ARTIGO ORIGINAL

EDUCAÇÃO & FORMAÇÃO
Revista do Programa de Pós-Graduação em Educação
da Universidade Estadual do Ceará (UECE)

REDUFOR
REVISTA EDUCAÇÃO & FORMAÇÃO

Contributions of digital children's literature to children's learning process: A bibliographic review (2014-2024)

Mirelly da Silva Barros Souza[i]
Universidade Federal de Pernambuco, Recife, PE, Brasil

Maria Wanderleya de Lavor Coriolano-Marinus[ii]
Universidade Federal de Pernambuco, Recife, PE, Brasil

Soraya Vieira Santos[iii]
Universidade Federal Goiás, Goiânia, GO, Brasil

Abstract
Introduction. The aim of this study was to analyze the contributions of digital children's literature to the learning process and development of children in educational and/or health contexts. **Methodology.** A bibliographic review was conducted in the following databases: Medical Literature Analysis and Retrieval System Online, Scopus, Elton B. Stephens Company, Science Direct, and Web of Science. The sample included ten articles. The search and selection of studies followed Prisma guidelines. The analysis was based on Vygotsky's theoretical framework. **Results.** The selected studies showed contributions related to cognitive development, language, creativity, and social interaction, also highlighting the central role of mediators in the reading experience. When literature presents quality design, pedagogical intentionality, and active adult mediation, improvements in textual comprehension are observed, contributing to the development of readers. **Discussion.** Digital children's literature, combined with human support and careful curation, constitutes a relevant tool for learning and child development.

Keywords
digital children's literature; learning; digital technology; child development.

Contribuições da literatura infantil digital no processo de aprendizagem de crianças: uma revisão bibliográfica (2014-2024)

Resumo
Introdução. O objetivo deste estudo foi analisar contribuições da literatura infantil digital para o processo de aprendizagem e desenvolvimento de crianças em contextos de educação e/ou saúde. **Metodologia.** Realizou-se uma revisão bibliográfica nas seguintes bases de dados: Medical Literature Analysis and Retrieval System Online, Scopus, Elton B. Stephens Company, Science Direct e Web of Science. A amostra incluiu dez artigos. A busca e seleção de artigos seguiu as diretrizes do Prisma. A análise foi feita com base no referencial de Vygotsky. **Resultados.** Os estudos selecionados evidenciaram contribuições relacionadas ao desenvolvimento cognitivo, à linguagem, à criatividade e à interação social, destacando ainda o papel central dos

mediadores na experiência de leitura. Quando a literatura possui *design* de qualidade, intencionalidade pedagógica e mediação ativa de adultos, observa-se melhora na compreensão textual, contribuindo para a formação de leitores. **Discussão.** A literatura infantil digital, articulada ao suporte humano e à curadoria cuidadosa, constitui uma ferramenta relevante para a aprendizagem e o desenvolvimento infantil.

Palavras-chave
literatura infantil digital; aprendizagem; tecnologia digital; desenvolvimento infantil.

Contribuciones de la literatura infantil digital en el proceso de aprendizaje de los niños: una revisión bibliográfica (2014-2024)

Resumen
Introducción. El objetivo de este estudio fue analizar las contribuciones de la literatura infantil digital al proceso de aprendizaje y desarrollo de niños en contextos educativos y/o de salud. **Metodología.** Se realizó una revisión bibliográfica en las siguientes bases de datos: Medical Literature Analysis and Retrieval System Online, Scopus, Elton B. Stephens Company, Science Direct y Web of Science. La muestra incluyó diez artículos. La búsqueda y selección de estudios siguió las directrices Prisma. El análisis se realizó con base en el marco teórico de Vygotsky. **Resultados.** Los estudios seleccionados evidenciaron contribuciones relacionadas con el desarrollo cognitivo, el lenguaje, la creatividad y la interacción social, destacando además el papel central de los mediadores en la experiencia de lectura. Cuando la literatura presenta un diseño de calidad, intencionalidad pedagógica y mediación activa de adultos, se observa una mejora en la comprensión textual, contribuyendo a la formación de lectores. **Discusión.** La literatura infantil digital, articulada con el apoyo humano y una curaduría cuidadosa, constituye una herramienta relevante para el aprendizaje y el desarrollo infantil.

Palabras clave
literatura infantil digital; aprendizaje; tecnología digital; desarrollo infantil.

1 Introduction

Children's literature is essential to children's development, it aids in cognitive and emotional development, fostering imagination and language skills as children grow (Barone, 2020). The practice of sharing and consuming stories has been around since the dawn of humanity. With the evolution of technology, printed books have found harmony with digital formats, paving the way for novel reading experiences (Bus; Takacs; Kegel, 2015; Mellon, 2006).

Digital children's literature (DCL) differs from digitized books because it uses multimodality and interactivity to enrich the reader's experience. Different forms of language are combined to construct more dynamic narratives, fostering a new form of engagement (Itaú Social, 2022).

The interactive and multimodal resources favor the reader's immersion in the context of the stories. The combination of the sequence of screens, movement of the device, narration, and music allows for an aesthetic experience that connects the reader to each narrative in a sensory and emotional way (Frederico, 2024).

However, despite the benefits, multimedia elements in digital books can present a challenge. Poorly planned interactive features can cognitively overload children, diverting their attention from reading and reducing textual comprehension (Chuang; Jamiat, 2023; Morgan, 2013).

In this new context, where child development occurs alongside the emergence of new technologies, the ways children encounter narratives and language practices are expanding. Vygotsky (1991, 2010) shows that, in light of sociocultural theory, digital children's books can be understood as a new tool for mediating learning by understanding that higher psychological functions occur through social processes that are subsequently internalized by the child (Desmurget, 2023; Haidt, 2024; Vygotsky, 1991, 2010).

