A Report to Carnegie Corporation of New York

READING NEXT

A VISION FOR ACTION AND RESEARCH IN MIDDLE AND HIGH SCHOOL LITERACY

ALLIANCE FOR EXCELLENT EDUCATION

Reading Next—A Vision for Action and Research in Middle and High School Literacy: A Report to Carnegie Corporation of New York

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Second Edition

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The Alliance for Excellent Education is a national policy and advocacy organization that works to help make every child a high school graduate—to prepare them for college, have success in life, and be contributing members of society. It focuses on the needs of the millions of secondary school students (those in the lowest achievement quartile) who are most likely to leave school without a diploma or to graduate unprepared for a productive future.

Based in Washington, D.C., the Alliance's audience includes parents, teachers, principals, and students, as well as the federal, state, and local policy communities, education organizations, the media, and a concerned public. To inform the national debate about education policies and options, the Alliance produces reports and other materials, makes presentations at meetings and conferences, briefs policymakers and the press, and provides timely information to a wide audience via its biweekly newsletter and regularly updated website, www.all4ed.org.

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FOREWORD

During the last decade, this country's attention has been focused on improving reading education. This focus led to the generation of reports, reviews, revised curricula, redesigned professional development, and the provisions of the Reading First initiative. The recent interest in reading, however, directed attention almost entirely to *early* literacy—that is, to reading in the primary grades, defined as word recognition.

Somewhat neglected in those various efforts was attention to the core of reading: comprehension, learning while reading, reading in the content areas, and reading in the service of secondary or higher education, of employability, of citizenship. It is clear that getting third graders to read at grade level is an important and challenging task, and one that needs ongoing attention from researchers, teacher educators, teachers, and parents. But many excellent third-grade readers will falter or fail in later-grade academic tasks if the teaching of reading is neglected in the middle and secondary grades.

In 1950, when opportunities to achieve economic stability and a middle-class standard of living were open to those without a high school diploma, students unable to convert their third-grade reading skills into literacy levels useful for comprehending and learning from complex, content-rich materials could drop out of high school and still hope to achieve a reasonably comfortable and successful lifestyle. In 2004, however, there are few opportunities for the high school dropout to achieve a comparable way of life; jobs, welfare, and social safety nets will no longer be available as they once were.

Educators must thus figure out how to ensure that every student gets beyond the basic literacy skills of the early elementary grades, to the more challenging and more rewarding literacy of the middle and secondary school years. Inevitably, this will require, for many of those students, teaching them new literacy skills: how to read purposefully, select materials that are of interest, learn from those materials, figure out the meanings of unfamiliar words, integrate new information with information previously known, resolve conflicting content in different texts, differentiate fact from opinion, and recognize the perspective of the writer—in short, they must be taught how to *comprehend*.

Ensuring adequate ongoing literacy development for all students in the middle and high school years is a more challenging task than ensuring excellent reading education in the primary grades, for two reasons: first, secondary school literacy skills are more complex, more embedded in subject matters,

and more multiply determined; second, adolescents are not as universally motivated to read better or as interested in school-based reading as kindergartners. This is, therefore, not a problem with a simple solution. But we have research-based as well as practice-based knowledge to bring to it. *Reading Next: A Vision for Action and Research in Middle and High School Literacy* charts a route for using that knowledge optimally, while at the same time adding to it. It is a call to researchers in this area to exchange a bit of their self-determination in the service of producing more interpretable findings, and a call to funders interested in educational reform to forfeit a bit of their programmatic autonomy to increase the returns on their investments. If both groups heed the call, adolescent readers and the teachers dedicated to their success will benefit.

Catherine E. Snow
Henry Lee Shattuck Professor of Education
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Cambridge, Massachusetts
July 18, 2004

EXECUTIVE SUMMARY

The Issue

American youth need strong literacy skills to succeed in school and in life. Students who do not acquire these skills find themselves at a serious disadvantage in social settings, as civil participants, and in the working world. Yet approximately eight million young people between fourth and twelfth grade struggle to read at grade level. Some 70 percent of older readers require some form of remediation. Very few of these older struggling readers need help to read the words on a page; their most common problem is that they are not able to comprehend what they read. Obviously, the challenge is not a small one.

Meeting the needs of struggling adolescent readers and writers is not simply an altruistic goal. The emotional, social, and public health costs of academic failure have been well documented, and the consequences of the national literary crisis are too serious and far-reaching for us to ignore. Meeting these needs will require expanding the discussion of reading instruction from Reading First—acquiring grade-level reading skills by third grade—to Reading Next—acquiring the reading skills that can serve youth for a lifetime.

Fortunately, a survey of the literacy field shows that educators now have a powerful array of tools at their disposal. We even know with a fair degree of certitude which tools work well for which type of struggling reader. However, we do not yet possess an overall strategy for directing and coordinating remedial tools for the maximum benefit to students at risk of academic failure, nor do we know enough about how current programs and approaches can be most effectively combined.

The Approach

To help address this problem, a panel of five nationally known and respected educational researchers met in spring 2004 with representatives of Carnegie Corporation of New York and the Alliance for Excellent Education to draw up a set of recommendations for how to meet the needs of our eight million struggling readers while simultaneously envisioning a way to propel the field forward. The resulting paper was reviewed and augmented by the Adolescent Literacy Funders Forum (ALFF) at its 2004 annual meeting. Although this report originally was targeted to the funding community, it offers information that will also prove invaluable to others, including researchers, policymakers, and educators.

The Recommendations

The Fifteen Elements of Effective Adolescent Literacy Programs

This report delineates fifteen elements aimed at improving middle and high school literacy achievement right now.

1. **Direct, explicit comprehension instruction,** which is instruction in the strategies and processes that proficient readers use to understand what they read, including summarizing, keeping track of one's own understanding, and a host of other practices

2. **Effective instructional principles embedded in content,** including language arts teachers using content-area texts and content-area teachers providing instruction and practice in reading and writing skills specific to their subject area

3. **Motivation and self-directed learning,** which includes building motivation to read and learn and providing students with the instruction and supports needed for independent learning tasks they will face after graduation

4. **Text-based collaborative learning,** which involves students interacting with one another around a variety of texts

5. **Strategic tutoring,** which provides students with intense individualized reading, writing, and content instruction as needed

6. **Diverse texts,** which are texts at a variety of difficulty levels and on a variety of topics

7. **Intensive writing,** including instruction connected to the kinds of writing tasks students will have to perform well in high school and beyond

8. **A technology component,** which includes technology as a tool for and a topic of literacy instruction

9. **Ongoing formative assessment of students,** which is informal, often daily assessment of how students are progressing under current instructional practices

10. **Extended time for literacy,** which includes approximately two to four hours of literacy instruction and practice that takes place in language arts and content-area classes

11. **Professional development** that is both long term and ongoing

12. **Ongoing summative assessment of students and programs,** which is more formal and provides data that are reported for accountability and research purposes

13. **Teacher teams,** which are interdisciplinary teams that meet regularly to discuss students and align instruction

14. **Leadership,** which can come from principals and teachers who have a solid understanding of how to teach reading and writing to the full array of students present in schools

15. **A comprehensive and coordinated literacy program,** which is interdisciplinary and interdepartmental and may even coordinate with out-of-school organizations and the local community

Since implementation of only one or two of these elements is unlikely to improve the achievement of many students, this report recommends that practitioners and program designers ***flexibly try out various combinations*** in search of the most effective overall program. Furthermore, any combination should include three specific elements: professional development, formative assessment, and summative assessment. No literacy program targeted at older readers is likely to cause significant improvements without these elements, because of their importance to ensuring instructional effectiveness and measuring effects. However, they should not be seen as sufficient in themselves to address the wide range of problems experienced by older struggling readers; rather, they ***act as a foundation*** for instructional innovations.

Balancing Purposes

This report also stresses that improving the literacy achievement of today's and tomorrow's youth requires keeping action balanced with research. The report outlines a ***balanced vision*** for effecting immediate change for current students and building the literacy field's knowledge base.

