

How *Jamestown Reading Navigator*TM
Supports Research-Based Instruction
for Struggling Adolescent Readers

Technology

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About This Paper

This paper presents research-supported best practices related to instruction of struggling adolescent readers—that is, students in grades 6–12 who are reading at least two levels below grade level—and describes how *Jamestown Reading Navigator*[™] supports those practices.

What Is *Jamestown Reading Navigator*?

Jamestown Reading Navigator is a reading intervention program designed specifically for students in grades 6–12 who are reading two or more reading levels below their grade in school. The program provides direct, explicit instruction and modeling of good reading practices, together with opportunities for students to practice and apply these reading strategies.

Jamestown Reading Navigator combines online activities featuring interactive multimedia for students to complete; engaging and appropriate online and print texts for students to read; an audio component for further guided or independent study; student writing in response to reading; student recording of fluency passages; an assessment program to monitor students' progress; an independent measure of progress monitoring; and teacher support materials, including professional development, lesson plans, instructional recommendations, and reteaching skills support. Major areas of focus for *Jamestown Reading Navigator* include

- Comprehension skills and strategies, designed for application to content-area reading
- Vocabulary
- Writing
- Fluency
- Decoding/phonics (for students with a particular need in this area)

The *Jamestown Reading Navigator* Learner Management System helps teachers manage individual student learning and provides ongoing, up-to-the-minute information on how students are performing. Online professional development modules and on-site professional development sessions offered by Jamestown Education help educators—teachers, administrators, literacy specialists, and others—learn how to implement *Jamestown Reading Navigator* more effectively. These sessions also provide information and suggestions to help educators develop effective strategies for working with struggling adolescent readers.

Jamestown Reading Navigator has been developed based on the most up-to-date research and expert thinking in adolescent literacy, drawing on more than 30 years of experience in reaching adolescent readers with the popular Jamestown Education print series. This paper describes the match between *Jamestown Reading Navigator* and the best available instructional thinking in a variety of specific areas that are important to the success of struggling adolescent readers, as described below.

Introduction

A Critical Need to Support Struggling Adolescent Readers

Problems with literacy have serious and long-lasting consequences. A lack of literacy skills is “one of the most commonly cited reasons” for students to drop out of school (Biancarosa & Snow, 2006, p. 7). A resource guide on adolescent literacy prepared for the Southwest Educational Development Laboratory described the problem as follows:

For secondary-level students . . . the social and economic consequences of not reading well can be cumulative and profound: the failure to attain a high school diploma, a barrier to higher education, underemployment or unemployment, and difficulty in managing personal and family life. Years of failing at what is deemed a hallmark of intelligence and worth can also leave struggling readers with emotional consequences, such as anxiety and low self-esteem, that affect personality and interpersonal relationships. These effects within and beyond the classroom walls show that by the secondary grades educators can no longer defer solutions to future development or instruction. (Peterson et al., 2000, p. 6)¹

¹ Peterson et al. (2000) is laid out in a paginated PDF format, but the format does not include page numbers. Page references for quotes from Peterson et al. (2000) that are given in this paper have therefore been calculated on the basis of page numbers shown in the document table of contents.

Numerous sources attest to the scope of the challenge. *Reading Next* cited both results from the National Assessment of Educational Progress (NAEP) and the opinions of experts in adolescent literacy that “as many as 70 percent of students struggle with reading in some manner” that requires instruction differentiated for their specific needs (Biancarosa & Snow, 2006, p. 8, citing Loomis & Bourque, 2001; NCES, 1999, 2006; Olson, 2006).

Adolescents struggle with literacy for a variety of reasons. For some, English may not be their first language. Others may have mild learning disabilities. In many cases, students may simply lack experience and skill with reading. Unfortunately, difficulties in reading don’t cure themselves, but instead tend to get worse as students get older—a phenomenon reading experts refer to as the “Matthew Effect” (Stanovich, 1986). These students need literacy instruction that addresses the specific challenges they face, using the best available research-based methods and principles, in order to improve their chances of succeeding both during school and afterward.

