

Teaching Elementary School Students to Be Effective Writers



The Institute of Education Sciences (IES) publishes practice guides in education to bring the best available evidence and expertise to bear on current challenges in education. Authors of practice guides combine their expertise with the findings of rigorous research, when available, to develop specific recommendations for addressing these challenges. The authors rate the strength of the research evidence supporting each of their recommendations. See Appendix A for a full description of practice guides.

The goal of this practice guide is to offer educators specific, evidence-based recommendations that address the challenge of teaching writing in elementary school. The guide provides practical, clear information on critical topics related to teaching writing and is based on the best available evidence as judged by the authors.

Practice guides published by IES are available on our website by selecting the “Practice Guides” tab at http://ies.ed.gov/ncee/wwc/publications_reviews.aspx#pubsearch.

Teaching Elementary School Students to Be Effective Writers

June 2012

Panel

Steve Graham (Chair)
ARIZONA STATE UNIVERSITY

Alisha Bollinger
NORRIS ELEMENTARY SCHOOL, NORRIS SCHOOL DISTRICT, NEBRASKA

Carol Booth Olson
UNIVERSITY OF CALIFORNIA, IRVINE

Catherine D'Aoust
UNIVERSITY OF CALIFORNIA, IRVINE

Charles MacArthur
UNIVERSITY OF DELAWARE

Deborah McCutchen
UNIVERSITY OF WASHINGTON

Natalie Olinghouse
UNIVERSITY OF CONNECTICUT

Staff

M. C. Bradley
Virginia Knechtel
Bryce Onaran
Cassandra Pickens Jewell
MATHEMATICA POLICY RESEARCH

Project Officer

Joy Lesnick
INSTITUTE OF EDUCATION SCIENCES

This report was prepared for the National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences under Contract ED-07-CO-0062 by the What Works Clearinghouse, which is operated by Mathematica Policy Research.

Disclaimer

The opinions and positions expressed in this practice guide are those of the authors and do not necessarily represent the opinions and positions of the Institute of Education Sciences or the U.S. Department of Education. This practice guide should be reviewed and applied according to the specific needs of the educators and education agency using it, and with full realization that it represents the judgments of the review panel regarding what constitutes sensible practice, based on the research that was available at the time of publication. This practice guide should be used as a tool to assist in decisionmaking rather than as a “cookbook.” Any references within the document to specific education products are illustrative and do not imply endorsement of these products to the exclusion of other products that are not referenced.

U.S. Department of Education

Arne Duncan
Secretary

Institute of Education Sciences

John Q. Easton
Director

National Center for Education Evaluation and Regional Assistance

Rebecca A. Maynard
Commissioner

June 2012

This report is in the public domain. Although permission to reprint this publication is not necessary, the citation should be:

Graham, S., Bollinger, A., Booth Olson, C., D’Aoust, C., MacArthur, C., McCutchen, D., & Olinghouse, N. (2012). *Teaching elementary school students to be effective writers: A practice guide* (NCEE 2012-4058). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications_reviews.aspx#pubsearch.

What Works Clearinghouse practice guide citations begin with the panel chair, followed by the names of the panelists listed in alphabetical order.

This report is available on the IES website at <http://ies.ed.gov/ncee> and http://ies.ed.gov/ncee/wwc/publications_reviews.aspx#pubsearch.

Alternate Formats

On request, this publication can be made available in alternate formats, such as Braille, large print, or CD. For more information, contact the Alternate Format Center at (202) 260–0852 or (202) 260–0818.

Teaching Elementary School Students to Be Effective Writers

Table of Contents

Review of Recommendations	1
Acknowledgements	2
Institute of Education Sciences Levels of Evidence for Practice Guides	3
Introduction to the <i>Teaching Elementary School Students to Be Effective Writers Practice Guide</i>	6
Recommendation 1. Provide daily time for students to write	10
Recommendation 2. Teach students to use the writing process for a variety of purposes	12
Understanding the Writing Process.	14
Recommendation 2a. Teach students the writing process	15
Recommendation 2b. Teach students to write for a variety of purposes	20
Recommendation 3. Teach students to become fluent with handwriting, spelling, sentence construction, typing, and word processing	27
Recommendation 4. Create an engaged community of writers	34
Glossary.	40
Appendix A. Postscript from the Institute of Education Sciences	43
Appendix B. About the Authors	45
Appendix C. Disclosure of Potential Conflicts of Interest	47
Appendix D. Rationale for Evidence Ratings	48
Endnotes	81
References.	99

List of Tables

Table 1. Institute of Education Sciences levels of evidence for practice guides	4
Table 2. Recommendations and corresponding levels of evidence	9
Table 3. Examples of writing strategies.	16
Table 4. Purposes for writing	21
Table 5. Examples of techniques within the four purposes of writing	26
Table 6. Spelling skills by grade level	29
Table 7. Activities for sentence-structure development	31
Table D.1. Studies that contribute to the level of evidence for Recommendation 1	51
Table D.2. Supplemental evidence supporting the effectiveness of Recommendation 1	52
Table D.3. Studies that contribute to the level of evidence for Recommendation 2	54
Table D.4. Supplemental evidence supporting the effectiveness of Recommendation 2	64
Table D.5. Studies that contribute to the level of evidence for Recommendation 3	73
Table D.6. Supplemental evidence supporting the effectiveness of Recommendation 3	74
Table D.7. Studies that contribute to the level of evidence for Recommendation 4	78
Table D.8. Supplemental evidence supporting the effectiveness of Recommendation 4	79

List of Figures

Figure 1. Gradual release of responsibility to students	18
Figure 2. Handwriting-practice diagram	28

List of Examples

Example 1. Applying the writing process in an upper elementary classroom	20
Example 2. Story emulation of <i>Rosie’s Walk</i> with 1st-grade students	23
Example 3. Using text as a model	24
Example 4. The Westward Movement prompt	36
Example 5. “Star of the Day”	37
Example 6. “Author’s Chair”	38

Review of Recommendations

Recommendation 1.

Provide daily time for students to write.

Recommendation 2.

Teach students to use the writing process for a variety of purposes.

Recommendation 2a.

Teach students the writing process.

1. Teach students strategies for the various components of the writing process.
2. Gradually release writing responsibility from the teacher to the student.
3. Guide students to select and use appropriate writing strategies.
4. Encourage students to be flexible in their use of the components of the writing process.

Recommendation 2b.

Teach students to write for a variety of purposes.

1. Help students understand the different purposes of writing.
2. Expand students' concept of audience.
3. Teach students to emulate the features of good writing.
4. Teach students techniques for writing effectively for different purposes.

Recommendation 3.

Teach students to become fluent with handwriting, spelling, sentence construction, typing, and word processing.

1. Teach very young writers how to hold a pencil correctly and form letters fluently and efficiently.
2. Teach students to spell words correctly.
3. Teach students to construct sentences for fluency, meaning, and style.
4. Teach students to type fluently and to use a word processor to compose.

Recommendation 4.

Create an engaged community of writers.

1. Teachers should participate as members of the community by writing and sharing their writing.
2. Give students writing choices.
3. Encourage students to collaborate as writers.
4. Provide students with opportunities to give and receive feedback throughout the writing process.
5. Publish students' writing, and extend the community beyond the classroom.

Acknowledgments

The panel appreciates the efforts of Virginia Knechtel, M. C. “Cay” Bradley, Bryce Onaran, and Cassie Pickens Jewell, staff from Mathematica Policy Research who participated in the panel meetings, described the research findings, and drafted the guide. We also thank Scott Cody, Kristin Hallgren, David Hill, Claudia Gentile, Brian Gill, and Shannon Monahan for helpful feedback and reviews of drafts of the guide.

Steve Graham
Alisha Bollinger
Carol Booth Olson
Catherine D’Aoust
Charles MacArthur
Deborah McCutchen
Natalie Olinghouse

Levels of Evidence for Practice Guides

Institute of Education Sciences Levels of Evidence for Practice Guides

This section provides information about the role of evidence in Institute of Education Sciences' (IES) What Works Clearinghouse (WWC) practice guides. It describes how practice guide panels determine the level of evidence for each recommendation and explains the criteria for each of the three levels of evidence (strong evidence, moderate evidence, and minimal evidence).

The level of evidence assigned to each recommendation in this practice guide represents the panel's judgment of the quality of the existing research to support a claim that, when these practices were implemented in past research, positive effects were observed on student outcomes. After careful review of the studies supporting each recommendation, panelists determine the level of evidence for each recommendation using the criteria in Table 1. The panel first considers the relevance of individual studies to the recommendation and then discusses the entire evidence base, taking the following into consideration:

- the number of studies
- the design of the studies
- the quality of the studies
- whether the studies represent the range of participants and settings on which the recommendation is focused
- whether findings from the studies can be attributed to the recommended practice
- whether findings in the studies are consistently positive

A rating of *strong evidence* refers to consistent evidence that the recommended strategies, programs, or practices improve student outcomes for a wide population of students.¹ In other words, there is strong causal and generalizable evidence.

A rating of *moderate evidence* refers either to evidence from studies that allow strong causal conclusions but cannot be generalized with assurance to the population on which a recommendation is focused (perhaps because the findings have not been widely replicated) or to evidence from studies that are generalizable but have some causal ambiguity. It also might be that the studies that exist do not specifically examine the outcomes of interest in the practice guide, although they may be related.

A rating of *minimal evidence* suggests that the panel cannot point to a body of research that demonstrates the practice's positive effect on student achievement. In some cases, this simply means that the recommended practices would be difficult to study in a rigorous, experimental fashion;² in other cases, it means that researchers have not yet studied this practice, or that there is weak or conflicting evidence of effectiveness. A minimal evidence rating does not indicate that the recommendation is any less important than other recommendations with a strong evidence or moderate evidence rating.

In developing the levels of evidence, the panel considers each of the criteria in Table 1. The level of evidence rating is determined as the lowest rating achieved for any individual criterion. Thus, for a recommendation to get a strong rating, the research must be rated as strong on each criterion. If at least one criterion receives a rating of moderate and none receive a rating of minimal, then the level of evidence is determined to be moderate. If one or more criteria receive a rating of minimal, then the level of evidence is determined to be minimal.

Levels of Evidence for Practice Guides *(continued)*

Table 1. Institute of Education Sciences levels of evidence for practice guides

Criteria	STRONG Evidence Base	MODERATE Evidence Base	MINIMAL Evidence Base
Validity	High internal validity (high-quality causal designs). Studies must meet WWC standards with or without reservations. ³ AND High external validity (requires multiple studies with high-quality causal designs that represent the population on which the recommendation is focused). Studies must meet WWC standards with or without reservations.	High internal validity but moderate external validity (i.e., studies that support strong causal conclusions but generalization is uncertain). OR High external validity but moderate internal validity (i.e., studies that support the generality of a relation but the causality is uncertain). ⁴	The research may include evidence from studies that do not meet the criteria for moderate or strong evidence (e.g., case studies, qualitative research).
Effects on relevant outcomes	Consistent positive effects without contradictory evidence (i.e., no statistically significant negative effects) in studies with high internal validity.	A preponderance of evidence of positive effects. Contradictory evidence (i.e., statistically significant negative effects) must be discussed by the panel and considered with regard to relevance to the scope of the guide and intensity of the recommendation as a component of the intervention evaluated.	There may be weak or contradictory evidence of effects.
Relevance to scope	Direct relevance to scope (i.e., ecological validity)—relevant context (e.g., classroom vs. laboratory), sample (e.g., age and characteristics), and outcomes evaluated.	Relevance to scope (ecological validity) <u>may vary</u> , including relevant context (e.g., classroom vs. laboratory), sample (e.g., age and characteristics), and outcomes evaluated. At least some research is directly relevant to scope (but the research that is relevant to scope does not qualify as strong with respect to validity).	The research may be out of the scope of the practice guide.
Relationship between research and recommendations	Direct test of the recommendation in the studies or the recommendation is a major component of the intervention tested in the studies.	Intensity of the recommendation as a component of the interventions evaluated in the studies <u>may vary</u> .	Studies for which the intensity of the recommendation as a component of the interventions evaluated in the studies is low; and/or the recommendation reflects expert opinion based on reasonable extrapolations from research.

Levels of Evidence for Practice Guides *(continued)*

Table 1. Institute of Education Sciences levels of evidence for practice guides *(continued)*

Criteria	STRONG Evidence Base	MODERATE Evidence Base	MINIMAL Evidence Base
Panel confidence	Panel has a high degree of confidence that this practice is effective.	The panel determines that the research does not rise to the level of strong but is more compelling than a minimal level of evidence. Panel may not be confident about whether the research has effectively controlled for other explanations or whether the practice would be effective in most or all contexts.	In the panel's opinion, the recommendation must be addressed as part of the practice guide; however, the panel cannot point to a body of research that rises to the level of moderate or strong.
Role of expert opinion	Not applicable	Not applicable	Expert opinion based on defensible interpretations of theory (theories). (In some cases, this simply means that the recommended practices would be difficult to study in a rigorous, experimental fashion; in other cases, it means that researchers have not yet studied this practice.)
When assessment is the focus of the recommendation	For assessments, meets the standards of <i>The Standards for Educational and Psychological Testing</i> . ⁵	For assessments, evidence of reliability that meets <i>The Standards for Educational and Psychological Testing</i> but with evidence of validity from samples not adequately representative of the population on which the recommendation is focused.	Not applicable

The panel relied on WWC evidence standards to assess the quality of evidence supporting educational programs and practices. The WWC evaluates evidence for the causal validity of instructional programs and practices according to WWC standards. Information about these standards is available at <http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=19>. Eligible studies that meet WWC evidence standards for group designs or meet evidence standards with reservations are indicated by **bold text** in the endnotes and references pages.

Introduction

Introduction to the *Teaching Elementary School Students to Be Effective Writers Practice Guide*

This section provides an overview of the importance of teaching writing and explains key parameters considered by the panel in developing the practice guide. It also summarizes the recommendations for readers and concludes with a discussion of the research supporting the practice guide.

“Writing today is not a frill for the few, but an essential skill for the many.”⁶

Writing is a fundamental part of engaging in professional, social, community, and civic activities. Nearly 70 percent of salaried employees have at least some responsibility for writing,⁷ and the ability to write *well* is a critical component of being able to communicate effectively to a variety of audiences. Because writing is a valuable tool for communication, learning, and self-expression,⁸ people who do not have adequate writing skills may be at a disadvantage and may face restricted opportunities for education and employment.

Students should develop an early foundation in writing in order to communicate their ideas effectively and efficiently—yet many American students are not strong writers. In fact, less than one-third of all students performed at or above the “proficient” level in writing on the 2007 National Assessment of Educational Progress Writing Assessment.⁹

The authors believe that students who develop strong writing skills at an early age acquire a valuable tool for learning, communication, and self-expression. Such skills can be developed through effective writing instruction practices that provide adequate time for students to write.¹⁰ This guide, developed by a panel of experts, presents four recommendations that educators can use to increase writing achievement for elementary students and help them succeed in school and society. These recommendations are based on the best available research evidence, as well as the combined experience and expertise of the panel members.

Scope of the practice guide

Audience. This guide is intended for use by teachers, literacy coaches, and other educators. The recommendations focus on activities and strategies teachers can implement in their classrooms to increase their students’ writing achievement. Principals, districts, and curriculum developers may also find the guide useful.

Grade level. The recommendations provide strategies for teaching writing to students in elementary school. The panel acknowledges that instructional practices in kindergarten and 1st grade, when students are just beginning to learn letters and to write, can and will differ from practices in later grades. Writing, like reading, is defined from a developmental standpoint, which begins with the acquisition of foundational skills and then leads to the application of more sophisticated techniques. For younger students, for example, “writing” activities could include interpretive drawing, invented spelling, or interactive writing. Although these activities are not often considered traditional writing experiences, they accomplish the same goals: helping students communicate thoughts and ideas to others, encouraging them to engage with the text to deepen their understanding of the content, and drawing connections to prior learning experiences. The panel recommends that teachers adapt the recommendations as appropriate for the range of grades addressed in this guide, and examples of such adaptations are included in the guide.

Populations who are at risk for writing difficulties. Learning to write can be particularly challenging for students with learning disabilities; those who find it difficult to regulate their behavior when they become frustrated; or those who struggle with related skills such as reading, spelling, or handwriting. While the recommendations in this guide are primarily intended for teachers to use with typically developing students, most teachers serve at least a few students with special needs in their classrooms; in some general education classrooms, these students comprise the majority. Research evidence reviewed for this guide indicates that the recommendations are appropriate for use with students with special needs when accompanied by appropriate modifications.

Common themes

Underlying this guide are three common themes about the concept of writing, the role of technology, and the role of assessment.

The writing process. Writing is a process through which people communicate thoughts and ideas. It is a highly complex, cognitive, self-directed activity, driven by the goals writers set for what they want to do and say and the audience(s) for whom they are writing. To meet these goals, writers must skillfully and flexibly coordinate their writing process from conception to the completion of a text. Components of the writing process include planning; drafting; sharing; revising; editing; evaluating; and, for some writing pieces, publishing. (See Recommendation 2 for more information.)

Technology. Increasingly, the ability to use technology is vital for success in school and contemporary life. This requires that students learn to type and use a word processor, use the Internet to collect information, navigate computer- and web-based testing tools, and understand how different writing conventions apply to different media. The panel believes that integrating the use of technology into

writing instruction is critically important. For this reason, examples of how to do so are included in “technology tip” call-out boxes in this guide.

Assessment. Good instruction in any subject area requires that teachers continually assess the needs and skills of their students and modify their instruction to suit those needs. The panel encourages teachers to use assessment to guide their instruction and to determine when students are ready to move on to more challenging instruction.

Summary of the recommendations

The recommendations in this guide cover teaching the writing process, teaching fundamental writing skills, encouraging students to develop essential writing knowledge, and developing a supportive writing environment. All of these practices are aimed at achieving a single goal: enabling students to use writing flexibly and effectively to help them learn and communicate their ideas.

A central tenet of this guide is that students learn by doing. Indeed, to become effective writers, students need daily opportunities to learn and practice writing skills, strategies, and techniques (Recommendation 1). Writing practice also can be integrated into instruction in other content areas to provide students with additional time to write.

Students need to think carefully about their purpose for writing, planning what to say and how to say it (Recommendation 2). While evidence supports Recommendation 2 as a whole, the steps to carry out this recommendation can be grouped into two categories. First, to help students think critically about writing, teachers should focus their writing instruction on teaching students to carry out the writing process effectively and flexibly (Recommendation 2a). This includes helping students learn how to engage in the writing process to meet their writing goals, as well as teaching students multiple strategies for carrying out the components of

the writing process. Second, because writing also is a form of communication with many purposes, teachers should help students develop an understanding of these purposes and learn to write well for a variety of real-life purposes and audiences (Recommendation 2b).

Writing places multiple simultaneous demands on the writer. Mastering the foundational skills of good writing, including handwriting, spelling, sentence construction, and typing, allows students to devote more of their attention to composing written texts by utilizing the strategies and techniques associated with the writing process. For this reason, it is important to teach students foundational skills (Recommendation 3).

When students are part of a community of writers, they collaborate with other writers, make decisions about what to write and how to write about it, and receive constructive feedback from peers and teachers. Teachers should create a supportive and motivating environment so that young writers feel safe engaging fully in the writing process (Recommendation 4).

Defining and assessing good writing

Writing instruction is ultimately geared toward teaching students to produce high-quality writing for a variety of purposes. To assess whether the practices in this guide were effective, the panel considered their impact on overall writing quality. However, given that the students targeted by this guide are in the early stages of their writing development, and that the cost of administering and scoring assessments of overall writing quality can be prohibitive, the panel also considered the impact of practices on intermediary outcomes—including genre elements, ideation, mechanics, sentence structure, organization, output, vocabulary, and voice (see the glossary for descriptions and examples of each outcome). When measures of overall writing quality and measures of intermediary outcomes were both available, the panel prioritized evidence on overall writing quality.

Measures of **overall writing quality** assess the effectiveness of a piece of writing. These measures may take into account assessments of intermediary outcome categories—including writing output, mechanics, vocabulary, sentence structure, organization, ideation, voice, and genre (or text) elements—in a single assessment of the quality of a piece of writing.

One challenge for teachers and researchers alike is identifying what constitutes good writing. Unlike instruction in basic mathematics, where there typically is a correct answer and an incorrect answer, what constitutes good writing in one context is not always good writing in another. Assessing writing is a fundamentally subjective judgment and depends at least in part on the framework the reader brings to the task. Despite the subjective nature of writing assessment, there are some features that many can agree contribute to effective writing (e.g., following basic language conventions so a reader is able to interpret the text's meaning or developing a clear focus for the reader). In order to address some of the inherent subjectivity of writing measures, the panel included only outcomes for which the researchers demonstrated that multiple raters could evaluate the same students' work consistently. Exceptions were given to norm-referenced standardized tests and a small number of measures that were more objective (e.g., word count).

Use of research

The literature used to create and support the recommendations ranges from rigorous experimental studies to expert reviews of practices and strategies in writing; however, the evidence ratings are based solely on high-quality experimental and quasi-experimental design studies that met What Works Clearinghouse (WWC) standards. These studies include both national and international studies of strategies for teaching writing to students in kindergarten through 6th grade.

Single-case design (SCD) studies that meet the WWC pilot standards for well-designed SCD research are also described, but these cannot raise the level of evidence above minimal.

The research base for this guide was identified through a comprehensive search for studies evaluating instructional practices for improving students' writing skills and techniques. An initial search for literature related to writing instruction and strategies in the past 20 years, supplemented with recommendations by the panel (including important studies conducted in 1970 or later), yielded more than 1,500 citations. Of these studies, 118 used experimental and group quasi-experimental designs to examine whether components of writing instruction increased students' writing achievement. From this subset, 41 met the causal validity standards of the WWC, and 34 were relevant to the panel's recommendations and were included as support or supplemental evidence for the recommendations in this practice guide.¹¹

The strength of the evidence supporting each recommendation in this guide varies; one recommendation was supported by strong evidence, one by moderate evidence, and the remaining two recommendations by minimal evidence. Despite the varying levels of evidence, the panel believes that all of the recommendations in this guide are important for promoting students' writing achievement.

A rating of minimal evidence does not indicate that the practices described in a recommendation are ineffective or that the recommendation is any less important than the recommendations with ratings of strong or moderate evidence. Instead, it may indicate that little research has been conducted on the practices (or the combination of practices) described in the recommendation. Some of the evidence used to supplement the evidence of the effectiveness of the recommendations on typically achieving students comes from interventions administered to students who have been identified for special education services or who score below average on assessments of related skills.

Although all of the recommendations in this guide are primarily based on evidence from studies with rigorous designs, the panel members supplemented their explanation of how to execute the recommendations based on their expert judgment and experience applying the recommendations. Throughout the guide, statements not cited with studies are based on the panel's judgment.

Table 2 shows each recommendation and the strength of the evidence that supports it as determined by the panel. Following the recommendations and suggestions for carrying out the recommendations, Appendix D presents more information on the research evidence that supports each recommendation.

Table 2. Recommendations and corresponding levels of evidence

Recommendation	Levels of Evidence		
	Strong Evidence	Moderate Evidence	Minimal Evidence
1. Provide daily time for students to write.			◆
2. Teach students to use the writing process for a variety of purposes. 2a. Teach students the writing process. 2b. Teach students to write for a variety of purposes.	◆		
3. Teach students to become fluent with handwriting, spelling, sentence construction, typing, and word processing.		◆	
4. Create an engaged community of writers.			◆

Recommendation 1



Provide daily time for students to write.

Providing adequate time for students to write is one essential element of an effective writing instruction program.¹² However, recent surveys of elementary teachers indicate that students spend little time writing during the school day.¹³ Students need dedicated instructional time to learn the skills and strategies necessary to become effective writers, as well as time to practice what they learn. Time for writing practice can help students gain confidence in their writing abilities. As teachers observe the way students write, they can identify difficulties and assist students with learning and applying the writing process.

Summary of evidence: **Minimal Evidence**

While the panel believes it is critical to allocate sufficient time to writing instruction and practice, research has not explicitly examined whether providing daily opportunities to write leads to better writing outcomes than providing less frequent writing opportunities. One study did conclude that students who were given extra instructional time in writing had improved writing quality relative to students who did not receive extra instruction.¹⁴

In addition to this study, the research supporting the practices recommended in the remainder of this guide implies that the practices required considerable time to implement.¹⁵ Merely providing time for writing is insufficient, however; the time for writing must include instruction aligned with the recommendations that follow.

The panel next describes how to carry out this recommendation.

How to carry out the recommendation

The panel recommends a minimum of one hour a day devoted to writing for students, beginning in 1st grade. The hour should include at least 30 minutes dedicated to teaching a variety of writing strategies, techniques, and skills appropriate to students' levels, as detailed in Recommendations 2, 3, and 4 of this guide. The remaining 30 minutes should be spent on writing practice, where students apply the skills they learned from writing-skills instruction.

Time for writing practice can occur in the context of other content-area instruction. In science, for example, lab reports require detailed procedural writing and clear descriptions of observations. Students also can write

For students in kindergarten, at least 30 minutes each day should be devoted to writing and developing writing skills.

imaginary diary entries of people from the time period they are studying in social studies. Additionally, students can write before, during, and/or after reading, to articulate what they already know, what they want to know, and what they learned. When teachers integrate writing tasks with other content-area lessons, students may think more critically about the content-area material.¹⁶

Potential roadblocks and solutions

Roadblock 1.1. *There is not enough time in the school day to devote an hour each day to writing instruction.*

Suggested Approach. Teachers should integrate writing and content-area instruction wherever possible in order to maximize instructional time and give students more writing practice. The panel recognizes that educators face limited time and a number of conflicting priorities in each school day; however, it is important for teachers to provide as

much time as possible for writing instruction and in-class composing. In fact, teachers can use writing to augment instruction in other subject areas. For example, if students are learning to interpret graphs in math, teachers can present students with a graph from a recent newspaper and ask them to write a paragraph about what the graph is trying to convey. This exercise encourages students to think carefully about how effectively the graph conveys information, and at the same time, it gives students an opportunity to apply and practice writing strategies and skills.

Recommendation 2

Teach students to use the writing process for a variety of purposes.

Writing well involves more than simply documenting ideas as they come to mind. It is a process that requires that the writer think carefully about the purpose for writing, plan what to say, plan how to say it, and understand what the reader needs to know.

Teachers can help students become effective writers by teaching a variety of strategies for carrying out each component of the writing process¹⁷ and by supporting students in applying the strategies until they are able to do so independently.¹⁸ Over time, students will develop a repertoire of strategies for writing. Teachers should explain and model the fluid nature in which the components of the writing process work together, so that students can learn to apply strategies flexibly—separately or in combination—when they write.¹⁹

Students also should learn that writing is used for a variety of purposes, such as conveying information, making an argument, providing a means for self-reflection, sharing an experience, enhancing understanding of reading, or providing entertainment. Learning how to write well for different purposes is important not only for success in school, but also for active participation in professional and social life.

Teachers should begin by teaching students the different purposes for writing²⁰ and how specific genres, or forms of writing defined by specific features, can help students achieve their writing goals. When students understand the connection between different genres and writing purposes, they may be more likely to use different genres and think more critically about how to structure their writing. Students also must learn to adjust their writing to be most effective for their intended readers.²¹ Examples of good writing and techniques for writing in specific genres can help students write more effectively for different purposes and audiences.²²

Because writing is a complex process, the steps needed to carry out this recommendation are numerous. For that reason, the individual how-to steps are separated into two sections. Recommendation 2a discusses teaching students how to apply the writing process; Recommendation 2b addresses teaching students to write for a variety of purposes. Because research has examined all of these steps combined, we summarize and rate the evidence supporting all of Recommendation 2 below.



Genres are forms of writing with specific features that provide context and structure for a purpose. For example, a student might want to *describe* a warm summer day. To achieve this purpose, the student might choose to write a poem or a journal entry. Both genres (poem and journal entry) enable the student to communicate the purpose, but they do so in different ways. Writers use genres to achieve a wide variety of writing purposes.

Summary of evidence: Strong Evidence

The panel determined that there was strong evidence supporting this recommendation. Twenty-five studies that met WWC evidence standards tested the practices in this recommendation on diverse populations of students across a wide variety of settings and found positive effects on a variety of outcomes, including overall writing quality.²³

The outcomes for typically achieving students on measures administered in a whole-class setting are the focus of this summary, but more details on the impacts on other groups and settings can be found in Appendix D. The studies can be placed into four categories, based on the practices they examine. The first two categories of studies evaluated specific interventions that were addressed by a large number of studies. The remaining studies examined a range of interventions with varied components and are therefore grouped by the degree of alignment between the studied practices and the recommendation:

- **Self-regulated strategy development (SRSD).**²⁴ The first set of studies examined SRSD, an approach to writing instruction, which typically contains more than 70 percent of the specific practices detailed in this recommendation. In the SRSD approach, students are taught different strategies and techniques using a gradual release of responsibility to help them navigate the writing process and to regulate their writing behavior.²⁵ Studies of SRSD showed uniformly positive effects on writing outcomes, including the overall quality of students' writing.²⁶
- **Goal setting.** These studies examined an approach whereby students receive a variety of concrete goals to help them improve the quality of their writing.²⁷ Typically, goal-setting interventions contained fewer than 30 percent of the components of Recommendation 2. No studies examined

the effectiveness of goal setting among typically achieving students in a whole-class setting. The effects of goal setting on overall writing quality were positive when administered to typically achieving students in small groups, although the effects on the quality of the sentences that students wrote were less clear.²⁸

- **Moderately or closely aligned to the recommendation.** These studies did not fall in either of the previous categories but examined interventions that contained at least 30 percent of the components of Recommendation 2.²⁹ The practices in these studies produced positive effects on the overall quality of students' writing, as well as the number of genre elements that students included in their stories.³⁰
- **Partially aligned to the recommendation.** The final category of studies examined interventions that contained fewer than 30 percent of the components of Recommendation 2.³¹ The study of a typically achieving population found positive impacts on students' overall writing quality and the number of elements they included in their stories.³²

A majority of studies examined SRSD and goal-setting interventions. The studies also showed that the practices in this recommendation are effective when tested on students with characteristics that make them at risk for writing difficulties or students who have been labeled as gifted. Interventions delivered to students in a whole-class setting sometimes led to smaller gains in students' writing; however, the practices proved to be effective regardless of the mode of delivery.

The panel describes the four components of Recommendation 2a and the four components of Recommendation 2b after explaining the writing process on the next page.

Recommendation 2 *(continued)*

Understanding the Writing Process

The writing process is the means through which a writer composes text. Writing is not a linear process, like following a recipe to bake a cake. It is flexible; writers should learn to move easily back and forth between components of the writing process, often altering their plans and revising their text along the way. Components of the writing process include planning, drafting, sharing, evaluating, revising, and editing. An additional component, publishing, may be included to develop and share a final product.

Planning often involves developing goals and generating ideas; gathering information from reading, prior knowledge, and discussions with others; and organizing ideas for writing based on the purpose of the text (see Recommendation 2b for more information about writing for a variety of purposes). Students should write down these goals and ideas so that they can refer to and modify them throughout the writing process.

Drafting focuses on creating a preliminary version of a text. When drafting, students must select the words and construct the sentences that most accurately convey their ideas, and then transcribe those words and sentences into written language. Skills such as spelling, handwriting, and capitalization and punctuation also are important when drafting, but these skills should not be the focus of students' effort at this stage (see Recommendation 3 for more information about these skills).