Stakeholders should select programs and interventions according to the inclusion or exclusion of the fifteen elements—thereby creating a ***planned variation***—and ***evaluate implementation using a common process*** to allow for comparisons across programs. In line with this recommendation, ***outcomes*** and ***procedures*** for evaluation are detailed to promote cross-program comparisons. By collecting data according to the recommended design, public and private funders, districts, and researchers will be able to ***disaggregate*** students and describe the different sources of their difficulty and the differentiated effects of programs and program components. Such disaggregation will provide a rich base for experimental research.

The Relevance

We believe that if the funding, research, policymaking, and education communities embrace these recommendations, the literacy field will make significant strides toward the goal of meeting the needs of all students in our society, while also strengthening our understanding of exactly *what works, when,* and *for whom*. We will thereby strengthen the chances for striving readers to graduate from high school as strong, independent learners prepared to take on the multiple challenges of life in a global economy.

INTRODUCTION

A Literacy Crisis

High Student Dropout Rate

Almost seven thousand students drop out of high school every school day (Alliance for Excellent Education, 2006). One of the most commonly cited reasons for this is that students simply do not have the literacy skills to keep up with the high school curriculum, which has become increasingly complex (Kamil, 2003; Snow & Biancarosa, 2003). In the era of Reading First and especially the No Child Left Behind (NCLB) Act of 2001, performing below grade level in reading and writing carries increasingly higher stakes for retention and ultimately withholding of high school diplomas (NCES, 2003).

Struggling Readers

The number of students who lack literacy skills is not negligible: there are eight million struggling readers in grades 4–12 in schools across our nation (NCES, 2003). The most recent National Assessment of Educational Progress (NAEP) reading results indicate that recent efforts to improve K–3 literacy education are paying off at the fourth-grade level, but that these improvements do not necessarily translate into better achievement among adolescents.

In 2005, 31 percent of fourth and eighth graders performed at or above the "proficient" level, which NAEP defines as "solid academic performance" for the assessed grade. Students scoring below this level have attained only "partial mastery" (Loomis & Bourque, 2001, p. 2). If partial mastery is interpreted as performing below grade level, then about 70 percent of students entering the fifth and ninth grades in 2006 are reading below grade level.

CAUSE FOR ALARM

- Only **70 percent of high school students graduate on time with a regular diploma,** and fewer than 60 percent of African-American and Latino students do so (Greene & Winters, 2005).
- Students who enter ninth grade in **the lowest 25 percent of their class are twenty times more likely to drop out** than the highest-performing students (Carnevale, 2001).
- Approximately **32 percent of high school graduates are not ready for college level English composition courses** (ACT, 2005).
- Over **half of adults scoring at the lowest literacy levels are dropouts** and almost **a quarter are high school graduates** (NCES, 2005).
- Approximately **40 percent of high school graduates lack the literacy skills employers seek** (Achieve, Inc., 2005).
- US **dropouts' literacy skills are lower than most industrialized nations,** performing comparably only to Chile, Poland, Portugal, and Slovenia (OECD, 2000).

The most recent results for twelfth graders tell a similar tale, with about 60 percent performing below grade level (NCES, 1999). Comparing the most recent NAEP results for all three grade levels to those from 1992, the percentage of students scoring proficient has significantly improved among fourth graders, but not among eighth and twelfth graders (NCES, 1999, 2006; Olson, 2006). Moreover, the percentage of fourth graders scoring proficient or better rose significantly in twenty-one states, and no states experienced significant decreases (Olson, 2006). However, only three states showed significant improvement in the percentage of eighth-grade students scoring at or above the proficient level, and three other states showed significant decreases in this percentage (Olson, 2006).

A full 70 percent of U.S. middle and high school students require differentiated instruction—that is, instruction targeted to their individual strengths and weaknesses.

Consistent with the NAEP results, experts in adolescent literacy estimate that as many as 70 percent of students struggle with reading in some manner, and therefore require differentiated instruction—especially in areas where multiple circumstances conspire against students' chances for success, such as in urban centers. In these areas, only an estimated 20 percent of students are reading at grade level and thus are prepared to master high school-level content. However, schools in nonurban areas and even high-achieving schools also have struggling readers and writers; and in such environments, struggling students are more likely to be overlooked.

Range of Literacy Needs

Part of what makes it so difficult to meet the needs of struggling readers and writers in middle and high school is that these students experience a wide range of challenges that require an equally wide range of interventions. Some young people still have difficulty simply reading words accurately, but these students make up the minority of older struggling readers. Most older struggling readers can *read* words accurately, but they do not *comprehend* what they read, for a variety of reasons. For some, the problem is that they do not yet read words with enough fluency to facilitate comprehension. Others can read accurately and quickly enough for comprehension to take place, but they lack the strategies to help them comprehend what they read. Such strategies include the ability to grasp the gist of a text, to notice and repair misinterpretations, and to change tactics based on the purposes of reading. Other struggling readers may have learned these strategies but have difficulty using them because they have only practiced using them with a limited range of texts and in a limited range of circumstances. Specifically, they may not be able

RISING LITERACY DEMANDS, DECLINING LITERACY

Between 1996 and 2006, the average literacy required for all American occupations is projected to rise by 14 percent. **The 25 fastest growing professions have far greater than average literacy demands**, while the 25 fastest declining professions have lower than average literacy demands (Barton, 2000).

Compared to ten years ago, **significantly fewer adults demonstrate the skills necessary to perform complex and challenging literacy activities** (NCES, 2005).

Both dropouts and high school graduates are demonstrating significantly worse reading skills than ten years ago (NCES, 2005).

to generalize their strategies to content-area literacy tasks and lack instruction in and knowledge of strategies specific to particular subject areas, such as math, science, or history.

In addition, the problems faced by struggling readers are exacerbated when they do not speak English as their first language, are recent immigrants, or have learning disabilities. Indeed, a struggling reader may fit all three of these descriptions, making intervention a truly complicated proposition. Meeting these needs will require expanding the discussion of reading from Reading First—acquiring grade-level reading skills by third grade—to Reading Next—acquiring the reading comprehension skills that can serve youth for a lifetime.

Incentive and Engagement Is Important

Concurrent with this range of literacy needs, many schools are not engaging students. In addition, students are less motivated to read in later grades. While these problems may coexist with any of the difficulties cited above, a lack of incentive and engagement also explains why even skilled readers and writers often do not progress in reading and academic achievement in middle and high schools. The proportion of students who are not engaged or motivated by their school experiences grows at every grade level and reaches epidemic proportions in high school.

Our Changing Society Presents New Challenges

Clearly, there is a need to improve adolescent literacy, and this need is all the more pertinent because of the rapidly accelerating challenges of modern society. Literacy demands have increased and changed as the technological capabilities of our society have expanded and been made widely available; concomitantly, the need for flexible, self-regulated individuals who can respond to rapidly changing contexts has also increased. The goal in improving adolescent literacy should not simply be to graduate more students from slightly improved schools, but rather to envision what improvements will be necessary to prepare tomorrow's youth for the challenges they will face twenty and thirty years from now.

America's schools need to produce literate citizens who are prepared to compete in the global economy and who have the skills to pursue their own learning well beyond high school. Students need to perform well on their state or local standardized or high-stakes tests, both because these tests act as gatekeepers in increasing numbers of states and because the national emphasis is on improved educational accountability. All young people should

NO COLLEGE, NO FUTURE?

Between 1973 and 1998, in skilled blue-collar, clerical, and related professions, "**the percentage of workers who were high school drop-outs fell by two-thirds, while the percentage of workers with some college or a college degree more than doubled**;" in less-skilled blue-collar, service, and related professions, "**the percentage of workers who were high school drop-outs fell by nearly half, while the percentage of workers with some college or a college degree tripled**" (Carnevale, 2001, Figures 7 and 8).