The State of Research on Struggling Adolescent Readers

Over the last two decades, attempts to improve student literacy on the national level have focused largely on elementary instruction, and particularly on early literacy—that is, literacy at the primary grades. For example, the focus of the Reading First initiative was on improving literacy at the primary levels. Recently, however, a number of efforts—including research summaries for a variety of sources, publication of the *Reading Next* report and other documents from the Alliance for Excellent Education, and position statements from organizations such as the National Reading Conference and the International Reading Association—have helped create a higher profile for instructional issues related to adolescent readers, and particularly the large proportion of adolescents who struggle with reading.

Initiatives such as the No Child Left Behind Act have raised expectations for instruction. Instruction is expected to be backed with solid research that concludes it is likely to result in the desired impact on student learning. Unfortunately, research on what constitutes effective literacy instruction for adolescents is still limited. According to the editors of a volume intended to “compile from the best researchers in the field a summary and synthesis of adolescent literacy research and practice,”

As of 2003, there is not a body of research to tell us appropriate interventions that will help struggling middle and secondary school readers who can barely read. As of 2003, we still do not have a body of research to provide us with appropriate interventions to help high school readers who can read fluently but remain 3 or 4 years below grade level in reading. (Jetton & Dole, 2004, p. 6)

Although research on what constitutes effective literacy instruction for adolescents is limited in significant ways, there is substantial support in research and expert opinion for a variety of specific instructional recommendations. The state of knowledge with regard to effective instruction for struggling adolescent readers fits the description of *best available evidence* as characterized by U.S. Department of Education Assistant Secretary Grover J. Whitehurst: that is, “the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver instruction” (Whitehurst, 2002).

The Reading Next Report

A critical milestone in recent efforts to highlight the challenges related to adolescent literacy was the publication of *Reading Next*, a report to Carnegie Corporation of New York focusing on the needs of adolescent readers (defined in the report as those in grades 4–12), with a special emphasis on the needs of struggling readers. Preparation of this report included the following steps.

- A panel of five nationally known and respected educational researchers was convened in spring 2004, together with representatives of Carnegie Corporation of New York and the Alliance for Excellent Education.
- These panelists drew up a set of recommendations for how to meet the needs of struggling readers, including 15 specific elements of effective adolescent literacy programs that had “a substantial base in research and/or professional opinion” (Biancarosa & Snow, 2006, p. 12). These included both elements with an instructional focus and recommended infrastructure elements to improve adolescent literacy.

- The resulting paper was reviewed and augmented at the 2004 meeting of the Adolescent Literacy Funders Forum (ALFF).
- An Appendix was compiled of literature supporting each of the report’s main recommendations.
- In 2006, a second edition of the report was published.

The *Reading Next* recommendations thus represented a synthesis of research-informed expert opinion that serves as an important touchstone for much of what is known about effective adolescent literacy instruction. Several caveats, however, are in order with regard to using the recommendations as a yardstick for measuring instructional programs in general, and *Jamestown Reading Navigator* in particular.

- While all 15 elements identified by *Reading Next* are characterized as having “a substantial base in research and/or professional opinion” (Biancarosa & Snow, 2006, p. 12), the report nonetheless cautions that “the optimal mix of these factors has yet to be determined. . . . Nor does the remediation of adolescent literacy difficulties involve indiscriminately layering on all fifteen key elements. Choices should be matched to school and student needs” (Biancarosa & Snow, 2006, p. 29). The expectation is not that each literacy program should necessarily include all 15 elements, but that developers and adopters of such programs should select those elements that seem best matched to their specific circumstances.
- The focus of *Reading Next* is explicitly on “the large population of struggling students who already decode accurately but still struggle with reading and writing after third grade” (Biancarosa & Snow, 2006,

Technology as a Topic

Changes in communication technology have prompted literacy scholars to look more broadly at what constitutes literacy and at what skills students need in order to communicate successfully in the world of today and tomorrow. As Alvermann (2001) put it,

The idea that literacy is reinventing itself through new digital technologies . . . has enormous implications for teachers at the middle and high school level, as does the fact that these new technologies are fundamentally and irreversibly affecting how ideas get represented in texts and communicated. . . .

