Improving Adolescent Literacy: Effective Classroom and Intervention Practices

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Institute of Education Sciences

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Unique to IES-sponsored practice guides is that they are subjected to rigorous external peer review through the same office that is responsible for independent review of other IES publications. A critical task for 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 ignored. Because practice guides depend on the expertise of their authors and their group decisionmaking, the content of a practice guide is not and should not be viewed as a set of recommendations that in every case depends on and flows inevitably from scientific research.

The goal of this practice guide is to formulate specific and coherent evidence-based recommendations that educators can use to improve literacy levels among adolescents in upper elementary, middle, and high schools. The target audience is teachers and other school personnel with direct contact with students, such as coaches, counselors, and principals. The guide includes specific recommendations for educators and the quality of evidence that supports these recommendations.

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August 2008

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Introduction

The goal of this practice guide is to present specific and coherent evidence-based recommendations that educators can use to improve literacy levels among adolescents in upper elementary, middle, and high schools. The panel purposefully included students in 4th and 5th grades within the realm of adolescents because their instructional needs related to literacy have more in common with those of students in middle and high school than they do with students in early elementary grades. Many students in grades 4 and up experience difficulty acquiring the advanced literacy skills needed to read in the content areas.[1] The target audience for the practice guide is teachers and other school personnel who have direct contact with students, such as coaches, counselors, and principals. The practice guide includes specific recommendations for educators along with a discussion of the quality of evidence that supports these recommendations.

We, the authors, are a small group with expertise on this topic. The range of evidence we considered in developing this guide is vast, ranging from experimental studies in which reading was the dependent variable, to trends in the National Assessment of Educational Progress (NAEP) data, to correlational and longitudinal studies, again with reading as the major variable of interest. For questions about what works best, high-quality experimental and quasi-experimental studies—such as those meeting the criteria of the What Works Clearinghouse (http://www.ies.ed.gov/ncee/wwc)—have a privileged position. In all cases we pay particular attention to findings that are replicated across studies.

Although we draw on evidence about the effectiveness of specific practices in reading instruction, we use this information to make broader points about improving practice. In this guide we have tried to take findings from research or practices recommended by experts and describe how recommendations might actually unfold in school settings. In other words, we aim to provide sufficient detail so that educators will have a clear sense of the steps necessary to make use of the recommendations.

A unique feature of practice guides is the explicit and clear delineation of the quality—as well as quantity— of evidence that supports each claim. To do this, we used a semi-structured hierarchy suggested by IES. This classification system uses both the quality and the quantity of available evidence to help determine the strength of the evidence base grounding each recommended practice (table 1).

Strong refers to consistent and generalizable evidence that a practice causes better outcomes for students in measures of reading proficiency.[2]

Moderate 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 more causal ambiguity than offered by experimental designs (statistical models of correlational data or group comparison designs for which equivalence of the groups at pretest is uncertain).

Low refers to expert opinion based on reasonable extrapolations from research and theory on other topics and evidence from

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1. Biancarosa and Snow (2004); Heller and Greenleaf (2007).

2. Following What Works Clearinghouse guidelines, we consider a positive, statistically significant effect or large effect size (greater than 0.25) as an indicator of positive effects.