As the demand for unskilled labor decreases, **unemployment has increased at a faster pace for those with low educational attainment** (OECD, 2000).

graduate from high school able to read and write, so they can earn a good living and lead richer intellectual lives. Yet 53 percent of all college students take remedial courses because they did not gain the skills they should have gained in secondary school (NCES, 2001). Due to inadequate literacy skills, an estimated 32 percent of college-bound high school students have little likelihood of succeeding in college English courses (ACT, 2005).

Fortunately, the United States has a powerful array of tools at its disposal for meeting these goals. Some of the most promising of these are presented in this report, together with a framework for considering how to deploy them in a manner that not only improves adolescent literacy in the short term but also offers hope for even greater improvements in the future. The framework is designed so that in the process of using these tools, educators, researchers, and policymakers will hone them, tailoring them to meet the precise needs of individual students in order not only to strengthen the literacy skills of the individual but also to strengthen our nation.

A Collaborative Effort

With struggling readers and writers experiencing so many different sources of difficulty as well as rapidly accelerating literacy demands, it is no wonder that teachers and schools are unable to meet the needs of all of these students. To help address this problem, a panel of five nationally known and respected educational researchers—Donald Deshler, David Francis, John Guthrie, Michael Kamil, and James McPartland—met with representatives of Carnegie Corporation of New York and the Alliance for Excellent Education on April 22, 2004. The researchers were asked to envision the kinds of changes necessary to improve student outcomes based on current knowledge of the field, while simultaneously envisioning a way to propel the field forward by building a more thorough knowledge base.

The researchers agreed that enough is already known about adolescent literacy—both the nature of the problems of struggling readers and the types of interventions and approaches to address these needs—in order to act immediately on a broad scale. The experts also agreed that while action was being undertaken, the work of building the knowledge base should continue, particularly to understand the "value-added" contribution of each of the specific aspects of adolescent literacy programs.

Why do readers struggle? The problem is not illiteracy, but comprehension. The bulk of older struggling readers and writers can read, but cannot understand what they read.

A month later, at the annual meeting of the Adolescent Literacy Funders Forum (ALFF),* a consortium of public and private funding organizations interested in adolescent literacy reviewed

* ALFF is a consortium of public and private funders of programs and initiatives linked to adolescent literacy. The group formed in 2003 and meets annually to discuss challenges and new developments in the field. The 2004 gathering was ALFF's second annual meeting, and this report was the topic of discussion.

the report prepared by the panel. The ALFF members discussed the details of the vision elucidated by the researchers and added their insights to this vision. This report represents a collaborative effort to specify how the adolescent literacy field might take on the challenge of improving achievement.

This report is an effort to

- disseminate more widely the current state of knowledge about adolescent literacy;
- specify the dimensions of adolescent literacy interventions that hold particular promise for improving academic achievement; and
- posit an approach to evaluating programs and understanding the value-added contribution of each dimension.

No single intervention or program will ever meet the needs of all struggling readers and writers. Yet the components of at least initial solutions for all these problems exist in one form or another. The need is for better dissemination, evaluation, and comparison of interventions that work, so administrators and teachers can better select the interventions that are most appropriate for their individual students. In considering how to improve the academic achievement of our nation's struggling readers and writers, it is critical to remember that only 10 percent of students struggle with decoding (reading words accurately), and thirty years of research by the National Institute of Child Health and Human Development (NICHD) have provided solutions for these decoding problems. Thus this report focuses on the question of which elements of interventions are most promising for the large population of struggling students who already decode accurately but still struggle with reading and writing after third grade.

THE FIFTEEN KEY ELEMENTS OF EFFECTIVE ADOLESCENT LITERACY PROGRAMS

To establish a list of promising elements of effective adolescent literacy programs, the panel considered elements that had a substantial base in research and/or professional opinion. After considerable discussion, they determined a list of fifteen critical components (see Table 1). Literature supporting these elements is cited in Appendix A.

In an ideal world, schools would be able to implement all fifteen elements, but the list may also be used to construct a unique blend of elements suited to the needs of the students they serve. This report treats each element as a distinct entity, but it is important to recognize that the elements are often synergistically related, and the addition of one element can stimulate the inclusion of another. The elements should not be seen simply as isolated elements in an inventory of potential elements, but rather as a group in which elements have a dynamic and powerful interrelationship. For instance, it is difficult to implement text-based collaborative learning (Element 4) without a classroom library of diverse texts (Element 6). We expect that a mixture of these elements will generate the biggest return. It remains to be seen what that optimal mix is, and it may be different for different subpopulations of students.

THE OPTIMAL MIX

In the medical profession, treatment needs to be tailored to an individual patient's needs; at times, more than one intervention is needed to effectively treat a patient. Similarly, educators need to test mixes of intervention elements to find the ones that work best for students with different needs.

Table 1. Key Elements in Programs Designed to Improve Adolescent Literacy Achievement in Middle and High Schools

Instructional Improvements	Infrastructure Improvements
1. Direct, explicit comprehension instruction	10. Extended time for literacy
2. Effective instructional principles embedded in content	11. Professional development
3. Motivation and self-directed learning	12. Ongoing summative assessment of students and programs
4. Text-based collaborative learning	13. Teacher teams
5. Strategic tutoring	14. Leadership
6. Diverse texts	15. A comprehensive and coordinated literacy program
7. Intensive writing	
8. A technology component	
9. Ongoing formative assessment of students	

Two Categories of Elements: Instruction and Infrastructure

The list of elements is divided into two sections: instructional improvements and infrastructural improvements. While the instructional improvements can have a tremendous impact, it is important to realize that they would be more effective if they were implemented in conjunction with infrastructural supports. Furthermore, the instructional improvements are unlikely to be maintained or extended beyond the original intervention classrooms if these infrastructural factors are not in place. Despite the clear advantage of linking instructional improvements to infrastructural improvements, the list prioritizes instructional improvements because of our focus on the individual learner as the unit of intervention and analysis and on improved instruction as the most important element influencing student outcomes.

Improving the overall school climate is undeniably a critical factor in improving adolescent literacy, and school reorganization and reform efforts have helped dramatically in this area. However, it too often happens that the climate improves with little or no impact on achievement. For the biggest returns, stakeholders must invest in school reform, with an eye toward curricular improvement. That is, structure and infrastructure changes should be determined by curricular and instructional considerations. Too frequently, changes in school structure (for example, block scheduling, small schools, and so on) have been adopted without *first* carefully considering curricular and instructional implications.

The list of the fifteen key elements begins with instruction and then focuses on infrastructure that will support the instructional improvements. Improving instruction, whether done by an entire school or a single teacher, can have dramatic effects on student achievement. However, improving school infrastructure to better support literacy teachers and students *in addition to instructional improvement* will reap the biggest rewards. Ultimately, change can occur from the top down, the bottom up, or the middle in, but truly effective and enduring change must include elements of both instruction *and* infrastructure. There are no shortcuts; the process of implementing instructional *and* organizational change to improve adolescents' literacy skills is necessarily time-consuming and complex.

Instructional Elements

Direct, explicit comprehension instruction

Effective adolescent literacy interventions must address reading comprehension. A number of excellent approaches have been shown to be effective in middle and high school contexts, but no one approach is necessarily better than another; the ideal intervention will tap more than one comprehension instructional approach. Possible approaches include

- ***comprehension strategies instruction***, which is instruction that explicitly gives students strategies that aid them in comprehending a wide variety of texts;
- ***comprehension monitoring and metacognition instruction***, which is instruction that teaches students to become aware of how they understand while they read;

- *teacher modeling*, which involves the teacher reading texts aloud, making her own use of strategies and practices apparent to her students;
- *scaffolded instruction*, which involves teachers giving high support for students practicing new skills and then slowly decreasing that support to increase student ownership and self-sufficiency; and
- *apprenticeship models*, which involve teachers engaging students in a content-centered learning relationship.