Everyday literacy practices are changing at an unprecedented pace, and speculation as to the impact of interactive communication technologies and multimedia on current conceptions of reading and writing is evident on many fronts. At the center of much of the discussion is the perceived need to develop adolescents' critical awareness of how all texts (print, visual, and oral) position them as readers and viewers within different social, cultural, and historical contexts. (pp. 16–17, citing Luke & Elkins, 1998; de Castell, 1996)

Viewed this way, technology represents not only a means of instruction for adolescent readers, but also an array of distinct communication media, with their own language conventions and literacy requirements. In order to achieve competence both in interpreting meaning and in communicating via technology—both increasingly critical skills in today's world—students must master these conventions and requirements and learn to apply broader literacy skills in a technology context.

Instructional Recommendations

Technology as a Tool

- **Flexible pacing.** Describing uses of technology for content-area literacy, Readence et al. (2004) noted, “When properly used, computers encourage experimentation in education. Students can test ideas and discover concepts as they work at a pace that best suits their ability and interest” (p. 19). Similarly, Kim and Kamil (2004) identified allowing students “to learn at a comfortable pace” as one of the advantages of computer-assisted instruction (p. 352). This observation suggests the potential of the computer to fulfill calls for flexible pacing in student instruction, such as that of Tomlinson (2004): “Flexible pacing is important in addressing learner variance. . . . When the instructional pace is too rapid or too slow for a particular student, learning is impeded. Thus, teachers should consider varying time allotments for student work based on varied student needs rather than assuming that time must be fixed and invariable” (Tomlinson, 2004, p. 240, citing Ben Ari & Shafir, 1988; Dahloff, 1971; Oakes, 1985).
- **Reinforcement and guided practice.** Describing ways that technology can be used as a tool for instruction, *Reading Next* stated, “As a tool, technology can help teachers provide needed supports for struggling readers, including instructional reinforcement and opportunities for guided practice. For example, there are computer programs that help students improve decoding, spelling, fluency, and vocabulary, and more programs are quickly being developed to address comprehension and writing” (Biancarosa & Snow, 2006, p. 19). This suggests a value in using technology specifically for reinforcement and guided practice, focused on key content and skills that are needed by struggling readers.
- **Customized support.** Among the advantages of computer-assisted instruction as “an alternative or adjunct to traditional reading instruction,” Kim and Kamil (2004) identified “the opportunity [for students] to access customized support” (p. 352). This suggests a value to students in providing instruction on the computer that differentiates based on specific student needs.
 - *Along similar lines, a discussion of technology use for adolescent English language learners found that “In general, computer-based literacy instruction can promote reading and writing development for adolescent ELLs” but cautioned that “instruction should be highly scaffolded” (Short & Fitzsimmons, 2007, p. 37). The review specifically recommended audio support for visual text: “The use of audio books can also support students’ literacy development, especially if students follow along with a written text; the recordings provide students with models for pronunciation and read-aloud fluency. For students whose spoken English is better than their reading skills, hearing the words read aloud can aid in vocabulary comprehension” (p. 37).*

