

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

Writing

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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, p. 11). The report thus does not include recommendations related to areas such as decoding and fluency that may be important for readers who are struggling at a more basic level.
- Several of the elements of *Reading Next* relate to how infrastructure impacts adolescent literacy learning. The most that any purchased instructional program can do in these areas is to provide support to schools and districts as they implement these elements.

Development of This Paper

Development of this research-based white paper included the following steps.

- A top-level review of *Reading Next* was conducted to identify claims and recommended practices, including both those that are associated with the 15 key elements of adolescent literacy identified in the report and those that appear elsewhere in the report. As part of this review, information was collected about the sources in the Appendix to *Reading Next*, which listed literature supporting each of the 15 key elements.
- Well-known experts in the field of adolescent literacy were consulted to identify key, current, and reputable sources related to instruction for struggling adolescent readers. These included both experts who had been consulted during the development of *Jamestown Reading Navigator* and an independent expert not previously associated with the program.²
- Key documents were identified for review, with priority given to two types of documents:
 - *Broad policy-oriented research reviews and surveys of expert opinion, developed by reputable institutions and authors, with a goal of identifying key elements in effective adolescent literacy programs*
 - *More focused research syntheses and meta-analyses from reputable sources, describing the state of research and/or theory related to a specific relevant topic in adolescent literacy (e.g., comprehension, writing, formative assessment)*

2 Key contributors included Dr. Thomas W. Bean, professor in literacy/reading and coordinator of doctoral studies in the Department of Curriculum and Instruction, University of Nevada at Las Vegas; Dr. William G. Brozo, professor of literacy, Graduate School of Education, George Mason University; and Dr. Douglas Fisher, professor of language and literacy education, San Diego State University. Drs. Brozo and Fisher had previously consulted with the development team for *Jamestown Reading Navigator*. These experts provided input into interpretation of the research literature, as well as recommendations of sources to review, but are not responsible for writing the summaries of the literature or for developing the correlations of the instructional recommendations to *Jamestown Reading Navigator*.

In addition to these two types of documents, some specific research reports were also identified for review, in the case of studies that were particularly germane to topics under investigation.

- Sources were reviewed and summarized, with special reference to
 - *Specific instructional recommendations*
 - *The nature of the evidence supporting each recommendation*
- Instructional recommendations were consolidated from multiple sources.
- Cross-comparison of the research-based recommendations and *Jamestown Reading Navigator* verified that *Jamestown Reading Navigator* supports each research-based recommendation listed in this paper.

In the final paper as presented here, each section spells out specific instructional recommendations that are supported by a mix of research and expert opinion. A table then provides information on how *Jamestown Reading Navigator* aligns with each recommendation.

Key policy-oriented documents and research syntheses that were reviewed for this paper are listed in the References section of the complete White Paper.

WRITING

“Effective adolescent literacy programs must include an element that helps students improve their writing skills.”—*Reading Next* (Biancarosa & Snow, 2006, p. 18)

“Research is clear on the importance of connecting reading and writing across the curriculum.”—*Reading at Risk: The State Response to the Crisis in Adolescent Literacy* (NASBE, 2006, p. 18)

Writing as a Part of Adolescent Literacy

The importance of integrating reading and writing instruction for adolescents is attested by numerous sources. For example, the *Reading Next* report identified “Intensive writing” as one of 15 elements of effective adolescent literacy programs that “had a substantial base in research and/or professional opinion” (Biancarosa & Snow, 2006, p. 18).

One reason for this importance is the connection between writing and reading comprehension. According to *Reading Next*,

Research supports the idea that writing instruction also improves reading comprehension. For example, students who are given the opportunity to write in conjunction with reading show more evidence of critical thinking about reading. Likewise, many of the skills involved in writing—such as grammar and spelling—reinforce reading skills. (Biancarosa & Snow, 2006, p. 19)

Similarly, Allington (2006) claimed, “The reciprocal relationship between reading and writing opportunities and proficiencies has been well established . . . particularly the links between comprehension and composing” (p. 52). More broadly, Alvermann (2001) argued, “Effective teachers look for ways to integrate reading and writing as often as possible because they know that each process reinforces the other and can lead to improved comprehension and retention of subject area content” (p. 11, citing Tierney & Shanahan, 1991).

Other sources reference reading and writing as part of a broader category of adolescent literacy that is most effectively taught as a connected and comprehensive whole. For example:

- Fisher and Ivey’s (2006) recommendations for evaluating interventions for struggling adolescent readers included the guideline “The intervention should reflect a comprehensive approach to reading and writing” (p. 182)—meaning, ideally, that “Intervention is comprehensive and integrated such that students experience reading and writing as a cohesive whole” (p. 188, quoting a rubric from Ivey & Fisher, 2006).

- A report on language and academic literacy for adolescent English language learners defined academic literacy as incorporating “reading, writing, and oral discourse for school” (Short & Fitzsimmons, 2007, p. 2) and stated, “Developing academic literacy is a complex endeavor that involves reading, writing, listening, and speaking for multiple school-related purposes using a variety of texts and demanding a variety of products” (p. 8).