Sharing ideas or drafts with teachers, other adults, and peers throughout the writing process enables students to obtain feedback and suggestions for improving their writing.

Evaluating can be carried out by individual writers as they reread all or part of their text and carefully consider whether they are meeting their original writing goals. Evaluation also can be conducted by teachers and peers who provide the writer with feedback

Technology Tip

Word processing can make it easier for many students to carry out the writing process. For instance, text can be added, moved, deleted, or rewritten easily, encouraging students to move flexibly between components of the writing process. Some software programs help students organize their ideas for writing, provide feedback on what they write, and allow students to publish their writing in a variety of forms and formats.

(see Recommendation 4 for more information about providing students with opportunities to give and receive feedback throughout the writing process).

Revising and editing require that writers make changes to their text based on evaluations of their writing. **Revising** involves making content changes after students first have evaluated problems within their text that obscure their intended meaning. Students should make changes to clarify or enhance their meaning. These changes may include reorganizing their ideas, adding or removing whole sections of text, and refining their word choice and sentence structure.

Editing involves making changes to ensure that a text correctly adheres to the conventions of written English. Students should be particularly concerned with reviewing their spelling and grammar and making any necessary corrections. Editing changes make a text readable for external audiences and can make the writer's intended meaning clearer.

Publishing typically occurs at the end of the writing process, as students produce a final product that is shared publicly in written form, oral form, or both. Not all student writing needs to be published, but students should be given opportunities to publish their writing and celebrate their accomplishments (see Recommendation 4 for more information about publishing students' writing).

Recommendation 2a. Teach students the writing process.

How to carry out the recommendation

1. Teach students strategies for the various components of the writing process.

Students need to acquire specific strategies for each component of the writing process.³³ Table 3 shows 10 examples of writing strategies and the grades for which they are appropriate. Students should learn basic strategies, such as POW (Pick ideas, Organize their notes, Write and say more), in 1st or 2nd grade. More complicated strategies, such as peer revising, should be introduced in 2nd grade or later. Many strategies can be used to assist students with more than one component of the writing process. For example, as students plan to write a persuasive essay, they may set goals for their writing, such as providing three or more reasons for their beliefs. Students should

A **strategy** is a series of actions (mental, physical, or both) that writers undertake to achieve their goals. Strategies are tools that can help students generate content and carry out components of the writing process.

then devise a plan for periodically assessing their progress toward meeting these goals as they write. As students evaluate their draft text, they may reread their paper to determine whether they have met the goals they articulated during planning. If not, students may revise their writing to better meet their goals.

Recommendation 2 (continued)

Table 3. Examples of writing strategies³⁴

Component of the Writing Process	Writing Strategy	How Students Can Use the Strategy	Grade Range
Planning	POW	<ul style="list-style-type: none"> ▪ Pick ideas (i.e., decide what to write about). ▪ Organize their notes (i.e., brainstorm and organize possible writing ideas into a writing plan). ▪ Write and say more (i.e., continue to modify the plan while writing). 	1–6
	Ordering ideas/outlining	<ul style="list-style-type: none"> ▪ Brainstorm/generate ideas for their paper. ▪ Review their ideas and place a number by what will go first, second, third, and so on. 	1–2
		<ul style="list-style-type: none"> ▪ Brainstorm/generate ideas for their paper. ▪ Decide which are main ideas and which are supporting ideas. ▪ Create an outline that shows the order of the main ideas and the supporting details for each main idea. 	3–6
Drafting	Imitation	<ul style="list-style-type: none"> ▪ Select a sentence, paragraph, or text excerpt and imitate the author’s form (see Recommendation 2b, examples 2 and 3). 	1–6
	Sentence generation	<ul style="list-style-type: none"> ▪ Try out sentences orally before writing them on paper. ▪ Try multiple sentences and choose the best one. ▪ Use transition words to develop different sentence structures. ▪ Practice writing good topic sentences. 	3–6
Sharing	Peer sharing ³⁵	<ul style="list-style-type: none"> ▪ In pairs, listen and read along as the author reads aloud. ▪ Share feedback with their writing partner, starting with what they liked. 	2–6
	“Author’s Chair”	<ul style="list-style-type: none"> ▪ Sit in a special chair in front of peers and read their writing (see Recommendation 4, example 6, for more detail). 	K–6
Evaluating	Self-evaluating	<ul style="list-style-type: none"> ▪ Reread and ask these questions: <ul style="list-style-type: none"> • Are the ideas clear? • Is there a clear beginning, middle, and end? • Does the writing connect with the reader? • Are sentence types varied? 	2–6
	Self-monitoring	<ul style="list-style-type: none"> ▪ Self-assess and ask these questions, either out loud or internally: <ul style="list-style-type: none"> • Did I meet the goals I developed for my writing? If not, what changes should I make to meet my goals? • Did I correctly use strategies that were appropriate for this task? If not, what should I change? ▪ Record their answers to self-assessment questions on a chart or teacher-provided questionnaire in order to track their progress toward writing goals and strategy use. ▪ Congratulate themselves, and inform their teacher, when they meet their goals. 	3–6
Revising and editing	Peer revising ³⁶	<ul style="list-style-type: none"> ▪ Place a question mark (?) by anything they do not understand in their writing partner’s paper. ▪ Place a carat (^) anywhere it would be useful to have the author include more information. 	2–6
	COPS (editing)	<ul style="list-style-type: none"> ▪ Ask the COPS editing questions: <ul style="list-style-type: none"> • Did I Capitalize the first word in sentences and proper names? • How is the Overall appearance of my paper? • Did I use commas and end-of-sentence Punctuation? • Did I Spell each word correctly? 	2–6

2. Gradually release writing responsibility from the teacher to the student.

Writing strategies should be taught explicitly and directly through a gradual release of responsibility from teacher to student.³⁷ Teachers should ensure that students have the background knowledge and skills they need to understand and use a writing strategy. Then, teachers should describe the strategy and model its use. Teachers also should articulate the purpose of the strategy, clearly stating why students might choose to use it as a way of improving their writing. Teachers then should guide students to collaborate in small groups to practice applying the strategy.

Once students demonstrate an understanding of the strategy, the teacher should encourage students to practice applying it as they write independently. Teachers should make sure they do not release responsibility to students too early. In some cases, this may mean having students spend more time in activities that are teacher directed until they develop the knowledge and skills to become more independent. Conversely, if some students are particularly strong in understanding and applying a new strategy, teachers can create collaborative peer groups in which more adept students help peers better understand, use, and apply new strategies.

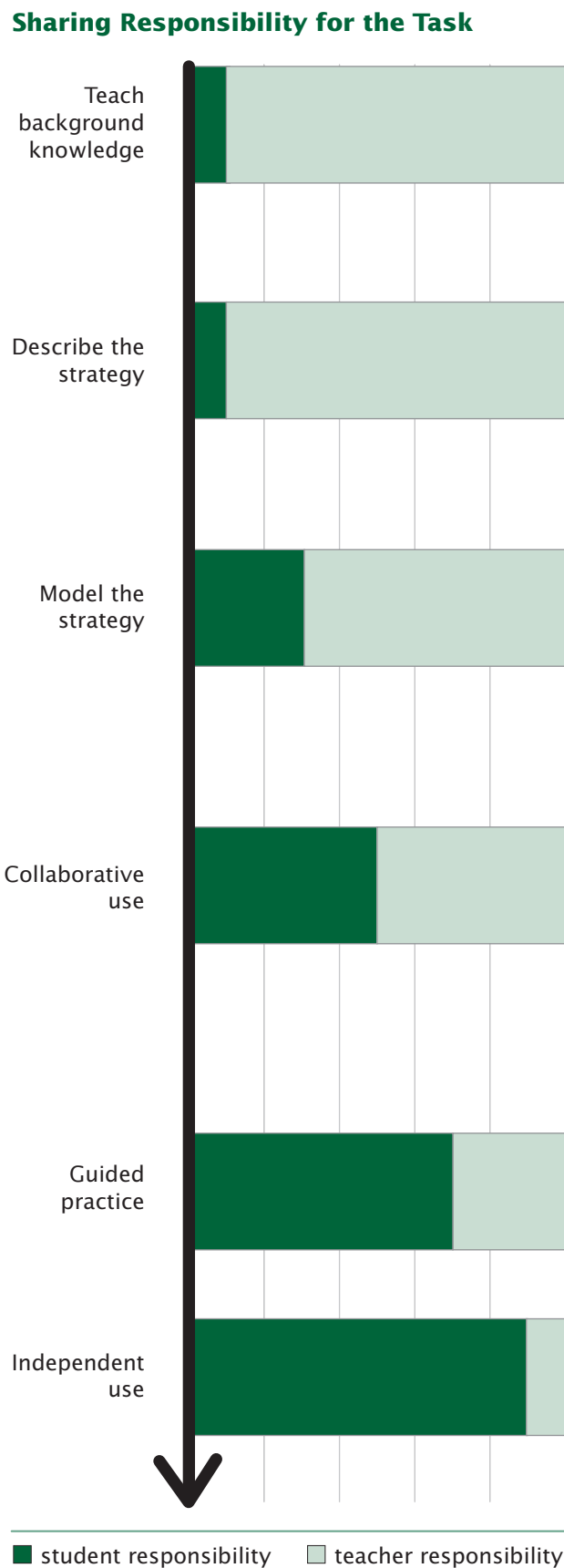
Figure 1 illustrates the gradual release of responsibility from teacher to student. In this scenario, the teacher uses brainstorming, a planning strategy. Brainstorming can be used with any grade level; students may brainstorm by writing words or drawing pictures to represent their ideas.

To adapt writing strategy instruction to individual students, teachers should assess students as they acquire new strategies, determining where instruction needs to be reinforced. Teachers may need to model an entire strategy or parts of a strategy again before students can work independently. Some students may need more time, practice, and assistance to master a strategy. While the amount of guided practice that individual students need will vary, practice is necessary for all students. In other words, it is not enough to simply describe the strategy and show how to use it.

For students who acquire a strategy easily and more quickly than their peers, teachers should consider increasing the complexity of the strategy. For example, teachers can increase the complexity of the brainstorming activity by additionally requiring students to research their topic online. Students also can explore using the strategy in new ways and with new tasks.

Recommendation 2 (continued)

Figure 1. Gradual release of responsibility to students³⁸



Gradual Release of the Brainstorming Strategy

The teacher provides background knowledge, including why students should use the strategy and how it will help them: “What you write will be more interesting for others to read if you have a lot of good ideas, so you should take the time to write down all your ideas before you get started. One way to do this is to use a strategy called *brainstorming*. In brainstorming, you write down as many ideas as you can think of without worrying about whether they are good or bad.”

The teacher describes the strategy: “Brainstorming helps you think about what you already know. You write down as many ideas as you can think of. You do not think about whether they are good or bad ideas while you do this. When you write down a lot of ideas, you may find some ideas that you didn’t think about before. This is a good strategy to use when you don’t have many ideas or when you aren’t sure what you want to include in your writing.”

The teacher models how to use the strategy, soliciting ideas from students: “I am going to show you how to brainstorm before writing a story on your topic. First, I will write down any idea that I think of about this topic. If I get stuck, I will keep thinking. I will not ask myself if an idea is a good one until I am done brainstorming. I will just write down any idea that pops into my head.” *The teacher thinks aloud while modeling brainstorming, then asks:* “Does anyone else have any ideas to add to my list?”

Students collaborate in small groups to practice applying the strategy. The teacher explains: “I want each of you to pair up with another student. Before you start to write your story, the two of you should brainstorm as many ideas as you can for your paper on this topic. Remember not to worry about whether the ideas are good or bad. Right now, I just want you to focus on writing down as many ideas as you can.” *While students practice using the strategy, the teacher checks to see that students are using the strategy properly and returns to earlier steps as needed.*

Students practice the strategy, with assistance from the teacher as needed. The teacher says: “Remember to brainstorm as many ideas as you can before you actually start writing your own paper.” *While students generate their lists, the teacher walks around and assists students in applying the strategy.*

Students apply the strategy independently. The teacher reminds them: “Before you start to write, you should stop and ask if it will be helpful for you to use brainstorming to think about ideas for writing. Remember that brainstorming works well when you don’t have many ideas or you aren’t sure what you want to include in your writing.” *If, in future lessons or on future topics, the teacher notices that students are having a hard time planning, he or she can remind students to use the brainstorming strategy.*

3. Guide students to select and use appropriate writing strategies.

When students initially learn to use writing strategies, teachers frequently should discuss when and how to use the strategies throughout the writing process, as well as why the strategies are helpful.³⁹ Once students learn to use a variety of strategies independently, through the gradual release process, teachers should help them understand how to select appropriate strategies and use them across a range of writing tasks.

To help students select the appropriate writing strategy, teachers might consider posting strategies on a wall chart in the classroom. One column of the chart might include a list of all the strategies, and another column might provide a list of situations in which these strategies could be used. Once students are able to use a strategy effectively and independently, they can identify and add situations to the chart. Students also can identify opportunities to apply strategies in different content areas.

Beyond knowing when and how to use a strategy, students must actually use it as they write. This can be facilitated by having students set a goal to use the strategy in one or more identified situations, followed by a discussion (and/or instruction) on how the strategy needs to be modified.⁴⁰ For example, planning strategies may vary based on the purpose of students' writing. Ordering ideas and outlining strategies lend themselves to report writing; brainstorming strategies can be useful for narrating; and setting goals, particularly audience goals, can help students improve their persuasive writing (see Recommendation 2b for information about teaching students to write for a variety of purposes). Students should evaluate their success in applying the strategy to the new situation and should consider how they can make the strategy work even better.⁴¹

4. Encourage students to be flexible in their use of the components of the writing process.

Writing requires flexibility and change. Once students have acquired a set of strategies to carry out the components of the writing process, they need to be purposeful in selecting strategies that help them meet their writing goals. They also need to learn to apply these strategies in a flexible manner,⁴² moving back and forth between different components of the writing process as they develop text and think critically about their writing goals. For example, plans and already written text may need to be revised and edited numerous times to communicate more effectively, and

writing must be polished to make it suitable for publication.

Teachers should engage students in writing activities in which the writing process does not move in a lockstep fashion from planning to drafting to revising to editing to publishing. Rather, teachers should design activities in which students are encouraged to move back and forth between the components of the writing process as their text takes shape (see Example 1).

Recommendation 2 (continued)

Example 1. Applying the writing process in an upper elementary classroom

Operation Robot

Students in grades 4 through 6 wrote about robots as part of a class project.⁴³

Process of Writing

- The class discussed robots and what robots could do if they had certain specialty parts, such as telescopes on their heads to see great distances. Prompts such as toy robots and pictures of robots were used to spark discussion (**planning**).
- Students created robot diagrams with vivid pictures and written descriptions of their robots (**drafting**). Students then wrote stories about their robots, explaining how they became friends and what they do together (**drafting**). They used their diagrams to help them describe their robots in the stories.
- Each student shared his or her story with another student (**sharing**), who provided positive and constructive feedback (**evaluating**). The students then revised their stories using the feedback, along with their own evaluation of their texts (**revising and evaluating**).
- Students read their stories aloud in class (**sharing**). The class commented on what they liked and asked questions about anything that was unclear (**evaluating**). Students again **revised** their stories and were invited to **publish** them in a class book about robots.

Recommendation 2b. Teach students to write for a variety of purposes.

How to carry out the recommendation

1. Help students understand the different purposes of writing.

Students should understand the purpose of each genre so that they can select the genre best suited to their writing task.⁴⁴ In teaching a particular genre, teachers should emphasize the purpose of that genre and how its features are related to the purpose. Teachers also should relate genres to real-world scenarios. For example, the purpose of a persuasive letter is to convince the reader to agree with the writer. To achieve this purpose, writers should think of compelling reasons for readers who might not agree, then state those reasons clearly and support them with appropriate evidence. In class, teachers might provide

a real-world scenario of students writing a persuasive letter to convince their parents that a friend should be allowed to spend the night, or a letter to the principal asking for permission to go on a special field trip. Table 4 provides examples of specific genres within four purposes: describe, narrate, inform, and persuade/analyze. Although the table links genres to specific purposes, teachers should note that many genres can be used for various purposes. For example, a letter can be written to persuade someone to do something, to narrate an event to a friend, or to inform a family member about an upcoming event.

Recommendation 2 *(continued)*

Table 4. Purposes for writing

Purpose	Explanation ⁴⁵	Examples of Genres
Describe	to describe something, such as a person, place, process, or experience, in vivid detail	<ul style="list-style-type: none"> ▪ descriptions (e.g., people, places, or events) ▪ character sketches ▪ nature writing ▪ brochures (personal, travel, and so on)
Narrate	to tell a story of an experience, event, or sequence of events while holding the reader's interest	<ul style="list-style-type: none"> ▪ diary entries (real or fictional) ▪ folktales, fairy tales, fables ▪ short stories ▪ poems ▪ eyewitness accounts
Inform	to examine previously learned information or provide new information	<ul style="list-style-type: none"> ▪ summaries of new or previously learned information ▪ instructions or directions ▪ letters ▪ newspaper articles ▪ science reports
Persuade/analyze	to give an opinion in an attempt to convince the reader that this point of view is valid or to persuade the reader to take a specific action (writing to express an opinion or make an argument has a similar purpose); to analyze ideas in text, for example, by considering their veracity or comparing them to one another	<ul style="list-style-type: none"> ▪ persuasive essays ▪ editorials ▪ compare-and-contrast essays ▪ reviews (e.g., of books and movies) ▪ literary analysis

2. Expand students' concept of audience

Writing for different purposes often means writing for different audiences.⁴⁶ To help students understand the role of audience in writing, it is important to design writing activities that naturally lend themselves to different audiences. Otherwise, students may view writing in school as writing only for their teacher. When discussing writing purposes, teachers and students can generate a list of potential audiences for a given writing assignment. Students then can choose the audience that best fits their writing topic. For example, when writing persuasive letters, students could write for parents, friends, companies, or newspapers, depending on their chosen topic. When working on narratives, students could write a fable to read to preschool students. It is important that students' writing is shared with their intended audience.

Students should learn to adjust their tone and word choice to better convey their meaning

Technology Tip

Find examples of exemplary texts online from the American Library Association's list of Newbery Medal award winners, the Database of Award-Winning Children's Literature (<http://dawcl.com/introduction.html>), or state department of education websites (e.g., <http://www.cde.ca.gov/ci/rl/ll>).

and suit their audience. To develop this skill, students might write about the same topic for different audiences. For example, students could write a description of their favorite video game for a friend who also plays the game. Then, they could write a description for an adult, such as the school principal, who is unfamiliar with the game. Allowing students to write for a range of audiences enables them to think of writing as an authentic means of communication to accomplish a variety of goals.

3. Teach students to emulate the features of good writing.

Students should be exposed to exemplary texts from a variety of sources, including published or professional texts, books and textbooks, the teacher’s own writing, and peer samples.⁴⁷ Teachers should select texts that

- support the instructional goals of the lesson
- are appropriate for the students’ reading levels and abilities
- provide exemplary models of what students will write

Exemplary texts can illustrate a number of features, including text structure; use of graphs, charts, and pictures; effective word choice; and varied sentence structure. For example, if the instructional goal is to teach 4th-grade students to describe a setting using concrete, sensory details, the teacher could read a chapter from E. B. White’s *Charlotte’s Web* in which the author uses sensory details, such as sights, sounds, smells, and movements, to bring a barn to life. Students then can apply what they learn to compose a rich, sensory description of their own setting.

Teachers should either read exemplary texts out loud or direct students to read and reread selected exemplary texts, paying close attention to the author’s word choice, overall structure, or other style elements, based on the instructional goals of the lesson. Teachers should explain and students should discuss how each text demonstrates characteristics of effective writing in that particular genre. Students will then be prepared to emulate characteristics of exemplary texts at the word, sentence, and/or text level (see Example 2), or they can use the text as a springboard for writing (see Example 3).

Students of all ages can participate in emulating text activities. The closeness with which students will emulate the text, as well as the complexity and length of the text itself, will depend on the instructional goals of the lesson and on students’ abilities. At the word level, for example, after reading *Rosie’s Walk* (Example 2), teachers could introduce a variety of synonyms for the word *walk* and physically demonstrate the examples in front of the class. Students could then arrange the words in order from slow to fast (e.g., *trudge*, *amble*, *stroll*, *walk*, *stride*, *scurry*, and *run*). Students also could emulate sentences from the text, replacing synonyms in the sentences.

Struggling writers or students in lower grades may specifically focus on emulating sentence patterns or identifying and substituting words in appropriate places. Students should read a story, or have a story read to them, and then complete a story frame to create a story emulation (see Example 2).

In middle and upper elementary grades, students may use concepts in exemplary texts as a springboard for developing their own writing. In Example 3, 6th-grade students read the poem “Where I’m From,” by George Ella Lyon. Using the structure of the text, they applied knowledge from a recent science lesson to create a poem about earthquakes.

Text emulating exercises can vary in length based on available instructional time, be assigned as homework, and/or be incorporated into activities across the curriculum. Once students are comfortable analyzing and emulating writing styles, they may be better able to enhance their own writing style, thinking critically about the meaning they wish to convey and the words they choose to convey that meaning.

Recommendation 2 (continued)

Example 2. Story emulation of *Rosie's Walk* with 1st-grade students

<p>Original text of <i>Rosie's Walk</i>, by Pat Hutchins⁴⁸</p>	<p>Rosie the hen went for a walk across the yard around the pond over the haystack past the mill through the fence under the beehives and got back in time for dinner.</p>
<p>Frame of <i>Rosie's Walk</i>, provided as a worksheet by the teacher</p>	<p>_____ went for a _____ across the _____ around the _____ over the _____ past the _____ through the _____ under the _____ and got back in time for _____.</p>
<p>Text developed by a 1st-grade student</p>	<p>Ms. Foster the teacher _____ went for a stroll _____ across the playground _____ around the jungle gym _____ over the jump rope _____ past the swings _____ through the bicycle racks _____ under the basketball hoop _____ and got back in time for the morning message. _____</p>

Recommendation 2 (continued)

Example 3. Using text as a model

Original text of “Where I’m From,” by George Ella Lyon⁴⁹

I am from clothespins,
from Clorox and carbon-tetrachloride.
I am from the dirt under the back porch.
(Black, glistening,
it tasted like beets.)
I am from the forsythia bush
the Dutch elm
whose long-gone limbs I remember
as if they were my own.

I’m from fudge and eyeglasses,
from Imogene and Alafair.
I’m from the know-it-alls
and the pass-it-ons,
from Perk up! and Pipe down!
I’m from He restoreth my soul
with a cottonball lamb
and ten verses I can say myself.

I’m from Artemus and Billie’s Branch,
fried corn and strong coffee.
From the finger my grandfather lost
to the auger,
the eye my father shut to keep his sight.

Under my bed was a dress box
spilling old pictures,
a sift of lost faces
to drift beneath my dreams.
I am from those moments—
snapped before I budded—
leaf-fall from the family tree.

Text developed by a 6th-grade classroom⁵⁰

I am from elastic strain, from
the focus and the epicenter.

I am from the destructive surface
waves that run through the
40–200 kilometer fault zones.

I am from the “Ring of Fire,” the
tectonic and lithospheric plates.

I can cause tsunamis and fires.

I am from convergent, divergent,
and transform plate boundaries.

I am from seismographs that
determine my strength.

I am from speedy but weak
p-waves, from slow and hardy
s-waves, but I do not reach.

Seismic waves are caused by me.

Who am I? An earthquake.

4. Teach students techniques for writing effectively for different purposes.

Students also must learn to use techniques that are specific to a purpose of writing.⁵¹ Table 5 shows five examples of techniques specific to the four purposes for writing, accompanied by the grade levels for which the technique is appropriate. These techniques help students frame their writing for a specific purpose. When developing a persuasive essay, for example, students can use the TREE (Topic sentence, Reasons—three or more, Ending, Examine) technique, whereby they make a plan for their paper that includes what they believe, reasons to support their beliefs, examples for each reason, and an ending.⁵²

Techniques should be taught explicitly and directly through a gradual release of

responsibility from teacher to student until students are able to apply the techniques independently (see Recommendation 2a, Figure 1). Teachers should describe the technique, articulate how it relates to specific writing purposes, and model its use. Students should learn to select techniques that help them achieve their writing purpose and reach their target audience. Teachers should encourage students to practice applying the techniques as they flexibly use the components of the writing process. (See Recommendation 2a for more information on gradually releasing writing responsibility from the teacher to the student, teaching students to select and use techniques, and teaching students to use the components of the writing process flexibly.)

Potential roadblocks and solutions

Roadblock 2.1. *Students use strategies and techniques when they are first taught them, but over time, they stop using the strategies and techniques.*

Suggested Approach. When students transition to using strategies and techniques independently, teachers should continue to monitor student use of the strategies and techniques and assess whether students are appropriately applying them to components of the writing process and/or specific writing purposes. After teaching a strategy for planning, for example, teachers should check to see if students are using the strategy and if their planning skills are improving. If students are no longer using the strategy, but their planning skills have improved, it may mean they no longer need the strategy. Alternatively, if students continue to struggle with planning components of the writing process, the teacher may need to reteach the strategy to the whole class or provide more opportunities for collaborative practice for a small group of struggling students. Teachers

also can ask students to monitor and report what strategies and techniques they used to develop and complete their text.

Roadblock 2.2. *State assessments ask students to write in only one or two genres, so time spent on other genres may not help them meet the assessment requirements.*

Suggested Approach. Regardless of current assessment practices in a particular state, it is important for students to learn to write for varied purposes. Writing for multiple purposes encourages preparation for high-stakes assessments, even if those assessments define the purposes of writing more narrowly. In fact, writing in one genre often calls on expertise from other types of writing. Writing a persuasive essay, for example, can involve providing a narrative example, drawing a comparison, or explaining a scientific concept in order to support a point. As teachers introduce new genres of writing, they can point out writing strategies or elements of writing that also transfer to other kinds of writing, including the types of writing required for the state writing assessment.

Recommendation 2 (continued)

Table 5. Examples of techniques within the four purposes of writing

Purpose	Specific Technique	How Students Can Use the Technique	Grade Range
Describe	Sensory details	<ul style="list-style-type: none"> ▪ Use their five senses, as applicable: <ul style="list-style-type: none"> • What did you <i>see</i>? How did it <i>look</i>? • What sounds did you <i>hear</i>? • What did you <i>touch</i>? How did it <i>feel</i>? • What could you <i>smell</i>? • What did you <i>taste</i>? 	K–3
Narrate	Story grammar	<ul style="list-style-type: none"> ▪ Consider the following questions when developing their story: <ul style="list-style-type: none"> • <i>Who</i> are the main characters? • <i>When</i> does the story take place? • <i>Where</i> does the story take place? • <i>What</i> do the main characters want to do? • <i>What</i> happens when the main characters try to do it? • <i>How</i> does the story end? • <i>How</i> does the main character feel? 	1–3
		<ul style="list-style-type: none"> ▪ In older grades, expand the strategy in the following ways: <ul style="list-style-type: none"> • Tell the story from the point of view of a character other than the main character. • Add an interesting or surprising twist to the story. 	4–6
Inform	Report writing	<ul style="list-style-type: none"> ▪ Complete a K-W-L chart: <ul style="list-style-type: none"> • What I Know • What I Want to know • What I Learned ▪ In the K-W-L chart, gather appropriate information: <ul style="list-style-type: none"> • Brainstorm. (What do I know about the topic?) • Extend brainstorming. (What do I want to know about the topic? What other information would be helpful to learn about the topic?) • Gather additional information and add to the chart. (What have I learned? Did I list anything during brainstorming that was inaccurate and needs to be crossed off the chart?) ▪ Review the K-W-L chart and circle the most important ideas to include in the report. ▪ Develop an outline, showing which ideas will be included in the report and the order in which they will be presented. ▪ Continue planning while writing, gathering new information, and adding to the outline as needed. ▪ Be sure to implement each aspect of the plan as they write. 	2–6
Persuade/ analyze	STOP	<ul style="list-style-type: none"> ▪ Before they write, STOP and: <ul style="list-style-type: none"> • Suspend judgment. • Take sides. • Organize ideas. • Plan to adjust as they write. 	4–6
	DARE ⁵³	<ul style="list-style-type: none"> ▪ DARE to check their paper to be sure they have: <ul style="list-style-type: none"> • Developed their thesis. • Added ideas to support their ideas. • Rejected arguments on the other side. • Ended with a strong conclusion. 	
	TREE	<ul style="list-style-type: none"> ▪ As they write: <ul style="list-style-type: none"> • Tell what they believe. (State a topic sentence.) • Provide three or more Reasons. (Why do I believe this?) • End it. (Wrap it up right.) • Examine. (Do I have all my parts?) 	2–3
		<ul style="list-style-type: none"> ▪ In older grades, expand the strategy as follows: <ul style="list-style-type: none"> • Replace the Examine step with Explain reasons. (Say more about each reason.) 	4–6

Recommendation 3

Teach students to become fluent with handwriting, spelling, sentence construction, typing, and word processing.

When basic writing skills become relatively effortless for students, they can focus less on these basic writing skills and more on developing and communicating their ideas.⁵⁴ However, younger writers must typically devote considerable attention to acquiring and polishing these skills before they become proficient.⁵⁵ Problems with basic writing skills have an impact on the quality of a person's writing.⁵⁶ Spelling skills can affect the words students choose because they may be less likely to use words they cannot spell.⁵⁷ Students also need to be able to generate strong, interesting sentences that vary in length and complexity in order to convey their intended meaning and engage readers.

When a student's writing contains spelling mistakes and poor handwriting, it can be difficult for the reader to understand what the student is trying to convey. Word-processing programs can make many aspects of the writing process easier for students, including assisting students with spelling and handwriting difficulties to write more fluently. Teaching typing can help students compose more easily on a computer, a skill that is increasingly necessary as computer-based technologies are used throughout daily life.

Summary of evidence: **Moderate Evidence**

The panel determined that there is moderate evidence to support this recommendation. This evidence is drawn from nine studies of instruction in handwriting, spelling, sentence construction, and word processing.⁵⁸ The practices in the studies were closely related to those recommended by the panel. Three studies tested handwriting instruction—in which students were taught how to form letters and



Handwriting, spelling, and sentence construction are all **basic writing skills** that students must draw upon to translate their thoughts and ideas into writing. Students also draw on typing and word processing skills when composing electronically.

practiced writing the letters repeatedly in short sessions.⁵⁹ Three studies tested explicit instruction in phonological awareness, spelling phonics, morphological spelling, and word study.⁶⁰ Two studies tested sentence-construction interventions and examined the effectiveness of sentence-combining instruction and teaching students to apply standard writing conventions to their own writing;⁶¹ and one study tested the effectiveness of practice using a word processor.⁶² At least

Recommendation 3 (continued)

five of the studies involved opportunities to apply the skills as students drafted original text (authentic writing).⁶³

Eight of the nine studies found generally positive effects on outcomes such as spelling, handwriting, sentence structure, the quantity of text produced, and the overall quality of student writing.⁶⁴ However, in some of these studies, positive effects on one outcome were mixed with no effects or negative effects on another.⁶⁵ In the ninth study, which examined spelling instruction, no effects were found.⁶⁶

How to carry out the recommendation

1. Teach very young writers how to hold a pencil correctly and form letters fluently and efficiently.

Early writing instruction should begin with demonstrations of how to hold a pencil comfortably between the thumb and forefinger, resting on the middle finger.⁶⁹ Although many students will alter this grip over time,⁷⁰ a comfortable pencil grip is necessary in order to avoid fatigue, which can discourage students from writing.