- **Active text processing.** Another aspect of computer-assisted instruction that was identified by Kim and Kamil (2004) as a potential advantage in teaching struggling readers was “the opportunity . . . to process text actively” (p. 352). This suggests a value to using the capabilities of the computer to have students interact with texts.
- **Structured computer environments.** After reviewing research related to the use of computers to teach reading, Kim and Kamil (2004) concluded, “Research suggests that adolescents may not have developed a sophisticated repertoire of strategies for learning with computers, and that structured multimedia learning environments can be beneficial for facilitating literacy development. . . . Software that includes elements that compel adolescents to read and process the text, such as providing fixed rather than optional assistance, seems to have a stronger potential to be helpful” (p. 362, citing Reinking & Rickman, 1990; see also Kamil, 2003, p. 23). They endorsed the approach of “offer[ing] computerized reading instruction that is highly structured, such as vocabulary assistance that routinely follows up difficult target words with definitions, or the strategic arrangement of specific reading hints and suggestions to help guide students through texts” (p. 363).
 - *In particular, Kim and Kamil argued that students should be provided with “strategies for navigating through linked text. . . . [S]pecial provisions, such as computer prompts for students to attend to important details in the text and to provide strategic reading assistance, may be necessary to help students successfully utilize multimedia environments for learning” (p. 362). Along similar lines, Kamil (2003) stated, “Adolescents are likely to benefit from the provision of specific reading prompts while reading on the computer, and the addition of guidance that helps them to attend to salient information in the text, such as target vocabulary words” (p. 23).*
 - *Kim and Kamil also found that a highly structured environment was desirable in computerized writing instruction. Based on their review of the research, they stated, “[A]n emerging finding in the area of computerized writing instruction suggests that structured guidance . . . [is] likely to influence how successfully adolescents utilize multimedia environments for learning” (p. 358). They recommended, “In addition to the potential motivational benefits of applying computers to writing, computerized instruction can assist adolescents by providing detailed writing prompts, structured guidance with prewriting and drafts, [and] strategies and activities for writing essays” (p. 363).*
- **Decoding.** As noted above, a specific area that was identified by *Reading Next* where computer programs can help “provide needed supports for struggling readers” is decoding (Biancarosa & Snow, 2006, p. 19).
- **Fluency.** Another area that was specifically identified by *Reading Next* where computer programs can help struggling readers is in their development of fluency (Biancarosa & Snow, 2006, p. 19). Similarly, a review of research on effective instruction for adolescents who struggle with word identification endorsed computer activities and games as tools for promoting fluent word recognition, including multiple opportunities to practice recognition of the same words (Curtis, 2004, p. 128).
- **Vocabulary.** Several sources referenced vocabulary learning as an area where computers can have an impact for struggling readers.
 - *As noted above, Reading Next stated, “[T]here are computer programs that help students improve . . . vocabulary” (Biancarosa & Snow, 2006, p. 19).*
 - *Also as noted above, Kim and Kamil (2004) identified vocabulary assistance as one of the areas where “consistent interaction with computerized reading instruction . . . can help adolescents with reading and text comprehension” (p. 362).*
 - *The National Reading Panel (NRP) reported, “While the use of computer technology in reading is still in its infancy, the few studies reported in the literature suggest that this may be a powerful way of increasing vocabulary. . . . Two possibilities arise here. The first is that the computer might be used as an adjunct to direct vocabulary instruction. In this way, students could obtain more practice in learning vocabulary. A second possibility is that computer technology could bring to bear many different media. This is one way of adding a number of different modalities to the teaching of vocabulary and, consequently, helping ensure more effective vocabulary learning” (NICHD, 2000, p. 4-26, citing Reinking & Rickman, 1990; Heise et al., 1991; Davidson, Elcock, & Noyes, 1996; Heller, Sturmer, Funk, & Feezor, 1993). Two of the studies cited by NRP (Reinking & Rickman, 1990; Heise et al., 1991) included adolescent readers in their findings.*

- *With regard specifically to use of multimedia in vocabulary instruction, Baumann et al.'s (2003) review of research on vocabulary instruction cited a third-grade study in which "Higgins and Cocks (1999) investigated incidental word learning with CD-ROM storybooks. Using a CD-ROM of Jack Prelutsky's The New Kid on the Block, they charted students' learning of six target words through the animation, which was designed to illustrate words as students clicked on them. The mean gain was 3.43 words from pretest to posttest, and 40 percent of the students were able to define all six target words correctly after their reading of it in hypermedia" (p. 760).*

