

Beyond Screen Time:

Educational Technology as a Bridge to Reading Equity

Why the Right Technology Matters for Students with Dyslexia

Public conversations about children's "screen time" often treat all digital experiences as though they have the same impact on learning and development. This broad characterization overlooks a critical distinction: educational and assistive technologies are fundamentally different from passive recreational screen use. For students with dyslexia and other reading disabilities, educational technology is not simply another form of screen time—it is an evidence-based tool that increases access to instruction, supports literacy development, and enables equitable participation in learning.

A growing body of peer-reviewed research demonstrates that, when thoughtfully implemented alongside evidence-based structured literacy instruction, educational technology improves reading outcomes, increases student engagement, promotes independence, and provides access to grade-level curriculum while foundational reading skills continue to develop (Alqahtani, 2024; Cheung & Slavin, 2013; Jahanaray et al., 2025).

Rather than asking, "How much screen time should students have?" educators and families should ask a more meaningful question:

"How can technology be used intentionally to improve learning?"

Educational Technology Improves Reading Outcomes

Research consistently demonstrates that educational technology is most effective when it complements—not replaces—explicit, systematic literacy instruction.

A recent meta-analysis of technology-based reading interventions found moderate positive effects across phonological awareness, decoding, word recognition, reading fluency, vocabulary, and comprehension for students with reading difficulties (Alqahtani, 2024). Likewise, a meta-analysis of 67 studies on computer-assisted interventions for elementary students with dyslexia found significant improvements in word-reading accuracy, spelling, fluency, and reading comprehension (Jahanaray et al., 2025).

These findings reinforce earlier work by Cheung and Slavin (2013), whose best-evidence synthesis concluded that educational technology improves reading achievement most effectively when integrated into teacher-led instruction rather than used as a substitute for high-quality teaching.

Collectively, these studies demonstrate that educational technology functions as an instructional amplifier—expanding opportunities for differentiated practice, individualized feedback, and personalized learning while preserving the essential role of skilled educators.

Technology Removes Barriers to Reading Comprehension

Reading comprehension depends on much more than accurately decoding individual words.

For many students with dyslexia, substantial cognitive effort is devoted to word recognition, leaving fewer mental resources available for understanding, analyzing, and remembering what they read.

Educational technologies such as human-read audiobooks, text-to-speech, synchronized text highlighting, digital annotation tools, embedded vocabulary supports, and adjustable reading interfaces reduce the cognitive demands of decoding while preserving access to rich academic language.

A systematic review of educational technology for students with learning disabilities concluded that these supports improve reading comprehension by allowing students to devote more cognitive resources to constructing meaning rather than identifying words (Kim et al., 2017). Similarly, Javed and colleagues (2024) found that adaptive educational technologies increase both comprehension and student engagement by providing individualized supports that reduce unnecessary barriers to learning.

Importantly, these technologies do not replace reading instruction. Instead, they enable students to continue building vocabulary, background knowledge, and disciplinary understanding while receiving explicit instruction to strengthen foundational reading skills.

Educational Technology Provides Equitable Access to Learning

A student may decode text at a second-grade level while possessing the reasoning, curiosity, and background knowledge of a tenth grader.

Without appropriate supports, that student risks falling behind in science, social studies, mathematics, and literature—not because they lack intellectual ability, but because printed text creates unnecessary barriers to learning.

Educational technology helps close this access gap in the curriculum.

Assistive technologies such as audiobooks, text-to-speech, speech-to-text, synchronized highlighting, digital note-taking tools, and adaptive reading platforms enable students to participate in rigorous, grade-level instruction while continuing to develop foundational literacy skills (Javed et al., 2024; Kim et al., 2017).

This represents equitable access—not lowered expectations.

Educational Technology Builds Independence and Confidence

Beyond measurable improvements in literacy, assistive technology promotes student autonomy and self-efficacy.

In a five-year longitudinal study, Almgren Bäck and colleagues (2023) found that students with dyslexia consistently reported increased independence, confidence, participation, and writing productivity after integrating assistive technology into their daily academic work. Students described technology as enabling them to complete assignments independently, communicate more effectively, and participate more fully alongside their peers.

These findings demonstrate that educational technology supports not only academic achievement but also long-term educational inclusion and self-confidence.

Technology Supports Learning Across Every Subject

Reading demands extend well beyond English Language Arts.

Students with dyslexia must decode scientific texts, analyze historical documents, interpret technical vocabulary, and solve mathematical word problems across all academic disciplines.

Digital supports reduce literacy-related barriers while preserving access to rigorous academic content.

Oakley's (2024) scoping review found growing evidence that digital technologies improve reading fluency through repeated practice, individualized pacing, immediate feedback, and increased student engagement. Likewise, Javed et al. (2024) concluded that interactive educational technologies—including adaptive software, serious games, and multimedia supports—consistently increase motivation, persistence, and opportunities for independent practice.

Rather than replacing teacher expertise, these technologies extend instructional effectiveness across diverse learning needs.

Emerging Evidence Supports Educational Audiobooks

Recent evidence from a randomized controlled trial published in *Developmental Science* further strengthens the case for educational audiobooks as an effective instructional support.

Olson and colleagues (2026) evaluated an eight-week intervention involving 314 third- and fourth-grade students who were randomly assigned to receive either text-supplemented audiobooks, text-supplemented audiobooks paired with one-on-one instructional scaffolding, or an active control condition. Students in both audiobook intervention groups demonstrated significant improvements in book-specific vocabulary. Importantly, students with weaker reading skills showed the greatest gains when audiobooks were paired with individualized instructional support.

These findings reinforce decades of research demonstrating that educational technology is most effective when integrated with evidence-based instruction rather than implemented as a standalone intervention (Cheung & Slavin, 2013; Olson et al., 2026).

For students with dyslexia, accessible technologies such as human-read audiobooks and synchronized text provide opportunities to engage with complex, grade-level content while simultaneously strengthening vocabulary, oral language, and academic knowledge.

Educational Technology Is Not "Screen Time"

Educational technology should not be evaluated using the same framework as passive recreational screen use.

Instead, it should be understood as an evidence-based educational intervention.

Across multiple systematic reviews, meta-analyses, and longitudinal studies, researchers consistently conclude that technology improves educational outcomes when it is:

- intentionally selected to meet individual student needs;
- integrated with evidence-based structured literacy instruction;
- used to increase access to grade-level curriculum;
- supported by trained educators; and
- implemented to enhance—not replace—high-quality teaching (Alqahtani, 2024; Cheung & Slavin, 2013; Jahanaray et al., 2025; Javed et al., 2024).

For students with dyslexia, educational technology serves as a bridge to literacy, independence, academic opportunity, and educational equity.

The conversation, therefore, should move beyond simply measuring screen time toward ensuring that every student has access to the technologies that best support learning.

References

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