The Need to Improve Student Writing

According to *Writing Next*, a sister report to *Reading Next*,

Along with reading comprehension, writing skill is a predictor of academic success and a basic requirement for participation in civic life and in the global economy. Yet every year in the United States large numbers of adolescents graduate from high school unable to write at the basic levels required by colleges or employers. . . . Because the definition of literacy includes both reading and writing skills, poor writing proficiency should be recognized as an intrinsic part of this national literacy crisis. (Graham & Perin, 2007, p. 3)

Both *Reading Next* and *Writing Next* cited sobering statistics about the writing capabilities of U.S. students. For example, according to *Writing Next*,

- “Seventy percent of students in grades 4–12 are low-achieving writers” (Graham & Perin, 2007, p. 7, citing Persky et al., 2003).³
- “Students who enter ninth grade in the lowest 25 percent of their class are 20 times more likely to drop out than are the highest-performing students” (Graham & Perin, 2007, p. 7, citing Carnevale, 2001).
- “Every school day, more than 7,000 students drop out of high school” (Graham & Perin, 2007, p. 7, citing Pinkus, 2006).
- “Over half of adults scoring at the lowest literacy levels are dropouts” (Graham & Perin, 2007, p. 7, citing National Center for Education Statistics, 2005).
- “Nearly one third of high school graduates are not ready for college-level English composition courses” (Graham & Perin, 2007, p. 7, citing ACT, 2005).
- “College instructors estimate that 50 percent of high school graduates are not prepared for college-level writing” (Graham & Perin, 2007, p. 8, citing Achieve, Inc., 2005).
- “US [high school] graduates’ literacy skills are lower than those of graduates in most industrialized nations, comparable only to the skills of graduates in Chile, Poland, Portugal, and Slovenia” (Graham & Perin, 2007, p. 8, citing Organization for Economic Cooperation and Development (OECD), 2000).
- “The knowledge and skills required for higher education and for employment are now considered equivalent” (Graham & Perin, 2007, p. 8, citing ACT, 2006; American Diploma Project, 2004).
- “Thirty-five percent of high school graduates in college and 38 percent of high school graduates in the workforce feel their writing does not meet expectations for quality” (Graham & Perin, 2007, p. 9, citing Achieve, Inc., 2005).
- “ ‘Poorly written applications are likely to doom candidates’ chances for employment’ ” (Graham & Perin, 2007, p. 9, quoting National Commission on Writing, 2005, p. 4).
- “About half of private employers and more than 60 percent of state government employers say writing skills impact promotion decisions” (Graham & Perin, 2007, p. 9, citing National Commission on Writing, 2004, 2005).
- “Writing remediation costs American businesses as much as \$3.1 billion annually” (Graham & Perin, 2007, p. 9, citing National Commission on Writing, 2004).

In short, improving student writing is a critical need, parallel in importance to improving students’ reading. This need is met in part by *Jamestown Reading Navigator*. While *Jamestown Reading Navigator* focuses primarily on students’ reading skills, specific components of the program have been designed to help strengthen students’ writing as well.

3 Original emphasis (boldface) from *Writing Next* was not retained for the text of bullets in this list.

- **Dedicated writing instruction.** As noted above, writing is an important component of literacy instruction and a companion to reading instruction for adolescents. As *Writing Next* emphasized, however, writing cannot be taught effectively as only an adjunct to reading instruction: “[W]riting differs from reading. . . . Therefore, although writing and reading are both vital aspects of literacy, they each require their own dedicated instruction. What improves reading does not always improve writing” (Graham & Perin, 2007, p. 8). This suggests the importance of a substantial instructional component that is dedicated to adolescent writing as an end in itself, not just a means for improving students’ reading.
- **Instruction in writing strategies.** According to *Reading Next*, “[I]nstruction in . . . writing strategies significantly improve[s] students’ writing” (Biancarosa & Snow, 2006, p. 19). This finding is confirmed by a meta-analysis conducted by the authors of *Writing Next*, which identified “*Writing Strategies*, which involves teaching students strategies for planning, revising, and editing their compositions” as one of “11 elements of current writing instruction” that are “supported by rigorous research” (Graham & Perin, 2007, p. 4; emphasis in original), with an effect size of 0.82 based on 20 studies.⁴
 - *Elaborating on these results, the Writing Next authors stated, “Teaching adolescents strategies for planning, revising, and editing their compositions has shown a dramatic effect on the quality of students’ writing. Strategy instruction involves explicitly and systematically teaching steps necessary for planning, revising, and/or editing text. . . . The ultimate goal is to teach students to use these strategies independently” (Graham & Perin, 2007, p. 15).*
 - *Among specific writing strategies that could be taught to students, Writing Next identified “more generic processes, such as brainstorming (e.g., Troia & Graham, 2002) or collaboration for peer revising (MacArthur, Schwartz, & Graham, 1991)” (Graham & Perin, 2007, p. 15).*
 - *According to Writing Next, strategy instruction may also involve “teaching strategies for accomplishing specific types of writing tasks, such as writing a story (Fitzgerald & Markham, 1987) or a persuasive essay (Yeh, 1998)” (Graham & Perin, 2007, p. 15).*
 - *Results of writing strategy instruction appear to be “more dramatic for lower-achieving writers than for those across the full range of ability” (Graham & Perin, 2007, p. 16), with an average weighted effect size of 1.02 for “studies with low-achieving writers,” compared to an average weighted effect size of 0.70 for “students across the full range of ability in regular classrooms” (p. 15).*
- **Summarization.** Another research-supported element of effective writing instruction, according to the *Writing Next* meta-analysis, is summarization, which “involves explicitly and systematically teaching students how to summarize text” (Graham & Perin, 2007, p. 4), with an effect size of 0.82 based on four studies.⁵
 - *“The summarization approaches studied ranged from explicitly teaching summarization strategies to enhancing summarization by progressively ‘fading’ models of a good summary. In fact, students can learn to write better summaries from either a rule-governed or a more intuitive approach” (Graham & Perin, 2007, p. 16).*
 - *Outcomes of studies for summarization were measured based on “completeness and accuracy of summaries” (Graham & Perin, 2007, p. 14).*
- **Collaborative writing.** *Writing Next* also identified collaborative writing, which “uses instructional arrangements in which adolescents work together to plan, draft, revise, and edit their compositions” (Graham & Perin, 2007, p. 4), as a research-supported element of effective writing instruction, with an effect size of 0.75 based on seven studies.⁶

