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MEANING MAKING BY A THIRD-GRADE DYSLEXIC STUDENT THROUGH DIGITAL STORYTELLING IN ENGLISH LEARNING

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Abstrak

Disleksia memengaruhi sekitar 10–20% populasi global, namun hingga kini masih sering disalahpahami dan keliru diidentifikasi oleh para pendidik. Disleksia ditandai oleh kesulitan dalam pemrosesan fonologis, yang menimbulkan tantangan signifikan dalam pembelajaran bahasa Inggris yang bersifat tradisional dan berfokus pada teks. Meskipun demikian, banyak peserta didik dengan disleksia menunjukkan kekuatan dalam bidang visual, spasial, dan kreatif. Penelitian kualitatif studi kasus tunggal ini menelaah bagaimana seorang siswa kelas tiga dengan disleksia membangun makna melalui *Digital Storytelling* (DST) dalam konteks pembelajaran bahasa Inggris. Melalui dua narasi digital yang bersifat personal dan autobiografis, partisipan menggunakan berbagai alat multimodal, termasuk gambar, narasi, dan urutan visual, untuk menyampaikan makna yang berakar pada pengalaman hidupnya. Temuan penelitian menunjukkan bahwa DST berfungsi sebagai penopang kognitif (*cognitive scaffold*), yang mengurangi beban kognitif ekstraneous serta memfasilitasi komunikasi ekspresif berbasis skema. Preferensi kuat partisipan terhadap realisme dan representasi visual dibandingkan dengan konten fiksi atau abstrak mencerminkan prinsip *Cognitive Load Theory* (CLT), *Dual Coding Theory*, dan *Multimodal Discourse*. Studi ini menegaskan nilai pedagogis DST sebagai pendekatan yang berpusat pada peserta didik dan inklusif, dengan memanfaatkan kekuatan kognitif siswa disleksia untuk mendukung pemahaman, retensi, dan pengembangan bahasa dalam pembelajaran bahasa Inggris tingkat dasar.

Kata Kunci: pembentukan makna; multimodal; *digital storytelling*,; disleksia; pembelajaran bahasa Inggris

Abstract

Dyslexia affects approximately 10–20% of the global population, yet it remains widely misunderstood and frequently misidentified by educators. Characterized by difficulties in phonological processing, dyslexia poses significant challenges within traditional, text-heavy English instruction. However, many dyslexic learners exhibit strengths in visual, spatial, and creative domains. This single-case qualitative study investigates how a third-grade student with dyslexia constructed meaning through Digital Storytelling (DST) in the context of English learning. Through two personal and autobiographical digital narratives, the participant employed multimodal tools; including images, narration, and visual sequencing, to convey meaning rooted in lived experience. The findings reveal that DST functioned as a cognitive scaffold, reducing extraneous cognitive load and facilitating expressive, schema-based communication. Her strong preference for realism and visual representation over fictional or abstract content illustrates the principles of Cognitive Load Theory (CLT), Dual Coding Theory, and Multimodal Discourse. This study underscores the pedagogical value of DST as a learner-centered, inclusive approach that leverages dyslexic students' cognitive strengths to support comprehension, retention, and language development in early English education.

Keywords: *meaning-making; multimodal; digital storytelling; dyslexia; english learning*

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INTRODUCTION

Dyslexia is a specific learning difficulty (SLD) that primarily affects the phonological processing of language, resulting in persistent challenges in word recognition, decoding, and spelling, despite adequate intelligence and educational opportunity (Shaywitz et al., 2020; Indonesia Dyslexia Association, 2019), yet remains misunderstood from many educators, leading to misidentification. Research also highlights that many individuals with dyslexia display strengths in creativity, problem-solving, and visual thinking (Wolf, 2008; Eide & Eide, 2011). These characteristics suggest that dyslexic learners may benefit from alternative approaches to language learning that engage their strengths rather than focusing solely on phonological deficits.