In light of these challenges and opportunities, DCL emerges as a promising resource for fostering readers today. Studies indicate that its effectiveness depends on careful implementation, ensuring digital books are used in a balanced way that complements printed materials and encourages critical reading among children (Yokota; Teale, 2014).

This review helps us understand the role of DCL in different educational and health contexts. It highlights that critically analyzing these new literary tools helps professionals in education and health, as well as caregivers, reflect on the benefits of DCL and how to use it effectively.

Therefore, recognizing the pedagogical role of digital children's stories, this literature review focuses on evaluating the contributions of digital children's stories to the learning process of children in educational and/or health contexts.

2 Methodology

This is a literature review, structured in six distinct steps: 1) identification of the theme and guiding question; 2) establishment of criteria for inclusion and exclusion of studies and/or literature search; 3) extraction of data from primary studies; 4) evaluation of studies to be included in the review; 5) interpretation of results; and 6) synthesis of knowledge (Mendes; Silveira Galvão, 2008).

The research question was developed in accordance with the Population, Intervention, Comparison, and Outcome (PICO) strategy (Santos; Pimenta; Nobre, 2007). The following structure was proposed: P (population) – preschool children and hospitalized children; I (intervention) – DCL; C (comparison) – none; O (outcome) – learning, emotional balance of the child, aesthetic experience, and child development. The following question was formulated: What are the scientific contributions of using DCL with children?

The bibliographic survey was conducted in August and September 2024, through virtual access to the following databases: Medical Literature Analysis and Retrieval System Online (Medline), accessed via the PubMed portal; Scopus (Elsevier); Elton B. Stephens Company (EBSCO); Science Direct; and Web of Science.

For the database search, descriptors indexed in the Health Sciences Descriptors and their English equivalents in the Medical Subject Headings (MeSH) were selected, as well as uncontrolled descriptors, established according to synonyms of the controlled descriptors and previous readings on the topic of interest. To systematize data collection, an advanced search form was used, respecting the peculiarities and distinct characteristics of each database. Descriptors and keywords were combined using the Boolean operator “OR” within each set of terms in the PICO strategy, and then crossed with the Boolean operator “AND”, as shown in Table 1.

Table 1 – Search strategy used in databases

Databases	Search strategy	Number of articles
Medline/ PubMed	*(Child OR "Child, Preschool" OR "Child, Hospitalized") AND ("Education Technology" OR "Children's Digital Literature") OR ("Narration" AND "Storytelling" OR "Digital Technology") OR Children's Digital Literature OR "Book" OR "Book Illustrations" AND "Child Development"* Filter: Last 10 years (2014-2024).	199
Scopus	*Child OR "Child, Preschool" OR "Child, Hospitalized" AND "Education Technology" OR "Children's Digital Literature" OR "Narration" AND "Storytelling" OR "Digital Technology" OR "Children's Digital Literature" OR "Book" OR "Book Illustrations" AND "Child Development"* Filter: Last 10 years (2014-2024).	63
Science Direct	*("Child, Preschool" OR "Child, Hospitalized") AND ("Education Technology" OR "Children's Digital Literature") AND ("Storytelling" OR "Digital Technology" OR "Children's Digital Literature") AND ("Child Development")* Filter: Last 10 years (2014-2024).	37
Web of Science	(*Child OR "Child, Preschool" OR "Child, Hospitalized") AND ("Education Technology" OR "Children's Digital Literature" OR "Narration") AND ("Storytelling" OR "Digital Technology" OR "Children's Digital Literature" OR "Book" OR "Book Illustrations") AND ("Child Development")* Filter: Last 10 years (2014-2024).	21
EBSCO	*(Child OR "Child, Preschool" OR "Child, Hospitalized") AND ("Education Technology" OR "Children's Digital Literature" OR "Narration") AND ("Storytelling" OR "Digital Technology" OR "Children's Digital Literature" OR "Book" OR "Book Illustrations") AND ("Child Development")* Filter: Last 10 years (2014-2024).	31
Total		351

Source: Authors' own (2025).

The search for articles was conducted through the Periodicals Portal of the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). The studies found were imported into Rayaan, optimizing the initial selection for this review.

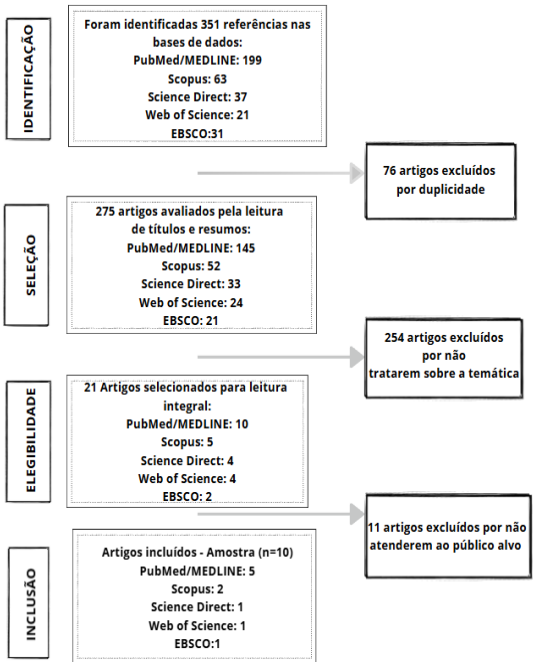
The final sample included original articles published in the last ten years, available in full text, in English, Portuguese, and Spanish, that answered the guiding question regarding the contributions of DCL to children. Duplicate articles, review articles, and articles from grey literature not intended for publication (dissertations, theses, monographs, editorials, case studies, and preliminary notes) were excluded. Once located, the titles, abstracts, and keywords of the articles were read, and those that answered the research question of this review were selected for full-text reading.

The article search and selection process was adapted from the recommendations of the Prisma model, as can be seen in Figure 1 (Page *et al.*, 2021). The articles selected for the review were compiled into a spreadsheet containing items related to the year of publication, types of study, subject matter, resources used, target audience, setting, and main contributions of the study (Table 2). The data from the selected articles were analysed and summarised succinctly in a table to facilitate comparison of topics and categorisation of information.