4 Anderson, 1997; Bryson & Scardamalia, 1996; Curry, 1997; De La Paz, 2005; De La Paz & Graham, 1997; De La Paz & Graham, 2002; Fitzgerald & Markham, 1987; Gamelin, 1996; Glaser, 2005; MacArthur, Schwartz, & Graham, 1991; Reynolds et al., 1988; Sawyer, Graham, & Harris, 1992; Scardamalia, Bereiter, & Steinbach, 1984; Simmons et al., 1994; Troia & Graham, 2002; Walser, 2000; Welch, 1992; Welch & Jensen, 1990; Wong et al., 1996; Yeh, 1998. Fifteen of the studies included students at grade 6 or older. Studies included students with a learning disability, low-achieving writers, and students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from 0.14 to 3.50.

5 Bean & Steenwyk, 1984; Chang, Sung, & Chen, 2002; Knight, 2003; Placke, 1987. Three of the studies included students at grade 6 or older. Studies included students with a learning disability, above-average writers, and students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from 0.18 to 1.12.

6 Boscolo & Ascorti, 2004; Dailey, 1991; Hill, 1990; MacArthur, Schwartz, & Graham, 1991; Olson, 1990; Prater & Bermúdez,

- According to the writers, “It was not possible to draw separate conclusions for low-achieving writers, as only two studies (Dailey, 1991; MacArthur et al., 1991) involved these students specifically. However, in both studies the effect size exceeded 1.00” (Graham & Perin, 2007, p. 16).
- In one collaborative writing method highlighted by Writing Next, “a higher achieving student is assigned to be the Helper (tutor) and a lower achieving student is assigned to be the Writer (tutee). The students are instructed to work as partners on a writing task. The Helper student assists the Writer student with meaning, organization, spelling, punctuation, generating ideas, creating a draft, rereading essays, editing essays, choosing the best copy, and evaluating the final product. Throughout the intervention, the teacher’s role is to monitor, prompt, and praise the students, and address their concerns” (Graham & Perin, 2007, p. 16, citing Yarrow & Topping, 2001).⁷
- **Specific product goals for writing assignments.** Specific product goals—i.e., specific goals for students’ assigned writing—represented another element of effective writing instruction identified as research-supported by *Writing Next*, with an effect size of 0.70 based on five studies.⁸
 - This element involved “assign[ing] students specific, reachable goals for the writing they are to complete” (Graham & Perin, 2007, p. 4), including “identifying the purpose of the assignment (e.g., to persuade) as well as characteristics of the final product” (p. 17). Performance was compared with that of students who “were simply given a general overall goal” (p. 17).
 - “Specific goals in the studies reviewed included (a) adding more ideas to a paper when revising, or establishing a goal to write a specific kind of paper and (b) assigning goals for specific structural elements in a composition” (Graham & Perin, 2007, p. 17).
 - Effect sizes for low-performing writers in three of the studies provided “some tentative evidence that, interpreted cautiously (because of the small sample), indicates that setting product goals is effective with adolescents who are weaker writers” (Graham & Perin, 2007, p. 17).
- **Appropriate challenge for students.** Describing the desirability of “intensive writing” as a component of reading instruction, *Reading Next* stated, “The defining characteristic of quality intensive writing instruction is not that there is simply more of it. Rather, such instruction has clear objectives and expectations and consistently challenges students, regardless of ability, to engage with academic content at high levels of reasoning” (Biancarosa & Snow, 2006, p. 19). This argues for a value to making writing assignments that require a high level of engagement with academic content, even for students who may be at a low level of literacy.
- **Word processing.** *Writing Next* identified use of word processors as a research-supported practice for effective writing instruction, with an effect size of 0.55 based on 18 studies.⁹
 - According to *Writing Next*, “The use of word-processing equipment can be particularly helpful for low-achieving writers,” with an effect size of 0.70 for low-achieving writers compared to 0.51 for students in general (Graham & Perin, 2007, p. 17).