In Indonesian English classrooms, instruction often centers on decoding, memorization, and grammar-based exercises (Utaminingsih, 2025), which may disadvantage learners who process information differently. For dyslexic students, this can lead to frustration, disengagement, and low self-confidence. As these students tend to express themselves more effectively through visual and experiential modes (Mohamad et al., 2024), there is a critical need for inclusive pedagogies that support diverse ways of making meaning in language learning.

Digital Storytelling (DST) is a promising multimodal literacy practice that enables learners to integrate visual, auditory, and textual elements in constructing narratives. DST uses accessible digital tools, such as PowerPoint or mobile applications, to support storytelling through combinations of images, voice-over narration, sound effects, and text (Jegar, 2021; Rahim, 2021). It has been shown to foster learner engagement and enhance expressive capabilities by allowing students to create personal narratives in formats that align with their cognitive preferences (MacDonald et al., 2024).

The theoretical foundation of DST lies in multimodality, which refers to the use of multiple semiotic resources, such as image, gesture, sound, and text to construct meaning (Kress, 2009). In digital environments, these modes are integrated and dynamic, enabling learners to communicate ideas more richly and accessibly (Jiang et al., 2024). Danielsson and Selander (2021) emphasize that meaning-making is an inherently multimodal process in which learners select, shape, and combine representational resources based on context and purpose.

In light of these perspectives, this study aims to explore how a third-grade student with dyslexia constructs meaning in English language learning through digital storytelling. Specifically, it investigates how the student selects and uses multimodal resources—such as images, narration, and text—to build narratives, and why these modes of expression support her engagement and self-expression. By addressing these questions, the study seeks to illuminate the potential of DST as an inclusive pedagogical approach for supporting diverse learners in early English education.

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RESEARCH METHODS

This study focused on a single participant, referred to by the pseudonym *Rachel*, a third-grade homeschooled student diagnosed with dyslexia. A qualitative case study approach was employed to enable an in-depth examination of her meaning-making processes during English learning (Yin, 2018). Given the natural learning context in which the researcher also served as the participant's teacher, the study documented authentic learning experiences as they occurred during regular sessions. The research aimed to explore how the participant expressed ideas and emotions through digital storytelling, particularly considering her preference for visual and creative tasks over conventional reading and writing activities.

To maintain focus and manageability, data were collected through four complementary methods. First, observation was conducted during the digital storytelling sessions to examine the participant's reactions, decision-making processes, and language use. Second, two digital storytelling tasks were administered, in which the participant created short multimedia narratives using Canva. Third, informal conversations were carried out following each task to explore the participant's reasoning and meaning-making process through questions such as "Why did you pick that picture?" and "What do you mean by this part?" Lastly, field notes were recorded in a reflective journal to document levels of engagement, encountered challenges, and observable progress throughout the sessions.

The two digital stories were analyzed by examining how the participant combined verbal, visual, and auditory modes to convey meaning. Multimodal Discourse Analysis (Kress, 2010; Danielsson, 2021) was applied to investigate the orchestration of semiotic elements, while Dual Coding Theory (Paivio, 1986) provided insights into how verbal and visual information were processed simultaneously. The analysis also drew on Cognitive Learning Theory (Sweller, 2011) to explore how attention, memory, and understanding influenced the participant's language use and conceptual development.

RESULTS AND DISCUSSION

Difficulties in constructing meaning through digital storytelling

Challenges in spatial representation

One of the most insightful moments in Rachel's second digital story emerged when she attempted to visually depict two distinct locations, the mosque and the goat slaughtering area. While in real life these locations were physically separated by a short walking distance, the constraints of the digital storytelling canvas required her to present both settings within a single frame to maintain narrative coherence and avoid disrupting the story's temporal flow. This spatial compression posed a conceptual dilemma. Rachel hesitated, expressing concern over whether such a portrayal would distort the real-world layout she vividly remembered.