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

Strong	In general, characterization of the evidence for a recommendation as strong requires both studies with high internal validity (i.e., studies whose designs can support causal conclusions) and studies with high external validity (i.e., studies that in total include enough of the range of participants and settings on which the recommendation is focused to support the conclusion that the results can be generalized to those participants and settings). Strong evidence for this practice guide is operationalized as: • A systematic review of research that generally meets the standards of the What Works Clearinghouse (WWC) (see http://ies.ed.gov/ncee/wwc/) and supports the effectiveness of a program, practice, or approach with no contradictory evidence of similar quality; OR • Several well-designed, randomized controlled trials or well designed quasi-experiments that generally meet the WWC standards and support the effectiveness of a program, practice, or approach, with no contradictory evidence of similar quality; OR • One large, well-designed, randomized controlled, multisite trial that meets the WWC standards and supports the effectiveness of a program, practice, or approach, with no contradictory evidence of similar quality; OR • For assessments, evidence of reliability and validity that meets the Standards for Educational and Psychological Testing.[a]
Moderate	In general, characterization of the evidence for a recommendation as moderate requires studies with high internal validity but moderate external validity, or studies with high external validity but moderate internal validity. In other words, moderate evidence is derived from studies that support strong causal conclusions but where generalization is uncertain, or studies that support the generality of a relationship but where the causality is uncertain. Moderate evidence for this practice guide is operationalized as: • Experiments or quasi-experiments generally meeting the 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 and no contrary evidence; OR • Comparison group studies that do not demonstrate equivalence of groups at pretest and therefore do not meet the WWC standards but that (a) consistently show enhanced outcomes for participants experiencing a particular program, practice, or approach and (b) have no major flaws related to internal validity other than lack of demonstrated equivalence at pretest (e.g., only one teacher or one class per condition, unequal amounts of instructional time, highly biased outcome measures); OR • Correlational research with strong statistical controls for selection bias and for discerning influence of endogenous factors and no contrary evidence; OR • For assessments, evidence of reliability that meets the Standards for Educational and Psychological Testing[b] but with evidence of validity from samples not adequately representative of the population on which the recommendation is focused.
Low	In general, characterization of the evidence for a recommendation as low means that the recommendation is based on expert opinion derived from strong findings or theories in related areas and/or expert opinion buttressed by direct evidence that does not rise to the moderate or strong levels. Low evidence is operationalized as evidence not meeting the standards for the moderate or high levels.

a. American Educational Research Association, American Psychological Association, and National Council on Measurement in Education (1999).

b. Ibid.

studies that do not meet the standards for moderate or strong evidence.

The What Works Clearinghouse standards and their relevance to this guide

In terms of the levels of evidence indicated in table 1, we rely on What Works Clearinghouse (WWC) evidence standards to assess the quality of evidence supporting educational programs and practices. The WWC addresses 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. The technical quality of each study is rated and placed into one of three categories:

- *Meets Evidence Standards* for randomized controlled trials and regression discontinuity studies that provide the strongest evidence of causal validity.

- *Meets Evidence Standards with Reservations* for all quasi-experimental studies with no design flaws and randomized controlled trials that have problems with randomization, attrition, or disruption.

- *Does Not Meet Evidence Screens* for studies that do not provide strong evidence of causal validity.

Appendix D provides more technical information about the studies and our decisions regarding the level of evidence for each recommendation. To illustrate the types of studies reviewed, we describe one study for each recommendation. Our goal in doing this is to provide interested readers with more detail about the research designs, the intervention components, and the way impact was measured.

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Improving Adolescent Literacy: Effective Classroom and Intervention Practices

Overview

Data from the 2007 National Assessment of Educational Progress (NAEP) in reading report that 69 percent of 8th grade students fall below the proficient level in their ability to comprehend the meaning of text at their grade level.[1] Equally alarming, 26 percent of students read below the basic level, which means that they do not have sufficient reading ability to understand and learn from text at their grade level. When these data are coupled with reports showing that even high school students with average reading ability are currently unprepared for the literacy demands of many workplace and postsecondary educational settings, the need for improved literacy instruction of adolescents is apparent.[2]

Reading ability is a key predictor of achievement in mathematics and science,[3] and the global information economy requires today's American youth to have far more advanced literacy skills than those required of any previous generation.[4] However, as long-term NAEP data[5] and other studies show,[6] improvements in the literacy skills of older students have not kept pace with the increasing demands for literacy in the workplace. These studies, and those mentioned earlier, suggest the need for serious attention to the challenges of improving reading instruction in upper elementary, middle, and high school. Yet reading instruction as a formal part of the curriculum typically decreases as students move beyond upper elementary grades.