DIRECT, EXPLICIT COMPREHENSION INSTRUCTION: AN EXAMPLE

Reciprocal Teaching is a **scaffolded approach** to teaching **comprehension strategies**. It was designed for youth at any grade level, typically scoring in the thirty-fifth percentile or below on standardized reading measures, with the aim of teaching them to actively process the text they read in small groups. The **teacher models** four critical strategies: *questioning, clarifying, predicting*, and *summarizing*. The teacher then transfers responsibility for implementing the strategies to students by having them work in small groups. Students either take turns using each strategy or lead discussions by using all four strategies, in the latter case becoming the "teacher." By taking turns using each of the strategies with a series of texts, children learn to independently and flexibly apply the strategies on their own.

Questioning poses questions based on a portion of a text the group has read, either aloud or silently.

Clarifying resolves confusions about words, phrases, or concepts, drawing on the text when possible.

Predicting suggests what will next happen in or be learned next from the text.

Summarizing sums up the content, identifying the gist of what has been read and discussed.

Source: Palincsar & Herrenkohl, 2002.

Note, too, that these approaches are not listed in order of importance and have been utilized by effective readers long before they were ever dubbed and defined as "strategies" or "metacognition."

> *From age ten, [Benjamin] Franklin was largely a self-taught reader (he had a tutor for a year). To improve his reading comprehension, he copied passages, made short summaries, rewrote passages, turned essays into rhyming verse and other games, and avidly discussed what he read with peers. [Frederick] Douglass was also briefly tutored but then forbidden to read. Forced to learn on his own, he too invented reading and writing exercises, summarized passages, played word games, and practiced giving speeches and responding to issues in debate. (Trabasso & Bouchard, 2002, p. 177)*

Many of the existing instructional options utilize more than one of these approaches. Whatever approach is utilized, teachers should teach these approaches explicitly by explaining to students how and when to use certain strategies. Teachers should also explain why they are teaching particular strategies and have students employ them in multiple contexts with texts from a variety of genres and subject areas.

Effective Instructional Principles Embedded in Content

This element has two forms. The first form applies to the language arts teacher. When instructional principles are embedded in content, the language arts teacher does not simply teach a technique (such as outlining) as an abstract skill, but teaches it using content-area materials. Students should receive

instruction and then practice their new skills using these materials. Too often reading and writing instruction focuses solely on literature and does not promote the transfer of the skills into the context of content-area materials. Furthermore, learning from reading in content-area texts requires skills that are different than the skills needed to comprehend literature. Language arts teachers need to expand their instruction to include approaches and texts that will facilitate not only comprehension but also learning from texts.

The second form of this element applies to subject-area teachers. When instructional principles are embedded in content, subject-area teachers provide or reinforce instruction in the skills and strategies that are particularly effective in their subject areas. This instruction should be coordinated with the language arts teachers, literacy coaches, and other subject-area teachers. The idea is not that content-area teachers should become reading and writing teachers, but rather that they should emphasize the reading and writing practices that are specific to their subjects, so students are encouraged to read and write like historians, scientists, mathematicians, and other subject-area experts. Additionally, it is important that all subject matter teachers use teaching aids and devices that will help at-risk students better understand and remember the content they are teaching. The use of such tools as graphic organizers, prompted outlines, structured reviews, guided discussions, and other instructional tactics that will modify and enhance the curriculum content in ways that promote its understanding and mastery have been shown to greatly enhance student performance—for all students in academically diverse classes, not just students who are struggling.

DIRECT, EXPLICIT COMPREHENSION INSTRUCTION: A SECOND EXAMPLE

Reading Apprenticeship puts the teacher in the role of content-area expert, and late-middle and high school students are "apprenticed" into the reasons and ways reading and writing are used within a "discipline" (subject area) and the strategies and thinking that are particularly useful in that discipline. In reading apprenticeship classrooms, *how* we read and *why* we read in the ways we do become part of the curriculum, accompanying a focus on what we read.

Rather than offering a sequence of strategies, reading apprenticeship is focused on creating classrooms where students become active and effective readers and learners. To accomplish this, teachers are encouraged to plan along four dimensions: *social, personal, cognitive,* and *knowledge-building.*

The ***social*** dimension focuses on establishing and maintaining a safe and supportive environment, where all members' processes, resources, and difficulties are shared and collaboration is valued.

The ***personal*** dimension focuses on improving students' identities and attitudes as readers and their interest in reading. It also promotes self-awareness, self-assessment, metacognition, and ownership.

The ***cognitive*** dimension is where students are given the reading tools and strategies they need to read like experts in the discipline.

The ***knowledge-building*** dimension focuses on building content and topic knowledge and knowledge of a discipline's typical text structures and styles.

The main tactic is that of metacognitive conversations that make the invisible aspects of these dimensions visible and open for discussion.

Source: Jordan, Jensen, & Greenleaf, 2001.

Motivation and Self-Directed Learning

This element addresses the need to promote greater student engagement and motivation. As students progress through the grades, they become increasingly "tuned out," and building student choices into the school day is an important way to reawaken student engagement. This is critical, because competency in reading is necessary but insufficient by itself to engender better academic performance. Students need to be self-regulating not only to become more successful academically, but also to be able to employ their skills flexibly long after they leave school.

EFFECTIVE INSTRUCTIONAL PRINCIPLES EMBEDDED IN CONTENT: AN EXAMPLE

The **Strategic Instruction Model (SIM)** provides teachers with an array of *Content Enhancement Routines* to enable them to teach complex curriculum content in ways that make it easier to understand and remember difficult subject matter. For example, there are routines that help teachers show how lesson or unit content is organized as well as to help them clearly explain the important features of a new concept. Additionally, SIM provides an array of targeted strategies to help students learn and deal with a variety of academic tasks. There are four reading strategies: the *Word Identification Strategy*, the *Visual Imagery Strategy*, the *Self-Questioning Strategy*, and the *Paraphrasing Strategy*.

The ***Word Identification Strategy*** helps students to break down multisyllabic words using three simple syllabication rules and a knowledge of roots, prefixes, and suffixes.

The ***Visual Imagery Strategy*** helps students create "mental movies" of narratives they read in order to increase comprehension.

The ***Self-Questioning Strategy*** helps students determine a motivation for reading by getting them to create questions about the material they will be reading, form predictions about what the answers will be, and locate their answers in the text.

The ***Paraphrasing Strategy*** helps students summarize the text stating the main idea and major details in their own words.

Source: Center for Research on Learning, 2001.

One way that motivation and engagement are instilled and maintained is to provide students with opportunities to select for themselves the materials they read and topics they research. One of the easiest ways to build some choice into the students' school day is to incorporate independent reading time in which they can read whatever they choose. Yet this piece of the curriculum is often dropped after the primary grades. Providing students with additional choices, such as research and writing topics, further stimulates motivated and engaged students. However, self-regulation is only developed when students are given choices *and* the instructional support and aids needed to succeed at their chosen tasks.

Another way to better engage students in literacy and learning is to promote relevancy in what students read and learn. As a first step, teachers need to "tune in" to their students' lives in order to understand what they find relevant and why. Then teachers can begin to redesign instruction so that it is more obviously relevant to students.

Text-Based Collaborative Learning

Another element is text-based collaborative learning, which means that when students work in small groups, they should not simply discuss a topic, but *interact with each other around a text*. This text might be assigned or self-selected reading, or it might be essays that the students are writing. The former case involves designing learning opportunities for pairs or small groups of students that are similar to the book clubs or literature circles implemented in primary grades. Learning is decentralized in these groups because the meaning drawn from a text or multiple texts is negotiated through a group process. In addition, such an approach is not limited to the language arts classroom, but can be implemented in subject-area classes and with students who have a wide range of abilities. For instance, students might read different texts about the Underground Railroad—each at his or her own reading level—and then present the ideas (rather than the plots) to the circle. A similar approach can be used in any subject area, even math, by having students work together on the same problem or on a set of similar problems. Moreover, text-based collaborative learning is effective in improving not only reading skills but also writing skills. The important aspect of this approach is that teachers provide scaffolding for engagement at every ability level in the class and promote better oral language and content-area skills by giving the students concrete problems to discuss or solve. Such an approach requires that the teacher provide instruction about how to use time effectively, which means assigning roles within each group, at least initially, to ensure effective implementation.