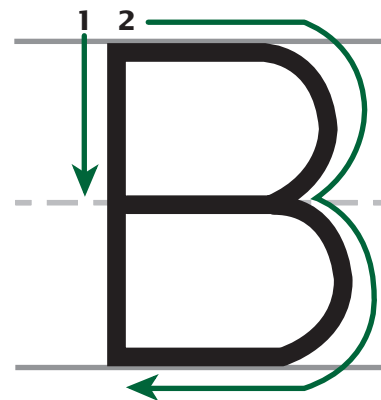
Teachers also should show young writers the most efficient and legible ways to form each letter, regardless of whether print or cursive script is used.⁷¹ Younger students may have a tendency to “draw” rather than to “write” letters, using more strokes than necessary to replicate the letter. Guided practice can be helpful, using letters with numbered arrows depicting the order and direction of each stroke. Handwriting-practice diagrams, such as the one depicted in Figure 2, can be downloaded for free from the Internet.

Students also should practice writing letters from memory. To do this, the teacher can show students the letter with numbered arrows and then cover the letter while the students practice writing it from memory. To help students commit the letter to memory, teachers gradually should increase the length of time the letter is covered before students write it.⁷² Many handwriting curricula include

Seven of the studies were conducted on populations the panel determined were at risk for writing difficulties,⁶⁷ and all but two⁶⁸ involved interventions delivered to pairs or small groups of students. The panel believes it is critical that teachers carefully match instruction in these skills to areas of student need. The panel cannot confirm that whole-class instruction without regard to varying student abilities will produce effects of the same magnitude.

The panel describes the four components of this recommendation below.

Figure 2. Handwriting-practice diagram



such diagrams and practice sheets for print and cursive, and some curricula may be available for little or no cost on the Internet. The specific curriculum is less important than teaching fluent, effortless letter formation.

Because handwriting is a motor skill, it works best to practice in multiple short sessions.⁷³ Students might practice a specific letter only five to eight times before moving to another activity. However, writing letters in isolation is insufficient; students also should apply their handwriting skills in sentences and in authentic writing activities.

Recommendation 3 (continued)

2. Teach students to spell words correctly.

A relatively small number of words (850) account for 80 percent of the words elementary-grade students use in their writing.⁷⁴ Teachers should help students learn to spell words they commonly use.⁷⁵ Although many elementary schools have an explicit spelling curriculum, teachers should connect spelling instruction with writing as much as possible. Students should be encouraged to learn words they frequently misspell, as well as words they wish to include in their writing.

Teachers also should help students acquire the skills they need to generate and check plausible spellings for words.⁷⁶ Table 6 provides examples of lessons for developing spelling skills. When drafting, students should learn skills for applying spelling rules to words they wish to include, such as invented spelling or spelling by analogy. These skills allow students to generate an approximation of the spelling with minimal disruption to the generation of ideas.⁷⁷ When editing, students can also use spelling by analogy to check for correct spelling, or they can use a dictionary for this purpose.

Table 6. Spelling skills by grade level

Spelling Skill	Explanation	Example Lesson	Grade Range
Phonological awareness	Awareness of the sound structure of spoken words	The teacher shows students two cards with pictures representing words that illustrate target features (e.g., <i>hat</i> and <i>bed</i> to differentiate two types of vowel-consonant word-ending patterns). The teacher pronounces the words with extra emphasis on the target feature. Students sort additional cards by matching based on the target feature (e.g., <i>red</i> and <i>sled</i> with <i>bed</i> ; <i>cat</i> and <i>bat</i> with <i>hat</i>). ⁷⁸	K–2
Spelling phonics	Knowledge of how to connect the sounds of spoken English with letters or groups of letters	The teacher shows students a card with a picture (e.g., a ship), pronounces the word, and describes the targeted sound (in this example, /sh/). The teacher then names the letters in the associated spelling unit (<i>s</i> , <i>h</i>) and writes them on the board. The students repeat the example by chanting along with the teacher and writing the sound or word down on paper. The teacher continues with additional words that contain the sound (e.g., <i>fish</i> , <i>shape</i>). ⁷⁹	K–3
Morphological spelling	Understanding of the meaning of the parts (e.g., prefixes and suffixes) of words.	The teacher shows students a card with three written words (e.g., <i>walked</i> , <i>wagged</i> , <i>wanted</i>) and points out that although the part (in this case, the <i>-ed</i> on the end of each word) sounds different (/t/, /d/, /ed/), in all cases the spellings signal the same thing (that the action happened in the past).	2–6

Very young children may not have the spelling skills to correctly spell words. However, teachers can encourage children to write by allowing them to use invented spelling while they learn spelling skills. When using invented spelling, students attempt to spell a word using their existing knowledge about letter sounds and patterns. Invented spelling should become less prevalent as students gain more complex spelling skills and are able to

correctly spell more words. Teachers can use a process such as the following:

- Beginning in kindergarten, encourage students to invent spellings for words they do not know, or to spell a word phonetically (e.g., *wuz* for *was*).
- By 2nd grade, students should be reviewing the spelling they generated to see if

Recommendation 3 (continued)

it looks correct (i.e., whether it follows the spelling patterns of words the student knows). If not, students should try a different spelling and determine how the second spelling looks.

- As students move into the 3rd and 4th grades, encourage them to consider how many syllables are in a word before generating and checking a plausible spelling.

Students also should learn to spell words by analogy as they draft.⁸⁰ This involves using the spelling of a known word to generate a plausible spelling for an unknown word (e.g., “If I can spell *lamp*, I can figure out how to spell *stamp*.”). Like invented spelling, spelling by analogy can prevent disruptions during drafting by allowing students to focus on the writing process. Starting in 2nd grade and continuing through 6th grade, teachers should demonstrate how to spell words by analogy, and students should use the strategy when writing.⁸¹

As part of the editing process, students should learn how to use a dictionary. Starting in 2nd grade, students should begin using a dictionary to determine the spelling of the

A Reminder: Connect Spelling and Writing

Starting in 2nd grade, teachers should help students develop proofreading strategies to check their spelling. Teachers should begin with basic skills such as reading aloud, which forces the student to focus on each word and draws attention to errors. Teachers then can move on to more targeted skills throughout the year, such as tailoring proofreading for specific problems. Students should be encouraged to identify areas in which they often make mistakes (e.g., possessives, *-ant* versus *-ent*, and so on) and develop proofreading skills designed to target those mistakes.

first few letters in a word, find the word in an alphabetical listing, and recognize the word once the search is narrowed. For younger students, teachers could provide students with a personal dictionary that contains an alphabetical listing of the correct spelling of words the student has previously misspelled. Students also can add words from their writing to their personal dictionary.

3. Teach students to construct sentences for fluency, meaning, and style.

Students should learn to write strong sentences that convey their intended meaning and engage readers. Teachers should focus sentence-level instruction on sentence construction, encouraging students to consider the meaning and syntax of the sentences they develop.⁸² Teachers also should explicitly demonstrate how sentence construction and sentence mechanics, such as punctuation and capitalization, interact to form strong sentences.

Beginning in kindergarten, students should develop an understanding of what sentences are and should learn the basic principles of capitalization and punctuation. Teachers can use students’ oral language skills to support written language skills. As students convey their ideas orally, the teacher can put those ideas in writing while explaining sentences

and demonstrating how to write them.⁸³ In 1st and 2nd grades, the teacher can model how to identify run-on ideas and break them into shorter sentences. Students then can independently practice writing their ideas in complete sentences, using invented spelling if necessary. Once students understand the concept of a sentence, they then need instruction in how to apply standard conventions for sentence writing, including punctuation and capitalization. Teachers should explicitly teach the conventions of written English, embedding instruction as much as possible in students’ own compositions.⁸⁴

Students also need instruction on how to use a variety of sentence structures in their writing.⁸⁵ Sentence instruction moves students from writing with a series of simple sentences

Recommendation 3 (continued)

to including more complex and interesting sentences in their compositions (i.e., compound, complex, and compound-complex sentences). Sentence instruction, therefore, should include teaching students a variety of sentence types and demonstrating how to use them.⁸⁶ The instructional activities described in Table 7 can be used to develop students'

sentence-construction skills. Each activity can be used for any sentence structure type, depending on the grade and skills of the students. Teachers can create sentence-construction exercises from books in the classroom, activities in the lives of students, school events, newspaper or magazine articles, or students' own writing.⁸⁷

Table 7. Activities for sentence-structure development

Activity	Description	Examples	How the Teacher Can Implement the Activity
Sentence framing	Teachers provide sentence frames to guide students' sentence writing. Frames can range from simple to complex.	<p>I like _____ .</p> <p>I like to _____ and _____ .</p> <p>My _____ is _____ .</p> <p>When I _____, I like to _____ .</p> <p>She didn't go to _____ because _____ .</p>	<ol style="list-style-type: none"> 1. Develop a sentence frame for students to use. 2. Model the use of the sentence frame. 3. Have students use the sentence frame to construct their own sentences. 4. Have students share their sentences with peers and discuss their word choices. 5. Slowly fade the use of the sentence frame during instruction until students can write sentences independently.
Sentence expanding⁸⁸	The teacher provides a short sentence. Students expand the sentence using different parts of speech.	<p>The dog napped.</p> <p style="text-align: center;">↓</p> <p>The brown dog napped.</p> <p style="text-align: center;">↓</p> <p>The brown dog napped on the couch.</p> <p style="text-align: center;">↓</p> <p>The lazy, brown dog napped on the couch.</p> <p style="text-align: center;">↓</p> <p>The lazy, brown dog napped on the couch while I read a book.</p>	<ol style="list-style-type: none"> 1. Introduce a short sentence. 2. Model how to add to the sentence using different parts of speech, and demonstrate appropriate capitalization and punctuation as the sentence is expanded. 3. Have students provide suggestions for different parts of speech (e.g., subjects and predicates) to add to the short sentences. 4. Have students work independently or in pairs to expand a sentence. 5. Encourage students to share their expanded sentences in small groups, providing feedback to their peers.
Sentence combining⁸⁹	Students combine two or more sentences into one simple, compound, complex, or compound-complex sentence.	<p>My dog is brown. My dog is big.</p> <p style="text-align: center;">↓</p> <p>My brown dog is big.</p> <hr/> <p>The boy was riding his bike. The boy was careless. The boy ran into a tree.</p> <p style="text-align: center;">↓</p> <p>The boy was careless while riding his bike, so he ran into a tree.</p>	<ol style="list-style-type: none"> 1. Choose sentences for combining. 2. Model how to combine the sentences using several examples; with older students, introduce moving, deleting, and adding words or parts. 3. Have students rate the quality of the new sentence, provide alternatives to the new sentence, and discuss which sentences sound better and why. 4. Encourage students to work in pairs to combine sentences, creating several new possibilities and rating the quality of their new sentences.

Recommendation 3 (continued)

As students practice sentence construction, teachers and students should evaluate sentences based on meaning, style, and grammatical correctness.⁹⁰ Evaluation criteria could include clarity (Does this make sense? Is it easy to read?) and intended audience (Is it appropriate for the audience?).⁹¹ If the answer is “no” to any of the questions, teachers can demonstrate how to revise the sentence. This could include identifying missing parts, incorrect punctuation, wordiness, or words that are too simple or complex for the intended audience.

Teachers should model how to use sentence-construction skills during drafting and revising.⁹² During the revision process, students should be encouraged to revise their original sentences for clarity and meaning. Revising helps students apply their skills in authentic settings, as opposed to editing language on a generic worksheet. As students revise their drafts, they can use their newly learned sentence-construction skills to improve their compositions. Older students also can review or edit one another’s work.⁹³

4. Teach students to type fluently and to use a word processor to compose.

Students should learn how to type fluently, preferably without looking at the keyboard.⁹⁴ Typing-instruction software is one way to teach students to use correct fingering and monitor their speed and accuracy. Teachers should monitor students’ use of typing software to encourage the use of correct fingering. As with handwriting instruction, typing lessons should occur regularly but be short and focused.

Students should be introduced to typing in 1st grade. By 2nd grade, students should begin regular typing practice. By the end of 2nd or 3rd grade, students should be able to type as fast as they can write by hand.

Instruction in typing should be accompanied by instruction in how to use a word processor.⁹⁶ Teachers should guide students through the basic skills involved in using a word processor, such as launching the program; opening and saving files; and adding, moving, and deleting text. Instruction should include guidance about how word-processing programs are part of the writing process (see Recommendation 2a). For example, teachers can demonstrate that editing features of word-processing programs, such as spelling and grammar checkers, can be “turned off” during the brainstorming and drafting phase so that students are not distracted by basic writing skills; instead, they can focus on conveying their ideas. Students can begin learning to use a word processor in 1st grade.

National Assessment of Educational Progress (NAEP)

The 2013 administration of the NAEP will require 4th-grade students to complete the writing assessment using a computer. Therefore, students must learn to use word processing and related software in the early grades in order to adequately demonstrate their writing skills on this important national test.⁹⁵

By the end of 2nd grade, students should be able to use a word processor to produce and revise text.

Spell checkers are helpful tools for writers at all levels, but students need to understand the limitations of the software, as well as skills to compensate for those limitations. First, teach students that spell checkers do not flag spelling errors that are real words (e.g., *sad* for *said* or *there* for *their*). Second, spell checkers do not always suggest the correct spelling. One skill to deal with this problem is to spell the word phonetically (i.e., using the “invented spelling” skill described previously), which will usually prompt the correct spelling. Finally, spell checkers will often incorrectly flag proper nouns as errors. Use these and other spell-check limitations to demonstrate to students that proofreading and editing are still necessary, even with the computer.

Potential roadblocks and solutions

Roadblock 3.1. *Students struggle to develop handwriting and spelling skills, making writing a frustrating experience.*

Suggested Approach. If a student has difficulty with handwriting or spelling, consider having the student switch to typing as the primary mode of composing. If the move to typing is part of an Individualized Educational Plan (IEP), many schools may be able to find additional resources for the technological support. Teachers will need to provide these students with extra instruction in typing and using the word processor and spell checker.

Roadblock 3.2. *Students do not consistently transfer words they have learned successfully in their spelling lessons to their written compositions.*

Suggested Approach. Misspellings may occur in initial drafts, when the writer's focus is on getting ideas on paper. Teach proofreading as part of the editing process. Additional strategies to connect spelling instruction to authentic writing activities could include the following:

- encouraging students to write sentences or short texts using as many of their spelling words as possible, then having students review their writing, circle the new spelling words, and check that they used the correct spelling

- developing a bulletin board on which students post creative examples of spelling words used correctly in context
- reviewing students' compositions to identify repeated errors and including those spelling patterns as part of spelling instruction
- having students set specific goals targeted toward identifying spelling errors during the editing process, then monitor and track progress toward spelling goals

Roadblock 3.3. *The school's writing or English language arts curriculum includes only isolated grammar instruction using worksheets or copying tasks to teach sentence-writing skills.*

Suggested Approach. Grammar instruction that relies on worksheets or copying tasks to teach sentence-writing skills can be disconnected from students' actual writing. Students may be able to correctly circle parts of speech or identify and correct errors in punctuation, but they often do not develop the ability to use these skills in their own work. One approach is to follow the grammar curriculum's scope and sequence but modify the method of teaching. For example, teachers can use the sentences in the program as models, but teach using the modeling and gradual release methods described in Recommendation 2. Most importantly, teachers should have students practice these skills while drafting, revising, and editing their own writing.

Recommendation 4



Create an engaged community of writers.

Students need both the skill and the will to develop as writers.⁹⁷ Teachers should establish a supportive environment in their classroom to foster a community of writers who are motivated to write well. In a supportive writing environment, teachers participate as writers, not simply instructors, to demonstrate the importance of writing. By taking part in writing lessons and activities, teachers convey the message that writing is important, valued, and rewarding.

To further develop students' motivation to write, teachers should include opportunities for students to choose their own topics and/or modify teacher-selected prompts related to the purposes and genres being taught. When students choose their own topics, they may become more engaged and motivated to write. Such engagement and motivation could potentially lead students to write more frequently and become more involved in the writing process and the writing community.

Students and teachers also should have regular and structured opportunities to interact through giving and receiving feedback as well as collaborating on writing activities. Collaboration can increase the sense of community in a classroom, as well as encourage students to become engaged in the writing process with their peers. When students feel connected to one another and to the teacher, they may feel safe participating in the writing process and sharing their writing with peers. Publishing students' work also can help them feel valued in their community.

Recommendation 4 *(continued)*

Summary of evidence: Minimal Evidence

The level of evidence for this recommendation is based on five studies that examined interventions related to creating an engaged community of writers.⁹⁸ The panel cautions that the studies varied with respect to how closely they were aligned to the recommendation. While all the studies examined practices that are related to the recommendation, some were only partially aligned to the recommendation (they examined interventions that contain fewer than 30 percent of the components of the recommendation). In addition, many of the studies examined the effectiveness of practices designed to engage students when combined with other practices that were not related to this recommendation—for example, instruction in the structure and elements of stories and persuasive essays (Recommendation 2). In these cases, it was impossible to assess whether the effects resulted from the engaging practices or from other practices included in the intervention. Furthermore, though the majority of practices

led to positive effects on the quality of students' writing, one of the studies produced mixed effects on overall writing quality.⁹⁹ The panel believes, however, that the practices described in this recommendation are an integral component of effective writing instruction.

The practices tested in the studies included teachers writing with their class,¹⁰⁰ students choosing their topic,¹⁰¹ peers brainstorming or editing together or writing interactively,¹⁰² teachers or peers providing structured feedback on writing,¹⁰³ and publication of student writing.¹⁰⁴ Researchers conducted the studies in classrooms for students in grades 3–6, and two of the studies took place in countries other than the United States.¹⁰⁵ Four studies found positive effects on writing quality and writing output;¹⁰⁶ however, one study found negative effects as well as positive effects,¹⁰⁷ and one study found no evidence of an effect.¹⁰⁸

The panel describes the five components of this recommendation below.

How to carry out the recommendation

1. Teachers should participate as members of the community by writing and sharing their writing.

Teachers should model how the ability to write affects their daily lives, demonstrate the importance of writing to communicate, model the perseverance required to create a good piece of writing, and express the satisfaction that can come from creating a meaningful text.¹⁰⁹ For example, a teacher could draft a letter or an email to a friend in front of students, thinking out loud to make the invisible act of composing—which occurs internally for experienced writers—more

visible to students. A teacher also could collaborate with all students on a writing project, such as composing a how-to guide for carving a Halloween pumpkin or writing a class newsletter. Teachers also should take part in writing assignments. For instance, if students are asked to describe a favorite family tradition, the teacher could offer his or her own example, actively conveying how selecting a topic one is interested in can generate excitement about writing.

2. Give students writing choices.

Teachers should provide opportunities for student choice in writing assignments—for example, choice in selecting writing topics or the freedom to modify a teacher-selected

prompt.¹¹⁰ One way to foster choice is for students to keep a notebook in which they record topics for writing, such as memories, pets, vacations, “firsts” (e.g., first time riding

Recommendation 4 *(continued)*

a bike, first soccer goal, first day at camp), and favorite holidays.¹¹¹ Students should add topics often and consult their notebooks throughout the school year. Teachers also can encourage students to write for themselves; their peers; an imaginary audience (e.g., a character in a story); adults (e.g., their parents or an author); or a wider, unknown audience.

Teachers need to provide instruction and opportunities for students to practice writing to prompts. A prompt should inspire students

to write while ensuring that students practice writing skills aligned with the teacher's instructional purpose (e.g., a specific genre or a specific purpose). The prompt should clearly state expectations with regard to content and writing skills, while still giving students room to express themselves. For example, students might be prompted to write about a historical figure or a character from a story (see Example 4). Prompts enable teachers to emphasize specific content standards as well as promote engagement and community-building.

Example 4. The Westward Movement prompt

For grades 5 and 6

Choose a group of people who interested you during our study of the Westward Movement. These people might be settlers, pioneers, or explorers. Consider the challenges these people faced in moving West.

Write a multi-paragraph paper that describes two or three difficulties or problems encountered by these people. Describe how they solved, or attempted to solve, these problems and whether or not their solutions worked. You are writing an explanation, not telling a story. Your paper will be used as the opening article in our class book on the Westward Movement and will be followed by first-hand accounts from settlers and explorers.

In your explanatory paper:

- write in the third person (the “they” point of view)
- identify and explain their challenges/problems
- describe how they solved or tried to solve their problems
- explain whether or not their solutions worked
- choose vocabulary words that clearly illustrate the problems and solutions
- use correct spelling, punctuation, and grammar

Adapted for early elementary use (grades 2 and 3)

Choose a character from a story you read or a story read to you. Describe a problem that this character had. Describe how this character solved, or tried to solve, this problem. Explain whether the solution worked.

Examples of a character and a problem to be solved:

- Ramona Quimby having to give a speech
- little pig protecting himself from the hungry wolf

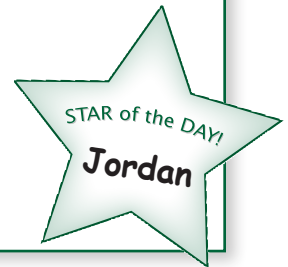
3. Encourage students to collaborate as writers.

Teachers can encourage students to collaborate throughout the writing process by brainstorming ideas about a topic, responding to drafts in a writing group, or helping peers edit or revise their work.¹¹² Collaboration also can take the form of collaborative writing, whereby students jointly develop a single text. Younger students, for example, can take turns sharing the pen as they create a message on chart paper. Older students can collaborate by publishing a class newspaper or composing stories to share with their friends or classmates. One collaborative activity that helps build a community of writers is “Star of the Day” (see Example 5).

Example 5. “Star of the Day”

In the “Star of the Day” activity, each student is celebrated on his or her own day. Seated at the front of the classroom, the Star of the Day answers interview questions from peers using a pretend microphone. After the interview, students compose one sentence about the Star of the Day. These sentences are shared and combined into a class paragraph, which is then displayed on the class bulletin board, as demonstrated by this example from a 1st-grade classroom:

*Jordan is the Star of the Day.
He likes the color blue. He
loves to eat ice cream. His
favorite animal is a tiger.
Jordan lives in Irvine. It's
his birthday today!*¹¹³



4. Provide students with opportunities to give and receive feedback throughout the writing process.

Students need to know whether their writing is accurately and appropriately conveying its message. One way students can determine this is by sharing their writing and responding to written and verbal feedback from the teacher and their peers.¹¹⁴ Although teachers should provide feedback to students through teacher-student conferences and rubrics, peers also should be encouraged to participate in the feedback process. Students may be able to identify problems in other people’s writing more easily than they can identify issues in their own work. Additionally, when students provide written feedback and assessment to peers, their comments and observations may enhance their understanding of their own writing.

Students need to be taught strategies and appropriate language for written feedback.

Without explicit instruction in how to provide and receive feedback, students may focus solely on the conventions of writing. For example, if teachers focus only on spelling errors as they grade writing assignments, student writers will likely point to similar mistakes when providing feedback to peers. Therefore, teachers should develop rules and procedures for providing and sharing feedback on writing.¹¹⁵ When teachers emphasize meaning over form and correctness in early drafts, students may learn to do the same.

Teachers also should model and provide sample language to encourage appropriate verbal feedback. During “Author’s Chair,” for example, teachers can encourage students to practice giving “kind comments”—constructive comments and positive statements about peers’ writing (see Example 6).

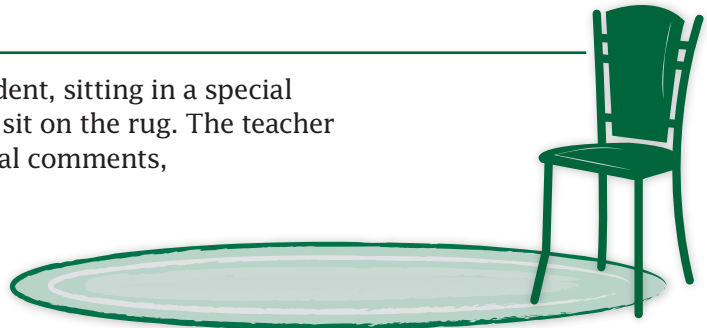
Example 6. “Author’s Chair”

During the “Author’s Chair” activity, one student, sitting in a special chair, reads his or her work to peers as they sit on the rug. The teacher then models and facilitates giving kind verbal comments, such as the following:

I really like _____ .

A standout line in your text for me is _____ because _____ .

I could really picture _____ because _____ .



5. Publish students’ writing, and extend the community beyond the classroom.

Students may begin to see themselves as writers if they have opportunities to publish their writing.¹¹⁶ Publishing can take a variety of forms, including displaying student work prominently in the classroom. For example, teachers can create a “Wall of Fame” featuring the best excerpts from students’ writing on a bulletin board in the classroom.

Teachers also can use publishing to extend the community beyond the classroom. Students can publish stories in books that include an “About the Author” page. These books can be made available in the school or classroom library. Students’ work also can be displayed in the hallway or administration building, and teachers can have students participate in a “Gallery Walk.” In this activity, students frame their poems or stories on

Technology Tip

With appropriate safeguards and permission, teachers can create class blogs for students to post their work online or encourage them to submit their work to online sites that publish student writing.

poster board, decorate them, and hang them around the school or classroom to simulate an art gallery. Students then circulate around the “gallery,” reading one another’s pieces, writing kind comments on sticky notes, and attaching the notes to the work on display. Publishing student work in this manner celebrates writing and helps create a physical environment that is conducive to learning.

Potential roadblocks and solutions

Roadblock 4.1. *Teachers may be uncomfortable with their own writing and therefore hesitant to share their writing and discuss the writing process with their students.*

Suggested Approach. Part of creating a community of writers involves establishing a supportive environment in which every member of the community has room to grow and it is acceptable to take risks and make mistakes. Writing is a lifelong skill, and it is important for students to understand that writing requires effort even when you are older and have been writing for many years. Making mistakes, demonstrating how to recognize those mistakes, and then correcting mistakes or revising word choice or sentence structure to make the writing more compelling can be a powerful model and learning experience for all members of the class.

Roadblock 4.2. *If students are allowed to choose their own topics for writing, teachers may not be able to focus on the content standards adequately.*

Suggested Approach. Teachers can expose students to the genres of writing required in the content standards and still allow students

an element of choice. For example, when teaching the personal narrative, teachers can have students select a photograph of a vacation, favorite place, or important event and use their writing to dramatize what happened. When teaching persuasive writing, teachers can allow students to select an issue, or select which side of an argument to defend.

Roadblock 4.3. *Providing feedback on all student writing is overwhelming and time consuming.*

Suggested Approach. It is not necessary for the teacher to provide feedback on all student writing; teachers should share the responsibility of providing feedback with students through student self-evaluation and peer evaluations. In fact, students should be able to write without expecting that every piece of writing will be assessed by the teacher. When students do complete writing pieces for teacher review and feedback, teachers should focus on specific elements, and they should discuss these expectations with students in advance. In this way, teachers can focus their comments on specific elements, such as a compelling opening, descriptive language, or effective use of transition words. Providing targeted feedback will help students better understand how to improve their writing.

Glossary

A

Audience refers to the reader for whom a piece of writing is intended. Audience can range from the writer who produces the text (e.g., a diary entry) to peers, teachers, parents, or other trusted adults.

B

Students draw upon **basic writing skills**, such as handwriting, spelling, and sentence construction, to translate their thoughts and ideas into writing. Students also draw on typing and word-processing skills when composing electronically.

C

Collaborative writing is a process whereby students jointly develop a single text. Examples include younger students sharing a pen to draft a message on chart paper, or older students publishing a class newspaper or composing stories to share with their friends or classmates.

E

Exemplary text is a written piece used as an example of quality writing. This text is commonly a published piece of writing, but it also can be writing created by a student or teacher. The exemplary text demonstrates specific ideas and/or structure. The writer can emulate exemplary text in his or her own writing. Exemplary text is sometimes referred to as “model text” or “touchstone text.”

F

Fluency is the ability to communicate ideas in writing accurately and quickly with relatively little effort. Fluency is an important factor in a writer’s ability to manipulate sentence structures to produce comprehensible text. Writing fluency also requires automatic or relatively effortless handwriting, typing, and spelling skills.

G

Genre is a form of writing with specific features that provides context and structure for a particular purpose and audience. For example, the narrative genre includes personal or made-up stories and typically includes elements such as characters and plot, whereas the persuasive genre can include letters and essays that incorporate features such as an introduction, thesis statement, supporting material, and conclusions.

Genre elements, sometimes referred to as “text elements,” refer to specific features typical of a particular genre. For example, the elements of a story include place, a starting event, action, and ending.

Gradual release of responsibility is an instructional model whereby a teacher teaches a strategy explicitly and then gradually decreases the level of support to the student, ultimately releasing the student to use the strategy independently.¹¹⁷

I

Ideation refers to the development and quality of ideas students include in their writing. Qualitative measures of ideation include the overall richness and number of ideas in a composition. Quantitative measures include the number of different ideas.

Invented spelling is a student's attempt to produce a plausible spelling for an unknown word. This can range from using one letter to represent an entire word (e.g., *b* for *bed*), using the first and last sounds of a word (e.g., *gl* for *girl*), or spelling a word phonetically (e.g., *wuz* for *was*).

M

Mechanics refers to assessments of handwriting, spelling, capitalization, and punctuation. The term *usage* also may be applied and typically refers to the combination of capitalization and punctuation.

O

Measures of **organization** assess the structure of a composition. This can include the connection between ideas in the text, as well as how well individual ideas are organized or connected to meet a writer's purpose (often referred to as "cohesiveness").

Measures of **overall writing quality** assess the overall effectiveness of a piece of writing. These measures may take into account assessments of intermediary outcome categories—including ideation, genre (or text) elements, mechanics, organization, output, sentence structure, vocabulary, and voice—in a single assessment of the quality of a piece of writing. Overall writing quality may be assessed either analytically or holistically. Analytic writing quality is measured using scales for which multiple attributes of writing (e.g., mechanics, vocabulary, sentence structure, organization, ideation, and voice) are each judged separately and then summed to obtain a single score. To measure holistic writing quality, the assessor makes a single judgment about overall quality, considering a variety of attributes at the same time. Although different elements of writing quality—for example, organization, ideation, or mechanics—may contribute to the overall quality of the piece, these different elements are not evaluated separately in holistic writing quality measures.

P

Purpose refers to the objective a writer is trying to achieve with a particular piece of writing. There are four general purposes for writing (describe, narrate, inform, and persuade/analyze), and each purpose has a variety of genres that can help provide context and structure for a particular purpose and audience.

R

A **rubric** is an assessment tool. Rubrics typically include a set of criteria for assessing performance on written assignments, allowing for standardized evaluation according to the specified criteria. Rubrics can be used by teachers to evaluate student work, or by students for self-evaluation and/or peer review.

S

Measures of **sentence structure** typically assess sentence correctness or sentence complexity. For example, a sentence-structure measurement might count the number of sentences in a composition that are syntactically correct.

A **strategy** is a series of actions (mental, physical, or both) that writers undertake to achieve their goals. Strategies are tools that can help students generate content and carry out components of the writing process. For example, students can use peer-sharing strategies to give and receive feedback with a writing partner.