3 Results and discussion

A total of 351 articles were obtained during the search process, of which ten were included in the final sample. This final sample resulted from applying previously defined eligibility criteria, which significantly reduced the initial collection. The 254 studies were excluded because they did not correspond to the defined theme. This was mainly due to the studies addressing the subject only tangentially, dealing with a population/context distinct from education and/or health, analyzing different variables/outcomes, or falling into ineligible publication types (reports, opinions, reviews, and argumentative/reflective documents). Figure 1 illustrates the selection process.

Figure 1 – Selection process and final sample of publications on DCL based on the Prisma model



Source: Authors' own (2025).

Table 2 – Study identification, year of publication, type of study, authors, journal, theme, technological resources used to mediate the stories, target audience, scenarios

Study year	Type of study	Authors	Journal	Theme	Resources	Target audience	Environment
E1 2021	Randomized controlled pilot trial	Guevara *et al.*	*Academic Pediatrics*	Promoting early literacy using digital devices	App with e-books and hardcover books	Infants aged 5 to 6 months before their routine six-month visit	Pediatric primary care clinics
E2 2019	The study involved functional magnetic resonance imaging	Hutton *et al.*	*Brain Connectivity*	Understanding the functional connectivity of attention through the use of audio, illustrations, and animated stories	Stories presented in the same order for each child (audio/illustrated/animated)	Children of preschool age	Children's hospital
E3 2024	Larger longitudinal study	Koch *et al.*	*Infancy*	Evaluation of the use of digital media and other media by children and caregivers	Stories in videos/illustrated books	Children at 9 months and again at 2 years of age	At home
E4 2024	Randomized clinical trial	Yang *et al.*	*Child Development*	Fostering bilingual learning	Interactive e-book of bilingual Chinese-English stories with or without discussion prompts	Children aged 3 to 7 years	At home
E5 2020	Experimental study	Eng, Tomasic, and Thiessen	*Developmental Psychology*	Fostering learning through digital stories	Digital platforms with interactive iPad books	90 children aged 3 to 5 years	School
E6 2018	Investigative study	Fleer	*British Journal of Educational Technology*	Using the MayCreate application to create a digital animation of a story or fairy tale	MyCreate App	16 teachers digitally engaged with children (3-8 years old)	School
E7 2014	Investigative study	Masataka	*Frontiers in Psychology*	Use of Japanese illustrated DCL	Digital children's books on iPad	30 children aged 4 and their mothers	At home
E8 2014	Exploratory-investigative study	Åberg, Lantz-Andersson and Pramling	*Early Child Development and Care*	Evaluation of storytelling activities mediated by technology	Word processor and computer software for speech-synthesized feedback	Children aged 6 to 8 years old	School
E9 2023	Investigative study	Menegazzi and Sylla	*Brazilian Journal of Information Design*	Research into the interaction with hotspots in digital books, which typically offer various multimedia features	Tablet with storytelling apps	Six children (aged 6 to 8) and six mediators	School
E10 2024	Mixed methods study	Işikoğlu and Güzen	*Early Child Development and Care*	Fostering children's storytelling abilities and technical skills through digital storytelling	*Tablets with app*	Eleven girls and seven boys, with an average age of 61 months. Their ages ranged from 56 to 68 months	School

Source: Authors' own (2025).

Regarding the distribution of articles in the databases, four (40%) articles were identified in Medline/PubMed, and three (30%) in Scopus, one (10%) in ScienceDirect, one (10%) in Web of Science, and one (10%) in EBSCO. The highest frequency of publications occurred in the years 2024 and 2014.

The digital children's stories identified in the studies were mediated through mobile applications (E1, E6, E9, E10); digital platforms (E5), DCL (E7), computer software (E8), story videos (E3), stories with animations (E2), interactive e-books (E4), on different types of devices (cell phone, tablet and computers), as described in Table 2.

The themes addressed in the studies reveal the impacts of DCL on children's learning process (E1, E2, E3, E4, E5, E6, E7, E8, E10) (99%) and on child development (E1, E2, E3, E4, E5, E6, E7, E8, E10) (99%) and describe the method for evaluating the experience of children and mediators in reading digital books (E9) (1%). Other topics covered include: bilingual learning (E4); stimuli for children (E2, E3), e-book design and its impact on learning (E4, E9); creativity through the use of DCL (E6), presence of mediators during the use of DCL (E6, E8, E9).

The target audience consisted of children aged five months to eight years at home (E3, E4, E7) (30%), school (E5, E6, E8, E9, E10) (50%), and healthcare (E1, E2) (20%) settings. The discussion was organized based on the themes of the selected articles for this review and subdivided into the following thematic axes: I - Learning mediated by the use of DCLs; II - The structure/design of DCLs and their impacts on the learning process; III - The role of mediators during the use of DCLs.

Table 3 shows the main results from the selected studies, organized by numerical order of the identification number.

Table 3 – Main results found in the selection process

(continues)

Article	Main results
E1	Promoting early literacy with e-books proved attainable, but there was no significant difference in language development compared to printed books. Concerns were raised about potential negative impacts on language development, suggesting the need for further studies to assess the long-term effects of e-books.
E2	Illustrated stories balance attention, visual integration, and language support in young children. Audio offers limited visual stimuli, and animation can overload the working memory. Illustrations appear to be the best option for cognitive development in childhood.

