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If you are new to the CCC division, our group supports teachers, administrators, health care providers, and families who support children with physical, health, and multiple disabilities. We support students who have a large range of cognitive abilities and a variety of educational placements. At the heart of our division is a desire to support students who experience medical, physical, and health conditions. They might have only one diagnosis or multiple diagnoses.

Complex and Chronic Conditions: The Division for Physical, Health and Multiple Disabilities of the Council for Exceptional Children (CCC-DPHMD), formerly DPHMD, is the official division of the Council for Exceptional Children (CEC) that advocates for quality education for all individuals with physical disabilities, multiple disabilities, and special health care needs served in schools, hospitals, or home settings.

The goals of CCC-DPHMD include:

- Promoting the continued development of adequate resources and programs that address the many areas of need associated with serving children and adults with physical and/or multiple disabilities, and special health care needs.

- Sharing relevant and timely information on current issues, instructional strategies, adaptations, and research through the annual CEC convention, professional meetings, training programs, and publications.

- Providing technical assistance and preservice and in-service education.

- Advocating for funds and policies that promote supportive legislation and funding for persons with physical disabilities, multiple disabilities, and special health care needs.

- Supporting the activities, policies, and procedures of the CEC and the other CEC divisions

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Implications and Strategies for Practitioners

Engagement Access Through Story-Based Lessons: A Strategy Description

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Abstract: *Teaching literacy to students with compound and chronic conditions (CCC) is critical for their academic and post-secondary success. While story-based lessons (SBLs) have been researched in many contexts, students with CCC often require more extensive supports than what is commonly described in the literature on SBL implementation. There are adaptations and practical implementation ideas that can ensure engagement access to address diverse learning needs, including sensory stimuli integration and augmentative communication technologies. This paper is the first of a two-part series and addresses the topic of engagement access, while part two addresses cognitive access. Organized by the engagement steps of the existing SBL task analysis, this paper synthesizes and proposes extensive adaptations to promote engagement access for students with CCC. By bridging research insights with practical adaptations, this paper aims to inform educators about effective strategies to improve literacy outcomes for students with complex learning needs.*

Keywords: story-based lessons, reading instruction, engagement, adaptations, complex needs

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Engagement Access Through Story-Based Lessons: A Strategy Description

Over the past two decades, there has been a substantial increase in research on teaching literacy to students with extensive support needs and/or compound and chronic conditions (CCC) in part due to legislative mandates (No Child Left Behind, 2008, Every Student Succeeds Act, 2015). Students with CCC can be a large category including health conditions (e.g., cancer, diabetes, or autoimmune disease), but also students with significant cognitive, motor, functional, and adaptive deficits or multiple disabilities (Boat & Wu, 2015). Studies show that students with extensive needs can develop literacy skills and with advancements in technology and instructional methods, meaningful engagement is possible (Fenlon et al., 2010; Erickson, 2016). Students with CCC engage may vary from traditional definitions, such as looking away to process visual information or using a manipulative in a stimulatory way versus an intended action (Hollingshead et al., 2018). Further, refinement of tools and strategies that enhance access and opportunities is crucial for achieving sustained educational outcomes for these students (Allor et al., 2014).

Story-Based Lessons

Story-based lessons (SBL) were developed to teach vocabulary and comprehension skills to students with moderate to severe disabilities, falling under the CCC umbrella (Browder et al., 2008). Story-based lessons were designed to give students in special class settings opportunities to interact in reading instruction similar to general education peers or even to facilitate their inclusion in classrooms, while covering a variety of literacy skills in a single session and increasing opportunities to respond (Courtade et al, 2013; Downing & Peckham-Hardin, 2007).

Story-based lessons have been implemented and researched with different task analyses (Spooner et al., 2009; Browder et al., 2008; Jimenez & Kemmery, 2013). Each task analysis provides multiple opportunities to respond which supports on-task behaviors, learning, and a decrease in ineffective behaviors (see Table 1). However, the task analyses do not prescribe or define adjustments or adaptations for students with CCC who may need more extensive support to overcome physical, communicative, or intellectual barriers (Hanley et al., 2023).