TEXT-BASED COLLABORATIVE LEARNING: AN EXAMPLE

Questioning the Author engages upper elementary students in whole-class or small-group discussions of texts (including nonfiction) aimed at improving their comprehension and critical-thinking skills. Through guiding "queries" (open-ended questions without clear right answers) teachers get children to literally question the author's purpose and choices; students eventually come to regard the text as fallible and as a source of information about the author's thinking. Notable in these discussions is the degree to which children are engaged in trying to comprehend the text. The technique also gets children to voice their confusions as they arise without fear of being regarded as "stupid" for not understanding, as in the following example, where a small group of fourth-grade students discusses a passage about hermit crabs that includes the line "As the crab grows, it changes its shell f or a larger one."

Michael: Maybe it's growing or something. It said it's changing its shell for a larger one. But do they take it off?

Nicole: They get them off with their claws.

Terrence: They exchange them.

Investigator: So, what are you saying isn't clear?

Michael: How could they change one shell? I mean, I thought it stuck to the body.

Nicole: But they get bigger, too.

Michael: I know, but when they grow I thought the shell grows with them.

Nicole: It's like people. Do you keep your clothes on and when you get bigger you break out of them?

Terrence: As the crab grows, the shell breaks and it exchanges for another. It wants a larger shell as it gets bigger than it is now.

Michael: It's like clothes, putting it on.

Source: McKeown, Beck, & Worthy, 1993, pp. 564–65.

Strategic Tutoring

Some students require or would benefit from intense, individualized instruction. This is particularly true of the student who struggles with decoding and fluency, but is also true of students requiring short-term, focused help. Such students should be given the opportunity to participate in tutoring, which need not occur only during the school day. Furthermore, through approaches detailed above, instruction in general education classes should be differentiated to allow students access to important content. Tutoring is referred to as strategic in this element to emphasize that while students may need tutorial help to acquire critical curriculum knowledge, they also need to be taught "how to learn" curriculum information. Hence, within strategic tutoring sessions, tutors teach learning strategies while helping students complete their content assignments. The goal of strategic tutoring is to empower adolescents to complete similar tasks independently in the future.

Diverse Texts

This element involves providing students with diverse texts that present a wide range of topics at a variety of reading levels. Whether teaching reading and writing or a subject area, teachers need to find texts at a wide range of difficulty levels. Too often students become frustrated because they are forced to read books that are simply too difficult for them to decode and comprehend simultaneously. Learning cannot occur under these conditions. Texts must be below students' frustration level, but must also be interesting; that is, they should be high interest and low readability. Given the wide range of reading and writing abilities present in almost any middle or high school classroom, this means having books available from a wide range of levels on the same topic. The term "diverse texts" is also used to indicate that the material should represent a wide range of topics. Topical diversity in any classroom (or school) library affords students more choices for self-selected reading and research projects. The range of topics should include a wide variety of cultural, linguistic, and demographic groups. Students should be able to find representatives of themselves in the available books, but they should also be able to find representatives of others about whom they wish to learn. High-interest, low-difficulty texts play a significant role in an adolescent literacy program and are critical for fostering the reading skills of struggling readers and the engagement of all students. In addition to using appropriate grade-level textbooks that may already be available in the classroom, it is crucial to have a range of texts in the classroom that link to multiple ability levels and connect to students' background experiences.

Intensive Writing

Effective adolescent literacy programs must include an element that helps students improve their writing skills. Fourteen percent of all freshmen entering degree-granting postsecondary institutions take remedial writing courses (NCES, 2004). At public two-year institutions, 23 percent of entering freshmen take remedial writing courses (NCES, 2004). Even the best readers in high school do not necessarily write well enough to succeed in the business world or college—or perform well on

the SAT, which now includes a writing component. As of January 2006, 849 degree-granting postsecondary institutions require students applying for admission to take the SAT writing component (College Board, 2006).

WRITING REMEDIATION NEEDED

More freshmen entering degree-granting postsecondary institutions take remedial writing courses than take remedial reading courses (NCES, 2004).

Research supports the idea that writing instruction also improves reading comprehension. For example, students who are given the opportunity to write in conjunction with reading show more evidence of critical thinking about reading. Likewise, many of the skills involved in writing—such as grammar and spelling—reinforce reading skills. However, traditional explicit grammar instruction is not effective and may actually be harmful to writing development, whereas instruction in sentence combining, summarization, and writing strategies significantly improve students' writing. Instruction in the writing process is also helpful, provided that it is connected to the kinds of writing tasks students will be expected to perform well in high school and beyond.

The defining characteristic of quality intensive writing instruction is not that there is simply more of it. Rather, such instruction has clear objectives and expectations and consistently challenges students, regardless of ability, to engage with academic content at high levels of reasoning.

A Technology Component

Professionals and lay people are increasingly voicing support for inclusion of this element in a literacy program, because technology plays an increasingly central role in our society. Technology is both a facilitator of literacy and a medium of literacy. Effective adolescent literacy programs therefore should use technology as both an instructional tool and an instructional topic.

As a tool, technology can help teachers provide needed supports for struggling readers, including instructional reinforcement and opportunities for guided practice. For example, there are computer programs that help students improve decoding, spelling, fluency, and vocabulary, and more programs are quickly being developed to address comprehension and writing.

As a topic, technology is changing the reading and writing demands of modern society. Reading and writing in the fast-paced, networked world require new skills unimaginable a decade ago.

Ongoing Formative Assessment of Students

This element is included under instructional improvements because the best instructional improvements are informed by ongoing assessment of student strengths and needs. Such assessments are often, but not exclusively, informal and frequently occur on a daily basis, and therefore are not necessarily suited to the summative task of accountability reporting systems. Data should be cataloged on a computer system that would allow teachers, administrators, and evaluators to inspect students' progress

individually and by class. These formative assessments are specifically designed to inform instruction on a very frequent basis so that adjustments in instruction can be made to ensure that students are on pace to reach mastery targets.

Infrastructural Elements

Extended Time for Literacy

None of the above-mentioned elements are likely to effect much change if instruction is limited to thirty or forty-five minutes per day. The panel strongly argued the need for two to four hours of literacy-connected learning daily. This time is to be spent with texts and a focus on reading and writing effectively. Although some of this time should be spent with a language arts teacher, instruction in science, history, and other subject areas qualifies as fulfilling the requirements of this element if the instruction is text centered and informed by instructional principles designed to convey content and also to practice and improve literacy skills.

To leverage time for increased interaction with texts across subject areas, teachers will need to reconceptualize their understanding of what it means to teach in a subject area. In other words, teachers need to realize they are not just teaching content knowledge but also ways of reading and writing specific to a subject area. This reconceptualization, in turn, will require rearticulation of standards and revision of preservice training.

Professional Development

Professional development does not refer to the typical onetime workshop, or even a short-term series of workshops, but to ongoing, long-term professional development, which is more likely to promote lasting, positive changes in teacher knowledge and practice. The development effort should also be systemic, including not only classroom teachers but also literacy coaches, resource room personnel, librarians, and administrators. Effective professional development will use data from research studies of adult learning and the conditions needed to effect sustained change. Professional development opportunities should be built into the regular school schedule, with consistent opportunities to learn about new research and practices as well as opportunities to implement and reflect upon new ideas. Effective professional development will help school personnel create and maintain indefinitely a team-oriented approach to improving the instruction and institutional structures that promote better adolescent literacy.

Ongoing Summative Assessment of Students and Programs

This element is listed under infrastructural improvements because of the substantial coordination that such assessment requires and because of its intended audience, which is the local school district administration, the state and federal departments of education, and others who fund and/or support the school, such as private foundations, the local community, parents, and students. In contrast to

formative assessments, these assessments are designed specifically for implementation with continuous progress-monitoring systems. These systems would allow teachers to track students throughout a school year and, ideally, over an entire academic career, from kindergarten through high school. In addition, these systems would allow for ongoing internal and external evaluation of the implemented program. These data and more formative assessment data could be catalogued on a computer system that would allow teachers, administrators, and evaluators to inspect students' progress individually, by class, by cohort, and by school. These assessments are more formal than the formative assessments, but should go beyond state assessments and be designed to demonstrate progress specific to school and program goals, and, if possible, to also inform instruction. Ideally, the assessment results would be generated and shared in a timely fashion so that they might also be of use to teachers in planning instruction and to students in monitoring their success and progress in school.