(conclusion)

E3	Reading and memory: children exposed to reading illustrated books exhibited better memory retention for live events, while video consumption was associated with poorer memory retention for pre-recorded events.
E4	Children with less self-regulation have more difficulty understanding stories. Discussion prompts in e-books and increased verbalization can help children with attention deficit hyperactivity disorder. The results impact the design of e-books and reading practices.
E5	The children received one contingent book and three non-contingent controls: a board book (experiment 1), a static digital book (experiment 2), and an animated book (experiment 3). The use of the contingent book significantly increased children's story recall and was found to be especially helpful for children with less developed attention regulation.
E6	The use of the MyCreate app in school settings has enabled children to dramatize familiar stories and create digital animations. Research suggests that this approach supports the development of creativity, cognition, and social skills, allowing children to explore narratives interactively and dynamically.
E7	The study analyzed the impact of digital and printed books on children's reading. The group that used digital books showed significant improvement in literacy, especially in Japanese syllabic writing (kana), while the group that used printed books showed no progress. The results suggest that intensive exposure to digital books can strengthen reading development.
E8	The study showed that digital tools partially diverted children's attention from storytelling to technical aspects and task division. Despite this, with teacher guidance, they were able to create stories using software with voice feedback.
E9	The study developed a method to evaluate the experience of children and mediators in reading digital books on mobile devices. Play metrics, interviews, and multimodal analysis were used to investigate interaction with hotspots.
E10	Six weeks of digital storytelling improved the children's receptive and expressive language skills. They combined traditional techniques with new technologies, creating more structured stories with more characters, a complete plot, and emotions.

Source: Authors' own (2025).

3.1 The structure/design of the DCL and its impacts on the learning process

According to Vygotsky (1991, 2010), from the sociocultural perspective of his theory, child development is profoundly influenced by the environment in which the child is immersed, since higher psychological functions are constituted from social interactions mediated by culture and language. Thus, the contemporary context, marked by the presence of digital technologies, shapes interaction and knowledge construction. This implies a constant search for connection with this technological reality, not only as a form of entertainment, but also as an environment for social participation and learning (Vygotsky, 1991, 2010).

In this sense, DCL plays a pedagogical role when its design balances visual, auditory, and interactive resources. Studies conducted with preschoolers demonstrate that digital books with balanced visual and audio resources improve the vocabulary of young children, whereas combining all these elements without planning has been observed to overload the child's brain (Li; Bus, 2023; Son; Butcher, 2024).

It is necessary to consider how digital books for children are constructed. In this regard, Furenes, Kucirkova, and Bus (2021) demonstrated the importance of planning the content and design of digital children's books. They emphasized that well-planned books facilitate understanding of the stories.

Interactivity in digital children's books also needs direction. However, tools that trigger random effects distract from the plot. According to Liu et al. (2024), cognitive gain only occurs when there is a clear purpose linking the narration to learning.

Furenes, Kucirkova, and Bus (2021) also highlight that the objectives of digital children's books must be well-defined, as this implies the provision of complementary visual and audio resources, which can directly impact children's learning process. Offering digital literature to children requires diligence and direction. Munzer et al. (2026) support this perspective, describing how high-quality educational digital content is associated with better language development and prosocial behaviors in children. They add that certain applications can facilitate learning in subjects such as science, mathematics, problem-solving, and foreign languages. They also highlight that these effects are often amplified when used alongside a caregiver who can guide, interact with, and engage in dialogue with the child during the activity.

Thus, e-books that embed question prompts have made the presence of parents or teachers essential for the use of these guides, which favors the adult-child bond and increases inferential understanding of the story, especially in readers with low self-regulation (Strouse; Troseth; Stuckelman, 2023; Yang et al., 2022).

The work of Etta and Kirkorian (2019) presents results suggesting that the use of simple interactive resources promotes storytelling understanding and does not exceed the capacity of preschool children to comprehend and learn from narrative, emphasizing that the benefit depends on the complexity and integration of the resources with the plot. In contrast, the aforementioned study diverges from the findings

of the article by Koch et al. (2024), which states that children who are exposed to illustrated books tend to have a greater ability to recall lived events, while exposure to videos is associated with lower performance.

According to Desmurget (2023, p. 182), "[...] digital lifestyles affect the ability to stay focused for extended periods [...] They are always lacking in novelty". This continuous need for stimuli and the rapid switching of focus tend to impair attention, a central condition for encoding and consolidating memory during reading. Therefore, in contrast, reading printed books, by favoring a more stable rhythm with fewer interruptions and less competition for stimuli, is usually associated with greater content retention when compared to digital environments marked by notifications, hyperlinks, and multitasking.

The design of children's books is also advancing towards augmented reality experiences. It has been identified that digital children's books with augmented virtual reality improve the ability to retell the story without increasing mental load, thus promoting a comprehensive understanding of the stories (Simsek, 2024).

Results are repeated in diverse contexts. Exposure to DCL increased motivation for reading among Chinese children, while reducing fatigue associated with performing reading activities (Wu; Amzah, 2023). The use of apps showed significant improvements in specific skills, such as phonological awareness, numerical skills, and letter knowledge (Niklas et al., 2025).

Furthermore, Dahlan et al. (2024) highlight that interactive features in e-books promote greater reader engagement, transforming the act of reading into a participatory experience that facilitates knowledge construction and reflection on the content, favoring engagement and enhancing active participation in the learning process. On the other hand, the Núcleo Ciência pela Infância (NCPI, 2025) highlights in a document on the use of screens and digital media that excessive screen time in childhood and adolescence is associated with several negative consequences, including increased risks of mental health problems, sleep disturbances, and academic performance issues, as well as an increase in depressive symptoms and possible brain alterations. It also points to a worsening of diet (more consumption of ultra-processed foods), associated with greater internet dependence, which can lead to aggressive behavior and bullying. In general, the longer the screen time, the greater the risks tend to be.

Thus, to better address this situation, Munzer et al. (2026) recommend that professionals use the “5 Cs” approach to guide the use of digital media: child (what are their strengths?); content (what type of content is consumed?); calm (is media used for emotional regulation?); impact/interference (analyze impacts on the child's and family's routine?); and communication (how is the family's dialogue about media use?). Furthermore, they also emphasize the importance of supporting caregivers and understanding the reasons for digital media use, promoting guidance focused on the child's well-being.

