance.

¹⁵⁴ Ferdiansyah, "Collaborative Genre-Based Digital Storytelling of English as a Foreign Language: A Case of an Indonesian Primary School."

¹⁵⁵ Navila, Rochsantiningsih, and Drajiati, "EFL Pre-Service Teachers' Experiences Using a Digital Multimodal Composing Framework to Design Digital Storytelling Books."

¹⁵⁶ Jiang and Hafner, "Digital Multimodal Composing in L2 Classrooms: A Research Agenda."

¹⁵⁷ Nishioka, "Analysing Language Development in a Collaborative Digital Storytelling Project: Sociocultural Perspectives."

¹⁵⁸ Simsek, "Towards Emancipatory L2 Instruction: Exploring Significant Learning Outcomes from Collaborative Digital Storytelling."

¹⁵⁹ Yu and Wang, "Using Digital Storytelling to Promote Language Learning, Digital Skills and Digital Collaboration among English Pre-Service Teachers."

¹⁶⁰ Jiang and Hafner, "Digital Multimodal Composing in L2 Classrooms: A Research Agenda."

This adaptive quality becomes even more evident in the relationship between feedback and revision. Feedback provided at storyboard, narration-recording, and final-product milestones positions feedback as an integral part of the creation process.¹⁶¹ Rubric-based peer and teacher assessment also demonstrates the evaluative function embedded in DST products. Story revision and the review of writing structure show that evaluation can lead learners back to earlier narrative decisions. Evidence from outside the corpus further supports this function. Rubric-based DMC assessment that incorporates feedback from multiple sources can help learners use feedback to revise their work while also developing multiliteracies.¹⁶² This relationship positions iterative feedback and revision as an important mechanism for explaining the iterative nature of DST.

The interconnections among these dimensions also shape how multimodal composition is understood. The use of multiple multimodal resources does not automatically result in a more meaningful digital story. Transmediation can transform meaning as learners move among written, spoken, aural, visual, and video resources.¹⁶³ Comparisons between scripts and videos also reveal changes in story details, expressions of feeling, and audience awareness.¹⁶⁴ DMC experiences can increase learners' awareness of the affordances and constraints associated with multimodal writing practices.¹⁶⁵ Based on these patterns, purposeful multimodality refers to the alignment among the functions of semiotic resources, the message, the audience, and learning objectives rather than to the number of elements included in a product.

This relational perspective distinguishes the focus of the present analysis from earlier DST and DMC reviews without diminishing their contributions. Previous DMC reviews have mapped research characteristics, task types, technologies, and multimodal composing processes.¹⁶⁶ Other work has focused on language-learning outcomes associated with DST and the factors that explain variations in effect.¹⁶⁷ The present study directs attention more specifically to the relationships that develop among pedagogical processes. Its contribution lies in explaining that story development is connected to the support learners receive,

¹⁶¹ Itani-Adams, "Developing Communicative Capability in Foreign Languages through Digital Storytelling."

¹⁶² Yuming Liu and Ricky Lam, "L2 Students' Gradeless Assessment of Digital Multimodal Composing: Unlocking Multiliteracies Through Rubric-Referenced Multisource Feedback," *RELJ Journal*, 2025, <https://doi.org/10.1177/00336882241312426>.

¹⁶³ Maqueda, "Digital Synesthesia in Heritage and Second Language Writing during Collaborative and Individual Digital Storytelling."

¹⁶⁴ Kim and Lee, "The Value of Digital Storytelling as an L2 Narrative Practice."

¹⁶⁵ Hafner and Ho, "Assessing Digital Multimodal Composing in Second Language Writing: Towards a Process-Based Model."

¹⁶⁶ Zhang, Akoto, and Li, "Digital Multimodal Composing in Post-Secondary L2 Settings: A Review of the Empirical Landscape."

¹⁶⁷ Dong et al., "Voices beyond the Screen: Charting Language Learning with Digital Storytelling."

narrative design is related to multimodal decision-making, and pedagogical support is linked to the evaluation and revision of composition.

Contextual variation also requires attention because these relationships cannot be implemented in an identical configuration across all learning environments. In primary education, genre-based DST can be organized through a sequence of theme selection, development, revision, and digital presentation, while other projects allow learners to draw on linguistic resources such as Javanese, Indonesian, and English to express real-life experiences.¹⁶⁸ In higher education and pre-service teacher education, DST activities may involve role-based division of labor and the use of digital tools in collaborative production. Digital story creation in higher education may also involve text, images, video, podcasts, and infographics.¹⁶⁹ In multilingual and community-based contexts, DST highlights voice, identity, experience, and self-representation.¹⁷⁰ These differences indicate that the relationships among narrative construction, scaffolding, and multimodal composition do not take the same form across all contexts.