Technology as a Topic

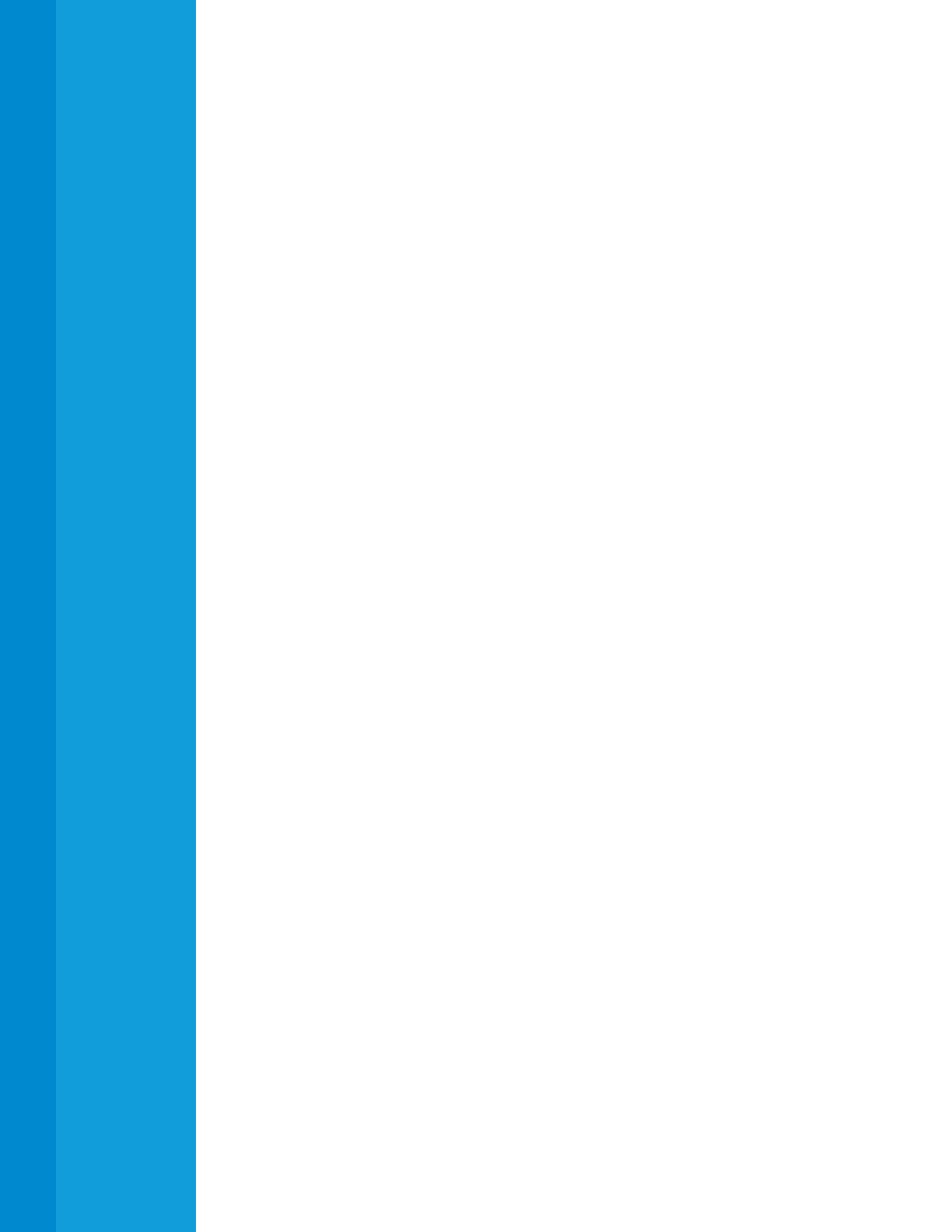
- **Developing familiarity with technology.** As cited above, *Reading Next* described technology as “both a facilitator of literacy and a medium of literacy . . . both an instructional tool and an instructional topic” (Biancarosa & Snow, 2006, p. 19). From this perspective, an important objective of technology-based literacy programs such as *Jamestown Reading Navigator* can be to help students develop familiarity and ease of use with basic technology-related procedures.
- **Literacy skills for technology environments.** Writing further about technology as a topic of instruction, the *Reading Next* authors stated, “[T]echnology is changing the reading and writing demands of modern society. Reading and writing in the fast-paced, networked world require new skills unimaginable a decade ago.” (Biancarosa & Snow, 2006, p. 19). This statement reflects the importance that many writers on adolescent literacy have placed on helping students acquire the specific media-related literacy skills required in order to interact effectively with the Internet and other technology environments. For example:
 - “Adolescents’ interests in the Internet, hypermedia, and various interactive communication technologies . . . suggest the need to teach youth to read with a critical eye toward how writers, illustrators, and the like represent people and their ideas—in short, how individuals who create texts make those texts work. At the same time, it suggests teaching adolescents that all texts, including their textbooks, routinely promote or silence particular views” (Alvermann, 2001, p. 2).
 - “As technological innovations transform traditional boundaries of communication, entertainment, and learning, technology infuses the lives of adolescents. . . . The consequences of this changing technological landscape include an expanded definition of literacy and a wider range of skills and competencies necessary to be successful when engaged in literacy activities” (Kim & Kamil, 2004, p. 351).
- **Processing text and graphics.** Research analyzed by Kim and Kamil (2004) led them to conclude that “adolescents may need assistance to process various types of multimedia effectively” (pp. 353–354, citing Moore & Scevak, 1997; Small, Lovett, & Scher, 1993; Moore, 1993; Kirby, 1993; see also Kamil, 2003, pp. 22–23). They recommended, “In particular, adolescents can benefit from learning strategies for processing visual information, and learning how to integrate visual and textual information” (p. 362, citing Kirby, 1993; Moore & Scevak, 1997).