Therefore, digital children's books need to utilize resources that provide objective information related to the story, while their functionalities point to the plot and, at the same time, integrate the mediator through on-screen questions or other dynamic stimuli, directing them to spaces that broaden the horizon of learning, and also making this experience an environment for reflection. When these conditions align, digital learning becomes a way to improve vocabulary, comprehension, and creativity. And, above all, the presence of a diligent mediator will make the use of technology a safer environment for children.

3.2 The role of mediators during the use of DCL

The migration from printed books to digital formats requires a redefinition of the role of mediators (teachers, parents, and caregivers) in the face of the new possibilities offered by interactive technologies. The positive impact of digital literature on child development is contingent upon active, structured, and context-responsive mediation. Furthermore, in both formats, mediation is essential for child development.

According to Vygotsky (1991, 2010), mediation is what makes learning truly formative, because it is in social interaction with other people and with the environment, especially in cooperative situations, that learning activates internal developmental processes that do not yet operate fully autonomously. Over time, these processes become internalized and part of the child's independent development.

Kucirkova and Flewitt (2018) demonstrate that adult mediation during digital reading significantly improves textual comprehension and expands vocabulary. The

mediator helps the child articulate meanings, maintain narrative focus, and avoid distractions caused by visual and auditory resources.

Sari et al. (2019) and Son and Butcher (2024) support this view, noting that although plot-related animations enhance comprehension, excessive or unrelated multimedia elements can hinder learning. These findings suggest that mediation should encompass curating and controlling the available content.

About sensory engagement, studies such as that of Kucirkova and Kamola (2022) highlight that digital stories involving multiple sensory stimuli require a mediator who acts as a facilitator of experiences, promoting the active construction of meaning. In turn, Bus, Takács, and Kegel (2015) observe that children with language difficulties benefit more from mediation when multimodal resources are intentionally and congruently used with the narrated text.

Another relevant aspect concerns personalization technologies. Kucirkova, Toda, and Flewitt (2021) highlight that the autonomy provided by personalized software must be accompanied by critical mediation, ensuring the safety, pedagogical purpose, and relevance of the selected content. They add that respect for children's agency demands active listening and sensitivity to adapt the tools to the child's profile and interests. Furthermore, as described by Nunes et al. (2022), mediation also takes on an affective role. They point out that a child's familiarity with the characters and contexts of digital stories favors comprehension, especially when the mediator explores emotional bonds and associations related to the child. In this scenario, the adult acts as a link between the narrative universe and the child's experience, fostering engagement and empathy.

Thus, Vygotsky (2010) highlights that the environment mediates not only cognitive content, but also emotions and affects; the emotional reactions produced in relationships and lived experiences influence how the child attributes meaning to what they learn, playing a central role in the construction of knowledge and their subjectivity.

So, it becomes evident that the mediating role transcends direct instruction and assumes pedagogical, sensory, cognitive, and affective dimensions. According to Reyes (2017), a love triangle is formed between the mediating adult, the child, and the book. For digital literature, effective mediation requires knowledge of child development, proficiency with digital tools, and an educational purpose. The absence or inadequacy of mediation

can not only compromise the learning process but also accentuate inequalities in access to and critical appropriation of technology.

4 Conclusion

This review highlights that DCL expands learning opportunities by combining multimodal resources, accessibility, and personalization possibilities; however, its benefits do not derive from the mere presence of technology, but from the articulation of three interdependent factors: interactivity, design, and human interaction.

Regarding interactivity, it needs to be pedagogically meaningful, and this is possible when we use animations, tools, and games aligned with the plot, reinforcing vocabulary, inferences, and memory. In this way, digital children's books enhance linguistic and cognitive development. However, when these elements are used without intention, they overload attention and disperse focus, thereby reducing their effectiveness.

In terms of design, DCL should respect principles of coherence, signage, and pacing. Well-designed digital books balance text, image, and sound, maintain short, dynamic stimuli, and offer dialogic supports that invite reflection. In this configuration, digital literature stops competing with narrative and starts expanding it. This fosters creativity, reflection, and motivation to read.

Furthermore, human mediation remains, unequivocally, an essential element in the process of reading digital children's books. Parents, teachers, and librarians potentially transform the learning process by discussing the story, regulating stimuli, and adjusting support to each child's individual profile.

So, it is crucial to consider the sociocultural context in which digital reading occurs, as access to technologies is unequal, and digital skills and the spaces where reading takes place can accentuate disparities in child development. Thus, promoting digital reading requires public policies, training for mediators, and careful curation of works that prioritize narrative quality and usability. In this way, screens can function as intermediaries for the development of critical, creative, and socially engaged readers.

6 References

ÅBERG, E.; LANTZ-ANDERSSON, A.; PRAMLING, N. 'Once upon a time there was a mouse': children's technology-mediated storytelling in preschool class. *Early Child Development and Care*, Reino Unido, v. 184, n. 11, p. 1583-1598, 2014. DOI: https://doi.org/10.1080/03004430.2013.867342. Available in: https://www.tandfonline.com/doi/abs/10.1080/03004430.2013.867342. Accessed in: 10 ago. 2025.

BARONE, L. M. C. A literatura na primeira infância. *Revista Psicopedagogia*, São Paulo, v. 37, n. 113, p. 225-231, 2020. DOI: https://doi.org/10.5935/0103-8486.20200020. Disponível em: https://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S0103-84862020000200009. Accessed in: 10 ago. 2025.

BUS, A. G.; TAKACS, Z. K.; KEGEL, C. A. T. Affordances and limitations of electronic storybooks for young children's emergent literacy. *Developmental Review*, [*S. l.*], v. 35, p. 79-97, 2015. DOI: https://doi.org/10.1016/j.dr.2014.12.004. Disponível em: https://www.sciencedirect.com/science/article/pii/S0273229714000501. Accessed in: 10 ago. 2025.