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This challenge illustrates more than a mere technical difficulty (Figure 1); it signals her developing spatial cognition and narrative reasoning. According to Kress (2010), meaning-making in multimodal texts involves not only selecting modes but also organizing them in ways that align with the maker's intention. Rachel's concern about spatial accuracy underscores her early grasp of the representational function of images. Her cognitive struggle to reconcile memory-based realism with the visual economy of storytelling reflects Paivio's (1986) dual coding theory: she was simultaneously managing verbal and visual codes, balancing semantic fidelity (accurate meaning) with spatial logic.

Figure 1. The Dyslexic Encountered a Challenge in Spatial Representation

For a dyslexic learner, whose strengths often lie outside conventional textual processing, Rachel's effort to preserve spatial realism in storytelling becomes particularly significant. Her visual composition acts as a scaffold for expressing nuanced meanings that might otherwise be difficult to convey through text alone. This case illustrates how digital storytelling can foster deep conceptual engagement, allowing learners like Rachel to negotiate abstract ideas, such as spatial relationships, sequencing, and realism, through multimodal orchestration.

Language use and word selection

Rachel expressed her narration in simple English, which reflected both her current stage of language development and the characteristic challenges associated with dyslexia. Rather than focusing on grammatical accuracy, she prioritized conveying core actions, events, and key details (Figure 2). Her utterances often consisted of essential content words that carried meaning, while function words or grammatical markers were frequently omitted or used inaccurately. For example, phrases like *"after swam, I immediately ate together"* and *"Father say goat come this night"* illustrate how she relied on intuitive word choice to get her message across. These expressions, though ungrammatical, were meaningful when supported by the visuals she selected or drew. For Rachel, the combination of images and key words was sufficient to communicate her intended narrative. This tendency to rely on keywords rather than full syntactic structures is common among young dyslexic learners, who often experience cognitive strain when processing complex linguistic forms.

Despite having limited proficiency in English grammar and syntax, the participant was able to express complex ideas by combining short verbal utterances with supportive imagery. For example, in the phrase *"Father say goat*

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come this night," the meaning was clarified and emotionally enriched by the accompanying visual of a goat and her expression of anticipation.

Figure 2. The Dyslexic Student Focused on Core Actions Than Words

This interplay between visual and verbal representations enabled more robust encoding and retrieval processes, as described by Paivio (1986). The participant's visual memory served as a scaffold for verbal recall, supporting the notion that dyslexic learners often rely on non-verbal strategies to mediate their language production. Thus, DST becomes not only a tool for creative expression but also a cognitive aid for language learning.

Strategies of meaning-making through digital storytelling

Fidelity to reality in storytelling

Rachel insisted that her stories reflect real events she had experienced consistently. She did not interest in creating imaginary or fictional narrative and often rejected suggestions that she thought lead her away from the truth. Her stories were grounded in detailed memory, and every image or element had to match exactly what she saw, wore, or did. When she explained, *"I want to choose the image that very similar with my real story. It was not mine if the image is different."*

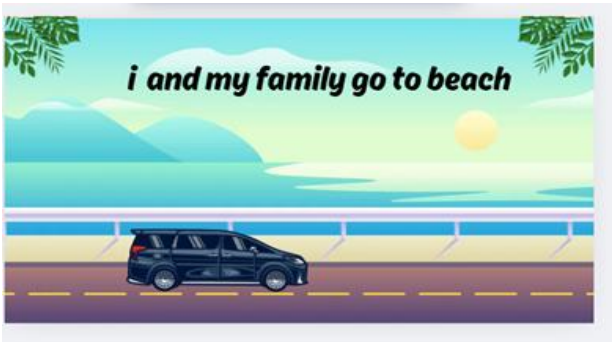

Figure 3. The Dyslexic Student Chose the Most Similar Picture with the Reality

For Rachel, as a dyslexic learner with notable strengths in visual-spatial processing, this preference for realism functioned as more than a stylistic choice, it served as a cognitive support mechanism. As Sweller (2011) emphasizes that

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learning is most effective when cognitive load is optimized, not too high nor too low. For a dyslexic learner, DST allows her to offload some of the cognitive burden by externalizing meaning through multimodal resources. By focusing on authentic experiences, she minimized extraneous cognitive load, allowing her to devote her limited working memory capacity to organizing, sequencing, and verbalizing the content. Her reluctance to fabricate stories or imagine unfamiliar scenarios can be interpreted as an intuitive strategy to preserve cognitive coherence and reduce the demands of abstract language production, which is often a challenge for dyslexic individuals.

