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Using Multimedia to Support Reading Instruction

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By: Alise Brann, Tracy Gray, Judy Zorfass, and PowerUp WHAT WORKS (2014)

Overview

As students advance through the grades and encounter more complex texts, they may need additional supports to meet the high expectations set by the Common Core State Standards.

Part of preparing students to meet [College and Career Readiness Standards in English Language Arts \(ELA\)](#) involves helping them become adept at [integrating and evaluating information in a variety of different media formats](#).

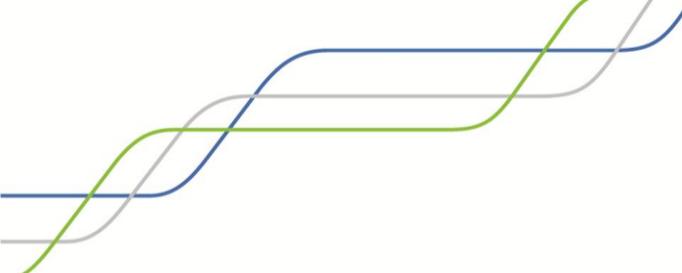
To help students become comfortable with multimedia, it is useful to incorporate it into your instruction wherever possible. Providing varied means of representing information (Universal Design for Learning) can help improve your students' access to complex texts.

Multimedia reading materials and environments offer a variety of flexible supports. These supports can be especially beneficial for students as they read rich, content-area texts in history, social studies, science, and mathematics, and encounter academic vocabulary that is unfamiliar to them. Check out "Using in Your Classroom" for ideas on integrating these tools into your teaching.

Using in Your Classroom

No one software program or approach will meet the needs of all students, so to engage students in their own learning it is wise to try a variety of interventions and supplemental activities, and consult students in the process.

Programs that are customizable and have a variety of digital texts will best meet diverse needs and interests. Look for programs that support the instructional strategies and goals already addressed in the classroom. Beware of programs that bury the elements of instruction in distracting animation or story lines.



Multimedia Supports for Reading

- Text-to-speech
- Voice recognition
- Animation
- Embedded dictionaries
- Linked videos
- Study tools such as highlighters and annotation capabilities

Students need to read engaging material silently and aloud and with ready support for words and concepts that they do not know. Given the limited supply of trained reading tutors and specialists who can provide a fluent oral model and one-on-one tutoring, the use of e-tutors may be helpful. Look for [multimedia reading programs](#) that provide supported practice.

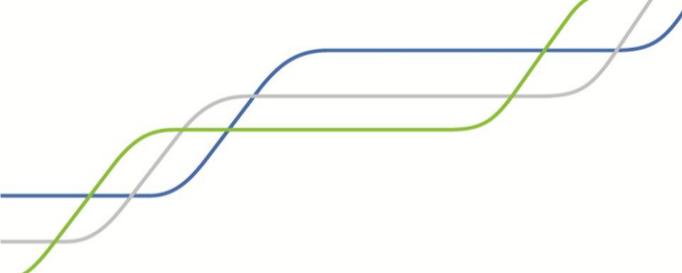
Comprehension Strategies

Comprehension is the ultimate goal of reading, yet it is notoriously difficult to instruct. Multimedia environments can mirror and reinforce proven teacher-led strategy instruction through the use of pop-ups, linked questions, online resources, and animated reading coaches or e-tutors who engage in questioning, prompts, and think-alouds.

Struggling readers' comprehension is often impaired by a limited reading vocabulary. Multimedia texts with supports for vocabulary development, such as linked mini-videos demonstrating a concept or dictionaries and thesauruses with text-to-speech capabilities can help students achieve this goal and improve comprehension.

Students, especially those who are struggling, need prompting and support to use tools and strategies readily and effectively. Accessing appropriate supports is a skill and habit to be taught and learned. In your classroom, consider:

- Using *explicit instruction* to teach vocabulary and comprehension strategies as a whole- or small- group activity.
 - Providing study guides that remind students to access *supports* while they are reading.
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- Providing verbal reminders while students are working to access the *supports and strategies* they have been taught.

Employing software and multimedia tools that have prompts and supports directly embedded within the text. There are several programs available that allow teachers to create their own supported materials or you may choose to use a commercially available program with built-in reading supports.

When selecting an appropriate reading program, look for products that prompt students to access supports, apply strategies, and pause to monitor comprehension.