Table 1 *Steps of a Story-based Lesson*

SBL Task Analysis
Step 1: anticipatory set
Step 2: teach/assess vocabulary
Step 3: make a prediction
Steps 4/5: features of the cover: title, author, illustrator, awards, art
Steps 6/7: opening the book, turning pages
Step 8: repeated story line
Step 9: find vocabulary in the text
Step 10: track text
Step 11: comprehension questions
Step 12: extra skills

Note: Adapted from Browder et al., 2008 and Spooner et al., 2009

Engagement Access

By engaging with SBLs, students develop skills to gain meaning from the words on the page (Browder et al., 2007). To demonstrate skills, students with CCC must be given opportunities and support to communicate with partners that recognize and honor communicative attempts (Hanley et al., 2023). Students with CCC often have fewer opportunities to respond and low participation in literacy activities, as typical approaches rely on oral speech (Bhana et al., 2020). So, teachers and communicative partners must be attuned to how students with CCC may communicate through a variety of modalities including eye gaze, body movements, vocalizations, changes in muscle tone or breathing, and facial expressions (Hanley et al., 2023). Assistive technology like augmentative and alternative communication (AAC) devices can support students with CCC and increase their access to literacy instruction by giving them modalities to communicate, ways to physically and visually interact with the text, and providing concrete ways to demonstrate learning and skill (Marsh et al., 2021).

Adaptations for Engagement

Step 1 of the task analysis is to provide an anticipatory set to activate immediate interest and connection to the story (Baybayon, 2021). Teachers can plan multisensory interactions, which enhance participation and engagement (Linder & Falk-Ross, 2024). For example, in *Twilight* by Stephanie Meyer, when Bella moves to Washington, use pictures to show the difference in climates as well as sand and wet leaves. To engage students through visual sensory input, teachers can use short videos or GIFs (multiple Graphic Interchange Format) related to the story that pairs with known student interests. For example, when reading *Chrysanthemum* by Kevin Henkes, use a short video of a mouse scurrying or for *The One and Only Ivan* by Katherine Applegate, show a GIF of a gorilla in the zoo. Use songs or poems to activate the auditory sense, such as a snow poem for *Snow* by Uri Schulevitz, the sound of hiccups for *Skeleton Hiccups* by Margery Culyer, or *"Zero to Hero"* from *Hercules* to connect with *The Outsiders* by S. E. Hinton.

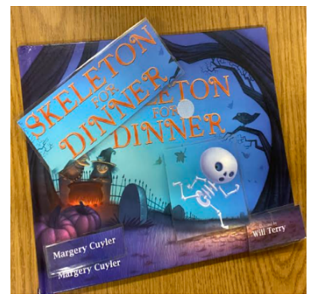
Touching real objects positively impacts students' recall and teachers should be mindful of using real or natural objects or parts of objects versus miniatures to build connection for student's future interactions (Chen & Dote-Kwan, 2021; Novak & Schwan, 2021). For example, when reading about the Kentucky Derby, use horsehair with a picture and audio of a horse. If a student has an opportunity to engage with a real horse, the natural hair, picture, and audio will give them a meaningful connection. Miniatures should be used with instruction that clearly indicates toys are not the same as the real thing. Teachers can use a variety of objects throughout the story to maintain engagement and increase interactivity. When reading *The Stranger* by Chris van Allsburg, use a large foam letter V to connect how the author describes geese flying in the sky. For *Animal Farm* by George Orwell, use real fur and skin from the animals paired with real pictures. For *Rain School* by James Rumford, a fan simulates the wind blowing. For *Ghost* by Jason Reynolds, use tennis shoes for students to practice putting on. For *The Boy in the Striped Pajamas* by John Boyne, actual pajamas could be used for students to manipulate and look at.

The senses of smell and taste can enhance student's interest in lessons. For example, when reading *Charlie and the Chocolate Factory*, teachers can allow students to smell and taste chocolate. Using food requires caution as students could become overly distracted or may have allergies. Activate the sense of smell by using essential oils on lesson materials. For example, when introducing a lesson about springtime, rose essential oil can be applied to a real or synthetic rose. Oil could be lightly applied to the book and other lesson materials to facilitate sensory engagement throughout the lesson, like *When Grandma Gives You a Lemon Tree* by Jamie L. D. Deenihan, a lemon scent oil can be dabbed to the pages.

In addition to sensorial input, students should be taught and given opportunities to engage in multiple communicative functions. Using voice output devices or response cards, students can share comments (e.g., "So cool," "That is gross," "I don't like that") and ask questions (e.g., "What's that?", "Why did you pick that?", "What is this about?").

In steps 4 and 5, students interact with and learn features of the book cover. One way to highlight important features is to remove the book jacket, then cut out and laminate title, author, illustrator, and illustrations. By adding Velcro dots to the cover of the book and the laminated pieces of the book jacket, students match pieces to the cover or pull off requested items (Figure 1). For students pulling off items, such as "find the title," teachers can differentiate by removing or reducing the number of distractors even making it errorless (i.e., only including one response option). Additionally, teachers can copy the cover, so each student has their own to interact with like their peers in general education settings. Teachers can make a copy of the table of contents, laminate and Velcro each chapter title, then have students "pull off" the chapter they are reading as a cue to help find the page number.