1993; Yarrow, & Topping, 2001. Six of the studies included students at grade 6 or older. Studies included students with a learning disability, students with English as a second language, low-achieving writers, above-average writers, and students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from 0.19 to 1.18.

7 According to *Writing Next*, Yarrow & Topping (2001) had an effect size of 0.58 and focused on students in grades 5–6 representing a full range of writers found in typical classrooms. In this study, “Peers helped each other draft, revise, and edit text after receiving training in a process for composing text versus individual composition after training in a process for composing text” (Graham & Perin, 2007, p. 48).

8 Ferretti, MacArthur, & Dowdy, 2000; Graham, MacArthur, & Schwartz, 1995; Page-Voth & Graham, 1999; Schunk & Swartz, 1993a; Schunk & Swartz, 1993b. Three of the studies included students at grade 6 or older. Studies included students with a learning disability and students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from 0.38 to 1.69.

9 Cheever, 1987; Cirello, 1986; Dalton & Hannafin, 1987; Dybdahl, Shaw, & Blahous, 1997; Espinoza, 1992; Hagler, 1993; Head, 2000; Jackiewicz, 1995; Lam & Pennington, 1995; Lerew, 1997; Lichtenstein, 1996; Lowther, Ross, & Morrison, 2003; Lytle, 1987; Miller, 1984; Moore, 1987; Philhower, 1985; Shinn, 1986; Silver & Repa, 1993. Fourteen of the studies included students at grade 6 or older. Studies included students with a learning disability, students with mild handicapping conditions, students with English as a second language, low-achieving writers, above-average writers, and students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from -0.18 to 1.74. Three of the studies had negative effect sizes.

- *Identifying advantages of word processing, the Writing Next authors stated, “Typing text on the computer with word-processing software produces a neat and legible script. It allows the writer to add, delete, and move text easily” (Graham & Perin, 2007, p. 17).*
- **Computers and writing.** More broadly, a review of research on technology and adolescent literacy found, “Although the effectiveness of computerized compared to traditional writing instruction is unclear, prior studies have found that computers can be one effective way to provide adolescents with writing assistance” (Kim & Kamil, 2004, p. 363, citing Palumbo & Prater, 1992). Additionally, Kim and Kamil found that “[t]he application of computer technology to writing tasks, such as the use of word processors, has been linked to increased motivation and task engagement” (p. 356, citing Daiute, 1983; Kamil, Intrator, & Kim, 2000). The researchers cautioned, however, that “results have generally been mixed with respect to the increased effectiveness of computerized instruction compared to more traditional methods” (p. 357). They concluded, “Variables such as the proficiency of the students’ writing skills . . . , the quality of instructional support, and the students’ grade level were found to influence the learning outcomes. . . . [A]n emerging finding in the area of computerized writing instruction suggests that structured guidance, strategic instruction, and multiple interactions with the technology are likely to influence how successfully adolescents utilize multimedia environments for learning” (p. 358).
 - *In connection to structured guidance for computerized writing instruction, Kim and Kamil 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).*
 - *Elaborating on the need for multiple interactions with technology, they wrote, “One research finding . . . suggested that students with lower writing ability might need longer interactions with computerized writing instruction to achieve notable benefits. The provision of multiple and consistent opportunities to write with computers is likely to help students with a range of writing abilities gain valuable experience and proficiency with the conventions of composing on the computer” (p. 363, citing Rosenbluth & Reed, 1992).*
- **Prewriting.** Another of *Writing Next’s* research-supported elements of effective writing instruction was “Prewriting, which engages students in activities designed to help them generate or organize ideas for their composition” (Graham & Perin, 2007, p. 4; emphasis in original), with an effect size of 0.32 based on 5 studies.¹⁰
 - *Describing examples of prewriting activities, the Writing Next authors stated, “Pre-writing activities include gathering possible information for a paper through reading or developing a visual representation of their ideas before sitting down to write. For example, some common pre-writing activities include encouraging group and individual planning before writing, organizing pre-writing ideas, prompting students to plan after providing a brief demonstration of how to do so, or assigning reading material pertinent to a topic and then encouraging students to plan their work in advance” (Graham & Perin, 2007, p. 18).*
 - *They concluded, “Collectively, these investigations show that pre-writing activities have a positive and small to moderate impact on the quality of students’ writing” (Graham & Perin, 2007, p. 18).*
- **Instruction in the writing process.** According to *Reading Next*, “Instruction in the writing process is . . . helpful, provided that it is connected to the kinds of writing tasks students will be expected to perform well in high school and beyond” (Biancarosa & Snow, 2006, p. 19).
- **Study of models.** *Writing Next* identified “provid[ing] students with opportunities to read, analyze, and emulate models of good writing” as a research-support element of effective writing instruction (Graham & Perin, 2007, p. 5), with an effect size of 0.25 based on six studies.¹¹

10 Brodney, Reeves, & Kazelskis, 1999 (listed twice, with two effect sizes and two distinct instructional approaches); Loader, 1989; Reece & Cumming, 1996; Vinson, 1980. Two of the studies included students at grade 6 or older: one (Reece & Cumming, 1996) with students at grades 5–6, the other (Vinson, 1980) with students at grade 9. All studies included students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from 0.06 to 0.95, with an ES of 0.06 for Vinson (1980) and an ES of 0.61 for Reece & Cumming (1996).