While in the lens of Dual Coding Theory by Paivio (1986), her fidelity to reality is not only an expressive choice (Figure 3), but also a cognitive strategy that optimizes learning and meaning-making through the integration of verbal and non-verbal representational systems. This process of selecting and pairing with narration forms a powerful dual-coded message that compensates for weaknesses in one channel by strengthening the other, in this case by using vivid visual imagery.

Furthermore, fidelity to reality encourages deep elaborate encoding: the more detailed and emotionally grounded the narrative, the more likely it is that imagery and verbal labels are meaningfully interconnected, forming robust cognitive associations. Truthfulness in storytelling, in other words, enriches the dual codes because real experiences carry stronger affective and sensory components that are easier to visualize and verbalize.

Visual exactness and sequencing

In her first digital story titled *"Go to Beach,"* Rachel selected images from Canva's library with deliberate attention to detail. She chose a car image resembling her family's actual vehicle, a rinse bathroom background closely matching real-life settings, and visuals depicting how she ran to the beach with her brothers. Each slide followed a clear chronological order that mirrored her real-life experience (Figure 4), reflecting a strong reliance on memory-based sequencing. This visual structure not only enhanced narrative clarity but also supported her meaning-making process by minimizing abstraction and reinforcing familiar schemas, an approach aligned with Dual Coding The**o**ry (Paivio, 1986), where visual and verbal elements combine to enhance memory retention. Furthermore, this strategy reflects an intuitive effort to manage cognitive load (Sweller, 2011), especially extraneous load, by relying on imagery rooted in personal experience rather than unfamiliar or invented concepts.

In her second story, *"Idul Adha Celebration,"* Rachel opted to draw her own pictures and upload them into Canva. This method gave her full control over fine-grained details, such as the exact color of her dress and veil, the shirt her father wore, the various clothing of her friends, and the specific shape, size, and color of the sacrificial animals. Her illustrations also included the prayer setting and the goat slaughter area, reflecting her intention to visually capture the event as precisely as she remembered it. This level of visual exactness reveals a deep

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engagement with autobiographical memory and a desire to communicate her story with fidelity (Figure 5).

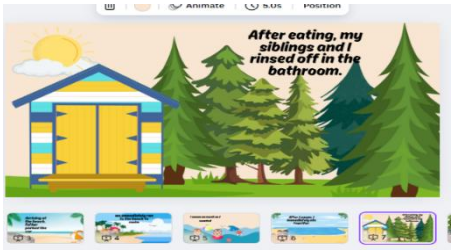

Figure 4. The Dyslexic Student Insisted to Make Chronological Sequences in the Story

Figure 5. The Dyslexic Student Used Her Own Drawn Pictures to Get Exact Details

Moreover, the tension she experienced may also point to the intrinsic cognitive load required to mentally manipulate spatial relationships and translate them into visual forms. Her experience shows how cognitive resources are distributed across planning, recall, drawing, and sequencing, highlighting the balancing act required in digital storytelling. Despite these challenges, Rachel's efforts illustrate a meaningful attempt at using multimodal literacy tools to convey personally significant narratives, demonstrating early agency in multimodal authorship.

Differentiated use of digital tools

Rachel's choice to use two different visual tools, Canva's stock images and her own hand-drawn illustrations, was purposeful and aligned with her narrative intentions. In her first story, where the goal was to share general moments using common words like *car*, *beach*, and *sky*, she relied on Canva's existing image library. These visuals were sufficient for conveying broader concepts without requiring personal detail, making the story easy to construct and follow.