CHUANG, C.; JEMIAT, N. A systematic review on the effectiveness of children's interactive reading applications for promoting language and literacy development. *Contemporary Educational Technology*, [*S. l.*], v. 15, n. 2, p. 1-16, 2023. DOI: https://doi.org/10.30935/cedtech/12941. Disponível em: https://www.cedtech.net/download/a-systematic-review-on-the-effectiveness-of-childrens-interactive-reading-applications-for-promoting-12941.pdf. Accessed in: 10 ago. 2025.

DAHLAN, M. M. *et al.* Empowering learning: the impact of interactive ebooks. *Educational Administration*: Theory and Practice, [*S. l.*], v. 30, n. 5, p. 12231-12237, 2024. Available in: https://www.researchgate.net/publication/381471577_Empowering_Learning_The_Impact_Of_Interactive_Ebooks. Accessed in: 13 ago. 2025.

DESMURGET, M. *A fábrica de cretinos digitais*: os perigos das telas para as nossas crianças. São Paulo: Vestígio, 2021.

ENG, C.; TOMASIC, A.; THIESSEN, E. Contingent responsivity in e-books modeled from quality adult–child interactions: Effects on children's learning and attention. *Developmental Psychology*, [*S. l.*], v. 56, n. 2, p. 285-297, 2020. DOI: https://doi.org/10.1037/dev0000869. Available in: https://pubmed.ncbi.nlm.nih.gov/31855013/. Accessed in: 10 ago. 2025.

ETTA, R. A.; KIRKORIAN, H. L. Children's learning from interactive eBooks: Simple irrelevant features are not necessarily worse than relevant ones. *Frontiers in Psychology*, [*S. l.*], v. 9, e2733, 2019. DOI: https://doi.org/10.3389/fpsyg.2018.02733. Available in:

https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2018.02733/full. Accessed in: 10 ago. 2025.

FLEER, M. Digital animation: New conditions for children's development in play-based settings. *British Journal of Educational Technology*, Reino Unido, v. 49, n. 5, p. 827-839, 2018. DOI: https://doi.org/10.1111/bjet.12637. Available in: https://nepc.colorado.edu/blog/play-based. Accessed in: 10 ago. 2025.

FREDERICO, A. Ler e sentir: a representação multimodal das emoções na literatura infantil digital. *Bakhtiniana*: Revista de Estudos do Discurso, São Paulo, v. 19, n. 3, e64214, p. 1-25, 2024. DOI: https://doi.org/10.1590/2176-4573p64214. Available in: https://www.scielo.br/j/bak/a/MnxG3m4576Z3GQ7MYDmWrKb/?lang=pt. Accessed in: 10 ago. 2025.

FURENES, M. I.; KUCIRKOVA, N.; BUS, A. A comparison of children's reading on paper versus screen: A meta-analysis. *Review of Educational Research*, [*S. l.*], v. 91, n. 4, p. 1-35, 2021. DOI: https://doi.org/10.3102/0034654321998074. Available in: https://journals.sagepub.com/doi/10.3102/0034654321998074. Acessoe m: 10 ago. 2025.

GUEVARA, J. P. *et al.* Promoting early literacy using digital devices: A pilot randomized controlled trial. *Academic Pediatrics*, [*S. l.*], v. 21, n. 6, p. 1001-1008, 2021. DOI: https://doi.org/10.1016/j.acap.2021.05.013. Available in: https://pubmed.ncbi.nlm.nih.gov/34022425/. Accessed in: 10 ago. 2025.

HAIDT, J. *A geração ansiosa*: como a infância hiperconectada está causando uma epidemia de transtornos mentais. São Paulo: Companhia das Letras, 2024.

HUTTON, J. S. *et al.* Functional connectivity of attention, visual and language networks during audio, illustrated and animated stories in preschool-age children. *Brain Connectivity*, [*S. l.*], v. 9, e01278, p. 1-13 2019. DOI: https://doi.org/10.1089/brain.2019.0679. Available in: https://pubmed.ncbi.nlm.nih.gov/31144523/. Accessed in: 10 ago. 2025.

IŞIKOĞLU, N.; GÜZEN, M. The promise of digital storytelling for kindergarteners: Language and technology skills. *Early Child Development and Care*, [*S. l.*], v. 194, n. 2, p. 195-207, 2024. Available in: https://doi.org/10.1080/03004430.2023.2299389. Available in: https://www.tandfonline.com/doi/full/10.1080/03004430.2023.2299389. Accessed in: 10 ago. 2025.

ITAÚ SOCIAL. *Guia de literatura infantil digital*. São Paulo: Itaú Social, 2022. Available in: https://www.itausocial.org.br/wp-content/uploads/2023/01/Guia-de-literatura-infantil-digital.pdf. Accessed in: 13 ago. 2025.

KOCH, F.-S. *et al.* Toddler's memory and media – Picture book reading and watching video content are associated with memory at 2 years of age. *Infancy*, [*S. l.*], v. 29, n. 5,

p. 729-749, 2024. DOI: https://doi.org/10.1111/infa.12609. Available in: https://pubmed.ncbi.nlm.nih.gov/39024123/. Accessed in: 10 ago. 2025.

KUCIRKOVA, N.; FLEWITT, R. The future-gazing potential of digital personalization in young children's reading: Views from education professionals and app designers. *Early Child Development and Care,* v. 190, n. 2, p. 135-149, 2018. DOI: https://doi.org/10.1080/03004430.2018.1458718. Available in: https://www.tandfonline.com/doi/full/10.1080/03004430.2018.1458718. Acessoe m: 10 ago. 2025.

KUCIRKOVA, N.; KAMOLA, M. Children's stories and multisensory engagement: Insights from a cultural probes study. *International Journal of Educational Research*, [*S. l.*], v. 114, 2022. DOI: https://doi.org/10.1016/j.ijer.2022.101995. Available in: https://www.sciencedirect.com/science/article/pii/S0883035522000738. Accessed in: 10 ago. 2025.