11 Caplan & Keech, 1980; Knudson, 1989; Knudson, 1991; Reedy, 1964; Thibodeau, 1964; Vinson, 1980. All six studies included

- “*The study of models provides adolescents with good models for each type of writing that is the focus of instruction. Students are encouraged to analyze these examples and to emulate the critical elements, patterns, and forms embodied in the models in their own writing*” (Graham & Perin, 2007, p. 20).
- **Writing to learn content.** Another research-supported element of effective writing instruction, according to *Writing Next*, was “*Writing for Content Learning*, which uses writing as a tool for learning content material” (Graham & Perin, 2007, p. 5; emphasis in original), with an effect size of 0.23 based on 26 studies.¹²
 - *According to the Writing Next authors, “Although the impact of writing activity on content learning is small, it is consistent enough to predict some enhancement in learning as a result of writing-to-learn activities”* (Graham & Perin, 2007, p. 20).
 - “*Writing-to-learn was equally effective for all content areas (social studies, math, and science) and grades (4–6 versus 7–12) studied*” (Graham & Perin, 2007, p. 21).
- **Writing about reading.** As noted above, according to *Reading Next*, “Research supports the idea that writing instruction . . . improves reading comprehension. For example, students who are given the opportunity to write in conjunction with reading show more evidence of critical thinking about reading” (Biancarosa & Snow, 2006, 19). This suggests a value to incorporating activities that engage students in writing about what they are reading.
- **Variety of forms, genres, styles, and tones.** In discussing how to implement the elements of effective writing instruction in schools, the *Writing Next* authors argued, “Excellent instruction in writing not only emphasizes correctness of forms and conventions, but also instills in writers the command of a wide variety of forms, genres, styles, and tones, and the ability to adapt to different contexts and purposes” (Graham & Perin, 2007, p. 22). This suggests a value in providing students with instruction and practice related to writing in a variety of forms, genres, styles, and tones.
- **Access to appropriate vocabulary.** As part of the same discussion, *Writing Next* identified a variety of “lower-level skills” students must possess in order to “plan, generate, and revise text” (Graham & Perin, 2007, p. 23). Included among these was “access to appropriate vocabulary” (p. 23). This suggests a value in ensuring that students, particularly students with weaker literacy skills, have access to the vocabulary they need in order to fulfill specific writing tasks.
- **Ongoing assessment.** As part of a discussion of instructional interventions to improve student writing, the *Writing Next* authors affirmed, “Once an intervention begins, assessment and diagnostic teaching should be used in an ongoing way to examine its effects” (Graham & Perin, 2007, p. 24). Results of such assessments can then be used to adjust the intervention as needed.

students at grade 6 or older. Studies included above-average writers and students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from -0.29 to 0.44. One study had a negative effect size.

12 Ayers, 1993; Baisch, 1990; Bauman, 1992; Bell & Bell, 1985; Boscolo & Mason, 2001; Davis, 1990; Dipillo, 1994; Hand, Hohenshell, & Prain, 2004; Johnson, 1991; Kasperek, 1993; Konopak, Martin, & Martin, 1990; Langer & Applebee, 1987 (listed twice, for two different studies, with two effect sizes and two distinct instructional approaches); Licata, 1993; Lodholz, 1980; Madden, 1992; Millican, 1994; Moynihan, 1994; Nieswandt, 1997; Reaves, 1991; Rivard, 1996; Shepard, 1992; Stewart, 1992; Willey, 1988 (listed twice, with the same instructional approach used with different grade levels and subject areas, and with different effect sizes); Wong et al., 2002. Nineteen studies included students at grade 6 or older. All studies included students representing a full range of writers found in typical classrooms. Effect sizes for individual studies ranged from -0.77 to 1.68. Seven studies had a negative effect size.

How Jamestown Reading Navigator Aligns with Instructional Recommendations for Teaching Writing

The following table describes how *Jamestown Reading Navigator* aligns with instructional recommendations described above for teaching writing.