To acquire the skills they need, students must work hard to refine and build upon their initial reading skills, and teachers in upper elementary grades and in middle and high school classes should help students acquire more advanced skills once they understand the demands that content area tasks actually present, especially to students who struggle with reading.[7] However, many teachers report feeling unprepared to help their students or do not think that teaching reading skills in content-area classes is their responsibility.[8]

For more than 50 years[9] the realities of student reading difficulties and teacher lack of preparation to address them have been met by calls for more instruction in higher-level reading skills for adolescents and for professional development in content-area reading instruction for middle and high school teachers. Although the debate about the role of content-area teachers in reading instruction continues,[10] the time has come to consider seriously the support that needs to be given to struggling readers and the role that every teacher needs to play in working toward higher levels of literacy among all adolescents, regardless of their reading abilities.

A significant difficulty in working toward higher levels of literacy involves structural barriers at the middle and high school levels that need to be overcome.

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1. Lee, Griggs, and Donahue (2007).

2. Pennsylvania Department of Education (2004); Williamson (2004).

3. ACT (2006).

4. Snow, Burns, and Griffin (1998).

5. Perie and Moran (2005).

6. ACT (2006).

7. Heller and Greenleaf (2007).

8. Heller and Greenleaf (2007).

9. Artley (1944); Moore, Readence, and Rickman (1983).

10. Heller and Greenleaf (2007).

Researchers[11] have found that some teachers circumvent the need for students to read texts by adjusting their assignments or methods of presenting content, rather than helping students learn the discipline-specific strategies needed for content-area work. Another researcher[12] found that content-area teachers expressed resistance to the work of the high school reading specialists, whose job is to provide students with additional help outside their regular class structure. And still others[13] have suggested that teachers who strive primarily to cover the content of their disciplines are unaware that by increasing students' ability to read their assignments they could actually increase the depth and breadth of content that could be covered efficiently. A final barrier[14] is that when schools actually institute programs to help struggling adolescent readers, they are housed within special education programs and thus serve only a small proportion of the students whom they could benefit.

In determining what to include in the adolescent literacy practice guide, the panel recognized that recommendations for instructional strategies must be evidence-based. That is, rigorous studies have shown the practices to be associated with improvements in students' reading proficiency. While fully understanding that all aspects of literacy are important for success in middle and high school, panel members decided to focus specifically on studies about reading, that is, studies in which reading was a dependent variable. Although aware of the challenges faced by English language learners, we also focused on students whose first language was

English.[15] The search for sources focused only on studies of reading programs conducted within a school or clinical setting and excluded those offered in organized after school programs. These decisions narrowed the number of empirical studies from which recommendations could be drawn.

Finally, the research that met the criteria for inclusion in this guide included few studies involving the use of computer technology. Despite great interest in and increasing use of software for reading instruction in middle and high schools, there is little experimental or quasi-experimental research demonstrating the effectiveness of that work. Most recently, the National Evaluation of Educational Technology[16] assessed the effectiveness of four software packages for literacy instruction at the 4th grade level, using an experimental design with a national sample of 45 schools, comprising 118 teachers and 2,265 students. Although the individual products were not identified by specific results, none of the tested software products produced statistically significant improvements in student reading achievement at the end of the first of two years of the study. At the same time, the National Reading Panel suggested that there is some promise in using computers to supplement classroom instruction; however, these conclusions do not rise to the level of a supported endorsement.

A major source for identifying strategies that can have an immediate impact on student reading achievement was the *Report of the National Reading Panel*,[17] especially its sections on comprehension

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11. Schoenbach et al. (1999).

12. Darwin (2003).

13. Kingery (2000); O'Brien, Moje, and Stewart (2001).

14. Barry (1997).

15. The Institute of Education Sciences has published a practice guide on effective literacy instruction for English language learners, which can be accessed at http://ies.ed.gov/ncee.

16. Dynarski et al. (2007).

17. National Reading Panel (2000a).

and vocabulary. What makes the National Reading Panel evidence so important is that the eligible research for vocabulary consisted mostly of studies of students in grades 3 and above, while the research on comprehension involved mostly students in grades 4 and above. The analysis of adolescent literacy practices presented in summary form in *Reading Next: A Vision for Action and Research in Middle and High School Literacy*[18] has also been influential in shaping discussions on adolescent literacy and has provided a starting point for developing this guide.