KUCIRKOVA, N.; TODA, Y.; FLEWITT, R. Young children's use of personalized technologies: Insights from teachers and digital software designers in Japan. *Technology, Knowledge and Learning*, [*S. l.*], v. 26, p. 535-554, 2021. DOI: https://doi.org/10.1007/s10758-020-09465-3. Available in: https://link.springer.com/article/10.1007/s10758-020-09465-3. Accessed in: 10 ago. 2025.

LI, X.; BUS, A. G. Efficacy of digital picture-book enhancements grounded in multimedia learning principles: Dependent on age?. *Learning and Instruction*, [*S. l.*], v. 85, e101749, 2023. DOI: https://doi.org/10.1016/j.learninstruc.2023.101749. Available in: https://www.sciencedirect.com/science/article/pii/S095947522300018X. Accessed in: 10 ago. 2025.

LIU, N. *et al.* The interference effect of low-relevant animated elements on digital picture-book comprehension in preschoolers: An Eye-Movement Stud. *Journal of Eye Movement Research*, [*S. l.*], v. 17, n. 4, p. 1-16, 2024. DOI: https://doi.org/10.16910/jemr.17.4.1. Available in: https://www.mdpi.com/1995-8692/17/4/19. Accessed in: 10 ago. 2025.

MASATAKA, N. Development of reading ability is facilitated by intensive exposure to a digital children's picture book. *Frontiers in Psychology*, [*S. l.*], v. 5, n. 396, p. 1-4, 2014. DOI: https://doi.org/10.3389/fpsyg.2014.00396. Available in: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2014.00396/full. Accessed in: 10 ago. 2025.

MELLON, N. *A arte de contar histórias*. Rio de Janeiro: Rocco, 2006.

MENDES, K. D. S.; SILVEIRA, R. C. C. P.; GALVÃO, C. M. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. *Texto & Contexto Enfermagem*, Florianópolis, v. 17, n. 4, p. 758-764, 2008. DOI: https://doi.org/10.1590/S0104-07072008000400018. Available in:

https://www.scielo.br/j/tce/a/XzFkq6tjWs4wHNqNjKJLkXQ/?format=html&lang=pt. Accessed in: 10 ago. 2025.

MENEGAZZI, D.; SYLLA, C. Reading hotspots: A method to evaluate reader and mediator's experience with children's digital books. *Brazilian Journal of Information Design*, São Paulo, v. 20, n. 3, p. 1-19, 2023. DOI: https://doi.org/10.51358/id.v20i3.1108. Available in: https://www.infodesign.org.br/infodesign/article/view/1108. Accessed in: 10 ago. 2025.

MORGAN, H. Multimodal children's e-books help young learners in reading. *Early Childhood Education Journal*, [*S. l.*], v. 41, p. 477-483, 2013. DOI: https://doi.org/10.1007/s10643-013-0575-8. Available in: https://link.springer.com/article/10.1007/s10643-013-0575-8. Accessed in: 10 ago. 2025.

MUNZER, T. *et al.* Digital ecosystems, children, and adolescents: Policy statement. *Pediatrics*, [*S. l.*], v. 157, n. 2, e2025075320, p. 92-106, 2026. DOI: https://doi.org/10.1542/peds.2025-075320. Available in: https://publications.aap.org/pediatrics/article/157/2/e2025075320/206129/Digital-Ecosystems-Children-and-Adolescents-Policy?autologincheck=redirected. Accessed in: 10 ago. 2025.

NCPI. *Proteção à primeira infância entre telas e mídias digitais*. São Paulo: Núcleo Ciência pela Infância, 2025. *E-book*. ISBN 978-65-85375-11-5. Available in: https://ncpi.org.br/publicacao/protecao-a-primeira-infancia-entre-telas-e-midias-digitais/. Accessed in: 2 mar. 2026.

NIKLAS, F. *et al.* Learning apps at home prepare children for school. *Child Development*, [*S. l.*], v. 96, n. 2, p. 577-590, 2025. DOI: https://doi.org/10.1111/cdev.14184. Available in: https://onlinelibrary.wiley.com/doi/10.1111/cdev.14184. Accessed in: 10 ago. 2025.

NUNES, L. *et al.* The distance between the story character and the reader: Evidencing the impact of familiarity in children's storybooks. *Children and Youth Services Review*, [*S. l.*], v. 139, 2022. DOI: https://doi.org/10.1016/j.childyouth.2022.106584. Available in: https://www.tandfonline.com/doi/full/10.1080/02702711.2024.2405483. Accessed in: 10 ago. 2025.

PAGE, M. *et al.* The Prisma 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, [*S. l.*], v. 372, n. 71, 2021. DOI: https://doi.org/10.1136/bmj.n71. Available in: https://www.bmj.com/content/372/bmj.n71. Accessed in: 10 ago. 2025.

REYES, Y. O triângulo amoroso. *In*: LIMA, E.; FARIAS, F.; LOPES, R. (org.). *As crianças e os livros*: reflexões sobre a leitura na primeira infância. Belo Horizonte: Fundação Municipal de Cultura, 2017. p. 46-51.

SANTOS, C. M. C.; PIMENTA, C. A. M.; NOBRE, M. R. C. A estratégia PICO para a construção da pergunta de pesquisa e busca de evidências. *Revista Latino-Americana*

de Enfermagem, Ribeirão Preto, v. 15, n. 3, p. 508-511, 2007. DOI: https://doi.org/10.1590/S0104-11692007000300023. Available in: https://www.scielo.br/j/rlae/a/CfKNnz8mvSqVjZ37Z77pFsy/?lang=pt. Accessed in: 10 ago. 2025.