T

A **technique** is a specific tool that students can use to generate content and frame their writing for a specific genre. Whereas a strategy can be applied to all genres, techniques are specific to a particular genre and the features that provide context and structure for the genre. For example, students can use the TREE technique (described in Recommendation 2b) to plan and draft a persuasive essay.

Text structure refers to the way in which a text is organized to convey meaning to the reader. It encompasses how the main point is conveyed (e.g., sequence of events, comparison, or cause and effect) and the vocabulary the author selects to convey meaning to the reader. In text-structure instruction, students are taught to identify common text structures and use them to organize the information they are reading or writing.

V

Vocabulary refers to the types of words used by the student in his or her writing. Vocabulary may be assessed by counting specific types of words (e.g., the number of different words or the inclusion of content-specific words), or by examining the complexity of words (e.g., number of syllables).

Voice often is referred to as “tone,” “mood,” or “style,” and it tells the reader about the writer’s personality in the composition. Voice typically is assessed by rating how well the student establishes mood, tone, style, or his or her individual personality in writing.

W

Writing is the process through which people communicate thoughts and ideas. Writing can include beginning scribbles, drawings, random letter strings, single-letter spellings, invented spelling, or complete sentences and paragraphs. Writing also can include students dictating ideas to an adult or peer for transcription. Writing can be done through paper and pencil, typing, audio recording, or speech synthesis. *Authentic writing* involves student generation of original text, including sentences, paragraphs, or longer pieces. For example, students might develop a paragraph in response to a writing prompt. Writing from dictation, correcting grammatical errors on a worksheet, and combining two sentences generated by a teacher do not qualify as authentic writing, because students are not generating the content themselves.

Measures of **writing output** refer to the actual quantity of text produced. Some examples of output measures include the number of sentences or the number of words in a composition.

The **writing process** is the approach a writer uses to compose text. Components of the writing process include planning, drafting, sharing, revising, editing, and evaluating. These components are recursive. They can occur at any point during the writing process, and students should learn to skillfully and flexibly move back and forth between the components while composing text. On occasion, an additional component, publishing, is added to the process as a final product to conclude the writing process.

Postscript from the Institute of Education Sciences

What is a practice guide?

The Institute of Education Sciences (IES) publishes practice guides to share rigorous evidence and expert guidance on addressing education-related challenges not solved with a single program, policy, or practice. Each practice guide's panel of experts develops recommendations for a coherent approach to a multifaceted problem. Each recommendation is explicitly connected to supporting evidence. Using standards for rigorous research, the supporting evidence is rated to reflect how well the research demonstrates that the recommended practices are effective. Strong evidence means positive findings are demonstrated in multiple well-designed, well-executed studies, leaving little or no doubt that the positive effects are caused by the recommended practice. Moderate evidence means well-designed studies show positive impacts, but some questions remain about whether the findings can be generalized or whether the studies definitively show the practice is effective. Minimal evidence means data may suggest a relationship between the recommended practice and positive outcomes, but research has not demonstrated that the practice is the cause of positive outcomes. (See Table 1 for more details on levels of evidence.)

How are practice guides developed?

To produce a practice guide, IES first selects a topic. Topic selection is informed by inquiries and requests to the What Works Clearinghouse Help Desk, formal surveys of practitioners, and a limited literature search of the topic's research base. Next, IES recruits a panel chair who has a national reputation and expertise in the topic. The chair, working with IES, then selects panelists to coauthor the guide. Panelists are selected based on their expertise in the topic area and the belief that they can work together to develop relevant, evidence-based recommendations. IES recommends that the panel include at least one practitioner with relevant experience.

The panel receives a general template for developing a practice guide, as well as examples of published practice guides. Panelists identify the most important research with respect to their recommendations and augment this literature with a search of recent publications to ensure that supporting evidence is current. The search is designed to find all studies assessing the effectiveness of a particular program or practice. These studies then are reviewed against the What Works Clearinghouse (WWC) standards by certified reviewers who rate each effectiveness study. WWC staff assist the panelists in compiling

and summarizing the research and in producing the practice guide.

IES practice guides then are subjected to rigorous external peer review. This review is done independently of the IES staff who supported the development of the guide. A critical task of the peer reviewers of a practice guide is to determine whether the evidence cited in support of particular recommendations is up-to-date and that studies of similar or better quality that point in a different direction have not been overlooked. Peer reviewers also evaluate whether the level of evidence category assigned to each recommendation is appropriate. After the review, a practice guide is revised to meet any concerns of the reviewers and to gain the approval of the standards and review staff at IES.

A final note about IES practice guides

In policy and other arenas, expert panels typically try to build a consensus, forging statements that all their members endorse. Practice guides do more than find common ground; they create a list of actionable recommendations. When research clearly shows which practices are effective, the panelists use this evidence to guide their recommendations. However, in some cases, research does not provide a clear indication of what

works, and panelists' interpretation of the existing (but incomplete) evidence plays an important role in guiding the recommendations. As a result, it is possible that two teams of recognized experts working independently to produce a practice guide on the same topic would come to very different conclusions. Those who use the guides should recognize that the recommendations represent, in effect, the advice of consultants. However, the advice might be better than

what a school or district could obtain on its own. Practice guide authors are nationally recognized experts who collectively endorse the recommendations, justify their choices with supporting evidence, and face rigorous independent peer review of their conclusions. Schools and districts would likely not find such a comprehensive approach when seeking the advice of individual consultants.

Institute of Education Sciences

Appendix B

About the Authors

Panel

Steve Graham, Ph.D., is the Warner Professor of Special Education at Arizona State University. His research focuses on identifying the factors that contribute to writing development and writing difficulties, as well as developing and validating effective instructional procedures for teaching writing. He is the author of the *Handbook of Writing Research*, *Handbook of Learning Disabilities*, *Writing Better*, *Best Practices in Writing Instruction*, *APA Educational Psychology Handbook*, and *Powerful Writing Strategies for All Students*. Dr. Graham also authored *Writing Next*, *Writing to Read*, and *Informing Writing* for the Carnegie Corporation of New York. He is a former editor of *Contemporary Educational Psychology* and *Exceptional Children*. He currently serves as the senior editor of the *What Works for Special Needs Learners* series published by Guilford Press.

Alisha Bollinger, M.Ed., received her B.A. from Benedictine College and her M.Ed. from the University of Nebraska at Kearney. She has 10 years of experience as an elementary teacher and special education teacher. Ms. Bollinger has served as a mentor for new teachers, a staff development facilitator, and a curriculum leader, in addition to participating in professional learning communities. She also has worked on both building- and district-wide teams to develop writing curricula and has worked as a teacher leader in the implementation of those plans. Ms. Bollinger currently teaches 4th grade at Norris Elementary School in Firth, Nebraska.

Carol Booth Olson, Ph.D., is an associate professor in the Department of Education at the University of California, Irvine (UCI), and director of the UCI site of the National Writing Project. Her research focuses on the impact of cognitive strategies-based professional development and curriculum design on the reading, thinking, and writing ability of students in grades K–12, with special emphasis on the academic literacy of mainstreamed English language learners in middle and high school.

Dr. Olson received the Alan C. Purves Award in 2007 and the Richard A. Meade Award in 2009 from the National Council of Teachers of English for outstanding research in the field of English education. She is the author of *The Reading/Writing Connection: Strategies for Teaching and Learning in the Secondary Classroom*, 3rd edition, published by Allyn & Bacon/Pearson.

Catherine D’Aoust is the coordinator of English language arts, K–12, in the Saddleback Valley Unified School District in Mission Viejo, California, where she is responsible for implementing and monitoring a comprehensive district language arts program focusing on instruction in reading and writing in language arts and across content areas. She is the codirector of the University of California, Irvine (UCI) site of the National Writing Project, where she assists teachers in fostering their writing abilities and enhancing their teaching practice in writing. Ms. D’Aoust is a contributing author to books on writing, including *Practical Ideas for Teaching Writing as a Process*, *Thinking Writing*, and *Portfolios in the Writing Classroom: An Introduction*.

Charles MacArthur, Ph.D., is a professor in the School of Education at the University of Delaware. Dr. MacArthur received his Ph.D. from American University. His research interests include writing development and instruction with struggling writers, technology and literacy, and development of self-regulated strategies. His significant research projects have involved the development of a writing curriculum for students with learning disabilities, writing-strategy instruction in classroom settings, development of multimedia tools to support reading in content areas, speech recognition as a writing accommodation, project-based learning in social studies in inclusive classrooms, and adult literacy. He currently is principal investigator of a research project developing a writing curriculum for basic writing courses in community colleges. In addition to publishing his own research, Dr. MacArthur has served as editor of *The Journal of Special Education* and coedited the *Handbook of Writing Research* and *Best Practices in Writing Instruction*.

Deborah McCutchen, Ph.D., is a professor of education at the University of Washington. Dr. McCutchen's teaching and research interests include the psychology of reading and writing, teacher knowledge, and classroom learning. Her work, supported by the National Institutes of Health and more recently by the Institute of Education Sciences, examines the linguistic bases of reading and writing skills. Her research has ranged from basic research on cognitive processes supporting literacy to studies of the subject-matter knowledge needed by teachers of reading. She is a former coeditor of *Cognition and Instruction* and contributor to volumes such as the *Handbook of Writing Research*, the *Handbook of Research on Learning and Instruction*, and the *Handbook of Research on Writing*.

Natalie Olinghouse, Ph.D., is an assistant professor of educational psychology and a research scientist in the Center for Behavioral Education and Research at the University of Connecticut. Dr. Olinghouse earned her doctorate in learning disabilities at Vanderbilt University. Her research interests include writing assessment, relations between reading and writing, and vocabulary in writing. Dr. Olinghouse's recent research, funded by the Institute of Education Sciences, seeks to identify key aspects of states' writing content standards and assessments that are related to students' writing achievement. She has published numerous journal articles and book chapters on writing assessment and instruction for both research and K–12 educator communities. Dr. Olinghouse also is a former elementary special education teacher with 12 years of experience.

Staff

M. C. Bradley, Ph.D., is a researcher at Mathematica Policy Research and a former high school science teacher. She has both delivered and evaluated education and social work programs. Dr. Bradley supported the panel in the review and documentation of evidence. She has reviewed evidence for previous What Works Clearinghouse practice guides and topic areas. Dr. Bradley also conducted or

participated in other meta-analyses and syntheses focused on paraprofessional home-visiting programs, interventions for oppositional defiant disorder, and mathematics education.

Virginia Knechtel, M.P.P., is a researcher at Mathematica Policy Research and a former special education teacher. Ms. Knechtel has served as a reviewer for What Works Clearinghouse topic areas and practice guides and as a practice coordinator for two practice guides, including *Improving Reading Comprehension in Kindergarten Through 3rd Grade*. She supported the panel in analyzing the evidence for effective writing practices that was reviewed for this practice guide. Ms. Knechtel has experience on a range of evaluations, primarily in the area of education.

Bryce Onaran, M.P.A., is a program analyst at Mathematica Policy Research. He has served as staffing coordinator for the What Works Clearinghouse, where he managed the planning and operation of the project. Mr. Onaran provided logistical support to the panel and assisted with efforts to translate research findings into practitioner-friendly text. In addition to his work on the What Works Clearinghouse, Mr. Onaran also worked on data collection efforts to evaluate teachers who have entered teaching through highly selective routes to alternative certification for the Institute of Education Sciences, U.S. Department of Education.

Cassandra Pickens Jewell, M.S.Ed., is a research analyst for Mathematica Policy Research. She has served as project analyst for the What Works Clearinghouse, as well as coordinator in several areas of the Clearinghouse, including practice guides and outreach and development. She also served as practice coordinator for the *Using Student Achievement Data to Support Instructional Decision Making* practice guide. Ms. Pickens Jewell supported the panel in translating research findings into practitioner-friendly text. In addition to her work on the Clearinghouse, she works on data collection and program evaluation design and analysis efforts, primarily in the area of education.

Disclosure of Potential Conflicts of Interest

Practice guide panels are composed of individuals who are nationally recognized experts on the topics about which they are making recommendations. IES expects the experts to be involved professionally in a variety of matters that relate to their work as a panel. Panel members are asked to disclose these professional activities and institute deliberative processes that encourage critical examination of their views as they relate to the content of the practice guide. The potential influence of the panel members' professional activities is further muted by the requirement that they ground their recommendations in evidence that is documented in the practice guide. In addition, before all practice guides are published, they undergo an independent external peer review focusing on whether the evidence related to the recommendations in the guide has been presented appropriately.

The professional activities reported by each panel member that appear to be most closely associated with the panel recommendations are noted below.

Steve Graham receives royalties as an author of *SRA/McGraw-Hill Imagine It*, a reading/writing program for students in kindergarten through 6th grade, and *Zaner-Bloser Spell It Write*, a spelling program for students in kindergarten through 8th grade. He also is a consulting author on *Zaner-Bloser Handwriting*, a handwriting program for students in kindergarten through 8th grade. These programs are not mentioned in the guide.

Dr. Graham also receives royalties on the sale of the following textbooks he has authored on instruction in writing strategies, that are discussed in this guide: *Best Practices in Writing Instruction* (Guilford); *Helping Young Writers Master the Craft: Strategy Instruction and Self Regulation in the Writing Process* (Brookline Books); *Making the Writing Process Work:*

Strategies for Composition and Self Regulation (Brookline Books); *Powerful Writing Strategies for All Students* (Brookes); and *Writing Better: Teaching Writing Processes and Self-Regulation to Students with Learning Problems* (Brookes).

Self-regulated strategy development (SRSD) is an approach to writing instruction comprised of a set of practices, not a branded curriculum that can be purchased. Dr. Graham's wife, Dr. Karen Harris, developed SRSD. Dr. Graham's work on SRSD includes developing strategies and testing their effectiveness.

Carol Booth Olson receives royalties as a senior program consultant on *Houghton-Mifflin McDougal Littell Literature*, a language arts textbook, and *The Reading/Writing Connection: Strategies for Teaching and Learning in the Secondary Classroom* (Pearson), a professional book for teachers. These publications are not mentioned in the guide.

Appendix D

Rationale for Evidence Ratings^a

The research used in this practice guide was identified through a search for research on practices for improving students' writing. The search focused on studies published between 1989 and 2009 that examined practices for teaching writing to students in elementary school settings.¹¹⁸ In addition to identifying intervention studies conducted with typically developing students, the search included studies of students with diagnosed learning disabilities or designated as English language learners. Studies examined students in both the United States and other countries. The search was supplemented with studies recommended by the panel based on its expertise in the area of writing research.

The search identified more than 1,575 studies, including 118 with designs that could be reviewed against What Works Clearinghouse (WWC) standards for randomized controlled trials (RCTs) and group quasi-experimental designs (QEDs). From this subset, 41 met the WWC evidence standards, and 34 were relevant to the panel's recommendations and were included as support or supplemental evidence for the recommendations in this practice guide. Twenty studies were eligible for review against the WWC pilot standards for well-designed single-case design (SCD) research. Of these, 13 met the pilot standards and 11 were included as supplemental evidence for the recommendations in this guide. While group design studies (RCTs and QEDs) contribute to the level of evidence rating for a recommendation, SCD studies cannot raise the level of evidence above minimal.

In this practice guide, a group design study result is classified as having a positive or negative effect when it meets either of the following criteria:

- the result is statistically significant ($p \leq 0.05$)¹¹⁹
- the result is substantively important as defined by the WWC (effect sizes greater than 0.25 or less than -0.25, regardless of statistical significance)¹²⁰

SCD studies are classified as having a positive effect if visual analysis finds at least three demonstrations of an effect (for more information on the pilot WWC standards for single-case design or visual analysis, please see the *WWC Procedures and Standards Handbook*, available on the IES website at <http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=19>).

When a result meets none of these criteria, it is classified as having “no effect.”

Some studies meet WWC standards (with or without reservations) for causal designs but

do not adjust statistical significance for multiple comparisons or student clusters where the unit of assignment is different from the unit of analysis (e.g., classrooms are assigned to conditions, but student test scores are analyzed). When full information is available, the WWC adjusts for clustering and multiple comparisons within an outcome category.¹²¹

Eligible outcomes. The guide focuses on nine outcome categories. In general, the panel only considered measures of student ability based on original, student-written products (or authentic writing), because it is not clear whether students translate skills practiced on worksheets and spelling tests into improvements in authentic writing. For example, students who correctly identify grammatical errors in a worksheet may not transfer that skill to their authentic writing.¹²² The panel made one exception to this rule: norm-referenced standardized tests of writing achievement. This exception was made because teachers are increasingly called upon to demonstrate improvement on these tests and are likely to be interested in interventions that have demonstrated impacts on these types of

^a Eligible studies that meet WWC evidence standards or meet evidence standards with reservations are indicated by **bold text** in the endnotes and references pages.

assessments. The nine outcome categories for this practice guide follow:

- **Overall writing quality** measures the effectiveness of a piece of writing. These measures may take into account assessments of intermediary outcome categories—including ideation, genre (or text) elements, mechanics, organization, output, sentence structure, vocabulary, and voice—in a single assessment of the quality of a piece of writing. Overall writing quality may be assessed either analytically or holistically. Analytic writing quality is measured using scales for which multiple attributes of writing (e.g., mechanics, vocabulary, sentence structure, organization, ideation, and voice) are each judged separately and then summed to obtain a single score. To measure holistic writing quality, the scorer makes a single judgment about overall quality, considering a variety of attributes at the same time. Though different elements of writing quality—for example, organization, ideation, or mechanics—may contribute to the overall quality of the piece, these different elements are not evaluated separately in holistic writing quality measures.
- **Writing output** refers to the actual quantity of text produced. Some examples of output measures include the number of sentences or the number of words in a composition.
- **Genre elements**, sometimes referred to as “text elements,” measure whether features typical of a particular genre are present. For example, one might assess whether elements of a story, such as characters, place, a starting event, action, and ending, are present in students’ writing.
- **Ideation** assesses the development and quality of ideas students include in their writing. Qualitative measures of ideation include the overall richness and number of ideas in a composition. Quantitative measures include the number of different ideas.
- **Mechanics** refers to assessments of handwriting, spelling, capitalization, and punctuation. The term *usage* also may be applied and typically refers to the combination of capitalization and punctuation.
- **Organization** assesses the structure of a composition. This can include the connection between ideas in the text, as well as how well individual ideas are organized or connected to meet a writer’s purpose (often referred to as “cohesiveness”).
- **Sentence structure** typically assesses sentence correctness or sentence complexity. For example, a sentence structure measurement might count the number of sentences in a composition that are syntactically correct.
- **Vocabulary** refers to the types of words used by the student in his or her writing. Vocabulary may be assessed by counting specific types of words (e.g., the number of different words or the inclusion of content-specific words), or by examining the complexity of words (e.g., number of syllables).
- **Voice** is often referred to as “tone,” “mood,” or “style,” and it tells the reader about the writer’s personality in the composition. Voice is typically assessed by rating how well the student establishes mood, tone, style, or his or her individual personality in writing.

The panel was most interested in interventions that demonstrate improvements in overall writing quality, since teaching students to write effectively is the ultimate objective of writing instruction. However, particularly because this guide focuses on students in the early stages of writing development, the panel believes that improvements on intermediary outcome categories—including writing output, mechanics, vocabulary, sentence structure, organization, ideation, voice, and genre elements—are relevant and important. As a result, the panel accepted outcomes in any of these categories.

Finally, given the subjective nature of many writing assessments, the panel felt strongly that minimum thresholds of inter-rater reliability must be documented on the study sample for subjective writing assessments included as evidence of a practice's effectiveness. One common measure of inter-rater reliability is Pearson correlation, for which a minimum correlation of 0.70 was required; however, the panel accepted a variety of different measures of inter-rater reliability, and the minimum thresholds varied across these measures. Norm-referenced standardized tests were exempted from this requirement.

To facilitate comparisons, the panel focused on the outcome closest to the end of the intervention; these are labeled *posttests*. All outcome measures administered after the posttest are labeled *maintenance* in appendix tables. Measures the panel believes require students to apply knowledge or skills in a new context are labeled *transfer outcomes* in appendix tables. When studies have multiple posttest outcome measures administered within the same category, effect sizes for each measure are averaged, and the overall average is reported.

Multicomponent interventions. Many of the studies that contributed to the evidence ratings for this guide examined the effectiveness of several instructional practices tested together. For example, one study tested the effectiveness of an after-school writing club for struggling writers. The intervention included instruction in a process approach to writing (Recommendation 2), but it also included providing extra time for writing instruction (Recommendation 1). In these cases, it was not possible for the panel to determine which of the practices included in the intervention caused any observed effects on writing outcomes; however, they provided evidence of the effectiveness of the practice of interest, when implemented with the other practices in the multicomponent intervention.

Classifying the comparison condition. The studies cited as evidence for this guide compared the writing of students who were

exposed to a particular intervention (treatment condition) to the writing of students who were not exposed to the intervention of interest (comparison condition). The panel refers to the comparison condition in studies for which the interventions were provided as a supplement to students' typical classroom instruction or as a replacement for some portion of students' typical classroom instruction as "regular classroom instruction." In other cases, students exposed to the intervention were compared to students receiving a different, well-defined intervention, which the panel refers to as a "treated comparison."

Writers who are at risk. While the recommendations in this guide are primarily intended for teachers to use with typically developing students, some of the studies used to support the recommendation were conducted on populations of students at greater risk of experiencing difficulty learning to write, including students with identified learning disabilities; students with low baseline scores on assessments of handwriting, spelling, or writing ability; or students struggling with behavior. In the appendices, "at risk" refers to cases in which more than 50 percent of the sample in a study met one of these criteria. In some cases, exactly 50 percent of the student population was at risk for writing difficulties, in which case the sample is referred to as "half at risk."

Recommendation 1. Provide daily time for students to write.

Level of evidence: Minimal Evidence

The panel judged the level of evidence for this recommendation to be *minimal evidence*. While a considerable amount of time is required to implement the practices in this guide, no studies that met WWC evidence standards explicitly examined whether providing students with daily opportunities to write leads to better writing outcomes than providing less frequent writing opportunities. Nonetheless, in light of recent surveys of elementary

teachers indicating that students spend very little time writing during the school day,¹²³ the panel believes it is important to acknowledge the time required to implement the practices in this guide by making daily writing instruction and practice its own recommendation. The panel cautions that time for writing is necessary, but not sufficient on its own; additional time for writing will improve students' writing achievement only when aligned with the recommendations in this guide.

Limited support for this recommendation comes from one study of additional writing instruction and time for writing practice that meets WWC evidence standards for group designs.¹²⁴ Table D.1 summarizes the characteristics of the study that contributes to the level of evidence rating for this recommendation. In the study, students who were at risk for writing difficulties attended a before- or after-school "writing club," which involved additional time for writing instruction and practice twice a week for an hour over seven months, in addition to their regular instruction in writing.¹²⁵ The study found that students assigned to the writing clubs demonstrated improvement on

a standardized measure of sentence structure relative to comparison group members who did not attend the writing clubs. The additional instructional time included instruction in genre-specific writing strategies aligned with the practices described in Recommendation 2b.

Supplemental evidence comes from two studies, both SCDs, in which the total additional time for writing instruction was more limited and was delivered over a shorter period of time.¹²⁶ Both studies examined the effectiveness of additional instructional time, provided as a supplement to students' regular classroom instruction, using self-regulated strategy development (SRSD, described in greater detail in the description of the evidence supporting Recommendation 2). The characteristics of supplemental studies are included in Table D.2. Both studies led to positive effects on the number of elements students included in their writing (persuasive or story). Though the interventions were short in duration, the panel believes that sustained additional instructional time could lead to continued improvements in and maintenance of the promising results.

Table D.1. Studies that contribute to the level of evidence for Recommendation 1

Study Details				
Study Citation and Design ¹²⁷	Analytic Sample Size ¹²⁸ and Population	Intervention Group (Dosage) ¹²⁹		Outcome, Effect Size ¹³⁰
		Comparison Group ¹³¹		
Berninger et al. (2006) Study 4 RCT	90 students in 4th grade who were at risk	after-school writing clubs		sentence structure, 0.63 (ns)
		whole class in addition to regular instruction (64 sessions, 60 minutes each)		
		regular classroom instruction		

Table D.2. Supplemental evidence supporting the effectiveness of Recommendation 1

Study Details			
Study Citation and Design ¹³²	Analytic Sample Size ¹³³ and Population	Intervention Group (Dosage) ¹³⁴	Outcome, Effect Size ¹³⁵
		Comparison Group ¹³⁶	
Mason and Shriner (2008) <i>SCD</i>	6 students in 2nd through 5th grade who were at risk	SRSD instruction with minor modifications for students with behavioral challenges in addition to regular instruction individual (11–13 sessions, 30 minutes each)	Persuasive: genre elements, positive effects
		regular classroom instruction	
Saddler et al. (2004) <i>SCD</i>	6 students in 2nd grade who were at risk	SRSD instruction in addition to regular instruction pairs (9–12 sessions, 25 minutes each)	Story: genre elements, positive effects
		regular classroom instruction	

All of the studies cited as evidence of the effectiveness of the practices recommended in this guide noted the provision of time for quality writing instruction, writing practice, or both. The time required to implement the interventions varied (see Tables D.3, D.4, D.5, D.6, D.7, and D.8, which summarize the evidence for Recommendations 2, 3, and 4). Dedicated writing time is needed in order to implement the recommendations in this guide, and the panel believes this should be at least 30 minutes per day for students in kindergarten and at least an hour per day for all other students in elementary school.

Recommendation 2. Teach students to use the writing process for a variety of purposes.

The individual how-to steps are separated into two sections because writing is a complex process and the steps needed to carry out this recommendation are numerous. Recommendation 2a discusses teaching students how to apply the writing process, while Recommendation 2b addresses teaching students to write for a variety of purposes. Because research has examined all of these steps in combination, we describe the evidence supporting all of Recommendation 2 below.

Level of evidence: Strong Evidence

The panel judged the level of evidence for Recommendation 2a and Recommendation 2b, when implemented together, as *strong evidence*. Altogether, 25 studies that meet WWC evidence standards provide causal support for this multipart recommendation.¹³⁷ The interventions tested in the studies were closely related to those recommended by the panel, including eight studies that tested an intervention containing at least six of the eight practices in Recommendation 2.¹³⁸ The studies found predominantly positive effects on a range of outcomes; 18 studies found positive effects on overall writing quality.¹³⁹ One study reported mixed effects in the overall writing quality domain, including a substantively important negative effect at posttest.¹⁴⁰ The panel cautions against drawing strong conclusions from this study because the study itself tested only a minor modification to a comprehensive set of practices recommended by the panel. Both the treatment and comparison groups received most of the practices recommended by the panel, and both the treatment and comparison groups improved at posttest. Overall, this study demonstrates mixed effects for only one practice, explicit self-regulation strategies. The studies were conducted in settings and among populations that mirror the variety of settings and populations for which

this guide is intended, including a wide range of achievement levels, grades, and regional settings. The panel is confident that when implemented together, the practices described in Recommendation 2a and Recommendation 2b can be effective in improving a variety of student writing outcomes, including the overall quality of students' writing. Supplemental evidence comes from nine SCD studies.¹⁴¹

Studies testing the effectiveness of instruction in strategies

As a result of the large number of studies that provide support for this recommendation, the panel grouped the studies into four categories for discussion:

- The first broad category of studies tested the effectiveness of self-regulated strategy development (SRSD), an intervention that typically includes more than 70 percent of the components of the panel's recommendation, and minor modifications to this intervention.¹⁴²
- The studies in the second category examined the effectiveness of interventions focused strictly on various types of goal setting, a component of the panel's recommendation that has demonstrated considerable promise for improving students' writing. Typically, goal-setting interventions contain fewer than 30 percent of the components of Recommendation 2.
- The third category consists of studies that fall in neither of the first two categories but examine interventions that are moderately or closely aligned with the recommendation. Studies that are moderately aligned are those that contain at least 30 percent, but fewer than 80 percent, of the components of the panel's recommendation; studies that are closely aligned are those that contain at least 80 percent of the components of the panel's recommendation.¹⁴³
- Similarly, the final category contains studies that are not of SRSD or goal setting and are only partially aligned with the panel's recommendation (containing fewer than

30 percent components of the panel's recommendation).

All of the studies examined interventions that contained one or more practices described in Recommendation 2.

For each group of studies, this section first describes the general nature of the intervention and then provides an example or two of the studies that tested it, focusing on those that tested the intervention among a population of typically achieving students in a whole-class instructional setting. Next, this section summarizes the effectiveness of all the studies in that category, focusing primarily on measures of overall writing quality. When appropriate, this section discusses how the effectiveness of the intervention varied when administered to a population that was at risk or when delivered outside of a whole-class setting. Finally, this section describes how minor variations in the intervention impacted its effectiveness.

The panel believes it is important to implement the practices in Recommendations 2a and 2b in combination but notes that the studies varied in terms of how closely the intervention studied aligns to the panel's recommendation. Table D.3 summarizes the characteristics of the studies that contribute to the level of evidence rating for this recommendation and the components that are included in the intervention(s) tested within each study.

The characteristics of supplemental studies are included in Table D.4. These studies were rated using the WWC pilot standards for well-designed SCD research. SCD studies alone cannot raise the level of evidence above minimal; however, they do provide supplemental support for this recommendation, which is rated as strong evidence based on the group design studies that appear in Table D.3. The panel used the descriptions of the interventions in the studies to identify the components of the recommendations included in each intervention, relying on its expert knowledge of the interventions and the research to supplement the descriptions when appropriate.