Adolescent literacy is a complex concept because it entails more than the scores that students achieve on standardized reading tests. It also entails reading to learn in subjects that present their ideas and content in different ways. Students need to be able to build knowledge by comprehending different kinds of texts, mastering new vocabulary, and sharing ideas with others. Although causal links have not been empirically established between improvements in reading and increases in course grades and scores on subject-based tests, students' reading difficulties will obviously impede their ability to master content-area coursework fully. Test score data and research continually confirm that many adolescents first need to improve their reading comprehension skills before they can take full advantage of content-area instruction.

In determining what to include in this practice guide, panel members also recognized that recommendations must be practical. Teachers must perceive the value of each recommendation so that they envision themselves integrating the recommendations into their instruction to make content-area reading assignments accessible to all students—those who are learning to make sense of new and unfamiliar academic areas, those whose skills are

18. Biancarosa and Snow (2004).

marginal at best, and also those who struggle with reading. The first two recommendations focus on strategies for vocabulary and comprehension instruction: Provide explicit vocabulary instruction (Level of evidence: Strong) and provide direct and explicit comprehension strategy instruction (Level of evidence: Strong) (table 2).

Although its research base is not as strong as that for vocabulary and comprehension, the third recommendation concerns discussion of and about texts. Most, if not all, the studies that examined instruction in comprehension strategies indicated the importance of practicing those strategies in the context of discussions about the meaning of texts. Further, there is evidence that encouraging high-quality discussion about texts, even in the absence of explicit instruction in reading comprehension strategies, can have a positive impact on reading comprehension skills. Small- and large-group discussions also provide teachers with an important window into students' thinking that can inform future instruction. Therefore, the third recommendation focuses on the use of discussion in improving the reading outcomes of students: Provide opportunities for extended discussion of text meaning and interpretation (Level of evidence: Moderate).

The fourth recommendation concerns student motivation and engagement. These two factors are widely recognized as important moderators for learning, but there is limited scientific evidence that links these factors directly to student achievement in reading. Nonetheless, all teachers can recognize the importance of bolstering students' motivation and finding ways to increase students' engagement with the material they are asked to read. The recommendation provided in this practice guide ties motivation and engagement specifically to literacy outcomes: Increase student motivation and engagement in literacy learning (Level of evidence: Moderate).

Table 2. Recommendations and corresponding levels of evidence to support each

Recommendation	Level of evidence
1. Provide explicit vocabulary instruction.	**Strong**
2. Provide direct and explicit comprehension strategy instruction.	**Strong**
3. Provide opportunities for extended discussion of text meaning and interpretation.	**Moderate**
4. Increase student motivation and engagement in literacy learning.	**Moderate**
5. Make available intensive and individualized interventions for struggling readers that can be provided by trained specialists.	**Strong**

Panel members also recognized that some students need more intense help to improve literacy skills than classroom teachers can provide. Because of this, our fifth recommendation concerns struggling readers, those students who probably score well below their peers on state reading tests and whose reading deficits hinder successful performance in their coursework. Under normal classroom instructional conditions, these students are unable to make needed improvements in their reading skills, so they typically cannot meet grade-level standards in literacy throughout middle and high schools. They need additional help that the classroom teacher cannot be expected to provide. Unless their reading growth is dramatically accelerated by strong and focused instruction, they will continue to struggle to make sense of the materials assigned to them in their coursework, and they are at serious risk of being unable to use literacy skills successfully in their postsecondary lives. However, if they are identified from among their peers as being struggling readers and if their weaknesses in reading are carefully assessed by trained specialists using measures that detect strengths and weaknesses, and this assessment is followed by intensive interventions that are focused on their particular needs, they will have more opportunities to improve their literacy skills substantially. This improvement should then translate into gains in content-area achievement (Level of evidence: Strong).