SARI, B. *et al.* A randomized controlled trial to test efficacy of digital enhancements of storybooks in support of narrative comprehension and word learning. *Journal of Experimental Child Psychology*, [*S. l.*], v. 179, p. 212-226, 2019. DOI: https://doi.org/10.1016/j.jecp.2018.11.006. Available in: https://www.sciencedirect.com/science/article/abs/pii/S0022096518304636. Accessed in: 10 ago. 2025.

SIMSEK, E. E. The effect of augmented reality storybooks on the story comprehension and retelling of preschool children. *Frontiers in Psychology*, [*S. l.*], v. 15, e1459264, p. 1-9, 2024. DOI: https://doi.org/10.3389/fpsyg.2024.1459264. Available in: https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2024.1459264/full. Accessed in: 10 ago. 2025.

SON, S.-H. C.; BUTCHER, K. Effects of varied multimedia animations in digital storybooks: A randomised controlled trial with preschoolers. *Journal of Research in Reading*, [*S. l.*], v. 47, n. 1, p. 140-162, 2024. DOI: https://doi.org/10.1111/1467-9817.12452. Available in: https://onlinelibrary.wiley.com/doi/10.1111/1467-9817.12452. Accessed in: 10 ago. 2025.

STROUSE, G.; TROSETH, G.; STUCKELMAN, Z. Page and screen: Storybook features that promote parent-child talk during shared reading. *Journal of Applied Developmental Psychology*, [*S. l.*], v. 86, e101522, 2023. DOI: https://doi.org/10.1016/j.appdev.2023.101522. Available in: https://www.sciencedirect.com/science/article/abs/pii/S0193397323000114. Accessed in: 10 ago. 2025.

VYGOTSKY, L. S. *A formação social da mente*: o desenvolvimento dos processos psicológicos superiores. 4. ed. São Paulo: Martins Fontes, 1991.

VYGOTSKY, L. S. *Psicologia pedagógica*. 3. ed. São Paulo: Martins Fontes, 2010.

WU, Z.; AMZAH, F. A comparative study on the effects of e-picture books and printed books on story comprehension and reading motivation among Chinese preschoolers. *Forum for Linguistic Studies*, [*S. l.*], v. 5, n. 3, p. 1-13, 2023. DOI: https://doi.org/10.59400/fls.v5i3.1954. Available in: https://ojs.acad-pub.com/index.php/FLS/article/view/v5i3.1954. Accessed in: 10 ago. 2025.

YANG, D. *et al.* Self-regulation and comprehension in shared reading: The moderating effects of verbal interactions and e-book discussion prompts. *Child Development*, [*S. l.*], v. 95, n. 6, p. 1934-1949, 2024. DOI: https://doi.org/10.1111/cdev.14128. Available in: https://pubmed.ncbi.nlm.nih.gov/38887788/. Accessed in: 10 ago. 2025.

YANG, D. *et al.* The role of bilingual discussion prompts in shared e-book reading. *Computers & Education*, [*S. l.*], v. 190, n. 104622, p. 1-14, 2022. DOI: https://doi.org/10.1016/j.compedu.2022.104622. Available in: https://www.sciencedirect.com/science/article/pii/S0360131522001932. Accessed in: 10 ago. 2025.

YOKOTA, J.; TEALE, W. H. Picture books and the digital world: educators making informed choices. *The Reading Teacher*, [*S. l.*], v. 67, n. 8, p. 577-585, 2014. DOI: https://doi.org/10.1002/trtr.1262. Available in: https://ila.onlinelibrary.wiley.com/doi/10.1002/trtr.1262. Accessed in: 10 ago. 2025.

Mirelly da Silva Barros Souza, Universidade Federal de Pernambuco (UFPE)
[i] https://orcid.org/0000-0002-5205-0144
PhD and Master's degree in Child and Adolescent Health from UFPE. Residency in Child Health at Instituto de Medicina Integral Professor Fernando Figueira (IMIP) and Universidade de Pernambuco (UPE). Registered Nurse from Universidade Federal de Campina Grande (UFCG).
Authorship contribution: Data curation, writing (first draft), writing (proofreading and editing), research, methodology, discussion, and conclusion.
Lattes: http://lattes.cnpq.br/4835325023125346
E-mail: mirelly.barros@ufpe.br

Maria Wanderleya de Lavor Coriolano-Marinus, Universidade Federal de Pernambuco (UFPE), Departamento de Enfermagem no Centro de Ciências de Saúde
[ii] https://orcid.org/0000-0001-7531-2605
PhD and Master's degree in Child and Adolescent Health from UFPE. Assistant Professor at UFPE.
Authorship contribution: Formal analysis, review and editing, funding acquisition, supervision, and validation.
Lattes: http://lattes.cnpq.br/0083975903990723
E-mail: mariawanderleya.coriolano@ufpe.br

Soraya Vieira Santos, Universidade Federal de Goiás (UFG)
[iii] https://orcid.org/0000-0002-1606-2543
PhD and Master's degree in Education from UFG. Professor at UFG in the field of Educational Psychology.
Authorship contribution: Formal analysis, review and editing, supervision and validation.
Lattes: http://lattes.cnpq.br/2976689970817238
E-mail: soraya_vieira_santos@ufg.br

Data availability: Research data is only available upon request.

Responsible editor: Lia Machado Fiuza Fialho

Ad hoc experts: María Jesús Colón Castillo e Jeriane da Silva Rabelo

How to cite this article (ABNT):
SOUZA, Mirelly da Silva Barros; CORIOLANO-MARINUS, Maria Wanderleya de Lavor; SANTOS, Soraya Vieira. Contribuições da literatura infantil digital no processo de aprendizagem de crianças: uma revisão bibliográfica (2014-2024). *Educação &*

Formação, Fortaleza, v. 11, e16233, 2026. Available in: https://revistas.uece.br/index.php/redufor/article/view/e16233

Received on September 15, 2025.

Accepted on February 28, 2026.

Published on April 10, 2026.