Figure 1. *Book Cover Features Adaptation*



In steps 6 and 7, students interact by opening the cover and turning book pages. For students with repeated or spastic physical movements, teachers can utilize that movement to increase participation. For example, for a student that lifts their arm vertically, place the page to be turned over their arm and let them lift up so that they turn the page. Book covers or pages can be adapted to facilitate students opening the book or turning the page by hand. Use popsicle sticks taped to the page, glue a puffball to be pinched and turned, foam tiles to separate the pages increasing grip access, or plastic binder tabs for more to grip. Teachers can use switch-activated materials so students can cue when to turn the page. Voice output switches can be activated by hitting a button, moving the head or neck, sipping and puffing, and even detecting subtle body changes such as slight finger movement. Teachers pre-record a message like "turn the page please" or "next page" to keep the story going. If voice output devices are not available, students can cue teachers in other ways. For example, plug a lamp into a Powerlink (https://www.ablenetinc.com/powerlink-4-north-america/), and when the student turns on the lamp, that is the cue to turn the page. A chime could also be used for the students to activate an auditory cue to turn the page, much like books on tape. Being mindful of students' communication modes allows teachers to plan for and use those communication opportunities to respect student agency and a chance to participate meaningfully.

Reading a repeated storyline (step 8) promotes engagement in the SBL as an extra opportunity to respond. A repeated storyline is usually positioned at the bottom of the page in a book and is usually either a line the author includes, or a line the teacher creates, that is repeated frequently;

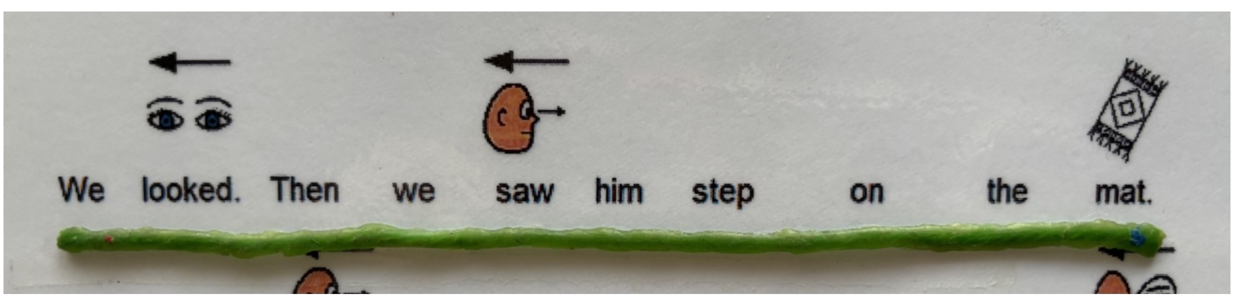
such as the theme/main idea or a lesson to learn during reading to allow students to participate. For example, in Verdi by Jaenell Cannon, the repeated storyline, "Verdi does not want to grow up," can be repeated as a message from the text or in The Gingerbread Man retold by Jim Aylesworth, use "Run! Run! As fast as you can!" (Figure 2). For a student who has an AAC system, teachers should program the repeated storyline in advance. If using a switch or other prerecorded device, allow same-age peers to record the line so that students hear a voice like theirs. Using a laminated repeated story line with Velcro, the storyline can be moved from page to page as the students progress through the book.

Figure 2. *Repeated Storyline Example in The Gingerbread Man*

One way teachers can promote independence by reading the repeated storyline is to leave the storyline incomplete. By omitting the last word or phrase in the repeated line students can use preprogrammed switches to finish the line and/or via voice output device or AAC device (i.e., having a peer recite only the repeated storyline on the recording but leaving out the last word or phrase). This strategy prompts students to recall the storyline and ultimately the main idea of the story or passage. Omitting portions of the repeated storyline should only be done once students have had access to the entire storyline first.

Tracking text from left to right is a systematic approach to developing reading skills that facilitates students' interaction with text (Browder et al., 2008; step 10). Using Wikkistix can provide a physical guide that can be moved to whichever line of text is being tracked (Figure 3). For students who are blind or have limited vision, underlining the text with hot glue can provide a tactile guide for students to follow along with their finger or hand. Additionally, for students with low vision or sensory inclination to lights, a flashlight can help highlight where students should track. Reading windows can help isolate where on the page students should focus. Teachers could also have students track the repeated storyline to increase response opportunities throughout the text (step 8).

Figure 3. *Tracking Text Example*



Conclusion

Since reading is not only a leisure skill, but functional for life outside of the classroom and post-secondary life in the community, teaching students how to engage and interact with a book is essential to not only their academic success, but also their quality of life (Zabidi et al., 2023). By making changes to a physical book or by adjusting the tools with which students participate, teachers can increase engagement for students with CCC.

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