As shown in Table 7, the seven relational propositions were derived from recurrent cross-study patterns rather than introduced as a priori stages of instruction. Narrative orientation positions meaning-making goals and story direction as the basis for language and representational choices while allowing for change during production. Progressive scaffolding describes the adjustment of support in response to changing learning demands, while storyboard-as-bridge explains the function of planning artifacts in connecting story organization with scenes and semiotic resources. Purposeful multimodality emphasizes the alignment among the resources used, the message, communicative purpose, and audience. Iterative feedback and revision indicates that feedback and revision can influence both narrative and representation. Collaborative meaning-making describes the negotiation of language, ideas, and technology in shared work, while reflection and agency positions reflection as a means of evaluating decisions and expanding learners' capacity to manage the creation process more independently. These seven propositions summarize recurring patterns across the corpus and function as analytical generalizations rather than mandatory stages, a fixed instructional syntax, or a validated learning model.

Implications for Indonesian Language Learning

The range of language-learning contexts examined in this study provides a relevant conceptual foundation for Indonesian language learning. The findings indicate that narrative development is connected to learning support, story

¹⁶⁸ Lestariyana and Widodo, "Engaging Young Learners of English with Digital Stories: Learning to Mean."

¹⁶⁹ Meletiadou, "Using Educational Digital Storytelling to Enhance Multilingual Students' Writing Skills in Higher Education."

¹⁷⁰ Kendrick et al., "Digital Storytelling with Youth from Refugee Backgrounds: Possibilities for Language and Digital Literacy Learning."

planning is related to multimodal decision-making, and feedback can lead to changes in both story content and the ways in which stories are represented. These relationships should not be interpreted as a ready-made instructional sequence that can be applied uniformly across contexts. Decisions regarding instructional stages, activity duration, role distribution, technology use, forms of scaffolding, and assessment procedures still need to be adapted to learning objectives, learner characteristics, and the conditions of the learning environment, and subsequently tested through empirical implementation.

Folktale learning may provide one relevant context in which to apply this understanding because it involves narrative structure, cultural values, language use, and opportunities to represent stories through multiple multimodal resources. Nevertheless, this study does not establish a specific instructional syntax or set of teaching steps for Indonesian folktales, including the division of teacher and learner roles, technology selection, forms of scaffolding, assessment procedures, or revision mechanisms. These elements still require context-sensitive development, followed by validation and evaluation through classroom implementation. Therefore, the findings of this study are better understood as a conceptual foundation for supporting the development of instructional design rather than as direct evidence of the effectiveness of Digital Storytelling in Indonesian language learning.

CONCLUSION

The analysis of 34 empirical studies shows that narrative construction, scaffolding, and multimodal composition are closely interconnected within Digital Storytelling practices in language learning. Evidence-role classification was used to indicate each study's relevance to the relational synthesis rather than the magnitude of the relationships identified, while MMAAT was applied separately to qualify the interpretation of findings in relation to design-specific methodological limitations. Across the corpus, the three dimensions interacted iteratively and were shaped by contextual conditions. Pedagogical support facilitated narrative development, narrative construction guided representational choices, and multimodal composition could, in turn, prompt further changes to the story. Feedback and reflection linked these processes through repeated review and revision. Variation across educational levels, language contexts, collaborative arrangements, task structures, and technologies further suggests that no single form of scaffolding, activity sequence, or media configuration can be considered equally appropriate across all settings.

Building on these relationships, the study develops a conceptual framework that explains how narrative development, pedagogical support, and multimodal composition interact rather than proposing a validated instructional model or a universal sequence of activities. Application to Indonesian language learning still requires contextual adaptation and empirical testing because the corpus is dominated by L2 or foreign-language settings and higher education, while L1, primary education, and national-language contexts remain less

represented. Initial title–abstract screening was conducted by the primary reviewer, whereas all 34 full-text eligibility decisions and the analytical records of the included studies were subsequently subjected to external second-review verification. This process retained the complete corpus, the distribution of 23 core relational, 10 supporting relational, and 1 boundary study, as well as all seven relational propositions. The absence of duplicate screening at the title–abstract stage nevertheless remains a methodological limitation and is reported transparently. Additional limitations concern the use of Scopus and ERIC, the restriction to English-language articles, and the 2016–2025 publication period. These boundaries highlight the need to examine the relationships among the three dimensions across a broader range of settings and to compare how support, planning artifacts, and multimodal decisions vary according to learning goals and learner characteristics.

The main contribution of the study is a relational conceptual framework derived from the literature synthesis that explains how narrative construction, scaffolding, and multimodal composition are connected across DST practices in language learning. The framework offers conceptual design knowledge that may inform later context-specific development, but it should not be interpreted as a validated instructional model or a fixed sequence for implementation. Its propositions may be relevant to Indonesian language learning, including folktale contexts, although direct transfer still requires empirical testing. Future research can therefore operationalize and examine these relational propositions through design-based research, Educational Design Research, or classroom-based studies, particularly in first-language, national-language, primary, and other underrepresented contexts.

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