Table D.3. Studies that contribute to the level of evidence for Recommendation 2

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁴⁴	Analytic Sample Size ¹⁴⁵ and Population	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
Studies testing the effectiveness of self-regulated strategy development (SRSD) on typically achieving students											
<i>Whole-class setting</i>											
Tracy, Reid, and Graham (2009) <i>RCT</i>	120 students in 3rd grade	SRSD instruction whole class (time unknown)	<u>Story posttest:</u> overall writing quality, 0.35 (ns) genre elements, 0.70 (ns) output, 0.54 (ns) <u>Transfer effects, narrative posttest:</u> overall writing quality, 0.52 (ns) genre elements, 0.72 (ns) output, 0.52 (ns)	X	X	X		X	X	X	X
		regular classroom instruction									
<i>Small-group or paired setting</i>											
Glaser and Brunstein (2007) <i>RCT</i>	69 to 72 students in 4th grade in Germany ¹⁵⁰	SRSD instruction (full model) ¹⁵¹ small groups (4 sessions, 90 minutes each)	<u>Posttest:</u> overall writing quality, 1.20 (ns) genre elements, 2.14* <u>Maintenance effects (5 weeks):</u> overall writing quality, 1.62* genre elements, 2.35*	X	X	X		X	X	X	X
		regular classroom instruction									
Glaser and Brunstein (2007) <i>RCT</i>	69 to 72 students in 4th grade in Germany ¹⁵²	SRSD instruction (full model) small groups (4 sessions, 90 minutes each)	<u>Posttest:</u> overall writing quality, 0.86 (ns) genre elements, 1.49* <u>Maintenance effects (5 weeks):</u> overall writing quality, 1.07 (ns) genre elements, 2.28*	X ¹⁵³							
		SRSD instruction without self-regulation components									
Studies testing the effectiveness of SRSD on students who were at risk											
<i>Whole-class setting</i>											
Curry (1997) <i>QED</i>	30 students in 4th grade who were at risk	SRSD instruction in an inclusive setting ¹⁵⁴ whole class (32 sessions; 45 minutes each)	overall writing quality, 0.87 (ns)	X	X			X	X	X	X
		Writer's Workshop in an inclusive setting									

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁴⁴	Analytic Sample Size ¹⁴⁵ and Population	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
<i>Small-group, paired, or individual setting</i>											
Garcia-Sanchez and Fidalgo-Redondo (2006) <i>RCT</i>	80 students in 5th and 6th grade in Spain who were at risk	SRSD instruction ¹⁵⁵ small groups (25 sessions, 45–55 minutes each) regular classroom instruction	output, 2.49 (unknown)¹⁵⁶	X	X	X		X	X	X	
Graham, Harris, and Mason (2005) <i>RCT</i>	24 pairs of students in 3rd grade who were at risk	SRSD instruction plus peer support ¹⁵⁷ pairs (60 sessions, 20 minutes each) regular classroom instruction	<u>Story posttest:</u> overall writing quality, 1.74* genre elements, 2.04* output, 1.78* <u>Persuasive posttest:</u> overall writing quality, 1.75* genre elements, 0.89 (ns) output, 1.02 (ns) <u>Transfer effects,</u> <u>narrative posttest:</u> overall writing quality, -0.20 (ns) genre elements, 1.38* output, 0.19 (ns) <u>Transfer effects,</u> <u>informative posttest:</u> overall writing quality, 0.82 (ns) output, 0.97 (ns) <u>Maintenance effects</u> (10 weeks), story: overall writing quality, 1.09* genre elements, 1.42* output, 0.54 (ns)	X	X	X		X	X	X	X

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process			2b. Teach Students to Write for a Variety of Purposes				
Study Citation and Design ¹⁴⁴	Analytic Sample Size ¹⁴⁵ and Population	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
Graham, Harris, and Mason (2005) <i>RCT</i>	24 pairs of students in 3rd grade who were at risk	SRSD instruction plus peer support pairs (60 sessions, 20 minutes each)	<p><u>Story posttest:</u> overall writing quality, 0.22 (ns) genre elements, 0.69 (ns) output, 0.39 (ns)</p> <p><u>Persuasive posttest:</u> overall writing quality, -0.57 (ns) genre elements, -1.17* output, -0.82 (ns)</p> <p><u>Transfer effects, narrative posttest:</u> overall writing quality, 0.42 (ns) genre elements, 0.86 (ns) output, 0.46 (ns)</p> <p><u>Transfer effects, informative posttest:</u> overall writing quality, 0.38 (ns) output, 0.24 (ns)</p> <p><u>Maintenance effects (10 weeks), story:</u> overall writing quality, -0.22 (ns) genre elements, -0.08 (ns) output, -0.14 (ns)</p>			X					
		SRSD instruction only									

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁴⁴	Analytic Sample Size ¹⁴⁵ and Population	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
Harris, Graham, and Mason (2006) <i>RCT</i>	22 pairs of students in 2nd grade who were at risk	SRSD instruction plus peer support ¹⁵⁸ pairs (27–33 sessions, 20 minutes each)	<u>Story posttest:</u> overall writing quality, 0.91 (ns) output, 1.01 (ns) genre elements, 4.94* <u>Persuasive posttest:</u> overall writing quality, 1.58* to 2.77* genre elements, 1.14* to 2.83* output, 0.50 (ns) to 1.56*	X	X	X		X	X	X	X
		regular classroom instruction	<u>Transfer effects, narrative posttest:</u> overall writing quality, 0.20 (ns) genre elements, 2.19* output, 0.51 (ns) <u>Transfer effects, informative posttest:</u> overall writing quality, 1.22* output, 1.92* <u>Maintenance effects (6 months), story:</u> overall writing quality, 1.21* genre elements, 1.96* output, 1.22*								
Harris, Graham, and Mason (2006) <i>RCT</i>	22 pairs of students in 2nd grade who were at risk	SRSD instruction plus peer support pairs (27–33 sessions, 20 minutes each)	<u>Story posttest:</u> overall writing quality, 0.14 (ns) genre elements, 0.46 (ns) output, 0.36 (ns) <u>Persuasive posttest:</u> overall writing quality, 0.38 (ns) to 0.44 (ns) genre elements, 0.63 (ns) to 0.87 (ns) output, –0.19 (ns) to –0.06 (ns) <u>Transfer effects, narrative posttest:</u> overall writing quality, –0.11 (ns) genre elements, 0.89 (ns) output, –0.12 (ns) <u>Transfer effects, informative posttest:</u> overall writing quality, 0.64 (ns) output, 0.05 (ns) <u>Maintenance effects (6 months), story:</u> overall writing quality, 0.40 (ns) genre elements, 0.23 (ns) output, 0.21 (ns)			X					
		SRSD instruction only									

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁴⁴	Analytic Sample Size ¹⁴⁵ and Population	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
Sawyer, Graham, and Harris (1992) <i>RCT</i>	8 groups of students in 5th and 6th grade who were at risk	SRSD instruction (full model) ¹⁵⁹ small groups (average of 8 sessions, averaging 40 minutes each)	<u>Posttest:</u> ¹⁶⁰ overall writing quality, 0.00 (ns) to 0.63 (ns) genre elements, 0.84 (ns) to 1.37 (ns) <u>Maintenance effects (2 weeks):</u> overall writing quality, 0.46 (ns) genre elements, -0.40 (ns) <u>Maintenance effects (4 weeks):</u> overall writing quality, -0.34 (ns) genre elements, -0.22 (ns)	X	X ¹⁶¹	X		X	X	X	X
		direct instruction in strategies									
Sawyer, Graham, and Harris (1992) <i>RCT</i>	8 groups of students in 5th and 6th grade who were at risk	SRSD instruction (full model) small groups (average of 8 sessions, averaging 40 minutes each)	<u>Posttest:</u> overall writing quality, -0.35 (ns) to 0.18 (ns) genre elements, -0.01 (ns) to 0.54 (ns) <u>Maintenance effects (2 weeks):</u> overall writing quality, 0.17 (ns) genre elements, -0.71 (ns) <u>Maintenance effects (4 weeks):</u> overall writing quality, -0.81 (ns) genre elements, -0.28 (ns)	X ¹⁶²							
		SRSD instruction (partial model) without self-regulation component									
Studies testing the effectiveness of goal-setting interventions on typically achieving students											
<i>Small-group or individual setting</i>											
Ferretti, Lewis, and Andrews-Weckerly (2009) <i>RCT</i>	24 students in 4th grade and 24 students in 6th grade ¹⁶³	writing in response to a prompt with specific goals related to the characteristics of good persuasive writing individual (1 session, 45 minutes)	4th grade: ¹⁶⁴ overall writing quality, 0.88* genre elements (average), 0.10 (ns) ¹⁶⁵ 6th grade: ¹⁶⁶ overall writing quality, 1.11* genre elements (average), 0.41 (ns) ¹⁶⁷						X		X
		writing in response to a prompt without specific goals									

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁴⁴	Analytic Sample Size ¹⁴⁵ and Population	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
Schunk and Swartz (1993) ¹⁶⁸ Study 1 <i>RCT</i>	30 students in 5th grade	product goals to supplement instruction in a general planning strategy small groups (20 sessions, 45 minutes each)	<u>Posttest:</u> overall writing quality, 1.49* sentence structure, -0.21 (ns)	X							
		general goal to supplement instruction in a general planning strategy									
Schunk and Swartz (1993) Study 1 <i>RCT</i>	30 students in 5th grade	process goals to supplement instruction in a general planning strategy small groups (20 sessions, 45 minutes each)	<u>Posttest:</u> ¹⁶⁹ overall writing quality, 2.48* sentence structure, 0.00 (ns)	X							
		general goal to supplement instruction in a general planning strategy									
Schunk and Swartz (1993) Study 2 <i>RCT</i>	20 students in 4th grade	product goals to supplement instruction in a general planning strategy small groups (20 sessions, 45 minutes each)	<u>Posttest:</u> overall writing quality, 1.08* sentence structure, 0.56 (ns) <u>Maintenance effects (6 weeks):</u> ¹⁷⁰ overall writing quality, 1.19 (ns) sentence structure, 0.16 (ns)	X							
		general goal to supplement instruction in a general planning strategy									
Schunk and Swartz (1993) Study 2 <i>RCT</i>	20 students in 4th grade	process goals to supplement instruction in a general planning strategy small groups (20 sessions, 45 minutes each)	<u>Posttest:</u> ¹⁷¹ overall writing quality, 2.62* sentence structure, 2.72* <u>Maintenance (6 weeks):</u> ¹⁷² overall writing quality, 1.74* sentence structure, 2.47*	X							
		general goal to supplement instruction in a general planning strategy									

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁴⁴	Analytic Sample Size and Population ¹⁴⁵	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
Studies testing the effectiveness of goal-setting interventions on students who were at risk											
<i>Whole-class setting</i>											
Ferretti, MacArthur, and Dowdy (2000) <i>RCT</i>	57 students in 4th grade and 61 students in 6th grade, half of whom were at risk ¹⁷³	writing in response to a prompt with specific goals related to the characteristics of good persuasive writing whole class (2 sessions, 45 minutes each)	<u>4th grade</u> : ¹⁷⁴ overall writing quality, 0.05 (ns) to 0.12 (ns) <u>6th grade</u> : ¹⁷⁵ overall writing quality, 0.62* to 0.73*								X
		writing in response to a prompt without specific goals									
Midgette, Haria, and MacArthur (2008) <i>RCT</i>	49 students in 5th grade who were at risk	content goals for revising ¹⁷⁶ whole class (2 sessions; minutes unknown)	overall writing quality, 0.50 (ns) genre elements (average), -0.05 (ns)								X
		general goals for revising									
Midgette, Haria, and MacArthur (2008) <i>RCT</i>	49 students in 5th grade who were at risk	audience goals for revising whole class (2 sessions; minutes unknown)	overall writing quality, 0.54 (ns) genre elements (average), 0.48 (ns)					X	X		X
		general goals for revising									
Midgette, Haria, and MacArthur (2008) <i>RCT</i>	49 students in 5th grade who were at risk	audience goals for revising whole class (2 sessions; minutes unknown)	overall writing quality, 0.09 (ns) genre elements (average), 0.52 (ns)					X	X		X ¹⁷⁷
		content goals for revising									
<i>Individual setting</i>											
Graham, MacArthur, and Schwartz (1995) <i>RCT</i>	39 students in 4th through 6th grade who were at risk	goal to add information ¹⁷⁸ individual (2 sessions, no time restrictions)	overall writing quality, 0.75* output, 0.51 (ns)	X							
		goal to make papers better									

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes				
Study Citation and Design ¹⁴⁴	Analytic Sample Size and Population ¹⁴⁵	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques	
		Comparison Group ¹⁴⁹										
Studies testing the effectiveness of moderately or closely aligned interventions on typically achieving students												
<i>Whole-class setting</i>												
Gordon and Braun (1986) <i>RCT</i>	54 students in 5th grade in Canada	instruction in narrative text structure whole class (15 sessions, 60 minutes each)	<u>Posttest:</u> genre elements, 0.28 (ns) <u>Maintenance effects (6 weeks):</u> genre elements, -0.06 (ns)		X						X	X
		instruction in poetry structure										
Guastello (2001) <i>RCT</i>	167 students in 4th grade ¹⁷⁹	instruction and practice using rubrics to evaluate writing whole class (time unknown)	overall writing quality, 1.27*	X				X	X			
		regular classroom instruction										
Pritchard and Marshall (1994) <i>QED</i>	1,284 students in 3rd through 6th grade	National Writing Project tiered staff-development model whole class (time unknown)	overall writing quality, 0.39 (unknown)¹⁸⁰	X			X ¹⁸¹		X	X		
		regular classroom instruction										
Studies testing the effectiveness of moderately or closely aligned interventions on students who were at risk												
<i>Whole-class setting</i>												
MacArthur, Schwartz, and Graham (1991) <i>RCT</i>	29 students in 4th through 6th grade who were at risk	student-editor strategy within a process writing approach whole class (24–32 sessions, 30–45 minutes each)	overall writing quality, 1.42* mechanics (average), 0.43¹⁸²	X	X	X	X ¹⁸³	X	X			
		process writing approach only										
Riley (1997) <i>RCT</i>	114 students in 3rd through 5th grade who were at risk	story grammar instruction ¹⁸⁴ whole class (18 sessions, 20–30 minutes each)	output, 1.03*	X						X	X	
		process writing approach										

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁴⁴	Analytic Sample Size ¹⁴⁵ and Population	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
<i>Small-group or paired setting</i>											
Gambrell and Chasen, (1991) <i>RCT</i>	40 students in 4th and 5th grade who were at risk	explicit story structure instruction small groups of 8–12 students (3 sessions; minutes unknown) story structure awareness instruction	Story posttest: genre elements, 0.86* organization, 0.90*		X ¹⁸⁵					X ¹⁸⁶	X ¹⁸⁷
Garcia and de Caso-Fuertes (2007) <i>RCT</i>	99 students in 5th and 6th grade in Spain who were at risk	reflexive writing process with strategies small groups of 6–8 students (25 sessions, 50 minutes each) regular classroom instruction	Descriptive: output, 0.59* Narrative: output, 0.64* Essay: output, 0.57*	X			X	X	X		X
Troia and Graham (2002) <i>RCT</i>	20 students in 4th and 5th grade who were at risk	highly explicit strategy instruction pairs (7 sessions, averaging 75 minutes each) process writing instruction with pre-instruction in the elements of a good story and essay, including identifying parts in a model text ¹⁹³ (7 sessions, averaging 77 minutes each)	Story posttest: overall writing quality, 0.83 (ns) output, –0.09 (ns) Persuasive posttest: overall writing quality, –0.48 (ns) output, 0.16 (ns) Maintenance effects (4 weeks), story: ¹⁸⁸ overall writing quality, 1.71* output, 1.19 (ns)	X	X ¹⁸⁹	X		X	X ¹⁹⁰	X ¹⁹¹	X ¹⁹²
Studies testing the effectiveness of partially aligned interventions on typically achieving students											
Dressel (1990) <i>RCT</i>	48 students in 5th grade	high-quality literature whole class (49 sessions, 45–60 minutes each) lesser-quality literature	overall writing quality, 0.48* genre elements, 0.55* ¹⁹⁴							X	

(continued)

Table D.3. Studies that contribute to the level of evidence for Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process			2b. Teach Students to Write for a Variety of Purposes				
Study Citation and Design ¹⁴⁴	Analytic Sample Size and Population ¹⁴⁵	Intervention Group (Dosage) ¹⁴⁶	Outcome, Effect Size ¹⁴⁷	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ¹⁴⁸	Exemplary Texts	Genre Techniques
		Comparison Group ¹⁴⁹									
Studies testing the effectiveness of partially aligned interventions on students who were at risk and gifted											
<i>Whole-class setting</i>											
Berninger et al. (2006) Study 4 <i>RCT</i>	90 students in 4th grade who were at risk	after-school writing clubs whole class in addition to regular instruction (64 sessions, 60 minutes each) regular classroom instruction	sentence structure, 0.63 (ns)						X		X ¹⁹⁵
<i>Small-group or paired setting</i>											
Berninger et al. (2002) <i>RCT</i>	24 pairs of students in 3rd grade who were at risk	composing instruction ¹⁹⁶ pairs (24 sessions, 20 minutes each) keyboarding and writing practice	<u>Informative:</u> overall writing quality, 0.40 (ns) <u>Persuasive:</u> overall writing quality, 0.18 (ns) mechanics, 0.12 (ns) sentence structure, -0.14 (ns)								X
Jampole, Mathers, and Konopak (1994) <i>RCT</i>	87 students in 3rd and 4th grade who were gifted	imagery training ¹⁹⁷ small groups (8 sessions, 45 minutes each) writing practice	<u>Posttest:</u> overall writing quality, 0.93* ideation, 0.68* <u>Maintenance effects (1 month):</u> overall writing quality, 0.41 (ns) ideation, 0.20 (ns)	X							

Table D.4. Supplemental evidence supporting the effectiveness of Recommendation 2

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes				
Study Citation and Design ¹⁹⁸	Analytic Sample Size ¹⁹⁹ and Population	Intervention Group (Dosage) ²⁰⁰	Comparison Group ²⁰³	Outcome, Effect Size ²⁰¹	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ²⁰²	Exemplary Texts	Genre Techniques
Studies testing the effectiveness of self-regulated strategy development (SRSD) on typically achieving students												
<i>Whole-class setting</i>												
Danoff, Harris, and Graham (1993) <i>SCD</i>	3 students in 4th and 5th grade ²⁰⁴	SRSD instruction whole class ²⁰⁵ (9–11 lessons; minutes unknown)		genre elements, positive effects ²⁰⁶	X	X	X		X	X	X	X
		regular classroom instruction										
<i>Small-group or paired setting</i>												
Zumbrunn (2010) <i>SCD</i>	6 students in 1st grade	SRSD instruction pairs (10–12 sessions, 20–30 minutes each)		output, positive effects	X	X	X		X	X	X	X
		regular classroom instruction										
Studies testing the effectiveness of SRSD on students who were at risk												
<i>Small-group, paired, or individual setting</i>												
Graham and Harris (1989) <i>SCD</i>	3 students in 6th grade who were at risk	SRSD instruction small groups (5–8 sessions, 40 minutes each)		Persuasive: genre elements, positive effects	X	X	X		X	X	X	X
		regular classroom instruction										
Graham et al. (1992) <i>SCD</i>	4 students in 5th grade who were at risk	SRSD instruction individual (6–8 sessions, 40 minutes each)		Persuasive: genre elements, positive effects	X	X	X		X	X	X	X ²⁰⁷
		preteaching in using a word processor and typing as well as the elements of a good story and essay, including identifying parts in a model text										
Lane et al. (2008) <i>SCD</i>	6 students in 2nd grade who were at risk	SRSD instruction with minor modifications for students with behavioral challenges individual (10–15 sessions, 30 minutes each)		Story: genre elements, positive effects	X	X	X		X	X	X	X
		regular classroom instruction										

Table D.4. Supplemental evidence supporting the effectiveness of Recommendation 2 (continued)

Study Details				2a. Teach Students the Writing Process				2b. Teach Students to Write for a Variety of Purposes			
Study Citation and Design ¹⁹⁸	Analytic Sample Size and Population ¹⁹⁹	Intervention Group (Dosage) ²⁰⁰	Outcome, Effect Size ²⁰¹	Strategies	Gradual Release	Select and Use Strategies	Flexible Use	Purpose	Audience ²⁰²	Exemplary Texts	Genre Techniques
		Comparison Group ²⁰³									
Lienemann et al. (2006) <i>SCD</i>	6 students in 2nd grade who were at risk	SRSD instruction individual (6–8 sessions, 30–45 minutes each) regular classroom instruction	Story: genre elements, positive effects	X	X	X		X	X	X	X
Mason and Shriner (2008) <i>SCD</i>	6 students in 2nd through 5th grade who were at risk	SRSD instruction with minor modifications for students with behavioral challenges in addition to regular instruction individual (11–13 sessions, 30 minutes each) regular classroom instruction	Persuasive: genre elements, positive effects	X	X	X		X	X	X	X
Saddler (2006) <i>SCD</i>	6 students in 2nd grade who were at risk	SRSD instruction pairs (10–11 sessions, 30 minutes each) regular classroom instruction	Story: overall writing quality, positive effects genre elements, positive effects output, positive effects	X	X	X		X	X	X	X
Saddler et al. (2004) <i>SCD</i>	6 students in 2nd grade who were at risk	SRSD instruction in addition to regular instruction pairs (9–12 sessions, 25 minutes each) regular classroom instruction	Story: genre elements, positive effects	X	X	X		X	X	X	X
Troia, Graham, and Harris (1999) <i>SCD</i>	3 students in 5th grade who were at risk	SRSD instruction individual (7 sessions, 60–90 minutes each) preteaching in the elements of a good story and essay, including identifying parts in a model text and techniques for story and essay writing (time unknown)	Story: genre elements, positive effects	X	X	X		X	X	X ²⁰⁸	X

Studies testing the effectiveness of self-regulated strategy development (SRSD).

Seventeen of the studies examined interventions labeled as SRSD.²⁰⁹ SRSD is an intervention that was originally developed to improve the writing performance of struggling writers and has since been tested in a wide variety of instructional settings among a variety of different student populations. The intervention typically includes all of the separate components recommended by the panel, with the exception of encouraging students to use strategies flexibly. The intervention also emphasizes teaching students the background knowledge they need to use the strategies targeted for instruction (one step in the gradual-release process). Students often are taught general strategies as well as techniques for writing in one or more genres. In some studies, this has involved teaching a general strategy for planning writing, called POW, as well as specific techniques to frame writing for different purposes, including WWW, TREE, or STOP and DARE (the POW strategy and these techniques are described in Recommendation 2).

Throughout the instructional sequence, students are taught different strategies to help them navigate the writing process and to regulate their writing behavior. For example, when writing a story, students often are taught to set goals for their writing (i.e., “I will include all seven story parts in my text” or “I will write a story that is fun to read”). The intervention also can include teaching self-instruction or things students can say to themselves to help them write, including for self-evaluation (“Does what I wrote make sense?”) and self-reinforcement (“I used a great word!”). Students practice monitoring their performance by counting and graphing the number of parts they include in their writing.

The strategies and techniques usually are taught using gradual release of responsibility until the students are able to write well for a specific purpose without support from their teacher, peers, or the graphic organizers and charts supplied to help them internalize the strategy. During instruction, exemplary texts

often are used to model the elements of strong stories and persuasive pieces for students. Students often read and respond to the writing of their peers to provide an audience for their writing. The instruction usually includes a component in which students discuss how they can select a strategy or technique to use in particular contexts, or how to adapt the strategy for use in other settings. In some cases, peers provide support to assist students with applying the strategies in other settings.

Studies of SRSD instruction, delivered to typically achieving students in a whole-class setting, showed uniformly positive effects on writing outcomes, including overall writing quality.²¹⁰ For example, in one study, typically achieving 3rd-grade students in a rural location received SRSD instruction in story writing in a whole-class setting.²¹¹ The SRSD instruction entailed instruction in a general strategy (POW) for planning, organizing, and expanding student ideas, as well as a technique (WWW) for including the seven parts of a good story in their writing. First, students practiced identifying the parts of an exemplary story (included in the WWW strategy) and were explicitly taught how to apply the POW and WWW strategies together. Students were taught when and how to use the strategies, and they were told that these strategies could be transferred to other contexts. Teachers modeled how to use the strategies, and students practiced using the strategies collaboratively and later independently. Throughout the instruction, the teacher modeled and explained self-regulation strategies, including setting a goal to include all seven parts of a story in their writing and graphing their progress toward meeting this goal. Students receiving SRSD instruction wrote stories with higher overall quality relative to a comparison group that received regular classroom instruction. Students who received instruction in SRSD also included more story elements in their writing and produced more text. The intervention also produced positive effects on the overall quality of students’ narrative writing, a similar but uninstructed genre, as well as the number of narrative elements and the quantity of text produced in this genre.

Another study examined the effectiveness of SRSD instruction for typically achieving suburban 4th- and 5th-grade students.²¹² Instruction covered the same strategies, techniques, and instructional components as the previous study. The intervention was associated with students including more story elements in their writing than they did prior to receiving the intervention.

Two other studies examined the effectiveness of SRSD instruction delivered to pairs or small groups of typically achieving students.²¹³ In one study of 4th-graders in Germany, small-group instruction in SRSD produced positive effects on the overall quality of students' writing, as well as the number of story elements they included in their writing, relative to students' regular instruction.²¹⁴ The study also showed positive effects on students' overall writing quality and the number of story elements included on a maintenance test five weeks later.²¹⁵ The other study took place in a predominantly middle-class midwestern elementary school in the United States and produced positive effects on the quantity of text students produced.²¹⁶ The effects of SRSD instruction were larger when it was delivered to small groups or pairs of students.

Other studies tested the effectiveness of instruction in SRSD on students with learning disabilities or otherwise at risk for writing difficulties.²¹⁷ For example, in one study, an instructor taught individual students general strategies and a technique for persuasive writing (TREE) using gradual release of responsibility until students could apply the technique independently.²¹⁸ Participants also were taught to think about their audience and purpose for writing, self-regulation strategies (such as self-evaluation and self-reinforcement) to improve their writing of exemplary texts, and how the technique could be modified for use in other writing projects. All participants were identified as students with learning disabilities. The intervention led students to include more persuasive elements in their writing. A similar intervention for story writing (using the WWW technique instead

of TREE) found positive effects on students' overall writing quality, the number of story elements they included in their writing, and the quantity of text they produced.²¹⁹

The remaining studies that tested SRSD interventions on students at risk for writing difficulties varied in the specific combination of strategies taught and contained minor variations in instruction, but the basic instructional model followed a similar pattern.²²⁰ They produced almost universally positive effects on measures of overall writing quality as well as genre elements and output. Across 13 studies of SRSD interventions among students with learning disabilities, 10 showed consistently positive effects on all posttest outcomes that met standards including overall writing quality,²²¹ genre elements,²²² and quantity of text produced,²²³ as well as maintenance outcomes²²⁴ and outcomes that tested transfer to other, uninstructed, genres of writing.²²⁵

Two more studies tested the effectiveness of SRSD with an added peer-support component relative to students' regular classroom instruction.²²⁶ The peer-support component was designed to help students apply SRSD to writing in other contexts. It involved students discussing with the instructor when the strategy could be applied and how it could be adapted to a different context, setting goals and reminding their partner to use the strategy in another class, and discussing difficulties they encountered applying the strategies in different contexts (these practices are described in Recommendation 2a, action step 3). The studies showed positive effects on overall writing quality, genre elements, and output in two genres (story and persuasive), as well as on the same measures (story only) at a maintenance test 10 weeks later, relative to students who received their regular instruction in writing. However, positive effects on measures of transfer to other, uninstructed, genres were mixed with some instances of no effects. A final study examined the effectiveness of instruction in SRSD compared to direct instruction in strategies and found positive effects on genre elements and no

effects on overall writing quality.²²⁷ The panel cautions that although the comparison group in this study did not receive the full SRSD intervention, it did receive instruction in the strategies and techniques associated with SRSD; therefore, smaller differences between the two groups are expected.

Four studies examined how small variations impacted the effectiveness of SRSD in addition to testing the effectiveness of the broader intervention and found mixed effects on a variety of outcomes.²²⁸ Because, for the most part, these studies were small and tested only minor modifications to the panel's recommendation, the panel cautions against drawing strong conclusions from this group of studies.²²⁹

For example, two studies tested the effectiveness of an SRSD instruction model plus a peer-support component (described above) relative to SRSD alone.²³⁰ The peer-support component was designed to help students apply the writing strategies they learned to other settings and contexts. The modifications (tested once on 3rd-graders and once on 2nd-graders) showed mixed effects on writing outcomes.

In the first study with a peer-support component, there were positive effects on the number of story elements students included in students' writing as well as the length of the stories they wrote; however, the peer-support components did not produce additional effects on story-writing quality and produced significant negative effects on students' persuasive writing.²³¹ The intervention also produced positive effects on the quality of students' writing in two uninstructed genres: narrative and informative writing.

The other peer-support study again found positive effects on the number of story elements and the length of students' stories, combined with no additional effects on story-writing quality; however, this study found positive effects on the quality of students' persuasive writing as well as the number of persuasive elements they included in their writing.²³² In

addition, the study found a mix of positive effects and no effects on measures of transfer to uninstructed genres. In short, the variation in peer support shows some promising results for teaching students to apply these strategies and techniques to uninstructed genres of writing; however, the inconsistent findings suggest that more study is needed to assess whether these variations in peer support do indeed improve writing quality.

In another example of small variation to SRSD, researchers compared the effectiveness of teaching strategies using the full SRSD model relative to the effectiveness of teaching strategies using only a partial, gradual release of responsibility for which the teacher did not fully relinquish control of the strategies.²³³ Both interventions were delivered in small groups to 5th- and 6th-grade students. The full model produced negative effects on the overall quality of students' writing at posttest, mixed with positive effects and no effects on other outcomes measured at posttest and two different maintenance points.

Finally, one study examined the effectiveness of the full SRSD model compared to instruction in strategies without self-regulation strategies, among 4th-grade students in Germany.²³⁴ Students who received the full model wrote higher quality stories with more story parts at posttest and at a maintenance test five weeks later. Thus, the panel believes it is important to teach students both the strategies for specific elements of the writing process and strategies such as goal setting and self-assessment for regulating their own writing.

Studies of goal setting. Another cluster of studies examined interventions that tested strategies and techniques related to goal setting.²³⁵ These studies did not emphasize the other components of SRSD, although the SRSD interventions often included a goal-setting component. Generally, the effects of goal-setting interventions on overall writing quality were positive, though effects on other outcomes produced a mix of positive effects and no effects.

The interventions tested a variety of different types of goals. For example, some studies tested setting goals for students to learn a specific strategy (learning goals),²³⁶ while others involved goals for students to include certain elements of a particular genre of writing in their pieces (specific goals).²³⁷ Some of the studies of specific goals also included components designed to prompt students to consider the audience for whom they were writing (audience goals).²³⁸ In all of the studies, students given learning or specific goals were compared with students given more general goals (e.g., a goal to write a good piece). The panel believes that goal setting is a powerful instructional tool to help students regulate their writing progress and focus on the concrete things they can do to write more effectively.

In one study, typically achieving 5th-grade students were taught a general planning strategy and given two different types of goals designed to help them learn and apply the strategy to their writing (learning goals).²³⁹ One group was told, “While you’re working, it helps to keep in mind what you’re trying to do. You’ll be trying to learn how to use these steps to write a descriptive paragraph.”²⁴⁰ The other group was told, “While you’re working, it helps to keep in mind what you’re trying to do. You’ll be trying to write a descriptive paragraph.”²⁴¹ Both types of goals helped students produce higher quality writing than students who received just a general goal to do their best in addition to instruction in the planning strategy; however, neither had an impact on the sentence quality of participating students. Though both types of goals had an impact on students’ writing quality, the first goal was more effective at improving students’ overall writing quality. This study was replicated among a group of 4th-grade students, and the authors continued to find positive effects of both types of goals on students’ overall writing quality at posttest and at a maintenance test six weeks later. In this case, the goals also showed mostly positive effects on students’ sentence structure, with the exception of the second goal at a six-week maintenance test.

Students in another study were tested individually using a prompt, which required students to write a persuasive letter.²⁴² The prompt included a set of goals for making students’ writing more persuasive, such as “You have to remember that other people have different opinions about this issue, so you need to mention that other people have a different opinion.” Students in 4th and 6th grade receiving the specific goals wrote higher quality text, relative to students who received the same prompt without the specific goals for making their writing more persuasive. The 6th-graders also included more elements of persuasive writing in their work.

Three other studies examined the effectiveness of setting specific goals for students at risk for writing difficulties, and these goals sometimes included specific prompts to help students consider the audience for their writing.²⁴³ Two of these studies tested goals for revision of preliminary drafts.²⁴⁴

In one study, the same intervention produced positive effects on 6th-graders’ overall writing quality, but the intervention produced no effects for 4th-graders.²⁴⁵ Still another study tested specific goals with and without audience components and found that both had positive effects on students’ overall writing quality.²⁴⁶ However, students in the group with specific goals related to audience were more effective at increasing the number of genre elements included in their writing than students with the specific goal without an audience component. A final study found that a goal to add three things to their papers to make them better when they revised their writing led students to write higher quality and longer pieces, relative to students who were given a general goal to make their papers better.²⁴⁷

The panel cautions that authentic writing experiences do not typically come with specific, predetermined goals. Thus, although initially providing specific goals for students can be a useful instructional technique, students eventually will need to learn to set their own goals for their writing, with instructional supports removed.