Teacher Teams

This element ensures that the school structure supports coordinated instruction and planning in an interdisciplinary teacher team. This vision centers on teachers meeting regularly to discuss students they have in common and to align instruction. In the primary grades students see one teacher; in middle and high school grades, their daily routine changes, and they see many teachers during discrete blocks of time devoted to discrete subjects. This shift often causes a loss in consistency in literacy instruction. Teacher teams are viewed as helpful for reestablishing coordinated instruction in higher grades and as a way to promote teacher collegiality and heighten the likelihood that no child will slip through the cracks. Teacher teams that meet regularly allow teachers to plan for consistency in instruction across subject areas, which is an important step toward a comprehensive and coordinated literacy program.

Leadership

Without a principal's clear commitment and enthusiasm, a curricular and instructional reform has no more chance of succeeding than any other schoolwide reform. It is critical that a principal assumes the role of an instructional leader, who demonstrates commitment and participates in the school community. This leadership role includes a principal building his or her own personal knowledge of how young people learn and struggle with reading and writing and how they differ in their needs. In addition, a principal who takes on the role of instructional leader will attend professional development sessions organized primarily for teachers. This knowledge and experience will give a principal the necessary understanding to organize and coordinate changes in a school's literacy program. It will further give a principal the proper foundation for making the necessary decisions to alter structural elements, such as class schedules, to ensure optimal programming for student learning.

This element also applies to teachers, who should assume leadership roles and spearhead curricular improvements. Teachers play a role in ensuring the success of curricular reform, and their involvement

is all the more crucial when a principal has not assumed the instructional leadership role. Without someone with an informed vision of what good literacy instruction entails leading the charge, instructional change is likely to be beset with problems.

A Comprehensive and Coordinated Literacy Program

In many ways, this component of a program is not obtainable without the other infrastructural improvements and is especially closely aligned to leadership and the establishment of teacher teams. Included in these teams would be additional school personnel, such as librarians, reading specialists, literacy coaches, and resource room teachers. Often in today's schools one teacher has no idea what another is teaching; this is particularly true in high schools. The vision for an effective literacy program recognizes that creating fluent and proficient readers and writers is a very complex task and requires that teachers coordinate their instruction to reinforce important strategies and concepts. It is important in a comprehensive and coordinated literacy program that teachers work in teams and are responsible for a cohort of students. This is not to advocate that math, science, and history teachers should become teachers of reading and writing, but rather that interdisciplinary teams that meet on a regular basis will provide opportunities for reading and writing teachers to better support content-area teachers. These teams can also create more consistent instruction by reinforcing reading and writing skills, such as note-taking and comprehension strategies. An effective literacy program should implement many of the instructional elements in a consistent and coordinated way.

Because the literacy needs of adolescents are so diverse, the intensity and nature of instruction in a comprehensive and coordinated literacy program—as well as which teachers are involved—will vary considerably. Some students need their content teachers to make only modest accommodations or adjustments; other students need learning strategies embedded in content material, explicit strategy instruction, or instruction in basic skills or even the basic language elements that are the foundation of literacy competence. Secondary schools must recognize adolescents' varying needs and develop a comprehensive program that will successfully address the needs of all their students.

A comprehensive and coordinated literacy program will also initiate or augment collaborations with out-of-school organizations and the local community to provide more broad-based interactions and greater support for students. These collaborations would further secure student motivation by providing students with a sense of consistency between what they experience in and out of school.

THE VISION: SIMULTANEOUSLY IMPROVE ACHIEVEMENT AND DEVELOP THE RESEARCH BASE

The discussion that follows provides details of an overarching approach to implementing the elements of adolescent literacy programs which not only will improve student achievement in the short run but also will improve the research base defining which factors contribute most to improved student achievement. The factors most likely to yield the desired outcomes are then discussed in depth.

Primary among the recommendations to stakeholders in adolescent literacy is to approach the task of intervention with the dual purposes of effecting immediate change for current students and building the field's knowledge base. Too often these are seen as goals that work in opposition: one must either support a small-scale demonstration project designed to contribute to the research base on adolescent literacy or support large-scale implementations designed to improve current student outcomes. Although knowledge can be gained from both approaches, scale-up investigations often provide only knowledge about effective scaling practices rather than effective literacy practices. However, this perceived trade-off between increasing knowledge and increasing achievement is a false dichotomy. We can learn a great deal about which literacy elements are effective for which students by attending to the challenges and variations in different implementations and contexts.

By embracing the concept of a "planned variation" of elements, which is described below, various stakeholders could coordinate their efforts to address the need to improve the achievement of today's students while simultaneously augmenting the field's knowledge base. For instance, funders would set their own priorities for selecting programs but would require funded programs to conduct rigorous evaluations that allow comparisons across projects. Likewise, states and districts trying out new interventions would require consistent and rigorous evaluation across interventions and contexts for cross-comparison. This balanced vision combines action with research and enhances the chances that educators will learn how to select better and more effective interventions to advance literacy.

Evaluations: An Opportunity for Research

To resolve the problem of deciding between the competing priorities of building knowledge and improving achievement—between the two extremes of small-scale demonstrations and large-scale implementations—policymakers, funders, and educators are urged to envision their choice and backing of programs as an opportunity to perform controlled, rigorous research. Researchers, too, are urged to reconceptualize how they perform research, especially by coordinating their research efforts.

A Mix of Intervention Elements

By heeding the inclusion and exclusion of specific promising factors present in grant proposals, stakeholders can select programs and interventions with regard to the mix of elements they represent. In this way, stakeholders—be they researchers, funders, policymakers, or educators in a single school—can contribute to an invaluable universal database that would be useful for studying how certain factors interact when different mixes of elements are implemented with different populations of students. Such a "planned variation" of factors would allow comparison not only of the effectiveness of entire programs, but also the effectiveness of specific components of the programs. Table 2 shows six hypothetical programs that share some elements and not others. Note how hypothetical programs 3 and 4 include many common elements, but only one includes extended time for literacy instruction and practice. Programs 3 and 4 could then be evaluated with regard to the elements they share and also for the main difference between them.

Balancing Purposes

Basic Experimental Research
Small Scale Demonstration Pilots

Pro
Adds much to knowledge base

Con
Affects few students

Program-Specific Evaluation
Large-Scale Implementations

Con
Adds little to knowledge base

Pro
Affects numerous students

Planned Variation of Program Elements
Evaluation of Common Outcomes across Programs

Pro
Adds much to knowledge base

Pro
Affects many students

Table 2. An Example of the Suggested "Planned Variation" Experiment with Six Hypothetical Adolescent Literacy Programs

	Elements	Program 1	2	3	4	5	6
Instructional	Direct, explicit comprehension instruction	✓	✓	✓	✓	✓	✓
	Effective instructional principles embedded in content	✓	✓	✓	✓	✓	✓
	Motivation and self-directed learning		✓	✓	✓	✓	✓
	Text-based collaborative learning			✓	✓	✓	✓
	Strategic tutoring					✓	✓
	Diverse texts					✓	✓
	Intensive writing						✓
	A technology component						✓
	Ongoing formative assessment of students	✓	✓	✓	✓	✓	✓
Infrastructural	Extended time for literacy				✓	✓	✓
	Professional development	✓	✓	✓	✓	✓	✓
	Ongoing summative assessment of students and programs	✓	✓	✓	✓	✓	✓
	Teacher teams			✓	✓	✓	✓
	Leadership			✓	✓	✓	✓
	A comprehensive and coordinated literacy program					✓	✓

Of course, comparing all possible combinations of the elements is not feasible, but some comparisons across programs may help build the adolescent literacy knowledge base more quickly than would otherwise be possible. Thus, the panel recommends that stakeholders, especially policymakers and funders, coordinate their efforts so that they think of and evaluate programs as unique mixes of intervention elements rather than as single entities. Such an approach would permit comparisons across programs and determination of the value-added contribution of certain elements. It might also allow researchers to pinpoint why one combination of elements would work, for example, in rural Montana but not in urban Columbus, Ohio.