How Jamestown Reading Navigator Incorporates Technology

The following table describes how *Jamestown Reading Navigator* incorporates practices related to effective use of technology described above.

Summary of Technology Recommendations	Application Through <i>Jamestown Reading Navigator</i>
Pacing of instruction should be flexible, to match students’ ability and interests.	Because students work individually online, they advance through <i>Jamestown Reading Navigator</i> at their own pace. They are able to move more quickly through familiar skills and vocabulary and spend more time on material they find difficult. Teachers are informed (via the Learner Management System) of how much time it takes students to complete each activity in the program, allowing teachers to monitor each student’s progress and pacing.

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Summary of Technology Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<p>Technology should provide students with opportunities to interact with text.</p>	<p>In <i>Jamestown Reading Navigator</i>, students interact with the text selections in a variety of ways.</p> <ul style="list-style-type: none"> • Prior to the activity, students are taught a reading skill to use in conjunction with the reading selection and are pretaught key vocabulary from the selection. • Also prior to the activity, students complete an activity—typically including a graphic organizer, a background builder, or an anticipation guide—to activate prior knowledge about the topic of the selection. For example, students are often prompted to complete a KWL (Know/Want to know/Learned) chart or a word web. • Students use the computer to accept a suggested purpose for reading or write their own purpose. • As students are reading the text selection, reading tips remind them to use comprehension strategies. • Students are also prompted to answer comprehension monitoring questions as they are reading the selection. Immediate feedback reinforces correct answers. • Students can use the Add a Note feature to record thoughts while they are reading the selection, linked to specific points in the text. Students can access these notes at any time during reading, and also after reading while reviewing the selection before the Journey Test and during the writing assignment. • Vocabulary words in the text selection are hyperlinked to word cards. Students can access these word cards, read information about the definitions of words, and record notes on the word cards—for example, ways that the word is used in the selection. Students can also access an online dictionary to look up words that are not vocabulary words. • After the reading, students revisit their purpose for reading, decide whether they accomplished that purpose and then tell what they learned from reading the selection or are offered possible ideas about why they failed to accomplish their purpose. Students also revisit and update their work from the before-reading activity (e.g., updating the KWL chart). • Students complete a writing activity that typically requires them to incorporate content from the text selection or build on the selection in some way. Students are able to access the selection while completing the writing activity.

Continued ➡

Summary of Technology Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<p>Computer technology should be used to help students learn vocabulary, including opportunities for practice and use of multimedia.</p>	<p><i>Jamestown Reading Navigator</i> provides extensive on-computer vocabulary instruction. Computerized features that are used to help students learn vocabulary in Trek 1 include the following:</p> <ul style="list-style-type: none"> • Within each journey, students are introduced to five new sight words and practice recognizing and using the sight words in an interactive exercise. For example, students may see a sentence on screen and be instructed to click on the sight word that is spoken or to insert the sight word into the appropriate sentence. Every introduction of vocabulary words in Trek 1 includes oral pronunciation of the words. • Students are introduced to 10 word family words, in two groups of five—typically related to two word families. • Three times in a journey, students listen to and read a poem, with animated illustrations, that contains sight words and word family words. • Students practice word family words in a variety of interactive formats, with immediate feedback to reinforce understanding. Students complete two activities for each word family and then complete activities combining words from both word families. <ul style="list-style-type: none"> – Students first gain familiarity with the words by typing an initial letter or letters based on the audio recording of the word. – Students then practice inserting the words into the appropriate sentences (either by clicking or typing). • Supplemental words and their meanings are introduced to help students transfer their word family knowledge. Students practice recognizing the supplemental words in an interactive format by matching the words to the appropriate picture. • Students complete scored review activities with immediate feedback covering both sight words and word family words. If students fail the assessments, teachers are alerted in the Learner Management System. Students’ reports indicate whether they require sight words intervention, word family intervention, or both. <p>Computerized features that are used to help students learn vocabulary in Treks 2–4 include the following:</p> <ul style="list-style-type: none"> • Within each journey, students are initially taught eight key vocabulary words before they encounter them in the reading selection. Each vocabulary word is pronounced orally, and students are taught the meaning of the word and given a sample sentence. • Students complete a quick match interactive activity that reinforces meanings of the words. • A My Notes section provides a place for students to add memory aids, associations, sample sentences, etc., to create a personalized “word card” for each word. Students’ word cards and notes are saved in their personal Vocabulary Journal for access elsewhere in the program. • Within the text selection, vocabulary words are hyperlinked to their associated word cards. Students can add or modify their notes on the word cards as they read the selection. • Students who do poorly on an assessment of vocabulary knowledge within a journey view a Look Back at the Vocabulary section that features flash animation to reteach the meaning of vocabulary words. If further reteaching is needed beyond that point, the program alerts teachers through the Learner Management System reports. <p>For more details, see the section on Vocabulary earlier in this paper.</p>