Studies of moderately or closely aligned interventions. Other studies examined interventions that contained three or more components of Recommendations 2a and 2b (moderately or closely aligned) but did not fall into one of the previous large clusters of studies.²⁴⁸ Studies of moderately aligned interventions delivered to typically achieving students in a whole-class setting produced positive effects on the overall quality of students' writing and the number of elements they included in their stories at posttest.²⁴⁹ For example, in one study, classes of students learned how to use a rubric to self-evaluate their writing.²⁵⁰ Students and teachers first discussed the six criteria assessed by the rubric (topic focus, organization, content, sentence structure, language, and mechanics) and practiced evaluating sample compositions on the different criteria. Some elements of the rubric prompted students to think about their audience and purpose for writing. These students wrote higher quality texts as assessed by the same rubric, compared to students who were not taught how to use the rubric.

In another study, 5th-grade students in Canada received instruction in narrative structure; instructional components included a teacher modeling the composition of a narrative while describing his or her thought processes.²⁵¹ The instructor then guided the students through discussion of a few narratives, including identification of the story parts and flexibility of the story categories. Students practiced writing collaboratively as a class and generated ideas in small groups. This was followed by practice composing narratives independently. Students who received instruction in narrative structure produced stories containing more story elements compared to students who received instruction in poetry following parallel procedures. At a maintenance test six weeks later, there were no longer differences between the two groups. Though both groups were instructed using a gradual release of responsibility and exemplary texts, the study isolates the effectiveness of instruction in a particular technique on the quality of writing in that particular genre.

Five more studies examined moderately or closely aligned interventions among students at risk for writing difficulties.²⁵² All but one²⁵³ showed consistently positive effects on all writing outcomes, including writing quality. For example, one study examined the effectiveness of a student-editor strategy for revision and editing embedded in a process writing approach.²⁵⁴ As part of the intervention, 4th- through 6th-grade students in a suburban school district met with their peers and used a revising strategy to suggest and discuss possible improvements to one another's papers. Following revisions, student pairs met again and used a checklist tool to suggest mechanical improvements. The strategies were taught using a gradual release of responsibility, and teachers also modeled how students could use the strategy to revise and edit their own writing. The intervention led to positive effects on the overall quality of students' writing relative to a comparison group that received regular instruction in process writing. Both groups practiced using a word processor to type. The intervention also contained engaging elements aligned with Recommendation 4; the panel cannot determine whether the intervention would have had the same effects without those components.

A final study of a closely aligned intervention on students who were at risk, discussed in greater detail in the later section on Recommendation 4, produced positive effects on the overall quality of students' story writing at posttest, as well as the quality and quantity of their writing at a maintenance test four weeks later, but there were negative effects on the quality of students' persuasive writing at posttest and no effects on two measures of writing output (story and persuasive) at posttest.²⁵⁵ The intervention condition involved several components of the panel's recommendation; however, the comparison condition also featured elements of Recommendations 2 and 4. The mixed effects are not surprising, given that the effectiveness of some components of the panel's recommendations is being compared to the effectiveness of others.

Studies of partially aligned interventions.

A final group of studies examined interventions that were only partially related to the recommendations in this practice guide: those interventions with fewer than 30 percent of the components of the panel's recommendations that did not fall into one of the previous large clusters of studies.²⁵⁶ One study examined the effectiveness of using high-quality exemplary texts compared to using low-quality texts as a model for student writing.²⁵⁷ Before the pretest, the teacher discussed the 15 traits of high-quality literature (as defined by the criteria for the selection of ALSC Newbery Medal winners and "traits of the classical detective genre") with students and applied these traits to examples from stories and television. During the first half of each session, 5th-grade students assigned to the intervention group listened to high-quality literature as defined by the 15 traits, while students in the comparison group listened to lesser quality literature. Classroom discussions for both groups centered on how authors developed the 15 traits. Students practiced brainstorming and developing their own detective stories, but they were not explicitly told to use the stories that had been read aloud as models for their own writing. The intervention produced positive effects on the overall quality of students' writing and the number of elements they included in their stories.

Three more studies examined the effectiveness of partially aligned interventions on populations of students at risk for writing difficulties or on gifted students.²⁵⁸ The studies produced generally positive effects on a variety of measures, including overall writing quality. However, in some cases, positive effects were mixed with no effects.²⁵⁹ For example, in one study, gifted 3rd- and 4th-grade students learned to close their eyes and listen to passages with rich descriptions of sensory details.²⁶⁰ Students then visualized what the passages were about and discussed their mental images with the class. After listening to the passages, the students practiced composing their own passages. The students who learned the strategy for visualizing wrote

higher quality pieces with descriptions of more sensory categories (e.g., auditory, tactile) compared to a group that practiced listening to and discussing short stories and then practiced composing. The intervention did not produce effects in ideation.

Recommendation 3. Teach students to become fluent with handwriting, spelling, sentence construction, typing, and word processing.

Level of evidence: Moderate Evidence

The panel determined the level of evidence for this recommendation to be *moderate evidence*. The nine studies that contribute to the evidence rating for this recommendation included populations of students in 1st through 4th grade.²⁶¹ Seven of the nine studies that provide support for this recommendation were conducted with students who were at risk for writing difficulties,²⁶² and all but two of the studies involved instruction provided to pairs or small groups of students.²⁶³ Supplemental evidence comes from one additional SCD study.²⁶⁴ The panel cautions that the effects seen in these studies may not be replicated when the intervention is provided to a whole class or if the instruction is not tailored to areas of individual student need. However, the panel believes similar effects would be seen in whole-class instruction with some tailoring of instruction for individual students, such as providing handwriting instruction only to students struggling with handwriting.

Studies of the handwriting and spelling practices described in this recommendation showed generally positive effects on students' handwriting and spelling skills.²⁶⁵ The instruction led students to write better sentences and sometimes to produce longer texts, providing preliminary evidence that as students focus less attention on handwriting and spelling, they are able to concentrate on conveying more of their ideas more effectively.²⁶⁶ However, few studies tested the effect of these practices on the panel's primary outcome,

overall quality of students' writing, and those that did find no evidence that handwriting and spelling practices led to improvements. Moreover, the panel's decision to limit eligible outcomes to those that included the production of original text or norm-referenced standardized tests meant that there were few eligible measures of spelling and handwriting. Yet the panel believes instruction in handwriting and spelling will help students produce higher quality writing, because as basic writing skills become second nature, students can focus more of their attention on conveying their intended meaning.

Immediate effects of spelling and handwriting on overall writing quality are unlikely for two reasons. First, though the panel believes that instruction in these skills makes it easier for students to get their ideas written down, elementary students are likely to continue to face considerable challenges in spelling, handwriting, and word processing following a brief intervention. As students progress from kindergarten to 6th grade, these skills will gradually become more automatic, and students will increasingly focus on the quality of their writing. Moreover, freeing up students' attention to focus on the quality of their writing is likely to be ineffective in increasing writing quality without instruction and practice in the strategies and techniques they can use to convey their ideas more effectively. Thus, instruction in basic writing skills should be accompanied by instruction in tools for effective writing (Recommendation 2), as well as time allotted to practice such skills and tools (Recommendation 1), in order to produce gains in overall writing quality.

There was evidence that instruction in sentence-construction skills, focused on teaching students to craft clear sentences based on the conventions of Standard English, does lead to improvements in the overall quality of students' writing.²⁶⁷ Because sentence-construction instruction emphasizes crafting strong sentences for the purpose of more effectively communicating the writer's meaning to his or her audience, the panel views the relation between sentence-construction instruction and overall writing quality as more direct than the relation between handwriting and overall writing quality.

Studies of word processing and typing interventions on eligible outcomes were limited. One study found that practicing writing using a word processor led students to produce longer texts, but no other eligible measures were assessed in the study.²⁶⁸

Table D.5 summarizes the studies cited to document the effectiveness of this recommendation. The characteristics of one study that provides supplemental evidence for this recommendation are included in Table D.6. The effects in these tables are separated into direct effects, defined as effects on the specific writing skill targeted by the intervention, and generalization effects, defined as effects on writing skills related to, but not directly targeted by, the intervention. The panel separately examined the research on the effectiveness of instruction in handwriting, spelling, sentence construction, and typing and word processing for this recommendation.

Table D.5. Studies that contribute to the level of evidence for Recommendation 3

Study Details				
Study Citation and Design ²⁶⁹	Analytic Sample Size ²⁷⁰ and Population	Intervention Group (Dosage) ²⁷¹	Direct Effects: Outcome, Effect Size ²⁷²	Generalization Effects: Outcome, Effect Size ²⁷³
		Comparison Group ²⁷⁴		
Studies testing the effectiveness of handwriting interventions				
Berninger et al. (1997) <i>RCT</i>	40 students in 1st grade who were at risk	visual cue and memory retrieval training small groups (3) (24 sessions, 20 minutes each) ²⁷⁵ phonological awareness training	no eligible measures	sentence structure, 0.89*
Denton, Cope, and Moser (2006) <i>RCT</i>	38 students in 1st through 4th grade who were at risk	therapeutic practice in addition to regular instruction ²⁷⁶ small groups (up to 3) (20 sessions, 30 minutes each) regular classroom instruction	Memory: handwriting (mechanics), 0.17 (ns) Dictated: handwriting (mechanics), 0.44 (ns) Copied: handwriting (mechanics), 0.08 (ns)	no eligible measures
Graham, Harris, and Fink (2000) <i>RCT</i>	36 students in 1st grade who were at risk ²⁷⁷	supplemental handwriting program in addition to regular handwriting instruction individual (27 sessions, 15 minutes each) phonological awareness training in addition to regular handwriting instruction	no eligible measures	Posttest: overall writing quality, 0.04 (ns) output, 1.29* sentence structure, 0.62 (ns) Maintenance effects (6 months): sentence structure, 0.84*
Studies testing the effectiveness of spelling interventions				
Berninger et al. (2000) Study 2 <i>RCT</i>	47 students in 3rd grade who were at risk	training on alphabetic principle and syllable awareness individual (24 sessions, 20 minutes each) keyboard training and training on alphabetic principle only	no eligible measures	output, 0.34 ²⁷⁸
Berninger et al. (2002) <i>RCT</i>	24 students in 3rd grade who were at risk	spelling instruction ²⁷⁹ pairs (24 sessions, 20 minutes each) keyboard training and writing practice	spelling (mechanics), 0.21 (ns)	Informational: overall writing quality, 0.08 (ns) Persuasive: overall writing quality, -0.11 (ns) Other: sentence structure, 0.21 (ns)
Graham, Harris, and Fink-Chorzempa (2002) <i>RCT</i>	30 pairs of students in 2nd grade who were at risk ²⁸⁰	spelling instruction in addition to regular spelling instruction pairs (48 sessions, 20 minutes each) math instruction in addition to regular handwriting instruction	no eligible measures	Posttest: output, -0.42 (ns) sentence structure, 0.77 (ns) Maintenance effects (6 months): output, 0.06 (ns) sentence structure, 0.58 (ns)

(continued)

Table D.5. Studies that contribute to the level of evidence for Recommendation 3 (continued)

Study Details				
Study Citation and Design ²⁶⁹	Analytic Sample Size ²⁷⁰ and Population	Intervention Group (Dosage) ²⁷¹	Direct Effects: Outcome, Effect Size ²⁷²	Generalization Effects: Outcome, Effect Size ²⁷³
		Comparison Group ²⁷⁴		
Studies testing the effectiveness of sentence-construction interventions				
Fogel and Ehri (2000) <i>RCT</i>	59 students in 3rd and 4th grade who were at risk	exposure to text, explicit instruction in Standard English conventions, guided practice, and feedback ²⁸¹ whole class ²⁸² (2 sessions, total of 60 minutes)	no eligible measures	output, 0.27 (ns)
		exposure to text only		
Saddler and Graham (2005) <i>RCT</i>	21 to 22 pairs of students in 4th grade ²⁸³	sentence-combining instruction pairs (30 sessions, 25 minutes each)	sentence structure, 1.80* (MSW), 1.45* (LSW)²⁸⁴	overall writing quality, 0.52 (ns, MSW), 0.51 (ns, LSW) output, -0.65 (ns, MSW), -0.13 (ns, LSW)²⁸⁵
		traditional grammar instruction pairs		
Studies testing the effectiveness of typing/word-processing interventions				
Jones (1994) <i>RCT</i>	20 students in 2nd grade	"magic slate" word processor large groups (10) (4 weeks; time unknown)	no measures	output, 0.48²⁸⁶
		regular classroom instruction		

Table D.6. Supplemental evidence supporting the effectiveness of Recommendation 3

Study Details				
Study Citation and Design ²⁸⁷	Analytic Sample Size ²⁸⁸ and Population	Intervention Group (Dosage) ²⁸⁹	Direct Effects: Outcome, Effect Size ²⁹⁰	Generalization Effects: Outcome, Effect Size ²⁹¹
		Comparison Group ²⁹²		
Studies testing the effectiveness of spelling interventions				
Gettinger (1993) <i>SCD</i>	4 students in 2nd grade, half of whom were at risk and half of whom were above average	direct instruction individual (24 sessions, 15 minutes each)	spelling, mixed effects ²⁹³	no eligible measures
		invented spelling		
Studies testing the effectiveness of sentence-construction interventions				
Saddler, Behforooz, and Asaro (2008) <i>SCD</i>	6 students in 4th grade who were at risk	sentence-combining instruction pairs (18 sessions, 25 minutes each)	sentence structure, no effects	overall writing quality, positive effects
		regular classroom instruction		

Handwriting. Handwriting instruction—specifically instruction whereby students are taught how to form letters, given opportunities for repeated practice in short sessions, and practice handwriting in the context of authentic writing opportunities—can lead to improvements in spelling, sentence structure, and writing output. Three studies provide causal evidence for this component of the panel’s recommendation.²⁹⁴ In the first, urban and suburban 1st-grade students who were at risk met individually with tutors, who administered lessons in the alphabet and modeled letter formation.²⁹⁵ This was followed by student practice forming letters, sentence-copying and progress-tracking activities, and handwriting “fun,” whereby students incorporated target letters into pictures or wrote letters in unusual ways. Students in the comparison condition received instruction in phonological awareness. The intervention led to positive effects on students’ sentence construction and writing output, but it produced no effects on the overall quality of students’ writing. The positive effects on sentence construction persisted at maintenance, six months later.

In a similar study, suburban 1st-grade students who were at risk for writing difficulties practiced viewing letters marked with numbered arrows and then covering them up and writing the letters from memory.²⁹⁶ Gradually, graduate student tutors increased the length of time the letters were covered before the students wrote them from memory. Handwriting instruction took place for 10 minutes twice a week in small groups. Students in the comparison group received instruction in phonological awareness. Instruction in both groups was supplemented with practice composing and sharing work, along with graphing progress throughout the intervention. Students in the intervention group outperformed students in the comparison group on measures of sentence construction. The panel believes that the effects reported for this study and the previous study may underestimate the true impact of the intervention since the phonological awareness training provided to the comparison group also would be expected to improve writing outcomes for students.

Researchers in a third study examined the effectiveness of individual or small-group handwriting instruction that included worksheets to practice handwriting by copying, in response to dictation, and from memory, as well as practice applying handwriting skills to “real-life” writing and writing for fun.²⁹⁷ Participants in the study were 1st- through 4th-grade students who were at risk for writing difficulties. Meanwhile, students in the comparison group received their regular in-class instruction. The intervention led to positive effects on a dictated scale of handwriting ability but no effects on memory or copied scales.

Spelling. Explicit instruction in the underlying patterns of words (e.g., phonological awareness, spelling phonics, and morphological spelling) can lead to achievement gains in spelling that transfer to other writing outcomes.²⁹⁸ Three studies examined interventions in which students were taught the underlying patterns of words.²⁹⁹ In one study, 3rd-grade students who were at risk for spelling difficulties received paired instruction in morphological spelling, supplemented with instruction in spelling phonics.³⁰⁰ The study found large positive effects on students’ composition length compared to a comparison group that received only instruction in spelling phonics. The authors reported that students in the treatment condition outperformed students in the comparison condition on a measure of writing output.

In another study, 3rd-grade students who were at risk in an urban region received paired, explicit instruction in phonological awareness and spelling phonics.³⁰¹ The control group practiced writing and typing. The intervention produced no effects on two measures of overall writing quality. Standardized measures of spelling and sentence structure favored the treatment group but did not reach significance or substantive importance.

In a third study, 2nd-graders who were at risk in an urban region received paired instruction in phonological awareness, spelling phonics,

and morphological spelling using a variety of activities including word sorting, word hunting, word spelling, phonics warm-up, and word building.³⁰² Students in the comparison group received math instruction. The intervention led to positive effects on a measure of sentence structure at posttest and at maintenance; however, it also found negative effects on writing output at posttest. By the maintenance test, there were no effects on writing output.

The panel also believes that instruction in the spelling of specific words can lead to improvements in writing quality. One study, described earlier, examined instruction in commonly used words, in addition to instruction in spelling skills including phonological awareness, spelling phonics, and morphological spelling.³⁰³ The results suggest that a spelling-instruction program that includes instruction in spelling skills and word study can produce positive effects on students' writing output and sentence structure. However, the effectiveness of the word-study component alone cannot be isolated. Another study alternated individualized direct instruction in the spelling of specific words with instruction in invented spelling and found no effects on spelling for three students and positive effects for the direct instruction condition for one student.³⁰⁴ The panel cautions against drawing conclusions from this study because it compares the effectiveness of one intervention recommended by the panel to the effectiveness of another. The panel believes that both interventions are likely to improve students' spelling outcomes and therefore that the mixed effects are not surprising.

No studies that met WWC evidence standards tested the effectiveness of instruction in using a dictionary, or spelling by analogy. However, the panel believes instruction in these skills will help students when they are uncertain about how to spell specific words, and that teachers should build on a strong foundation in phonological awareness, spelling phonics, and morphological spelling skills to develop these strategies.

Sentence construction. Explicit instruction in sentence construction—along with opportunities to practice sentence-construction skills within authentic writing experiences—can produce positive effects on sentence structure, writing output, and overall writing quality.³⁰⁵ Two studies provide causal support for this practice.³⁰⁶ One study provides supplemental evidence for this practice.³⁰⁷ Two of the studies tested sentence-combining interventions similar to those recommended by the panel.³⁰⁸ The first compared the effectiveness of explicit instruction in sentence combining, along with practice applying sentence-combining skills to authentic writing, to traditional grammar instruction, primarily in parts of speech.³⁰⁹ Instruction was delivered to pairs of 4th-grade students in an urban location. Each pair included a more-skilled writer and a less-skilled writer. At the conclusion of the study, there were positive effects favoring the intervention condition on a standardized test of sentence construction and on overall writing quality for both more- and less-skilled writers. There were negative effects on writing output for the more-skilled writers; however, the panel did not view these as problematic, because the purpose of combining sentences is to say the same thing in fewer sentences.

The second study examined the effectiveness of sentence-combining instruction that was similar to the instruction in the first study but included a peer-support component for urban 4th-graders who were at risk.³¹⁰ Writing samples collected following the intervention showed positive effects on writing quality but no effects on sentence structure.

A third study also supports the panel's recommendation that instruction in applying standard conventions for sentence writing be embedded in students' own compositions.³¹¹ In the study, 3rd- and 4th-graders were exposed to stories modeling Standard English features, provided exposure and instruction on the rules of Standard English, and given guided practice in applying the rules of Standard English to their writing. Students

in the comparison condition received only story exposure. Though the instruction was delivered to the whole class, the researchers examined only the effects on African American students who displayed characteristics of Black English Vernacular in their writing. The group receiving the full intervention wrote longer stories at posttest than students exposed to stories only. Though this study involved a very specific population and type of sentence-construction instruction, the panel believes that the instructional techniques could be adapted easily to other sentence-construction lessons.

Typing and using a word processor.

Practice using a word processor can lead to an increase in writing output over using pencil and paper.³¹² Second-grade students practiced writing on a word processor, while a comparison group of students from the same elementary school practiced using pencil and paper.³¹³ After four weeks of practice, both groups were assessed using pencil and paper, and the intervention group produced more text. No studies that meet WWC evidence standards examined the impacts of typing practice on writing outcomes.

Recommendation 4: Create an engaged community of writers.

Level of evidence: Minimal Evidence

The panel assigned a rating of *minimal evidence* to this recommendation based on five studies that meet WWC standards with or without reservations and include components

of Recommendation 4 (see Tables D.7 and D.8).³¹⁴ Though the majority of the findings were positive,³¹⁵ one study found negative effects as well as positive effects,³¹⁶ and one SCD study found no effect.³¹⁷ The outcomes included overall writing quality and writing output. Researchers conducted the studies in 3rd- through 6th-grade classrooms, with two of the studies taking place in countries other than the United States.³¹⁸ The interventions tested in the studies varied in how closely they were aligned to the recommendation. One study contained fewer than 30 percent of the components the panel believes contribute to the creation of an engaged community of writers (partially aligned). Three contained at least 30 percent, but fewer than 80 percent, of the components (moderately aligned), and two of the studies contained at least 80 percent of the components (closely aligned).³¹⁹

The panel cautions that although the studies meet WWC standards and primarily were delivered to the whole class, the findings may not be replicated in all settings. Because strategy instruction was combined with practices contributing to an engaged community of writers in four of the six studies, it is not possible to determine how much of the effect is due to the strategy instruction and how much of the effect is due to the building of a community of engaged writers.³²⁰ One of the studies that did not include strategy instruction found positive effects on overall writing quality.³²¹ Writers who were at risk were the focus of three of the studies;³²² however, the effects are similar in magnitude for studies that did not focus on writers who were at risk.³²³

Table D.7. Studies that contribute to the level of evidence for Recommendation 4

Study Details				Action Steps Tested					
Study Citation and Design ³²⁴	Analytic Sample Size ³²⁵ and Population	Intervention Group (Dosage) ³²⁶	Outcome, Effect Size ³²⁷	Teacher Participation	Writing Choices	Collaboration	Feedback	Publication	Study Tested an Intervention That Included Components of Recommendation 2
		Comparison Group ³²⁸							
Curry (1997) <i>QED</i>	56 students in 4th grade who were at risk	Writer's Workshop focused on process of writing in an inclusive setting whole class (32 sessions, 45 minutes each) skills-based direct instruction	overall writing quality, 0.44 (ns) ³²⁹	X	X	X	X	X	X
MacArthur, Schwartz, and Graham (1991) <i>RCT</i>	29 students in 4th through 6th grade who were at risk	student-editor strategy whole class (6–8 weeks, no additional information on dosage) Writer's Workshop	overall writing quality, 1.42* ³³⁰		X	X	X		X
Pritchard and Marshall (1994) <i>QED</i>	1,292 students in 3rd through 6th grade	staff development by teacher consultants in National Writing Project whole class (no dosage information) regular classroom instruction	overall writing quality, 0.39 (unknown) ³³¹			X		X	X
Troia and Graham (2002) <i>RCT</i>	20 students in 4th through 5th grade who were at risk	process writing instruction whole class (7 sessions, averaging 77 minutes each) highly explicit strategy instruction pairs (7 sessions, averaging 75 minutes each)	<u>Story posttest:</u> overall writing quality, -0.83 (ns) output, 0.09 (ns) <u>Persuasive posttest:</u> overall writing quality, 0.48 (ns) output, -0.16 (ns) <u>Maintenance effects, story (4 weeks):</u> ³³² overall writing quality, -1.71* output, -1.19 (ns)	X		X	X	X	X
Yarrow and Topping (2001) <i>RCT</i>	28 students who were 10 and 11 years old in Scotland	paired writing process: more-able writers tutored less-able writers whole class (24 sessions, no additional information on dosage) individual writing process	overall writing quality, 0.58 (ns)			X	X	X	

Table D.8. Supplemental evidence supporting the effectiveness of Recommendation 4

Study Details			Action Steps Tested						
Study Citation and Design ³³³	Analytic Sample Size ³³⁴ and Population	Intervention Group (Dosage) ³³⁵	Outcome, Effect Size ³³⁶	Teacher Participation	Writing Choices	Collaboration	Feedback	Publication	Study Tested an Intervention That Included Components of Recommendation 2
		Comparison Group ³³⁷							
Jerram, Glynn, and Tuck (1988) <i>SCD</i>	24 students in 5th grade in New Zealand	handwritten feedback from the teacher, focusing on content whole class (116 sessions, 15 minutes each)	writing output, no effects				X		
		no written feedback on content							

Studies of interventions closely aligned with the panel’s recommendation

Two studies examined interventions closely aligned with the panel’s recommendation, finding both positive and negative effects.³³⁸ The first study examined the effect of a Writer’s Workshop compared to skills-based instruction for writers who were at risk in 4th grade in an urban school district.³³⁹ A Writer’s Workshop typically involves teacher participation in writing; student choice of topics; students’ review of one another’s work, providing opportunities for feedback and collaboration; and publishing of writing. The intervention tested included teacher participation, student choice of topics, peer editing, teacher conferencing—a form of feedback—and publishing of class books. Compared to students receiving skills-based direct instruction, a program that emphasized spelling, punctuation, capitalization, and grammar, the Writer’s Workshop students produced higher quality writing. However, the intervention also involved the use of a process approach to writing whereby students moved through the elements of the writing process flexibly, a key component of Recommendation 2.

The second study estimated the impact of a process writing approach compared to highly explicit strategy instruction delivered

in pairs.³⁴⁰ Students were writers in grade 4 or grade 5 who were at risk in a suburban elementary school. Students in both the process writing and strategy instruction groups received pre-instruction to familiarize them with the structure and elements of stories and persuasive essays. Students in the process writing group reviewed and received direct instruction in the four steps of writing: drafting, revising, proofreading and editing, and publishing. The teacher modeled using the four steps to write a story. Each student collaborated with the teacher to write a story, which was shared with a partner for feedback, revised, and ultimately published in a bound portfolio. The researchers found positive effects on overall writing quality for persuasive essays immediately following the intervention. Negative effects were found for overall story-writing quality immediately following the intervention and four weeks later for overall story-writing quality and story output. The panel cautions that the negative effects were observed when the engaging practices were compared to instruction in specific writing strategies, an approach that is closely aligned to practices addressed in Recommendation 2 and that also included some engaging elements. The panel recommends providing an engaged community of writers in addition to, not instead of, practices in Recommendation 2.

Studies of interventions moderately aligned with the panel's recommendation

Researchers examined interventions moderately aligned with the panel's recommendation in three studies and found positive effects on overall writing quality.³⁴¹ Students identified as writers who were at risk in suburban 4th-grade through 6th-grade classrooms learned to use structured peer meetings within a Writer's Workshop classroom.³⁴² The intervention included opportunities for student choice of topics, collaboration, and feedback. Pairs of students held two meetings. The first meeting focused on substantive revisions that could be made in their work. Students were given specific instructions to do the following: listen and read along as the author read aloud, discuss what the paper was about and what the editor/listener liked best, reread the paper quietly and make notes about revision questions, and discuss the editor's suggestions with the author. In the second meeting, students focused on correction of mechanical errors in the writing. Teachers provided a checklist focusing on four common errors: complete sentences, capitalization, punctuation, and spelling. The students in this student-editor group produced higher quality papers than students who participated in the Writer's Workshop without these structured opportunities for collaboration.³⁴³

Another study examined the effect of teacher professional development on the writing of students attending grade 3 through grade 6 in urban, suburban, and rural districts.³⁴⁴ The intervention involved teachers training other teachers in writing techniques associated with the National Writing Project. A year after the professional development, the researchers reported that students taught by trained intervention teachers had higher quality writing than students taught by teachers who were not trained. At that time, the teachers completed a survey that focused on whether they used the practices emphasized in the

training in their classrooms; researchers reported statistically significant differences in the frequency of the use of 9 of 13 practices between the trained and nontrained teachers, including that trained teachers used peer groups and published student writing more often. However, only 40 percent of trained teachers and 19 percent of untrained teachers responded to the survey, and the WWC could not confirm that differences were statistically significant. The panel cautions that the emphasis on engaging practices was only part of a broad intervention; therefore, it is impossible to determine whether the differences between the two groups resulted from the engaging practices emphasized by the National Writing Project.

Researchers in Scotland examined the effectiveness of paired writing with structured interaction and paired writing without interaction for 10- and 11-year-old students.³⁴⁵ Both groups of students were trained in paired writing, including specific roles to facilitate peer-assisted learning through prompting. Students in the intervention group were paired and assigned specific roles. The control group worked in pairs only for the training sessions and practiced writing individually. Following the intervention, students were assessed individually; students who practiced writing in pairs wrote higher quality pieces than their peers who practiced writing individually.

Studies of interventions partially aligned with the panel's recommendation

Researchers conducted a study in which the amount of teacher feedback varied for 5th-grade students in suburban New Zealand.³⁴⁶ The intervention tested the impact on writing output when the teacher provided detailed written comments on the students' writing nightly, compared to writing output when the teacher told students she was too busy to provide comments on their writing. The study showed no evidence of an effect.

1. Following WWC guidelines, improved outcomes are indicated by either a positive statistically significant effect or a positive, substantively important effect size. The WWC defines substantively important, or large, effects on outcomes to be those with effect sizes greater than 0.25 standard deviations. See the WWC guidelines at <http://ies.ed.gov/ncee/wwc/DocumentSum.aspx?sid=19>.
2. For more information, see the WWC Frequently Asked Questions page for practice guides, <http://ies.ed.gov/ncee/wwc/Document.aspx?sid=15>.
3. Studies include randomized controlled trials (RCTs) and quasi-experimental designs (QEDs). Studies not contributing to levels of evidence include single-case designs (SCDs) evaluated with WWC pilot SCD standards and regression discontinuity designs (RDDs) evaluated with pilot RDD standards.
4. The research may include studies generally meeting WWC standards and supporting the effectiveness of a program, practice, or approach with small sample sizes and/or other conditions of implementation or analysis that limit generalizability. The research may include studies that support the generality of a relation but do not meet WWC standards; however, they have no major flaws related to internal validity other than lack of demonstrated equivalence at pretest for QEDs. QEDs without equivalence must include a pretest covariate as a statistical control for selection bias. These studies must be accompanied by at least one relevant study meeting WWC standards.
5. American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999).
6. National Commission on Writing (2003), p. 11.
7. National Commission on Writing (2004).
8. Graham (1982).
9. Salah-Din, Persky, and Miller (2008).
10. National Commission on Writing (2003).
11. Reviews of studies for this practice guide applied WWC Version 2.0 standards. See <http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=19>. Twenty studies were eligible for review against the WWC pilot standards for well-designed SCD research. Thirteen of these studies met the pilot standards for well-designed SCD research, and 11 were included as supplemental evidence for the recommendations in this guide. While group design studies (RCTs and QEDs) contribute to the level of evidence rating for a recommendation, SCD studies cannot raise the level of evidence above minimal.
12. National Commission on Writing (2003). For an example of a study that includes the provision of additional time for writing, see **Berninger et al. (2006)**, experiment 4.
13. Cutler and Graham (2008); Graham et al. (2003).
14. **Berninger et al. (2006)** reported the results of four experiments; the evidence related to this recommendation comes from experiment 4. Mason and Shriner (2008) and Saddler et al. (2004), reviewed with the WWC pilot standards for well-designed SCD research, provide supplemental evidence for this recommendation.
15. The time required to implement the interventions is noted in Tables D.3, D.4, D.5, D.6, D.7, and D.8 which summarize the evidence for Recommendations 2, 3, and 4.
16. Tierney and Shanahan (1991).
17. **Curry (1997)**; Danoff, Harris, and Graham (1993); **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; **Graham, MacArthur, and Schwartz (1995)**; Graham et al. (1992); **Guastello (2001)**; **Harris, Graham, and Mason (2006)**; **Jampole, Mathers, and Konopak (1994)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); **Pritchard and Marshall (1994)**; **Riley (1997)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Schunk and Swartz (1993)**; **Tracy, Reid, and Graham (2009)**;

^a Eligible studies that meet WWC evidence standards or meet evidence standards with reservations are indicated by **bold text** in the endnotes and references pages. For more information about these studies, please see Appendix D.

- Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
18. **Curry (1997)**; Danoff, Harris, and Graham (1993); **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Gambrell and Chasen (1991)**; **Glaser and Brunstein (2007)**; **Gordon and Braun (1986)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
 19. Danoff, Harris, and Graham (1993); **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); **Pritchard and Marshall (1994)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
 20. **Curry (1997)**; Danoff, Harris, and Graham (1993); **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Guastello (2001)**; **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); **Midgette, Haria, and MacArthur (2008)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
 21. **Berninger et al. (2006)**; **Curry (1997)**; Danoff, Harris, and Graham (1993); **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Guastello (2001)**; **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); **Midgette, Haria, and MacArthur (2008)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
 22. **Berninger et al. (2002)**; **Berninger et al. (2006)**; **Curry (1997)**; Danoff, Harris, and Graham (1993); **Dressel (1990)**; **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Ferretti, MacArthur, and Dowdy (2000)**; **Gambrell and Chasen (1991)**; **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; **Gordon and Braun (1986)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); **Midgette, Haria, and MacArthur (2008)**; **Pritchard and Marshall (1994)**; **Riley (1997)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
 23. **Berninger et al. (2002)**; **Berninger et al. (2006)**; **Curry (1997)**; **Dressel (1990)**; **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Ferretti, MacArthur, and Dowdy (2000)**; **Gambrell and Chasen (1991)**; **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)** [two tests]; **Gordon and Braun (1986)**; **Graham, Harris, and Mason (2005)** [two tests]; **Graham, MacArthur, and Schwartz (1995)**; **Guastello (2001)**; **Harris, Graham, and Mason (2006)** [two tests]; **Jampole, Mathers, and Konopak (1994)**; **Mason and Shriner (2008)**; **Pritchard and Marshall (1994)**; **Riley (1997)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).

- MacArthur, Schwartz, and Graham (1991); Midgette, Haria, and MacArthur (2008)** [three tests]; **Pritchard and Marshall (1994); Riley (1997); Sawyer, Graham, and Harris (1992)** [two tests]; **Schunk and Swartz (1993)** [article summarizes two studies, each with two tests]; **Tracy, Reid, and Graham (2009); Troia and Graham (2002)**. Supplemental evidence comes from 10 studies that tested the practices in this recommendation and met the WWC pilot standards for well-designed SCD research: Danoff, Harris, and Graham (1993); Graham and Harris (1989); Graham et al. (1992); Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); Troia, Graham, and Harris (1999); Zumbrunn (2010).
24. Self-regulated strategy development (SRSD) is an approach to writing instruction consisting of a set of practices. While SRSD is not a branded product that can be purchased, it should be noted that Dr. Graham has authored books that provide guidance for teachers on implementing SRSD, and he receives royalties from the sale of those books. Furthermore, Dr. Graham's wife, Karen Harris, developed SRSD, and Dr. Graham has authored evaluations of SRSD. See Appendix C for disclosure of potential conflicts of interest.
 25. Studies that contribute to the level of evidence: **Curry (1997); Garcia-Sanchez and Fidalgo-Redondo (2006); Glaser and Brunstein (2007); Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006); Sawyer, Graham, and Harris (1992); Tracy, Reid, and Graham (2009)**. Supplemental evidence: Danoff, Harris, and Graham (1993); Graham and Harris (1989); Graham et al. (1992); Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); Troia, Graham, and Harris (1999); Zumbrunn (2010).
 26. Study that contributes to the level of evidence: **Tracy, Reid, and Graham (2009)**. Supplemental evidence: Danoff, Harris, and Graham (1993).
 27. **Ferretti, Lewis, and Andrews-Weckerly (2009); Ferretti, MacArthur, and Dowdy (2000); Graham, MacArthur, and Schwartz (1995); Midgette, Haria, and MacArthur (2008); Schunk and Swartz (1993)**.
 28. **Schunk and Swartz (1993)**.
 29. **Gambrell and Chasen (1991); Garcia and de Caso-Fuertes (2007); Gordon and Braun (1986); Guastello (2001); MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Riley (1997); Troia and Graham (2002)**.
 30. **Gordon and Braun (1996); Guastello (2001); Pritchard and Marshall (1994)**.
 31. **Berninger et al. (2002); Berninger et al. (2006); Dressel (1990); Jampole, Mathers, and Konopak (1994)**.
 32. **Dressel (1990)**.
 33. For examples of studies that include practices recommended for teaching strategies, see **Curry (1997)**; Danoff, Harris, and Graham (1993); **Garcia and de Caso-Fuertes (2007); Garcia-Sanchez and Fidalgo-Redondo (2006); Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005); Graham, MacArthur, and Schwartz (1995)**; Graham et al. (1992); **Guastello (2001); Harris, Graham, and Mason (2006); Jampole, Mathers, and Konopak (1994)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); **Pritchard and Marshall (1994); Riley (1997)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992); Schunk and Swartz (1993); Tracy, Reid, and Graham (2009); Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
 34. Unless otherwise indicated, many of these strategies are taken or adapted from Graham and Harris (2005).
 35. Adapted from **MacArthur, Schwartz, and Graham (1991)**.
 36. Adapted from **MacArthur, Schwartz, and Graham (1991)**.
 37. For examples of studies that include practices recommended for using a gradual release of responsibility, see **Curry (1997)**; Danoff, Harris, and Graham (1993); **Garcia-Sanchez and Fidalgo-Redondo (2006); Gambrell and Chasen (1991); Glaser and Brunstein (2007); Gordon and Braun**

- (1986); Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
38. Graphic adapted from Duke and Pearson (2002) in Shanahan et al. (2010).
39. For examples of studies that include practices recommended for discussing when and how to use strategies, see Danoff, Harris, and Graham (1993); **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
40. For examples of studies that include practices recommended for setting goals to use strategies in different contexts, see **Graham, Harris, and Mason (2005)**; **Harris, Graham, and Mason (2006)**; Saddler (2006); Saddler et al. (2004); Troia, Graham, and Harris (1999).
41. For examples of studies that include practices recommended for teaching students to evaluate their success using strategies in other contexts, see **Graham, Harris, and Mason (2005)**; **Harris, Graham, and Mason (2006)**; Saddler et al. (2004); Troia, Graham, and Harris (1999).
42. For examples of studies that include practices recommended for teaching students to use the components of the writing process flexibly, see **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **MacArthur, Schwartz, and Graham (1991)**; **Pritchard and Marshall (1994)**.
43. Adapted from Gatlin and Krebs (1992).
44. For examples of studies that include practices recommended for teaching different purposes of writing, see **Curry (1997)**; Danoff, Harris, and Graham (1993); **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Guastello (2001)**; **Harris, Graham, and Mason (2006)**; **Lane et al (2008)**; Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); **Midgette, Haria, and MacArthur (2008)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
45. Purposes from The Writing Site (2008).
46. For examples of studies that include practices recommended for teaching students the concept of audience, see **Berninger et al. (2006)**; **Curry (1997)**; Danoff, Harris, and Graham (1993); **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Guastello (2001)**; **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); **MacArthur, Schwartz, and Graham (1991)**; Mason and Shriner (2008); **Midgette, Haria, and MacArthur (2008)**; **Pritchard and Marshall (1994)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
47. For examples of studies that include the use of exemplary texts, see **Curry (1997)**; Danoff, Harris, and Graham (1993); **Dressel (1990)**; **Gambrell and Chasen (1991)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; **Gordon and Braun (1986)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; Graham et al. (1992); **Harris,**

- Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); **Pritchard and Marshall (1994)**; **Riley (1997)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
48. Hutchins (1968).
 49. Lyon (1999), p. 3.
 50. Reprinted with permission from Pipp (2010).
 51. For examples of studies that include practices recommended for teaching genre techniques, see **Berninger et al. (2002)**; **Berninger et al. (2006)**; **Curry (1997)**; Danoff, Harris, and Graham (1993); **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Ferretti, MacArthur, and Dowdy (2000)**; **Gambrell and Chasen (1991)**; **Garcia and de Caso-Fuertes (2007)**; **Glaser and Brunstein (2007)**; **Gordon and Braun (1986)**; Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; **Harris, Graham, and Mason (2006)**; Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); **Midgette, Haria, and MacArthur (2008)**; **Riley (1997)**; Saddler (2006); Saddler et al. (2004); **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**; Troia, Graham, and Harris (1999); Zumbrunn (2010).
 52. Graham and Harris (1989); **Graham, Harris, and Mason (2005)**; **Harris, Graham, and Mason (2006)**; Mason and Shriner (2008).
 53. **Troia and Graham (2002)**; Troia, Graham, and Harris (1999).
 54. **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Fogel and Ehri (2000)**; Gettinger (1993); **Graham, Harris, and Fink-Chorzempa (2002)**; **Graham, Harris, and Fink (2000)**; **Jones (1994)**; McCutcheon (1995); Saddler, Behforooz, and Asaro (2008); **Saddler and Graham (2005)**.
 55. Graham and Harris (2000); McCutchen, Covill, Hoyne, and Mildes (1994).
 56. Graham, Berninger, Abbott, Abbott, and Whittaker (1997).
 57. Graham (1999).
 58. **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Berninger et al. (2002)**; **Denton, Cope, and Moser (2006)**; **Fogel and Ehri (2000)**; **Graham, Harris, and Fink-Chorzempa (2002)**; **Graham, Harris, and Fink (2000)**; **Jones (1994)**; **Saddler and Graham (2005)**. Supplemental evidence comes from Gettinger (1993) and Saddler, Behforooz, and Asaro (2008), both of which meet the WWC pilot standards for well-designed SCD research. The first study compared the effectiveness of direct instruction in spelling specific words to instruction in invented spelling and found mixed effects. The second study tested sentence construction interventions and demonstrated positive effects mixed with no effects.
 59. **Berninger et al. (1997)**; **Denton, Cope, and Moser (2006)**; **Graham, Harris, and Fink (2000)**.
 60. **Berninger et al. (2000)**; **Berninger et al. (2002)**; **Graham, Harris, and Fink-Chorzempa (2002)**.
 61. **Fogel and Ehri (2000)**; **Saddler and Graham (2005)**.
 62. **Jones (1994)**.
 63. **Berninger et al. (2000)**; **Denton, Cope, and Moser (2006)**; **Fogel and Ehri (2000)**; **Jones (1994)**; **Saddler and Graham (2005)**.
 64. **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Denton, Cope, and Moser (2006)**; **Fogel and Ehri (2000)**; **Graham, Harris, and Fink-Chorzempa (2002)**; **Graham, Harris, and Fink (2000)**; **Jones (1994)**; **Saddler and Graham (2005)**.
 65. Positive effects mixed with no effects: **Denton, Cope, and Moser (2006)**; **Graham, Harris, and Fink (2000)**. Positive effects mixed with negative effects: **Graham, Harris, and Fink-Chorzempa (2002)**; **Saddler and Graham (2005)**.
 66. **Berninger et al. (2002)**.
 67. **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Berninger et al. (2002)**; **Denton, Cope, and Moser (2006)**; **Fogel and Ehri (2000)**; **Graham, Harris, and Fink-Chorzempa (2002)**; **Graham, Harris, and Fink (2000)**.
 68. **Fogel and Ehri (2000)**; **Jones (1994)**.

69. Graham and Weintraub (1996).
70. Ibid.
71. **Berninger et al. (1997); Denton, Cope, and Moser (2006); Graham, Harris, and Fink (2000).**
72. **Berninger et al. (1997); Denton, Cope, and Moser (2006).**
73. **Berninger et al. (1997); Denton, Cope, and Moser (2006); Graham, Harris, and Fink (2000).**
74. Graham, Harris, and Loynachan (1993) contains a list of the words most frequently used by elementary-grade students. For a longer list of words frequently used by elementary-grade students, see Farr, Kelleher, Lee, and Beverstock (1989).
75. **Graham, Harris, and Fink-Chorzempa (2002).**
76. **Berninger et al. (2000); Berninger et al. (2002); Graham, Harris, and Fink-Chorzempa (2002).**
77. Gettinger (1993).
78. **Graham, Harris, and Fink-Chorzempa (2002).**
79. **Berninger et al. (2002).**
80. Englert, Hiebert, and Stewart (1985).
81. Graham (1999).
82. **Fogel and Ehri (2000); Saddler, Behforooz, and Asaro (2008); Saddler and Graham (2005).**
83. **Saddler and Graham (2005).**
84. **Fogel and Ehri (2000).**
85. **Fogel and Ehri (2000); Saddler, Behforooz, and Asaro (2008); Saddler and Graham (2005).**
86. Saddler, Behforooz, and Asaro (2008); **Saddler and Graham (2005).**
87. Saddler and Asaro-Saddler (2009).
88. Saddler, Behforooz, and Asaro (2008).
89. Saddler (2005); **Saddler and Graham (2005).**
90. **Saddler and Graham (2005).**
91. Neman (1995).
92. Saddler, Behforooz, and Asaro (2008); **Saddler and Graham (2005).**
93. Ibid.
94. Burke and Cizek (2006).
95. Institute of Education Sciences (2010).
96. **Jones (1994).**
97. Gambrell, Malloy, and Mazzoni (2007).
98. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Troia and Graham (2002); Yarrow and Topping (2001).** Supplemental evidence for this recommendation also comes from Jerram, Glynn, and Tuck (1988), reviewed with the WWC pilot standards for well-designed SCD research.
99. Mixed effects: **Troia and Graham (2002).** One SCD study demonstrated no effects on writing output: Jerram, Glynn, and Tuck (1988).
100. **Curry (1997); Troia and Graham (2002).**
101. **Curry (1997); MacArthur, Schwartz, and Graham (1991).**
102. **Curry (1997); Pritchard and Marshall (1994); Troia and Graham (2002); Yarrow and Topping (2001).**
103. Jerram, Glynn, and Tuck (1988) included teacher feedback. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Troia and Graham (2002); and Yarrow and Topping (2001)** included peer feedback.
104. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Troia and Graham (2002); Yarrow and Topping (2001).**
105. Jerram, Glynn, and Tuck (1988) took place in New Zealand; **Yarrow and Topping (2001)** took place in Scotland.
106. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Yarrow and Topping (2001).**
107. **Troia and Graham (2002)** found positive effects on writing quality immediately after the intervention; negative effects on writing quality were found four weeks after the initial post-intervention assessment.
108. Jerram, Glynn, and Tuck (1988).
109. For an example of a study that include teachers participating as members of the community, see **Curry (1997).**
110. For an example of a study that includes student choice in writing assignments, see **Curry (1997).**
111. For an example, see Atwell (1998).

112. For examples of studies that include student collaboration while writing, see **MacArthur, Schwartz, and Graham (1991)**; **Pritchard and Marshall (1994)**; **Yarrow and Topping (2001)**.
113. Reprinted with permission from Ramirez (2006).
114. For examples of studies that include students sharing their work, see **Curry (1997)**; Jerram, Glynn, and Tuck (1988); **MacArthur, Schwartz, and Graham (1991)**; **Yarrow and Topping (2001)**.
115. **Pritchard and Marshall (1994)**.
116. For examples of studies that include the publication of students' work, see **Curry (1997)**; **MacArthur, Schwartz, and Graham (1991)**.
117. The gradual release of responsibility model was coined by Pearson and Gallagher (1983).
118. Acknowledging that 6th-graders are sometimes included in an elementary setting, the evidence base for this guide includes studies of 6th-grade students when these students were receiving instruction in an elementary school setting (e.g., in schools with kindergarten through 6th grade, 4th through 6th grade, or kindergarten through 8th grade).
119. For a definition of *statistical significance*, see the WWC glossary at <http://ies.ed.gov/ncee/wwc/glossary.aspx>.
120. Recognizing that some studies lack the statistical power to classify practically important effects as statistically significant, the panel also accepts substantively important effects as evidence of effectiveness. For a definition of *effect size*, see the WWC glossary at <http://ies.ed.gov/ncee/wwc/glossary.aspx>.
121. For multiple comparison adjustments and cluster corrections, see the *WWC Handbook* at http://ies.ed.gov/ncee/wwc/pdf/wwc_procedures_v2_standards_handbook.pdf.
122. Graham (1999).
123. Cutler and Graham (2008); Graham et al. (2003).
124. **Berninger et al. (2006)** reported the results of four experiments; the evidence related to this recommendation comes from experiment 4. In other studies, it often was unclear whether the intervention was provided in addition to regular writing instruction (thus providing additional time for writing) or in place of regular writing instruction. In other studies that examined interventions that reported providing additional time for writing instruction, the additional instruction was limited to instruction in writing skills such as handwriting and spelling and did not provide a comprehensive curriculum aligned with the panel's recommendations [see, e.g., **Denton, Cope, and Moser (2006)**; **Graham, Harris, and Fink-Chorzempa (2002)**].
125. **Berninger et al. (2006)**.
126. Mason and Shriner (2008) and Saddler et al. (2004) meet WWC pilot standards for well-designed SCD research. SCD studies cannot raise the level of evidence above minimal.
127. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
128. Note that sample sizes are presented in the units that the authors selected for their analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.
129. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the comparison group is the same as the intervention group, except where noted. If it is clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
130. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); "ns" refers to effects that were not significant. Outcomes

- listed in **bold** are statistically significant or substantively important as defined by the WWC. Only outcomes that meet WWC evidence standards are listed here.
131. Regular classroom instruction or a description of a treated comparison group.
 132. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
 133. Note that sample sizes are presented in the units that the authors selected for their analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.
 134. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the comparison group is the same as the intervention group, except where noted. If it is clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
 135. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); “ns” refers to effects that were not significant. Outcomes listed in **bold** are statistically significant or substantively important. Only outcomes that meet WWC evidence standards are listed here.
 136. Regular classroom instruction or a description of a treated comparison group.
 137. In some cases, individual studies tested the effectiveness of more than one intervention, or multiple studies were described in the same article. **Berninger et al. (2002)**; **Berninger et al. (2006)** [experiment 4]; **Curry (1997)**; **Dressel (1990)**; **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Ferretti, MacArthur, and Dowdy (2000)**; **Grambrell and Chasen (1991)**; **Garcia and de Caso-Fuertes (2007)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)** [two tests]; **Gordon and Braun (1986)**; **Graham, Harris, and Mason (2005)** [two tests]; **Graham, MacArthur, and Schwartz (1995)**; **Guastello (2001)**; **Harris, Graham, and Mason (2006)** [two tests]; **Jampole, Mathers, and Konopak (1994)**; **MacArthur, Schwartz, and Graham (1991)**; **Midgette, Haria, and MacArthur (2008)** [three tests]; **Pritchard and Marshall (1994)**; **Riley (1997)**; **Sawyer, Graham, and Harris (1992)** [two tests]; **Schunk and Swartz (1993)** [article summarizes two studies, each with two tests]; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**.
 138. **Curry (1997)**; **Garcia-Sanchez and Fidalgo-Redondo (2006)**; **Glaser and Brunstein (2007)**; **Graham, Harris, and Mason (2005)**; **Harris, Graham, and Mason (2006)**; **Sawyer, Graham, and Harris (1992)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**.
 139. **Berninger et al. (2002)**; **Curry (1997)**; **Dressel (1990)**; **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Ferretti, MacArthur, and Dowdy (2000)**; **Glaser and Brunstein (2007)**; **Graham, Harris, and Mason (2005)**; **Graham, MacArthur, and Schwartz (1995)**; **Guastello (2001)**; **Harris, Graham, and Mason (2006)**; **Jampole, Mathers, and Konopak (1994)**; **MacArthur, Schwartz, and Graham (1991)**; **Midgette, Haria, and MacArthur (2008)**; **Pritchard and Marshall (1994)**; **Sawyer, Graham, and Harris (1992)**; **Schunk and Swartz (1993)**; **Tracy, Reid, and Graham (2009)**; **Troia and Graham (2002)**.
 140. **Sawyer, Graham, and Harris (1992)**.
 141. Graham and Harris (1989); Graham et al. (1992); Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); Troia, Graham, and Harris (1999); Zumbunn (2010).
 142. Self-regulated strategy development (SRSD) is an approach to writing instruction consisting of a set of practices. While SRSD is not a branded product that can be purchased,

- it should be noted that Dr. Graham has authored books that provide guidance for teachers on implementing SRSD, and he receives royalties from the sale of those books. Furthermore, Dr. Graham's wife, Karen Harris, developed SRSD, and Dr. Graham has authored evaluations of SRSD. See Appendix C for disclosure of potential conflicts of interest.
143. In discussing evidence for this recommendation, we group together studies that are moderately and closely aligned because only one study met the criteria for being closely aligned.
 144. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
 145. Note that sample sizes are presented in the units that the authors selected for their analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.
 146. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the comparison group is the same as the intervention group, except where noted. If it is clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
 147. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); "ns" refers to effects that were not significant. Outcomes listed in **bold** are statistically significant or substantively important as defined by the WWC. Only outcomes that meet WWC evidence standards are listed here.
 148. The panel considered activities to have an implied audience component if students shared their writing with other students or published their writing for others to read.
 149. Regular classroom instruction or a description of a treated comparison group.
 150. A range of sample sizes is presented because the study reported the attrition of three participants; however, it was not clear from which group(s) the attrition occurred.
 151. This study contained two treatment groups and a comparison group. The panel determined that the comparisons between the full SRSD treatment (strategy and self-regulation instruction) and the comparison group and between the full SRSD treatment and the SRSD treatment without the self-regulation components were the most relevant to this recommendation.
 152. A range of sample sizes is presented because the study reported the attrition of three participants; however, it was not clear from which group(s) the attrition occurred.
 153. This modification tested the effectiveness of explicit self-regulation strategies. Both treatment groups received the remaining components of the SRSD model.
 154. This study compared two delivery models (resource pull-out and in-class direct), and four treatments within each delivery model. The panel focused its review on the comparisons between treatments delivered in the in-class direct model, because the panel determined this model to be the most relevant to the broad population for which this guide is intended. Among the in-class model treatment comparisons, only the comparisons between SRSD and Writer's Workshop and between Writer's Workshop and skills-based instruction met evidence standards (the others did not meet baseline-equivalence minimums). The panel determined that the comparison between SRSD and Writer's Workshop was the most relevant to this recommendation.
 155. This study contained two treatment groups and a comparison group. The panel determined that the comparison between the SRSD treatment and the comparison group was the most relevant to this recommendation.

156. The number of groups assigned to conditions was not clear. As a result, the WWC was unable to compute adjustments for clustering.
157. This study contained two treatment groups and a comparison group. The panel determined that the comparisons between the SRSD-including-peer-support treatment and the comparison condition and between the SRSD-including-peer-support treatment and the SRSD-only treatment were the most relevant to this recommendation.
158. This study contained two treatment groups and a comparison group. The panel determined that the comparisons between the SRSD-including-peer-support treatment and the comparison condition and between the SRSD-including-peer-support treatment and the SRSD-only treatment were the most relevant to this recommendation.
159. This study contained three treatment groups. The panel determined that the comparisons between the full-SRSD treatment and the direct-instruction-in-strategies treatment and between the full-SRSD treatment and the partial-SRSD treatment (without the self-regulation component) were the most relevant to this recommendation.
160. Two posttests were administered: the first in the same setting as the intervention, and the second in the students' classroom by their regular special education teacher.
161. Some components of the gradual-release model were present, but participants were not instructed to full independence.
162. This modification tested the effectiveness of explicit self-regulation strategies. Both treatment groups received the remaining components of the SRSD model.
163. This study separately examined results for typically achieving students and students with learning disabilities. Only the results for typically achieving students are presented here.
164. There were substantively important differences between the intervention and comparison groups at baseline, favoring the comparison group.
165. No pretest data were reported for this outcome category, so the WWC could not adjust for any baseline differences.
166. There were substantively important differences between the intervention and comparison groups at baseline, favoring the comparison group.
167. No pretest data were reported for this outcome category, so the WWC could not adjust for any baseline differences.
168. This article summarizes the results of two studies, each with three treatment groups and a comparison group. The panel determined that the comparisons between the product-goal treatment and the general-goal treatment and between the process-goal treatment and the general-goal treatment were the most relevant to this recommendation.
169. The panel cautions that the process-goal treatment also produced positive effects on overall writing quality (1.54*) and sentence structure (0.21, ns) relative to the product-goal treatment; however, they do not include that comparison here as the panel does not offer recommendations on which type of goals would be more appropriate for instruction in this recommendation.
170. The researchers also reported another maintenance test at seven weeks. This test required students to verbalize their thoughts to the assessor while writing and therefore may have been less reflective of students' authentic writing; however, the effects were similar for overall writing quality (0.53, ns) and sentence structure (0.22, ns).
171. The panel cautions that the process-goal treatment also produced positive effects on overall writing quality (0.39, ns) and sentence structure (2.33*) relative to the product-goal treatment; however, the panel does not include that comparison here as the panel does not offer recommendations on which type of goals would be more appropriate for instruction in this recommendation.
172. The researchers also reported another maintenance test at seven weeks. This test required students to verbalize their thoughts to the assessor while writing and therefore may have been less reflective of students' authentic writing; however, the effects were similar for overall writing quality (0.59, ns) and sentence structure (1.14*).

173. This study provided separate results for typically achieving students and students with learning disabilities. The results for the full sample are reported here, because the WWC was unable to confirm that attrition from the typically achieving sample was low enough to meet WWC evidence standards.
174. No pretest data were reported for this outcome category, so the WWC could not adjust for any baseline differences. The authors also reported outcomes in the genre-elements category; however, they were unable to confirm low attrition for these outcomes, and no measure of baseline equivalence was collected.
175. No pretest data were reported for this outcome category, so the WWC could not adjust for any baseline differences. The authors also reported outcomes in the genre-elements category; however, they were unable to confirm low attrition for these outcomes, and no measure of baseline equivalence was collected.
176. This study contained two treatment groups and a comparison group. The panel determined that the comparisons between all three conditions were relevant to this recommendation.
177. This component was present in both the treatment condition and the comparison condition; however, the panel viewed it as an essential component of the intervention.
178. This study contained two treatment groups and a comparison group. The panel determined that the comparison between the goal-to-add-information treatment and the general-goal group was the most relevant to this recommendation.
179. It was not clear from the text whether there was any attrition in this study; however, the two groups met WWC standards for equivalence at baseline. The study was conducted in three phases. The panel determined that the practices implemented in phase 2 were the most relevant to this recommendation; thus, this row shows student growth from phase 1 to the end of phase 2 of the intervention.
180. Statistical significance of WWC-calculated effect sizes could not be determined because of missing information on the number of teachers per district. The effects displayed here are for the elementary school sample only.
181. The panel inferred that students were encouraged to use the components of the writing process flexibly in this model, given the date and the practices of the National Writing Panel; however, this could not be confirmed based on the text of the study.
182. Mechanics outcomes were mixed. Students in the intervention group reduced the frequency of their spelling errors in their third draft relative to students in the comparison condition; however, the intervention produced no changes on students' punctuation errors.
183. This component was present in both the treatment condition and the comparison condition; however, the panel viewed it as an essential component of the intervention.
184. This study contained three treatment groups. The panel determined that the comparison between the story-grammar treatment and the comparison group was the most relevant to this recommendation.
185. Some components of the gradual release model were present, but participants were not instructed to full independence.
186. This component was present in both the treatment condition and the comparison condition; however, the panel viewed it as an essential component of the intervention.
187. Students in both groups were taught the background knowledge, but only the students in the explicit-story-structure-instruction group were taught the procedures required to apply the strategy.
188. Only 10 of 20 participants were included in the maintenance test at four weeks following the intervention.
189. Some components of the gradual release model were present, but participants were not instructed to full independence.
190. This component was present in both the treatment condition and the comparison condition; however, the panel viewed it as an essential component of the intervention.
191. This component was present in both the treatment condition and the comparison condition; however, the panel viewed it as an essential component of the intervention.
192. This component was present in both the treatment condition and the comparison

- condition; however, the panel viewed it as an essential component of the intervention.
193. The comparison condition included background instruction on techniques, instruction in components of the writing process, identifying other settings in which to use the process approach, and components of Recommendation 4.
 194. Significance level is reported by the author; no WWC adjustments were required.
 195. The text is not explicit as to whether or not the graphic organizers were genre specific, but the panel believed this to be a reasonable assumption given that the students were learning to write for select purposes and the lead author used genre-specific graphic organizers in the other study examined for this guide.
 196. This study contained three treatment groups and a comparison group. The panel determined that the comparison between the “composition-only” (p. 296) treatment and the treated comparison group was the most relevant to this recommendation.
 197. This study contained three treatment groups. The panel determined that the comparison between the imagery-training treatment and the writing-practice treatment was the most relevant to this recommendation.
 198. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
 199. Note that sample sizes are presented in the units that the authors selected for their analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.
 200. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the comparison group is the same as the intervention group, except where noted. If it is clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
 201. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); “ns” refers to effects that were not significant. Outcomes listed in **bold** are statistically significant or substantively important. Only outcomes that meet WWC evidence standards are listed here.
 202. The panel considered activities to have an implied audience component if students shared their writing with other students or published their writing for others to read.
 203. Regular classroom instruction or a description of a treated comparison group.
 204. This study reported results for typically achieving students and students with learning disabilities. Only the results for typically achieving students are presented here.
 205. Instruction was delivered to the whole class; however, data were collected for only six students, half of whom were typically achieving students.
 206. This study provided results for three typically achieving students and three students with learning disabilities. Only the results for typically achieving students are presented here; however, there were also positive effects for the students with learning disabilities.
 207. This component was present in both the treatment condition and the comparison condition; however, the panel viewed it as an essential component of the intervention.
 208. This component was present in both the treatment condition and the comparison condition; however, the panel viewed it as an essential component of the intervention.
 209. Studies that contribute to the level of evidence: **Curry (1997); Garcia-Sanchez and Fidalgo-Redondo (2006); Glaser and Brunstein (2007); Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006); Sawyer, Graham, and Harris (1992); Tracy, Reid, and Graham**