Measure Common Outcomes

In order to facilitate these comparisons, stakeholders should require similarly structured evaluations of programs. Programs may use different tools to assess student progress, but all the programs should be required to measure the same outcomes, ideally using common measures. Even though a literacy program may not target a specific outcome, such as motivation, it may still have an effect on it. By expanding evaluations to include a requisite set of outcomes, the intended and unintended effects of implemented literacy programs and their components will become better understood.

The most useful outcomes that should be required for comparing across programs are

- word-level reading;
- fluency;
- reading level;
- reading comprehension;
- writing;
- motivation;
- content achievement;
- state assessments;
- student response; and
- fidelity of model adoption/implementation.

These ten outcomes should be measured in any middle or high school literacy initiative. Most of them relate directly to literacy and to student performance and achievement, but fidelity of implementation and student response do not, and they bear explanation.

Fidelity of implementation of curricular reform efforts is often overlooked in evaluations, but it is critically related to how successful a program will be. The degree to which teachers are faithful to a new literacy initiative should therefore be measured to understand why results may be highly variable for one initiative and to ensure that comparisons are not muddied by poor or uneven implementation.

Student response, which includes statistical indicators, behavioral responses, and active feedback, is a critical component of the improvement process. Statistical indicators require using school and district data regarding truancy, retention, dropout rate, graduation, tardiness, and attendance. Behavioral indicators can be gleaned from these statistics, but information on specific behavioral responses, such as feelings of hope and aspirations, engagement with the materials, and the ability to read strategically, can also be measured through observation, self-report, and assessment tasks. Student feedback not only can help to determine whether motivation is being increased but also may provide important ideas about how to further improve or revise initiatives to ensure success.

The rest of the suggested outcomes involve student performance and achievement; these outcomes allow for the evaluation of program impact and have the added benefit of allowing for disaggregation of a program's effects on subpopulations of struggling readers and writers. Such disaggregation would enable description of the differentiated effect of interventions and their components on struggling readers and writers with different levels of literacy skills and struggles. If students have not been randomly assigned to programs, these descriptions would point the way for promising experimental studies utilizing random assignment.

To further facilitate comparisons, programs should follow the current movement in educational research and report those outcomes in mean differences and also in effect sizes. Although program administrators might determine the specific measures they use, they should be required to defend

those measures as valid and reliable instruments. Moreover, programs should always include any additional measures related theoretically to their intervention, even if they are not among the commonly measured outcomes.

To aid in cross-program comparisons, funders and other stakeholders who back multiple programs should consider specifying not only outcomes but also measures to be used across sites and programs. In addition, the timing and number of waves of data collection—such as pre- and post-intervention testing in fall and spring; pre-, mid-, and post-intervention testing in fall, winter, and spring; and so on—should also be controlled as much as possible. However, programs would no doubt require support to coordinate data collection in this manner. Other factors that stakeholders should consider controlling across funded programs are

- the type and extent of professional development;
- demographic information about students that must be collected;
- contextual information about classrooms, schools, and communities;
- the structure of progress and final reports and data tables; and
- the creation and structure of public use data files.

The first three of these are intended to aid in the description and interpretation process, whereas the last two are intended to facilitate cross-program comparisons and the research synthesis that are envisioned.

Comparison Groups Needed

Stakeholders should encourage the use of comparison groups in evaluations. These groups might be students in the same school or in a neighboring school in the same or a similar district. Comparison groups should not be haphazardly recruited, but should be matched to intervention schools on key characteristics, such as student population, school size, and school philosophy. For instance, it would not be useful to compare a traditionally organized school with a large and predominantly low-socioeconomic-status student population to a smaller school that implements a projects-based approach to instruction and has a more heterogeneous population. Attention to demographics and school characteristics should be incorporated into evaluation planning, and these might also be varied systematically. Such systematic variation would allow determination of whether certain contexts have more success with certain elements than others.

Moreover, just as fidelity of implementation should be tracked in the intervention, instruction in the comparison classes or schools also should be described and tracked. Other important contextual information, such as teacher experience and education, should be tracked as well. Such information would add to the understanding of why certain elements may be more or less effective in certain contexts.

This coordinated approach should allow description of which interventions will work best for which subpopulations of struggling readers and in which contexts. As stated earlier, no one intervention can be expected to remedy every problem, but some interventions may have unplanned beneficial (or deleterious) effects, and the recommended evaluation methods would facilitate identification of these effects.

WHAT IS THE OPTIMAL MIX?

Although research and substantial professional opinion support all fifteen key elements, the optimal mix of these factors has yet to be determined. However, appropriate remediation of adolescent literacy difficulties does not involve simply reteaching elementary school-level material. Approaches that demonstrably work in elementary schools will not necessarily prove effective with older students, because they may not be developmentally appropriate or may fail to address the highly specific, diverse, and advanced needs of adolescents. Nor does the remediation of adolescent literacy difficulties involve indiscriminately layering on all fifteen key elements. Choices should be matched to school and student needs and should engage teachers and students in an approach to learning that is grounded in a problem-solving process.

Although most of the elements are well supported by research and/or professional opinion, three of the elements are more foundational than others. Without appropriate and ongoing professional development, instructional innovations are unlikely to be sustained or even initially implemented effectively. Moreover, if instruction is not closely informed by ongoing formative assessment, it is too likely that teachers will overlook important gaps and improvements in students' skills and knowledge, undermining the efficacy of instructional innovations. Finally, ongoing summative assessment is required for accountability purposes in order to evaluate the effectiveness of programs overall, for subgroups of students, and for individual students. The panel recommends that funders and other stakeholders back proposed program implementations and research that have the infrastructure to provide professional development and ongoing summative assessment, as well as ongoing formative assessment as the background for instructional elements.

15 - 3 = 0

Without

- professional development,
- ongoing formative assessment of students, and
- ongoing summative assessment of students and programs

as the foundation of any middle or high school literacy program, we cannot hope to effect major change in adolescent literacy achievement, no matter what instructional innovations are introduced.

However, we are not suggesting that these three elements alone can improve adolescent literacy achievement. Such a view would underestimate seriously the complex nature of the adolescent literacy problem. Instead, these elements should be seen as a *non-negotiable foundation* on which other elements should be built in order to address the wide range of problems that struggling middle and high school students experience. These three elements are suggested as an attempt to define the requisite starting point for an effective literacy program. The decision to restrict this group to three elements was rather arbitrary, and one could credibly argue that the foundation should be expanded to include other elements, most particularly extended time on task. Indeed, some of the most effective programs aimed at improving adolescent literacy that the panel has considered contain many of the listed elements.

Thus, these three elements should be considered only as the minimum foundation that all programs should have in common, so that the impact of differences in the other included elements become the focus of study.

It is critical to realize that expanding intervention to include other elements may not produce a simple additive effect, but that the elements may interact synergistically. For instance, the combination of two elements, such as diverse texts and text-based collaborative learning, may stimulate better literacy skills and subject-area learning than the two would separately, such that the improvement resulting from implementing both may be more than the sum of the effects of both implemented separately. Thus, interactions among elements ought to be explored in the analysis of programs.

It should be determined whether certain combinations are more or less effective for certain populations of struggling readers, and to what extent the effects depend on the larger context those readers inhabit, rather than assuming that one mix is most effective for all students in all situations. Results should be reported in a consistent way across programs to promote this comparative analysis, and programs should be described thoroughly to promote replication of the successful implementation of elements.