Summary of Technology Recommendations	Application Through <i>Jamestown Reading Navigator</i>
Writing instruction should include use of word processors.	Students writing in <i>Jamestown Reading Navigator</i> use a program with basic word-processing capabilities, including copying, pasting, and deleting.
Writing instruction on the computer should incorporate structured guidance, strategic instruction, and multiple interactions with technology.	<ul style="list-style-type: none"> • <i>The Jamestown Reading Navigator</i> writing component provides structured guidance and instruction in writing strategies with each writing assignment. For more details, see the Writing section earlier in this paper. • Frequent opportunities to interact with the technology are provided through the writing assignments in each journey, and in each quest in Treks 2–4. For example, if students require two 45-minute online sessions to complete each journey, then they are likely to complete a writing assignment during every other <i>Jamestown Reading Navigator</i> session.
Computer systems should be used to record formative and summative assessment information and make it available for monitoring student progress.	Ongoing assessments within <i>Jamestown Reading Navigator</i> provide information on student performance. This information is stored on the computer, and can be accessed by teachers, administrators, and others through an array of Learner Management System reports. For more information, see the Formative and Summative Assessment section earlier in this paper.
Instruction should help students become comfortable with basic technology procedures.	<p>As students work in <i>Jamestown Reading Navigator</i>, they acquire experience with a range of basic technology-related skills:</p> <ul style="list-style-type: none"> • Using a Web browser • Logging on to the <i>Jamestown Reading Navigator</i> Web site • Navigating and interacting with the <i>Jamestown Reading Navigator</i> home page and screens • Sending and receiving e-mail messages • Making voice recordings on the computer • Interacting with activity and program features (clicking buttons, scrolling, using volume and video controls, etc.) • Using a keyboard to enter text • Using a mouse to make selections on screen • Using a word processor to write online
Students should acquire media-related literacy skills required for technology environments.	<ul style="list-style-type: none"> • Within each of Treks 2–4, a journey (lesson) focuses on helping students learn to analyze media, which includes critically looking at information from books, newspapers, magazines, TV, radio, and the Internet. As part of this skill, students are taught to consider, question, and interpret information. They think about who provided the information for a text, what the purpose of the text is, and whether it can be trusted. • Students also complete a journey in each of these treks (2–4) that focuses on understanding an author’s purpose and another journey in each trek focusing on understanding an author’s viewpoint. • Additionally, Internet articles are used for text selections in many of the online journeys within <i>Jamestown Reading Navigator</i>—providing students with guided practice in applying reading skills and strategies to the types of texts they might encounter on the Internet.

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Summary of Technology Recommendations	Application Through <i>Jamestown Reading Navigator</i>
Students should be taught strategies to interpret visual information and integrate visual and text information.	<i>Jamestown Reading Navigator</i> includes lessons in Treks 2, 3, and 4 that teach students how to interpret information from graphics, particularly charts, graphs, and maps. Additionally, text selections with embedded graphics in some of the online journeys provide students with practice in integrating visual and text information.

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