- (2009). Supplemental evidence: Danoff, Harris, and Graham (1993); Graham and Harris (1989); Graham et al. (1992); Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); Troia, Graham, and Harris (1999); Zumbrunn (2010).
210. Study that contributes to the level of evidence: **Tracy, Reid, and Graham (2009)**. Supplemental evidence: Danoff, Harris, and Graham (1993).
211. **Tracy, Reid, and Graham (2009)**.
212. Danoff, Harris, and Graham (1993). Instruction was delivered to the whole class; however, data were collected for only six students, half of whom were typically achieving students. This is a SCD study that provides supplemental evidence.
213. Study that contributes to the level of evidence: **Glaser and Brunstein (2007)**. Supplemental evidence: Zumbrunn (2010).
214. **Glaser and Brunstein (2007)**. This study contained two treatment groups and a comparison group. The comparison between the full SRSD treatment and the comparison group is discussed here. The comparison between the full SRSD treatment and the SRSD treatment without self-regulation instruction is discussed in the section examining the impact of minor variations in the intervention on the effectiveness of SRSD.
215. **Glaser and Brunstein (2007)**.
216. Zumbrunn (2010). This is a SCD study that provides supplemental evidence.
217. Studies that contribute to the level of evidence: **Curry (1997); Garcia-Sanchez and Fidalgo-Redondo (2006); Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006); Sawyer, Graham, and Harris (1992)**. Supplemental evidence: Graham and Harris (1989); Graham et al. (1992); Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); Troia, Graham, and Harris (1999).
218. Graham and Harris (1989). This is a SCD study that provides supplemental evidence.
219. Saddler (2006). This is a SCD study that provides supplemental evidence.
220. Studies that contribute to the level of evidence: **Curry (1997); Garcia-Sanchez and Fidalgo-Redondo (2006); Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006); Sawyer, Graham, and Harris (1992)**. Supplemental evidence: Graham et al. (1992); Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); Saddler et al. (2004); Troia, Graham, and Harris (1999).
221. Study that contributes to the level of evidence: **Curry (1997)**. Supplemental evidence: Saddler (2006).
222. Supplemental evidence: Graham and Harris (1989); Graham et al. (1992); Lane et al. (2008); Lienemann et al. (2006); Mason and Shriner (2008); Saddler (2006); Saddler et al. (2004); Troia, Graham, and Harris (1999).
223. Study that contributes to the level of evidence: **Garcia-Sanchez and Fidalgo-Redondo (2006)**. Supplemental evidence: Saddler (2006).
224. **Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006); Sawyer, Graham, and Harris (1992)**.
225. **Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006)**.
226. **Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006)**. Comparisons were between SRSD plus an added peer-support component and a business-as-usual comparison group.
227. **Sawyer, Graham, and Harris (1992)**. The comparison was between the full SRSD instructional model and direct instruction in strategies.
228. **Glaser and Brunstein (2007); Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006); Sawyer, Graham, and Harris (1992)**.
229. The only exception is **Glaser and Brunstein (2007)**, which had a larger sample.
230. **Graham, Harris, and Mason (2005); Harris, Graham, and Mason (2006)**.
231. **Graham, Harris, and Mason (2005)**.
232. **Harris, Graham, and Mason (2006)**.
233. **Sawyer, Graham, and Harris (1992)**.
234. **Glaser and Brunstein (2007)**.
235. **Ferretti, Lewis, and Andrews-Weckerly (2009); Ferretti, MacArthur, and Dowdy**

- (2000); **Graham, MacArthur, and Schwartz (1995)**; **Midgette, Haria, and MacArthur (2008)**; **Schunk and Swartz (1993)**.
236. **Schunk and Swartz (1993)** [article summarizes two studies].
237. **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Ferretti, MacArthur, and Dowdy (2000)**; **Graham, MacArthur, and Schwartz (1995)**; **Midgette, Haria, and MacArthur (2008)**.
238. **Ferretti, Lewis, and Andrews-Weckerly (2009)**; **Ferretti, MacArthur, and Dowdy (2000)**; **Midgette, Haria, and MacArthur (2008)** examined comparisons between audience goals and general goals and audience goals and content goals.
239. **Schunk and Swartz (1993)**.
240. *Ibid.*, p. 342.
241. *Ibid.*, p. 342.
242. **Ferretti, Lewis, and Andrews-Weckerly (2009)**. This study separately examined results for typically achieving students and students with learning disabilities. Only the results for typically achieving students are presented here.
243. **Ferretti, MacArthur, and Dowdy (2000)**; **Graham, MacArthur, and Schwartz (1995)**; **Midgette, Haria, and MacArthur (2008)**.
244. **Graham, MacArthur, and Schwartz (1995)**; **Midgette, Haria, and MacArthur (2008)**.
245. **Ferretti, MacArthur, and Dowdy (2000)**.
246. **Midgette, Haria, and MacArthur (2008)**.
247. **Graham, MacArthur, and Schwartz (1995)**.
248. **Gambrell and Chasen (1991)**; **Garcia and de Caso-Fuertes (2007)**; **Gordon and Braun (1986)**; **Guastello (2001)**; **MacArthur, Schwartz, and Graham (1991)**; **Pritchard and Marshall (1994)**; **Riley (1997)**; **Troia and Graham (2002)**.
249. **Gordon and Braun (1996)**; **Guastello (2001)**; **Pritchard and Marshall (1994)**.
250. **Guastello (2001)**.
251. **Gordon and Braun (1986)**.
252. **Gambrell and Chasen (1991)**; **Garcia and de Caso-Fuertes (2007)**; **MacArthur, Schwartz, and Graham (1991)**; **Riley (1997)**; **Troia and Graham (2002)**.
253. **Troia and Graham (2002)**.
254. **MacArthur, Schwartz, and Graham (1991)**.
255. **Troia and Graham (2002)**.
256. **Berninger et al. (2002)**; **Berninger et al. (2006)**; **Dressel (1990)**; **Jampole, Mathers, and Konopak (1994)**.
257. **Dressel (1990)**.
258. **Berninger et al. (2002)**; **Berninger et al. (2006)**; **Jampole, Mathers, and Konopak (1994)**.
259. **Berninger et al. (2002)**; **Jampole, Mathers, and Konopak (1994)**.
260. **Jampole, Mathers, and Konopak (1994)**.
261. **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Berninger et al. (2002)**; **Denton, Cope, and Moser (2006)**; **Fogel and Ehri (2000)**; **Graham, Harris, and Fink-Chorzempa (2002)**; **Graham, Harris, and Fink (2000)**; **Jones (1994)**; **Saddler and Graham (2005)**.
262. **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Berninger et al. (2002)**; **Denton, Cope, and Moser (2006)**; **Fogel and Ehri (2000)**; **Graham, Harris, and Fink-Chorzempa (2002)**; **Graham, Harris, and Fink (2000)**.
263. **Fogel and Ehri (2000)**; **Jones (1994)**.
264. **Saddler, Behforooz, and Asaro (2008)**.
265. **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Berninger et al. (2002)**; **Graham, Harris, and Fink (2000)**; **Denton, Cope, and Moser (2006)**.
266. Studies that contribute to the level of evidence: **Berninger et al. (1997)**; **Berninger et al. (2000)**; **Berninger et al. (2002)**; **Denton, Cope, and Moser (2006)**; **Fogel and Ehri (2000)**; **Graham, Harris, and Fink-Chorzempa (2002)**; **Graham, Harris, and Fink (2000)**; **Saddler and Graham (2005)**. Supplemental evidence: **Saddler, Behforooz, and Asaro (2008)**.
267. Studies that contribute to the level of evidence: **Fogel and Ehri (2000)**; **Saddler and Graham (2005)**. Supplemental evidence: **Saddler, Behforooz, and Asaro (2008)**.
268. **Jones (1994)**.
269. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
270. Note that sample sizes are presented in the units that the authors selected for their

- analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.
271. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the comparison group is the same as the intervention group except where noted. Where it was clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
272. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Direct effects refer to measures of the same skill on which students were instructed. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); “ns” refers to effects that were not significant. Outcomes listed in **bold** are statistically significant or substantively important. Only outcomes that meet WWC evidence standards are listed here.
273. Generalization effects refer to measures in the categories of sentence structure, writing output, or overall writing quality.
274. Regular classroom instruction or a description of a treated comparison group.
275. This study contains five treatment groups and a comparison group. The panel determined that the comparison between the visual-cue and memory-retrieval treatment and the treated comparison condition was the most relevant to this recommendation.
276. This study contains two treatment groups and a comparison group. The panel determined that the comparison between the therapeutic-practice treatment and the comparison condition was the most relevant to this recommendation.
277. The sample size at the six-month maintenance test was 32.
278. Effect sizes are calculated by WWC, and significance is based on author-reported effects.
279. This study contains three treatment groups and a comparison group. The panel determined that the comparison between the spelling-only treatment and the treated comparison condition was the most relevant to this recommendation.
280. Only 27 pairs of students were included in the analysis at maintenance.
281. This study contains two treatments and a comparison group. The panel determined that the comparison between the full intervention and the exposure-to-text-only comparison condition was the most relevant to this recommendation.
282. The whole class received the intervention; however, only African American students who “exhibited Black English Vernacular syntactic forms” were included in the analysis.
283. The number of students in the analytic sample varied by outcome.
284. MSW = more-skilled writers; LSW = less-skilled writers.
285. Sentence-combining is a skill students employ when revising their writing. Only the outcomes for the revised draft are reported here, since the panel would expect to observe the impacts of sentence combining instruction on students’ work only after they employ sentence combining to revise.
286. Significance level is reported by the author; no WWC adjustments were required.
287. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
288. Note that sample sizes are presented in the units that the authors selected for their analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.

289. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the comparison group is the same as the intervention group except where noted. Where it was clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
290. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Direct effects refer to measures of the same skill on which students were instructed. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); “ns” refers to effects that were not significant. Outcomes listed in **bold** are statistically significant or substantively important. Only outcomes that meet WWC evidence standards are listed here.
291. Generalization effects refer to measures in the categories of sentence structure, writing output, or overall writing quality.
292. Regular classroom instruction or a description of a treated comparison group.
293. No effects were found for three students; positive effects were found for one student.
294. **Berninger et al. (1997); Denton, Cope, and Moser (2006); Graham, Harris, and Fink (2000).**
295. **Graham, Harris, and Fink (2000).**
296. **Berninger et al. (1997).**
297. **Denton, Cope, and Moser (2006).**
298. **Berninger et al. (2000); Berninger et al. (2002); Graham, Harris, and Fink-Chorzempa (2002).**
299. **Berninger et al. (2000); Berninger et al. (2002); Graham, Harris, and Fink-Chorzempa (2002).**
300. **Berninger et al. (2000)**, study 2.
301. **Berninger et al. (2002).** The panel cautions that it is rare to achieve large gains on standardized measures, and the small size of the study sample makes it unsuitable to capture any smaller effects that may have been present.
302. **Graham, Harris, and Fink-Chorzempa (2002).**
303. **Graham, Harris, and Fink-Chorzempa (2002).**
304. Gettinger (1993).
305. Studies that contribute to the level of evidence: **Fogel and Ehri (2000); Saddler and Graham (2005).** Supplemental evidence: Saddler, Behforooz, and Asaro (2008).
306. **Fogel and Ehri (2000); Saddler and Graham (2005).**
307. Saddler, Behforooz, and Asaro (2008).
308. Saddler, Behforooz, and Asaro (2008); **Saddler and Graham (2005).**
309. **Saddler and Graham (2005).**
310. Saddler, Behforooz, and Asaro (2008).
311. **Fogel and Ehri (2000).**
312. **Jones (1994).**
313. **Jones (1994).** No additional adjustments for multiple comparisons, clustering, or baseline equivalence were required, so the author-reported significance level is presented here.
314. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Troia and Graham (2002); Yarrow and Topping (2001).**
315. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Yarrow and Topping (2001).**
316. **Troia and Graham (2002)** found positive effects on persuasive writing quality immediately after the intervention; negative effects on story-writing quality were found at posttest and four weeks after the initial post-intervention assessment.
317. Jerram, Glynn, and Tuck (1988). This is a SCD study and cannot raise the level of evidence above minimal,
318. Jerram, Glynn, and Tuck (1988); **Yarrow and Topping (2001).**
319. Partial alignment: Jerram, Glynn, and Tuck (1988). Moderate alignment: **MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Yarrow and Topping (2001).** Close alignment: **Curry (1997); Troia and Graham (2002).** Some of the studies discussed in Recommendation 2 incorporated feedback or publishing, which may be considered components of an

- engaged community of writers. The panel determined that these studies focused on strategy instruction and not on the characteristics of an engaged community of writers; therefore, they are not considered in the evidence level for this recommendation.
320. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994); Troia and Graham (2002).**
321. **Yarrow and Topping (2001).**
322. **Curry (1997); MacArthur, Schwartz, and Graham (1991); Troia and Graham (2002).**
323. **Pritchard and Marshall (1994); Yarrow and Topping (2001).**
324. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
325. Note that sample sizes are presented in the units that the authors selected for their analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.
326. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the comparison group is the same as the intervention group except where noted. Where it was clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
327. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); “ns” refers to effects that were not significant. Outcomes listed in **bold** are statistically significant or substantively important. Only outcomes that meet WWC evidence standards are listed here.
328. Regular classroom instruction or a description of a treated comparison group.
329. This study compared two delivery models (resource pull-out and in-class direct), and four treatments within each delivery model. The panel focused its review on the comparisons between treatments delivered in the in-class direct model, because the panel determined that this model is most relevant to the broad population for which this guide is intended. Among the in-class model treatment comparisons, only the comparisons between SRSD and Writer’s Workshop and between Writer’s Workshop and skills-based instruction met evidence standards (the others did not meet baseline equivalence minimums). The panel determined that the comparison between Writer’s Workshop and skills-based instruction was the most relevant to this recommendation.
330. Mechanics outcomes were mixed. Students in the intervention group reduced the frequency of their spelling errors in their third draft relative to students in the comparison condition; however, the intervention produced no changes on students’ punctuation errors.
331. Statistical significance of WWC-calculated effect sizes could not be determined due to missing information on the number of teachers per district. The effects displayed here are for the elementary school sample only.
332. Data were collected for only 10 students at maintenance.
333. RCT = randomized controlled trial; QED = quasi-experimental design; SCD = single-case design.
334. Note that sample sizes are presented in the units that the authors selected for their analyses. For example, if the author analyzed pairs rather than individual students, the sample size presented is of pairs. In some cases, the unit of analysis does not match the unit in which the intervention was delivered. For example, the analysis was conducted at the student level even though the intervention was delivered to pairs of students.
335. The components of the intervention most relevant to the recommendation are the focus of the description. Dosage for the

- comparison group is the same as the intervention group except where noted. Where it was clear from the study that the intervention was delivered in place of typical instruction, that is noted in the description of the intervention.
336. All effect sizes and significance levels are calculated by the WWC unless otherwise noted. WWC calculations sometimes differ from author-reported results due to WWC adjustments for baseline differences, clustering, or multiple comparisons. Effect sizes that were significant by WWC calculations or author calculations where no WWC adjustments were required ($p \leq 0.05$) are marked with an asterisk (*); “ns” refers to effects that were not significant. Outcomes listed in **bold** are statistically significant or substantively important. Only outcomes that meet WWC evidence standards are listed here.
337. Regular classroom instruction or a description of a treated comparison group.
338. **Curry (1997); Troia and Graham (2002).**
339. **Curry (1997).**
340. **Troia and Graham (2002).**
341. **MacArthur, Schwartz, and Graham (1991); Pritchard and Marshall (1994);** and **Yarrow and Topping (2001)** found positive effects on overall writing quality.
342. **MacArthur, Schwartz, and Graham (1991).**
343. **MacArthur, Schwartz, and Graham (1991)** also found negative effects on the number of spelling errors and a positive effect on punctuation errors.
344. **Pritchard and Marshall (1994).**
345. **Yarrow and Topping (1994).**
346. Jerram, Glynn, and Tuck (1988). This is a SCD study and cannot raise the level of evidence above minimal.

References^a

- American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *The standards for educational and psychological testing*. Washington, DC: American Educational Research Association Publications.
- Atwell, N. (1998). *In the middle: New understandings about writing, reading, and learning*. Portsmouth, NH: Heinemann.
- Berninger, V., Rutberg, J., Abbott, R., Garcia, N., Anderson-Youngstrom, M., Brooks, A., & Fulton, C. (2006). Tier 1 and tier 2 early intervention for handwriting and composing. *Journal of School Psychology, 44*(1), 3–30.**
- Berninger, V., Vaughan, K., Abbott, R., Abbott, S., Rogan, L., Brooks, A., . . . Graham, S. (1997). Treatment of handwriting problems in beginning writers: Transfer from handwriting to composition. *Journal of Educational Psychology, 89*(4), 652–666.**
- Berninger, V., Vaughan, K., Abbot, R., Begay, K., Coleman, K. B., Curtin, G., . . . Graham, S. (2002). Teaching spelling and composition alone and together: Implications for the simple view of writing. *Journal of Educational Psychology, 94*(2), 291–304.**
- Berninger, V., Vaughan, K., Abbott, R., Brooks, A., Begay, K., Curtin, G., . . . Graham, S. (2000). Language-based spelling instruction: Teaching children to make multiple connections between spoken and written words. *Learning Disability Quarterly, 23*(2), 117–135.**
- Burke, J., & Cizek, G. J. (2006). Effects of composition mode and self-perceived computer skills on essay scores of sixth graders. *Assessing Writing, 11*(3), 148–166.
- Curry, K. A. (1997). *A comparison of the writing products of students with learning disabilities in inclusive and resource room settings using different writing instruction approaches* (Unpublished doctoral dissertation). Florida Atlantic University, Boca Raton.**
- Cutler, L., & Graham, S. (2008). Primary grade writing instruction: A national survey. *Journal of Educational Psychology, 100*(4), 907–919.
- Danoff, B., Harris, K. R., & Graham, S. (1993). Incorporating strategy instruction within the writing process in the regular classroom: Effects on the writing of students with and without learning disabilities. *Journal of Reading Behavior, 25*(3), 295–322.
- Denton, P., Cope, S., & Moser, C. (2006). The effects of sensorimotor-based intervention versus therapeutic practice on improving handwriting performance in 6- to 11-year-old children. *American Journal of Occupational Therapy, 60*(1), 16–27.**
- Dressel, J. (1990). The effects of listening to and discussing different qualities of children's literature on the narrative writing of fifth graders. *Research in the Teaching of English, 24*(4), 397–414.**
- Duke, N., & Pearson, P. (2002). Effective practices for developing reading comprehension. In A. E. Farstrup & S. J. Samuels (Eds.), *What research has to say about reading instruction* (pp. 205–242). Newark, DE: International Reading Association.
- Englert, C., Hiebert, E., & Stewart, S. (1985). Spelling unfamiliar words by an analogy strategy. *The Journal of Special Education, 19*(3), 291–306.
- Farr, R., Kelleher, C., Lee, K., & Beverstock, C. (1989). *An analysis of the spelling patterns of children in grades two through eight: A study of a national sample of children's writing*. Bloomington: Indiana University.
- Ferretti, R., Lewis, W., & Andrews-Weckerly, S. (2009). Do goals affect the structure of students' argumentative writing strategies? *Journal of Educational Psychology, 101*(3), 577–589.**
- Ferretti, R., MacArthur, C., & Dowdy, N. (2000). The effects of an elaborated goal on the persuasive writing of students with learning disabilities and their normally achieving peers. *Journal of Educational Psychology, 92*(4), 694–702.**

^a Eligible studies that meet WWC evidence standards or meet evidence standards with reservations are indicated by **bold text** in the endnotes and references pages. For more information about these studies, please see Appendix D.

- Fogel, H., & Ehri, L. (2000). Teaching elementary students who speak Black English Vernacular to write in Standard English: Effects of dialect transformation practice. *Contemporary Educational Psychology, 25*(2), 212–235.
- Gambrell, L., & Chasen, S. (1991). Explicit story structure instruction and the narrative writing of fourth- and fifth-grade below-average readers. *Reading Research and Instruction, 31*(1), 54–62.
- Gambrell, L., Malloy, J., & Mazzoni, S. (2007). Evidence-based best practices for comprehensive literacy instruction. In L. B. Gambrell, L. M. Morrow, & M. Pressley (Eds.), *Best practices in literacy instruction* (3rd ed., pp. 1–29). New York: Guilford.
- Garcia, J., & de Caso-Fuertes, A. (2007). Effectiveness of an improvement writing program according to students' reflexivity levels. *The Spanish Journal of Psychology, 10*(2), 303–313.
- Garcia-Sanchez, J., & Fidalgo-Redondo, R. (2006). Effects of two types of self-regulatory instruction programs on students with learning disabilities in writing products, processes, and self-efficacy. *Learning Disability Quarterly, 29*(3), 181–211.
- Gatlin, P., & Krebs, E. (1992). Operation robot: Or how we make thinking/writing our own. In C. B. Olson (Ed.), *Thinking/writing: Fostering critical thinking through writing* (pp. 411–417). New York: HarperCollins.
- Gettinger, M. (1993). Effects of invented spelling and direct instruction on spelling performance of second-grade boys. *Journal of Applied Behavior Analysis, 26*(3), 281–291.
- Glaser, C., & Brunstein, J. (2007). Improving fourth-grade students' composition skills: Effects of strategy instruction and self-regulation procedures. *Journal of Educational Psychology, 99*(2), 297–310.
- Gordon, C., & Braun, C. (1986). Mental processes in reading and writing: A critical look at self-reports as supportive data. *Journal of Educational Research, 79*(5), 292–301.
- Graham, S. (1982). Measurement of handwriting skills: A critical review. *Diagnostique, 8*(1), 32–42.
- Graham, S. (1999). Handwriting and spelling instruction for students with learning disabilities: A review. *Learning Disability Quarterly, 22*(2), 78–98.
- Graham, S., Berninger, V., Abbott, R., Abbott, S., & Whittaker, D. (1997). The role of mechanics in the composing of elementary school students: A new methodological approach. *Journal of Educational Psychology, 89*(1), 170–182.
- Graham, S., & Harris, K. (1989). Improving learning disabled students' skills at composing essays: Self-instructional strategy training. *Exceptional Children, 56*(3), 201–214.**
- Graham, S., & Harris, K. (2000). The role of self-regulation and transcription skills in writing and writing development. *Educational Psychologist, 35*, 3–12.
- Graham, S., & Harris, K. (2005). *Writing better: Teaching writing processes and self-regulation to students with learning problems*. Baltimore, MD: Brookes.
- Graham, S., Harris, K., & Fink, B. (2000). Is handwriting causally related to learning to write? Treatment of handwriting problems in beginning writers. *Journal of Educational Psychology, 92*(4), 620–633.**
- Graham, S., Harris, K., & Fink-Chorzempa, B. (2002). Contribution of spelling instruction to the spelling, writing, and reading of poor spellers. *Journal of Educational Psychology, 94*(4), 669–686.**
- Graham, S., Harris, K., Fink-Chorzempa, B., & MacArthur, C. (2003). Primary grade teachers' instructional adaptations for struggling writers: A national survey. *Journal of Educational Psychology, 95*(2), 279–292.
- Graham, S., Harris, K., & Loynachan, C. (1993). The basic spelling vocabulary list. *Journal of Educational Research, 86*(6), 363–368.
- Graham, S., Harris, K., & Mason, L. (2005). Improving the writing performance, knowledge, and self-efficacy of struggling young writers: The effects of self-regulated strategy development. *Contemporary Educational Psychology, 30*(2), 207–241.**

References (continued)

- Graham, S., MacArthur, C., & Schwartz, S. (1995). Effects of goal setting and procedural facilitation on the revising behavior and writing performance of students with writing and learning problems. *Journal of Educational Psychology, 87*(2), 230–240.
- Graham, S., MacArthur, C., Schwartz, S., & Page-Voth, V. (1992). Improving the compositions of students with learning disabilities using a strategy involving product and process goal setting. *Exceptional Children, 58*(4), 322–334.
- Graham, S., & Weintraub, N. (1996). A review of handwriting research: Progress and prospects from 1980 to 1994. *Educational Psychology Review, 8*(1), 7–87.
- Guastello, E. F. (2001). Parents as partners: Improving children's writing. In W. M. Linke, E. G. Sturtevant, J. A. R. Dugan, & P. E. Linder (Eds.), *Celebrating the voices of literacy: Yearbook of the college reading association* (pp. 279–295). Readyville, TN: College Reading Association.
- Harris, K., Graham, S., & Mason, L. (2006). Improving the writing, knowledge, and motivation of struggling young writers: Effects of self-regulated strategy development with and without peer support. *American Educational Research Journal, 43*(2), 295–337.
- Hutchins, P. (1968). *Rosie's Walk*. New York: Simon & Schuster Children's Publishing Division.
- Institute of Education Sciences. (2010). *National Assessment of Educational Progress (NAEP)*. Retrieved from the Institute of Education Sciences website: <http://nces.ed.gov/nationsreportcard/>
- Jampole, E., Mathews, F., & Konopak, B. (1994). Academically gifted students' use of imagery for creative writing. *Journal of Creative Behavior, 28*(1), 1–15.
- Jerram, H., Glynn, T., & Tuck, B. (1988). Responding to the message: Providing a social context for children learning to write. *Educational Psychology, 8*(1), 31–40.
- Jones, I. (1994). The effect of the word processor on the written composition of second-grade pupils. *Computers in the Schools, 11*(2), 43–54.
- Kratochwill, T., Hitchcock, J., Horner, R., Levin, J., Odom, S., Rindskopf, D., & Shadish, W. (2010). *Single-case designs technical documentation*. Retrieved from the What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf
- Lane, K., Harris, K., Graham, S., Weisenbach, J., Brindle, M., & Morphy, P. (2008). The effects of self-regulated strategy development on the writing performance of second-grade students with behavioral and writing difficulties. *The Journal of Special Education, 41*(4), 234–253.
- Lienemann, T., Graham, S., Leader-Janssen, B., & Reid, R. (2006). Improving the writing performance of struggling writers in second grade. *The Journal of Special Education, 40*(2), 66–78.
- Lyon, G. E. (1999). *Where I'm from: Where poems come from*. Spring, TX: Absey & Company.
- MacArthur, C., Schwartz, S., & Graham, S. (1991). Effects of a reciprocal peer revision strategy in special education classrooms. *Learning Disabilities Research and Practice, 6*(4), 201–210.
- Mason, L., & Shriner, J. (2008). Self-regulated strategy development instruction for writing an opinion essay: Effects for six students with emotional/behavior disorders. *Reading and Writing, 21*, 71–93.
- McCutchen, D., Covill, A., Hoyne, S., & Mildes, K. (1994). Individual differences in writing: Implications of translating fluency. *Journal of Educational Psychology, 86*, 256–266.
- Midgette, E., Haria, P., & MacArthur, C. (2008). The effects of content and audience awareness goals for revision on the persuasive essays of fifth- and eighth-grade students. *Reading and Writing: An Interdisciplinary Journal, 21*, 131–151.
- National Commission on Writing. (2003). *The neglected "R": The need for a writing revolution*. Retrieved from the College Entrance Examination Board website: http://www.collegeboard.com/prod_downloads/writing-com/neglectedr.pdf
- National Commission on Writing. (2004). *Writing: A ticket to work . . . or a ticket out: A survey of business leaders*. Retrieved from the College Entrance Examination Board

References (continued)

- website: http://www.collegeboard.com/prod_downloads/writingcom/writing-ticket-to-work.pdf
- Neman, B. (1995). *Teaching students to write*. New York: Oxford University Press.
- Pearson, P., & Gallagher, M. (1983). The instruction of reading comprehension. *Contemporary Educational Psychology, 8*(3), 317–344.
- Pipp, L. (2010). *Earthquake*. Unpublished student manuscript, 6th grade. Bonita Canyon Elementary, Irvine Unified School District, Irvine, CA.
- Pritchard, R., & Marshall, J. (1994). Evaluation of a tiered model for staff development in writing. *Research in the Teaching of English, 28*(3), 259–285.**
- Riley, V. (1997). *The effects of repeated writing and story grammar instruction on the writing performance of third, fourth and fifth grade students* (Unpublished doctoral dissertation). University of Minnesota, St. Paul.**
- Ramirez, B. (2006). *Star of the Day: Jordan*. Unpublished student manuscript, 1st grade. Myford Elementary, Tustin Unified School District, Irvine, CA.
- Saddler, B. (2005). Sentence combining: A sentence-level writing intervention. *Reading Teacher, 58*, 468–471.
- Saddler, B. (2006). Increasing story-writing ability through self-regulated strategy development: Effects on young writers with learning disabilities. *Learning Disability Quarterly, 29*(4), 291–305.**
- Saddler, B., & Asaro-Saddler, K. (2009). Writing better sentences: Sentence-combining instruction in the classroom. *Preventing School Failure, 54*(3), 159–163.
- Saddler, B., Behforooz, B., & Asaro, K. (2008). The effects of sentence-combining instruction on the writing of fourth-grade students with writing difficulties. *The Journal of Special Education, 42*(2), 79–90.**
- Saddler, B., & Graham, S. (2005). The effects of peer-assisted sentence-combining instruction on the writing performance of more and less skilled young writers. *Journal of Educational Psychology, 97*(1), 43–54.**
- Saddler, B., Moran, S., Graham, S., & Harris, K. (2004). Preventing writing difficulties: The effects of planning strategy instruction on the writing performance of struggling writers. *Exceptionality, 12*(1), 3–17.**
- Salahu-Din, D., Persky, H., & Miller, J. (2008). *The nation's report card: Writing 2007* (NCES#2008-468). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Retrieved from the National Center for Education Statistics website: <http://nces.ed.gov/nationsreportcard/pubs/main2007/2008468.asp>
- Sawyer, R., Graham, S., & Harris, K. (1992). Direct teaching, strategy instruction, and strategy instruction with explicit self-regulation: Effects on the composition skills and self-efficacy of students with learning disabilities. *Journal of Educational Psychology, 84*(3), 340–352.
- Schunk, D., & Swartz, C. (1993). Goals and progress feedback: Effects on self-efficacy and writing achievement. *Contemporary Educational Psychology, 18*, 337–354.**
- Shanahan, T., Callison, K., Carriere, C., Duke, N. K., Pearson, P. D., Schatschneider, C., & Torgesen, J. (2010). *Improving reading comprehension in kindergarten through 3rd grade: A practice guide* (NCEE 2010-4038). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications_reviews.aspx
- The Writing Site. (2008). *Writing genres*. Retrieved from <http://www.thewritingsite.org/resources/genre/default.asp> (website no longer available).
- Tierney, R., & Shanahan, T. (1991). Research on the reading-writing relationship: Interactions, transactions, and outcomes. In R. Barr, M. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (pp. 246–280). Mahwah, NJ: Lawrence Erlbaum Associates.
- Tracy, B., Reid, R., & Graham, S. (2009). Teaching young students strategies for planning and drafting stories: The impact of self-regulated strategy development. *Journal of Educational Research, 102*(5), 323–331.**

References *(continued)*

- Troia, G., & Graham, S. (2002). The effectiveness of a highly explicit, teacher-directed strategy instruction routine: Changing the writing performance of students with learning disabilities. *Journal of Learning Disabilities, 35*(4), 290–305.
- Troia, G., Graham, S., & Harris, K. (1999). Teaching students with learning disabilities to mindfully plan when writing. *Exceptional Children, 65*(2), 235–252.

- Yarrow, F., & Topping, K. (2001). Collaborative writing: The effects of metacognitive prompting and structured peer interaction. *British Journal of Educational Psychology, 71*, 261–282.
- Zumbrunn, S. (2010). *Nurturing your students' writing knowledge, self-regulation, attitudes, and self-efficacy: The effects of self-regulated strategy development* (Unpublished doctoral dissertation). University of Nebraska, Lincoln.