In contrast, her second story focused on more personal and context-specific details, her clothing, emotions, friends, and the environment of the celebration. For this, Rachel chose to draw the visuals herself. This allowed her to control fine elements such as color, shape, and spatial layout, reflecting her desire for accuracy and emotional truth. Her decision indicates an awareness of the different expressive affordances each tool offers, showing early signs of (Kress, 2010).

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Rather than using Canva passively, Rachel combined her creativity with digital tools to meet specific communication goals. Her storytelling process reflects an active form of digital literacy, where visual modes are chosen intentionally to support meaning-making. This aligns with Danielsson's (2021) concept of *semiotic orchestration*, she deliberates combination of multimodal resources to construct coherent texts (Figure 6).

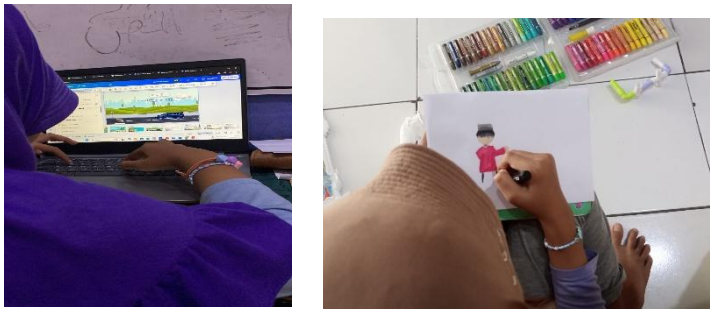

Figure 6. Evidences of the Processing in Using Canva Media and Drawing Images

CONCLUSION

This study investigated how a third-grade dyslexic learner constructed meaning through Digital Storytelling (DST) within an English learning context. The participant, referred to as Rachel, created two personal narratives using Canva: one recounting a family trip to the beach and another describing her experience during the celebration of Idul Adha. Across both projects, Rachel demonstrated a strong preference for realism and authenticity, ensuring that every visual element; from clothing color to event sequencing and even the specific model of her family's car closely matched her actual experiences.

Two distinct strategies were used to construct her visual narratives. In the first task, Rachel selected ready-made images from Canva's library, while in the second, she illustrated the visuals herself. Despite differences in visual production, both approaches were marked by high attention to detail and the deliberate orchestration of multimodal elements to communicate meaning. Her insistence on using real-life references reflected an intuitive strategy to reduce cognitive load, enabling her to focus on content she could recall with clarity, rather than constructing imagined scenes.

The findings suggest that DST provided Rachel with an accessible and empowering modality for expressing her ideas in English, despite her ongoing challenges in grammar and sentence construction. Her ability to combine simple verbal output with carefully selected or created visuals reflects the interplay between the verbal and visual systems as proposed by Dual Coding Theory (Paivio, 1986). Moreover, the coherence of her stories illustrated how multimodal meaning-making can support and compensate for linguistic difficulties, particularly in learners with dyslexia who often possess strong visual-spatial thinking skills.

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Overall, this project affirms that Digital Storytelling can serve as a cognitively supportive, inclusive, and student-centered pedagogical tool for dyslexic learners. It enables them to integrate their strengths, particularly in visual memory, sequencing, and creativity, with emerging language abilities, allowing for authentic and meaningful expression in a second language learning context.

Future research may expand on these findings by involving a broader and more diverse group of participants across different age ranges, learning contexts, and levels of English proficiency. Longitudinal studies could explore the sustained impact of DST on vocabulary growth, syntactic development, learner autonomy, self-confidence, and emotional expression. Additionally, comparative investigations between digital and traditional storytelling formats could yield further insights into how modality affects cognitive processing and learner engagement. Lastly, exploring how DST can be integrated with other inclusive teaching practices and learning technologies could enhance our understanding of its broader potential to support neurodiverse students, especially in multilingual and EFL classrooms.

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