Summary of Writing Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<p>Instruction for adolescent reading should include a substantial component dedicated to writing instruction.</p>	<p>While <i>Jamestown Reading Navigator</i> focuses primarily on helping students develop specific reading skills in connection with specific text selections, the program also includes a substantial writing component.</p> <ul style="list-style-type: none"> • In the last part of each journey (lesson), students complete a writing activity. <ul style="list-style-type: none"> – For Trek 1 (i.e., level 1), the activity consists of writing a poem using words from the word family students have studied during that journey. – For Treks 2–4, the activity consists of a prose writing assignment on a specified topic related to the reading selection in the journey and incorporating vocabulary words from the selection. Students are typically instructed to use in their writing the reading skill that was the focus of the journey. • In the wrap-up section for each quest (unit) in Treks 2–4, students write about the guiding question for that quest, using several of the vocabulary words from the quest. • Over the course of their writing assignments, students practice writing in a variety of genres and for a variety of audiences. They also receive focused guidance related to the writing process and specific strategies for making their writing more effective. More detail on the range of writing assignments is provided later in this table. • Extensive professional development on writing is available in conjunction with <i>Jamestown Reading Navigator</i>, including <ul style="list-style-type: none"> – An online module on the integral role writing plays in adolescent literacy, including writing in response to reading and writing in content-area classrooms – An optional on-site professional development session titled Intervention Classroom, which explores the link between reading and writing, including integrating additional writing activities with <i>Jamestown Reading Navigator</i> – An optional on-site professional development session on Peer and Teacher Evaluation of Student Writing, including use of rubrics and responses to writing prompts in <i>Jamestown Reading Navigator</i> – An optional on-site professional development session on Writing Constructed Responses to Texts (e.g., formats commonly used in state assessments)
<p>Students should be explicitly taught strategies for planning, revising, and editing their compositions.</p>	<p>Students receive instruction on writing strategies related to planning, revising, and editing compositions by clicking the Tutor buttons in the online <i>Jamestown Reading Navigator</i> writing activities.</p> <ul style="list-style-type: none"> • During the plan step of the writing assignment for each journey, the Tutor button explains that students should review the topic, the purpose, the audience, and the writing prompt to know what the assignment is about. The Tutor button also explains the importance of knowing the topic, the purpose, the audience, and the writing prompt; suggests ideas; and instructs student to use these ideas as a starting point for gathering their own ideas and writing notes for the assignment. The Tutor button then models creating a plan for the writing.

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Summary of Writing Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<p>Students should be explicitly taught strategies for planning, revising, and editing their compositions. <i>(continued)</i></p>	<ul style="list-style-type: none"> • The Tutor button also gives guided instruction in reviewing and revising a draft, including checking the prompt to make sure the topic, the purpose, the audience, and the writing prompt were addressed, and checking students' draft against the rubric to make sure the guidelines were followed. • The Tutor button instructs students to reread their draft multiple times to look for errors in spelling, grammar, and organization of paragraphs and sentences, and to find ways to reword sentences to make them clearer.
<p>Writing strategy instruction should include generic processes such as brainstorming and collaboration for peer revision.</p>	<ul style="list-style-type: none"> • The <i>Teacher Resource Guide</i> section on Improving Writing guides teachers on incorporating brainstorming, collaboration for peer revision, and peer editing. • Both brainstorming and peer collaboration for revision and editing are included in some of the lesson plans for Treks 2–4. • The online Tutor button supports brainstorming by suggesting that students use listed ideas as a starting point for gathering their own ideas.
<p>Writing strategy instruction should include strategies for carrying out specific types of writing tasks, such as writing a story or a persuasive essay.</p>	<p><i>Jamestown Reading Navigator</i> teaches strategies for specific types of writing.</p> <ul style="list-style-type: none"> • The Tutor button provides specific guidance on the type of writing that is the focus for each journey's assignment, during the drafting stage of the writing. Types of writing include descriptive writing, letters, newspaper and magazine articles, summaries, personal responses, journal entries, stories, plays, speeches, advertisements, poetry, essays, narrative writing, expository writing, and persuasive writing. • The <i>Teacher Resource Guide</i> section on Improving Writing includes specific suggestions to teachers to help students learn how to write narrative, expository, persuasive, and "writing-to-learn" prose; summaries; personal responses; journal entries; articles; letters; stories; plays; speeches; advertisements and flyers; cartoons; and poetry. These include both instructional recommendations for teachers and tips they can share with students. Example: <ul style="list-style-type: none"> – For advertisements and flyers, the <i>Teacher Resource Guide</i> recommends, "Provide a collection of advertisements and flyers as models for students. Point out that the sentences in this genre are brief and may be bulleted. In addition, since the purpose is to persuade, students can use this opportunity to practice creating language that entices, convinces, or influences. Have students find persuasive words from advertisements or flyers and post them on a 'Persuasive Word Wall' to refer to as they write."
<p>Students should be taught how to write summaries.</p>	<p>Summarization is taught as a reading skill in journeys in Treks 2, 3, and 4. Instruction is direct and explicit, including specific guidelines such as finding the main ideas and rewriting in the student's own words, making the summary brief, and including only the most important information. The explanation includes animated modeling of how to summarize. Students complete the journey by completing a writing assignment, which in many cases consists of a summary or includes guidance for students to summarize as part of the writing.</p>