Scope of the practice guide

This practice guide provides five recommendations for increasing the reading ability of adolescents. The first three recommendations are strategies that classroom teachers can incorporate into their instruction to help students gain more from their reading tasks in content-area classes. The fourth recommendation offers teachers strategies for improving students' motivation for and engagement with learning. Together, the recommendations offer a coherent statement: specific strategies are available for classroom teachers and specialists to address the literacy needs of all adolescent learners. The fifth recommendation refers specifically to adolescent struggling readers, those students whose poor literacy skills weaken their ability to make sense of written material.

Although not an exhaustive list, the recommendations are representative of panel members' thinking about methods that have the strongest research support and those that are appropriate for use with adolescents. The first four recommendations can be implemented easily by classroom teachers within their regular instruction, regardless of the content areas they teach. Recommendations for teaching students about the discourse patterns of specific subjects that adolescents study (for example, different ways of presenting information, creating arguments, or evaluating evidence in science compared with history) are not included in this guide because the formal evidence base for these methods is not yet sufficiently developed. The fifth recommendation refers to reading interventions that in many cases must be provided by reading specialists or specially trained teachers.

In offering these recommendations, we remind the reader that adolescent literacy is complex. There are many reasons why adolescents have difficulty making sense of texts, and there are many manifestations of these difficulties. Addressing students' needs often requires coordinated efforts from teachers and specialists.

Readers should also note that appropriate professional development in reading has been shown to produce higher achievement in students.[19] Providing professional development to content-area teachers focused on instructional techniques they can use to meet the literacy needs of all their students, including those who struggle, is highly recommended in this practice guide. Professional development also needs to address the specific literacy demands of different disciplines. One attempt at specifying these demands describes specific skills in mathematics, science, social studies, and English.[20] Focusing on these skills would be an ideal starting point for professional development for content-area teachers who want to incorporate elements of literacy instruction in their content area instruction.

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19. National Reading Panel (2000a).

20. International Reading Association (2006).

Checklist for carrying out the recommendations

Recommendation 1.
Provide explicit vocabulary instruction

☐ Dedicate a portion of regular classroom lessons to explicit vocabulary instruction.

☐ Provide repeated exposure to new words in multiple contexts, and allow sufficient practice sessions in vocabulary instruction.

☐ Give sufficient opportunities to use new vocabulary in a variety of contexts through activities such as discussion, writing, and extended reading.

☐ Provide students with strategies to make them independent vocabulary learners.

Recommendation 2.
Provide direct and explicit comprehension strategy instruction

☐ Select carefully the text to use when beginning to teach a given strategy.

☐ Show students how to apply the strategies they are learning to different texts.

☐ Make sure that the text is appropriate for the reading level of students.

☐ Use a direct and explicit instruction lesson plan for teaching students how to use comprehension strategies.

☐ Provide the appropriate amount of guided practice depending on the difficulty level of the strategies that students are learning.

☐ Talk about comprehension strategies while teaching them.

Recommendation 3.
Provide opportunities for extended discussion of text meaning and interpretation

☐ Carefully prepare for the discussion by selecting engaging materials and developing stimulating questions.

☐ Ask follow-up questions that help provide continuity and extend the discussion.

☐ Provide a task or discussion format that students can follow when they discuss text in small groups.

☐ Develop and practice the use of a specific "discussion protocol."

Recommendation 4.
Increase student motivation and engagement in literacy learning

☐ Establish meaningful and engaging content learning goals around the essential ideas of a discipline as well as around the specific learning processes used to access those ideas.

☐ Provide a positive learning environment that promotes student autonomy in learning.

☐ Make literacy experiences more relevant to student interests, everyday life, or important current events.

☐ Build classroom conditions to promote higher reading engagement and conceptual learning through such strategies as goal setting, self-directed learning, and collaborative learning.

Recommendation 5. Make available intensive individualized interventions for struggling readers that can be provided by qualified specialists

☐ Use reliable screening assessments to identify students with reading difficulties and follow up with formal and informal assessments to pinpoint each student's instructional needs.

☐ Select an intervention that provides an explicit instructional focus to meet each student's identified learning needs.

☐ Provide interventions where intensiveness matches student needs: the greater the instructional need, the more intensive the intervention. Assuming a high level of instructional quality, the intensity of interventions is related most directly to the size of instructional groups and amount of instructional time.