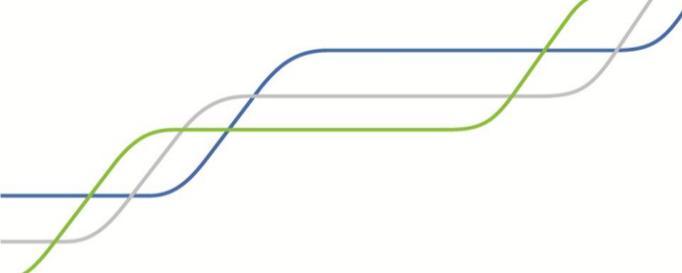
Engagement

Interest and engagement should be considered a significant outcome in literacy instruction. Choice is key. Teachers can help students find motivating material among the growing selection of digital texts available on the Web, for purchase or through subscription sites for students with diagnosed disabilities. Some Web-based sites embed supports into their selections. By importing text lacking embedded supports into reading software programs, educators can leverage the multimedia supports with an increasing array of text. Providing options for your students helps them to feel more in control of their learning, and allows them to access text in a way that is motivating and engaging for them.

What the Research Says

Fluency, particularly its relationship to comprehension, has been the focus of much recent reading research. Readers who lack fluency have few cognitive resources left to develop comprehension skills. The potential of technology-based approaches to improve fluency in struggling readers has received considerable attention. Wolf and colleagues have conducted a multiyear line of research into the RAVE-O Program, a multimedia language and reading training program that addresses the specific deficits of young readers with language or learning disabilities.





The program addresses three instructional goals within an engaging, game-like multimedia design:

- Fluency and comprehension
- Orthographic and phonological awareness
- Engagement

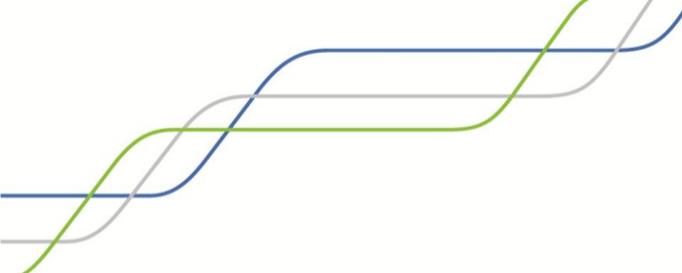
Interventions using this program have consistently shown a positive impact on students' reading skills and reading attitude, and the program has been adopted in further large-scale studies (Wolf, Miller, & Donnelly, 2000).

Project LISTEN's Reading Tutor uses advanced speech recognition and text-to-speech to listen to students as they read, providing corrective and neutral feedback and supports based on students' reading performance. Students can choose from texts of different challenge levels. Studies comparing the Reading Tutor with a human tutor demonstrated significant student progress in both settings. Further analysis revealed that the trained human tutor may have an advantage in being able to provide a more individualized challenge to students (Mostow et al., 2003).

Building comprehension skills requires more than just practice; strategy instruction requires modeling of the reading strategy, guided practice with well-chosen texts, and reflection on the flexible use of a range of strategies (Duke & Pearson, 2002). The application of comprehension strategies to complex texts is an enormous challenge for struggling readers, who must coordinate all of their reading skills and monitor their understanding.

The iSTART project delivers comprehension strategy instruction and practice based on the Self-Explanation Reading Training (SERT) model. It was developed at the Center for Cognitive Science and Educational Practice at the University of Memphis in order to help youth and young adults read, study, and comprehend science-based texts. iSTART is a Web-based module that uses a variety of animated agents to model and provide guided practice in the comprehension strategies of self-monitoring, paraphrasing, and making inferences, predictions, and elaborations. Across several studies, the training module has demonstrated significant success with adolescent and young adult readers (Graesser, McNamara, & Van Lehn, 2005).





Thinking Reader®, a commercially available product developed by Tom Snyder Productions (Scholastic), embeds strategy instruction into award-winning novels for intermediate and middle school students. It is based on a research prototype that was demonstrated to improve struggling adolescent readers' comprehension (Dalton, Pisha, Eagleton, Coyne, & Deysher, 2001). The books are digitized and embedded with multiple supports, including human voice narration, text-to-speech, a multimedia glossary, hyperlinks to support background, strategy instruction, and a work log. Animated agents prompt the students to apply reading strategies and provide corrective feedback on their performance.

Many investigations of the use of technology, including multimedia environments, emphasize student interest, motivation, and engagement (Reinking, 2005). These elements are especially important for students who are reluctant or struggling readers. A few studies have incorporated choice into their research design. Mitchell and Fox (2001) allowed young students to choose between two computer programs and activities. The Reading Tutor in Project LISTEN (Mostow et al., 2003) takes turns, with students making selections of articles from Weekly Reader and other high-interest texts at the students' reading level. Fastig and Halaas Lyster (2005) and Lynch, Fawcett, and Nicolson (2000) both investigated the introduction of a scan-and-read program into regular class instruction; students used the program for their daily reading assignments and personal-choice readings. Both studies demonstrated the positive impact of choice on student engagement.

[References](#)

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