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Summary of Writing Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<p>Students should be provided with opportunities to practice writing collaboratively, using methods such as the helper-writer model.</p>	<ul style="list-style-type: none"> • The <i>Teacher Resource Guide</i> encourages teachers to use collaborative approaches to writing assignments, both globally in the Improving Writing section and in specific lesson plans. Typical collaborative arrangements include students working in small groups or with partners for partner revision, partner editing, and activating background knowledge. • Within the <i>Teacher Resource Guide</i> section on Improving Writing, recommendations for conferencing encourage the teacher to develop helper-writer partnerships. • <i>Flexible Grouping: Strategies for Success</i> includes specific suggestions related to grouping students as they interact in response to each other’s writing.
<p>Students should be provided with specific, reachable goals for their writing tasks, including both the purpose of the writing assignment and characteristics of the final product.</p>	<p>All of the writing assignments in <i>Jamestown Reading Navigator</i> spell out a purpose for writing and provide several reachable goals. These are set out in the writing prompt and described more specifically in the rubric, which students can access during each step of the writing process. For example, for one Trek 2 writing assignment, the program spells out the following:</p> <ul style="list-style-type: none"> • Purpose: To write a news article telling readers about a volcano that has erupted • Writing prompt: Write a news story. Tell about a volcano you just saw erupt. • Rubric: <ul style="list-style-type: none"> – Use descriptive words to tell how the volcano erupted. – Describe what happened after it erupted. – Use sequence words such as <i>first, next, and last</i>. – Use periods at the end of sentences.
<p>Goals that are provided for student writing should include both content-oriented goals, such as adding more ideas during revision or writing a specific kind of paper, and goals related to the structure of the composition.</p>	<p>As shown in the example above, goals that are provided for writing in <i>Jamestown Reading Navigator</i> include both content-oriented goals and structural goals.</p> <ul style="list-style-type: none"> • Each writing prompt explains the purpose of the writing assignment, including its top-level content focus. • Tutor buttons in the draft and revision steps encourage students to add new ideas and details as they revise. • Each writing prompt describes the type of paper (genre) to write. • The rubric always provides at least one item related to a specific structural element of composition. For example, the rubric shown in the example above for writing a news story includes the goal, “Use sequence words such as <i>first, next, and last</i>.” • During the drafting stage of the writing assignment, the Tutor button addresses genre-specific structural issues: e.g., a narrative story with a beginning, a middle, and an end; a persuasive essay with a well-defined idea in each paragraph.

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Summary of Writing Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<p>Writing assignments should challenge students to engage with academic content at their current literacy level.</p>	<p>In most cases, writing assignments have students incorporate or build upon academic information presented in the text selection for that journey. This engagement may occur at a variety of levels, as appropriate for the focus of the specific writing assignment. Examples of specific writing prompts include the following:</p> <ul style="list-style-type: none"> • Write a news story. Tell about a volcano you just saw erupt. • Write a letter. Describe what it is like to train for and run in a marathon. • Write a magazine article. Tell why healthy eating is important. • Write a flyer. Tell what can be done about a pollution problem in your community. <p>Texts that students read and use as starting points for writing assignments are matched to their current reading level. The program supports students during the writing assignment by providing a list of ideas, a list of vocabulary words they might use, and access to the related text selection students have already read.</p>
<p>Writing instruction should include use of word processors.</p>	<p>Students writing in <i>Jamestown Reading Navigator</i> use a program with basic word-processing capabilities, including copying, pasting, and deleting.</p>
<p>Writing instruction on the computer should incorporate structured guidance, strategic instruction, and multiple interactions with technology.</p>	<ul style="list-style-type: none"> • As demonstrated in the features described throughout this table, the <i>Jamestown Reading Navigator</i> writing component provides structured guidance and strategic instruction with each writing assignment. • 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.
<p>Students should engage in prewriting activities to help them generate and organize ideas for writing, such as</p> <ul style="list-style-type: none"> • Group and individual planning before writing • Organizing prewriting ideas • Planning after a demonstration • Planning writing after reading related materials 	<p><i>Jamestown Reading Navigator</i> consistently prompts students to engage in prewriting activities for each writing assignment. Examples of specific activities include previewing the topic, identifying the audience, previewing the writing prompt, brainstorming, generating and organizing ideas, reviewing vocabulary words, previewing the rubric, reviewing the reading selection, and reviewing the quest (unit) video (for quest writing assignments).</p> <ul style="list-style-type: none"> • During the plan step of each online writing assignment, students are prompted to brainstorm and jot down ideas, based on information about the assignment (topic, purpose, audience, suggested ideas, vocabulary words, and rubric). • Suggestions for group planning are provided for the writing activity in individual <i>Teacher Resource Guide</i> lesson plans. Example: <ul style="list-style-type: none"> – “Before students write, have them brainstorm vivid adjectives that describe robots and strong verbs that show robots’ actions.”