A CHALLENGE

Today young people who leave high school without excellent and flexible reading and writing skills stand at a great disadvantage. In the past, those students who dropped out of high school could count on an array of options for establishing a productive and successful life. But in a society driven by knowledge and ever-accelerating demands for reading and writing skills, very few options exist for young people lacking a high school diploma. Even with a diploma in hand, today's young people face increasing literacy demands. Yet the large number of students who struggle with reading and writing has not changed noticeably in decades. This disparity between the demands of modern life and the inadequate literacy achievement of eight million struggling readers and writers has therefore given a new urgency to the need for reform.

Nevertheless, it is possible to enhance adolescent literacy achievement now while at the same time refining and extending the knowledge base of the entire field. This report offers an innovative, balanced vision for action and research—action that will improve the achievement of today's youth, and research that will better our chances of improving the achievement of tomorrow's youth.

But to make this ambitious vision a reality, funders, researchers, policymakers, administrators, teachers, parents, and students must join forces as common stakeholders in the improvement of adolescent literacy. The challenge is to select programs in a manner that conceptualizes them as unique mixes of the fifteen key elements and to require that supported programs use common evaluation guidelines and procedures. If stakeholders would embrace this vision for conceptualizing how to choose and evaluate programs, so much more than immediate improvement in student outcomes might be achieved. We all hold a stake in the literacy achievement of youth, and if we do not rise to meet this challenge today, we risk our cadre of struggling readers and writers facing a future of sharply diminishing opportunities. The ultimate beneficiaries will be not only those young people currently struggling against literacy obstacles, but also the young people of the future whose obstacles will be all the greater if we do not act now.

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APPENDIX A: LITERATURE SUPPORTING EACH OF THE FIFTEEN KEY ELEMENTS

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APPENDIX B: PANEL MEMBERS

Gina Biancarosa is an advanced doctoral student at the Harvard Graduate School of Education, where she received a Larsen Fellowship and a Spencer Research Training Grant. She has been an adjunct professor at Boston College. She coauthored, with Catherine Snow, the Carnegie Corporation of New York report *Adolescent Literacy: What Do We Know and Where Do We Go from Here?*; with Ilene Berman, the National Governors Association report *Reading to Achieve: A Governor's Guide to Adolescent Literacy*, and, with Gil Noam, the book *Afterschool Education: Approaches to an Emerging Field*. Her dissertation research centers on the relationship between reading fluency and reading comprehension. She is currently involved in Boston Public Schools' efforts to describe the heterogeneity of struggling middle school readers.

Donald Deshler is a professor of special education in the School of Education and director of the Center for Research on Learning at the University of Kansas, where he provides leadership for the research, product development, and staff development activities. He is the author of the textbooks *Teaching the Learning Disabled Adolescent: Strategies* and *Methods and Teaching Content to All: Evidence-Based Inclusive Practices in Middle and Secondary Schools*. He was the original editor of the Council for Learning Disabilities' journal, the *Learning Disability Quarterly*, and is currently on the editorial boards of six other journals in learning disabilities and special education. Deshler is the recipient of the J. E. Wallace Wallin award from the Council for Exceptional Children and the Learning Disabilities Association award from the Learning Disabilities Association of America for outstanding research and service for at-risk populations.

David Francis is a professor of quantitative methods and chair of the Department of Psychology at the University of Houston, where he also serves as director of the Texas Institute for Measurement, Evaluation, and Statistics. He has authored or coauthored more than ninety peer-reviewed articles and book chapters and is a fellow of Division 5 (Measurement, Evaluation, and Statistics) of the American Psychological Association. He currently serves on the independent review panel for the National Assessment of Title I, the National Technical Advisory Group of the What Works Clearinghouse, and the National Literacy Panel on Language Minority Children and Youth. His research in early literacy and developmental disabilities is currently funded by the National Institute of Child Health and Human Development and the Institute for Education Sciences of the U.S. Department of Education. He is a codeveloper of the Texas Primary Reading Inventory and Tejas LEE early reading assessments.

Susan Frost is director of Education Priorities, an education policy and advocacy consulting firm. Previously, she was founding president of the Alliance for Excellent Education. From 1994 to 2000, she served as the senior advisor to U.S. Secretary of Education Richard Riley. She has also been the executive director of the Committee for Education Funding, an education legislative aide to the U.S. Senate Labor and Human Resources Committee, and an elementary school teacher in the Kansas Public School System. She received the Special Friend to Children award from the National Association of School Psychologists, the Distinguished Service to Education award from the National Association of Elementary School Principals, and the I Care award from the American Association of School Administrators. She currently sits on the steering committee of the National High School Alliance and is a member of the National TRIO Clearinghouse Advisory Committee.

John Guthrie is a professor of human development and director of the Maryland Literacy Research Center at the University of Maryland at College Park. Prior to this position Guthrie headed the University of Maryland's Center for Educational Research and Development. Guthrie was formerly the director of research for the International Reading Association (1974–84), and the codirector of the National Reading Research Center, which conducted studies of reading, writing, science and history, learning, assessment, and professional development. He received a PhD from the University of Illinois in educational psychology. In 1992, the National Reading Conference awarded him the Oscar Causey award for outstanding contributions to reading research. He is a fellow in the American Psychological Association, American Psychological Society, and the National Council of Research in English and was elected to the Reading Hall of Fame in 1994.

Andrés Henríquez is a program officer in the Education Division of Carnegie Corporation of New York, where he leads the Corporation's Advancing Literacy: Reading to Learn initiative. Prior to joining the Corporation, Henríquez served as the assistant director for strategic planning, Center for Children and Technology, at the New York offices of the Education Development Center. He has also worked at the National Science Foundation in Washington, D.C., as an associate program director, responsible for monitoring the Network Infrastructure for Education, and assisted with the Research in Education Policy and Practice program. He has served as a field research coordinator at the Children's Television Workshop and as a senior research analyst at MTV Networks. Henríquez is also a certified teacher and taught for five years at a public elementary school in East Harlem.

Michael Kamil is professor of psychological studies in education and learning, design, and technology at Stanford University. He has been the editor of numerous reading research journals, including the *Journal of Reading Behavior* (1988–89) and *Reading Research Quarterly* (1991–95). He coedited all three volumes of the *Handbook of Reading Research*, the most comprehensive set of reviews on topics in reading research. He was a member of the National Institute of Child Health and Human Development National Reading Panel and the RAND Reading Study Group. He is currently a member of the National Literacy Panel and chairman of the Framework Planning Committee for the National Assessment of Educational Progress. He has received the Albert J. Kingston award from the National Reading Conference and the Milton Jacobson Readability Research award from the International Reading Association.

Susan Follett Lusi is superintendent of Portsmouth Public Schools in Rhode Island. Previously, she served as the vice president for policy at the Alliance for Excellent Education and she was chief of staff for the Providence Public Schools in Providence, Rhode Island. She is author of the book *The Role of State Departments of Education in Complex School Reform*. She has also served as assistant commissioner for support services at the Rhode Island Department of Elementary and Secondary Education, director of policy for the Annenberg Institute for School Reform, and visiting assistant professor at the Taubman Center for Public Policy at Brown University.

James McPartland is professor of sociology and director of the Center for Social Organization of Schools at Johns Hopkins University, which is the parent organization that houses CRESPAR, the Center for Research on the Education of Students Placed At Risk. He is active on national and regional invitational groups on high school reform, including the American Youth Policy Forum on High Schools of the Millennium, the Maryland State Department of Education Task Force on Dropout Prevention, Intervention and Recovery, the Baltimore City Public Schools Steering

Committee on High School Reform, and as the high school specialist on the Harvard University Civil Rights Project for the Reauthorization of Title 1. He received a doctorate in sociology from Johns Hopkins and spent his early research years in Washington as a coauthor of the "Coleman Report," *Equality of Educational Opportunities*, and as a contributor to the U.S. Commission on Civil Rights report *Racial Isolation in the Public Schools*.

APPENDIX C: ADOLESCENT LITERACY FUNDERS FORUM (ALFF) MEMBERS

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Questions about the Adolescent Literacy Funders Forum should be addressed to Andrés Henríquez at Carnegie Corporation of New York: (212) 207-6314 or AH@carnegie.org.

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