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Summary of Writing Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<ul style="list-style-type: none"> • Planning writing after reading related materials (<i>continued</i>) 	<ul style="list-style-type: none"> • In some cases, the <i>Teacher Resource Guide</i> lesson plans provide more specific suggestions for organizing ideas prior to writing. Examples: <ul style="list-style-type: none"> – “Have students plan their letters by jotting down the beginning, the middle, and the end in a three-column chart.” – “Before writing, have students fill in a two-column chart with problems and solutions related to their trip.” • The online Tutor button provides a demonstration of how to plan. • Writing assignments are typically based on the text selection students have already read. • In some cases, suggestions in the <i>Teacher Resource Guide</i> lesson plans include an additional reading component prior to writing. Example: <ul style="list-style-type: none"> – “Before writing, have students research online or in books animals they intend to write about.”
<p>Students should be taught the writing process, in a context of writing tasks that are relevant for high school and beyond.</p>	<p>Online writing activities in <i>Jamestown Reading Navigator</i> guide students through a four-part writing process: plan, draft, revise, and publish. Students experience this process as they write in a variety of genres they will be expected to use in high school and beyond, including letters, newspaper articles, summaries, personal responses, journal entries, articles, stories, essays, and examples of narrative, expository, persuasive, and descriptive prose.</p>
<p>Students should study models of good writing for the various types of writing they are expected to produce.</p>	<ul style="list-style-type: none"> • Online and <i>inClass Reader</i> print reading selections often model the type of writing students are expected to produce. • The Tutor button provides instruction on the important features of the genre students are currently assigned to write. A model passage is shown to students, and the main features of the genre are described. Students are encouraged to read, analyze, and emulate these models.
<p>Students should practice writing to learn content material.</p>	<p>Since <i>Jamestown Reading Navigator</i> is a reading/literacy program, the primary focus is on the development of literacy skills. However, many of the writing assignments have students reinforce and build upon content information from the text selections, which are drawn from various subject areas. In order to fulfill these assignments, students must use the content they learned in the selection.</p>
<p>Students should write in conjunction with reading.</p>	<p>This is the basic writing strategy used in <i>Jamestown Reading Navigator</i>, since journey and quest writing assignments build on the reading assignments.</p> <p>Additionally, during their reading, students are encouraged to use the Add a Note feature to enter electronic notes about their reading. Students can access these notes at all stages of their writing. During their reading, students are encouraged to</p> <ul style="list-style-type: none"> • Think of questions as they read, look for the answers to their questions as they continue reading, and record the answers to their questions • Make connections between the reading and their own lives and note those connections using Add a Note • Access hyperlinked vocabulary word cards and add their own personalized notes to help them remember meaning, examples, characteristics, and connections to the words

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ANALYSIS AND RESULTS

Summary of Writing Recommendations	Application Through <i>Jamestown Reading Navigator</i>
<p>Students should have opportunities to develop proficiency in writing in a variety of forms, genres, styles, and tones.</p>	<ul style="list-style-type: none"> • <i>Jamestown Reading Navigator</i> provides students with experience writing in a variety of forms and genres, including descriptive writing, letters, newspaper articles, summaries, personal responses, journal entries, articles, stories, plays, speeches, advertisements, cartoons, poetry, essays, narrative writing, expository writing, and persuasive writing. The program helps guide students to develop proficiency with each of these types of writing. • Understanding style, mood, and tone is taught as a reading skill in <i>Jamestown Reading Navigator</i>. Students are exposed to a variety of styles—such as formal, casual, academic, simple, and technical—and tones, such as serious, determined, angry, humorous, adventurous, and romantic. • Students are prompted to include tone as a literary device in their writing. Examples: <ul style="list-style-type: none"> – Write a description. Use words that convey tone and mood to describe a place that you know. – Write a letter. Tell a friend about someone in a sad situation who still shows humor and a positive attitude. – As a prewriting activity, have students write down ways humor can change the tone of a sad situation.
<p>Students should develop the ability to adapt their writing for different contexts and purposes.</p>	<p>The variety of writing assignments in <i>Jamestown Reading Navigator</i> provides students with ample opportunities to practice adapting their writing for a broad range of contexts and purposes. Each assignment specifies a particular topic, audience, and purpose, and encourages students to write with those in mind.</p>
<p>Students should be provided with access to the vocabulary they need in order to fulfill specific writing tasks.</p>	<p>Students are provided with explicit instruction on key vocabulary that is used in the reading selection for each journey. During the writing assignment, students are prompted to incorporate several of the vocabulary terms they have learned. During the writing, students have access to hyperlinked word cards with information about the vocabulary words.</p>
<p>Student writing should be assessed on an ongoing basis. Results of the assessments should be used to assess student progress over time and adjust instruction as appropriate.</p>	<ul style="list-style-type: none"> • Teachers are provided with guidelines to evaluate students' writing assignments in the online program, in conjunction with the rubrics for each writing activity. These guidelines are provided in the Improving Writing section of the <i>Teacher Resource Guide</i> and also as separate downloads on the <i>Jamestown Reading Navigator</i> teacher home page (under Assessment). • Following these guidelines, teachers assign grades to the writing assignments, which are recorded and saved in the Learner Management System. This information can then be used by teachers to see how students are performing in writing assignments as they progress through the program. • Guidance in how to evaluate student writing is provided in the on-site implementation training for <i>Jamestown Reading Navigator</i>. • Additionally, suggestions for ongoing assessment in the Improving Writing section of the <i>Teacher Resource Guide</i> encourage teachers to have students reflect on their own writing and keep writing portfolios. • An optional on-site professional development session lets teachers explore strategies related to peer and teacher evaluation of student writing, including use of rubrics and responses to writing prompts in <i>Jamestown Reading Navigator</i>.

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