Adolescent Literacy and the Achievement Gap:

What Do We Know and Where Do We Go From Here?

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Executive Summary

Despite decades of reform efforts, certain groups of youth—African-Americans, Latinos, English Language Learners (ELLs), and those from low-income homes—continue to underperform on common indicators of academic achievement. The current trend toward high-stakes testing makes the achievement gap both more glaring and more consequential. One key root of the gap is disparities in literacy achievement. Although research has taught us much about what is needed to learn to read words off a page, it has provided much less knowledge about effective means of helping students learn to read to learn.

While many teaching approaches exist, they often do not evaluate themselves in similar ways, making comparisons across programs and large-scale evaluation difficult. Many instructional innovations are researcher-initiated, and never get furnished with the tools needed for sustained large-scale use. Furthermore, a dearth of information exists about novel approaches or adaptations of effective approaches designed specifically for use with the groups of underperforming readers, especially English Language Learners—a growing population in American schools, one that presents enormous variation, and a population that brings both unique strengths and challenges to classroom learning.

Based on a brief review of research on adolescent literacy, and of the commitments of leading public and private funding organizations, we conclude there is a pressing need to coordinate research and evaluation in order to help educators make progress in closing the adolescent and pre-adolescent literacy achievement gap. The first meeting of a group of literacy funders, hosted by Carnegie Corporation, provided an excellent foundation for coordination of funding efforts; the group proposed to formalize its existence, as the Adolescent Literacy Funders Forum (ALFF). The forum does not involve a commitment of funds, but rather is envisioned as an important breeding ground for ideas on how best to serve the most under-served populations of adolescents, those whose academic achievement is most at risk: African-American, Latino, ELL, and low-income children.

Various concrete steps for ALFF were proposed. ALFF should sponsor an information-sharing website with the aim of benefiting funders, those with funding, those seeking funding, and those simply looking for ideas, information, or evaluations of initiatives. In addition to documenting past and present work and achievements, a publicly known mechanism for dissemination may well inspire new directions for intervention and research.

Based on our review of the literature, summarization of current initiatives, and the discussions held at the Funders Meeting, we conclude that coordinated effort is needed to jumpstart a focus on adolescent literacy in order to resolve the minority achievement gap. We cannot tolerate the slow process of accumulating basic research knowledge before starting to think about improving practice. Unfortunately, we also identify a second gap—the gap between what we are doing to improve the literacy achievement of under-performing adolescents and what we would need to know and do in order to address this pressing social problem. We hope that ALFF may provide a springboard for bold, future collaborations among the organizations concerned with this problem.

Introduction

Adolescent literacy is undergoing a renewal of interest as a focus for research and instruction. This renewal is due in large part to continued failures to close the achievement gap between privileged and not-so-privileged high school students. Educational researchers have proposed and tested a number of solutions to this problem, many of them addressing students' need for better literacy instruction, and have identified areas where further research and development are needed. Private and public organizations have also tackled the problem from a variety of angles and perspectives.

Based on our review of the current initiatives and discussions held during a one-day meeting of private and public funders of education reform efforts,[1] we identify a second critical gap—the gap between what we currently are doing to improve the literacy achievement of under-performing adolescents and what we would need to know and do in order to truly address this pressing social problem.

In this paper, we briefly review evidence for the persistence of the achievement gap, and its connection to adolescent and preadolescent literacy. We review a selection of these research and program initiatives focused on improving adolescent academic achievement by targeting literacy. Finally, current and planned efforts of the public and private funding institutions that attended the May 30th meeting are summarized and a heuristic for conceptualizing the intersections of funding efforts is presented. The report concludes with some of the ideas for collaboration and coordination of future funding efforts proposed by the meeting attendees and additional suggestions from the authors.

The Achievement Gap

Certain groups continue to perform significantly below expectation at the upper elementary and high school levels; these groups include African-Americans, Latinos, students whose first/home language is not English, and youngsters living in poverty. Headlines from the spring of 2003 document the overrepresentation of minority students among high school seniors who met all graduation requirements but didn't get diplomas because they couldn't pass their state's high-stakes

| Table 1. NAEP Achievement Level Definitions	
Basic	Partial mastery
Proficient	Solid academic performance
Advanced	Superior performance
Source: National Center for Education Statistics Website (May 14, 2003).	

reading test. States such as Massachusetts and Florida scramble to devise supplementary educational experiences for students who have failed the graduation tests. Meanwhile considerable evidence suggests that many students, in particular minority group members, are dropping out of high school in anticipation of not receiving diplomas.

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[1] This report was originally written as a basis for discussion among public and private funding institutions; the first draft summarized these institutions' initiatives relevant to adolescent literacy. The report also incorporates ideas expressed by the representatives who attended a one-day meeting held at Carnegie Corporation of New York on May 30, 2003. See the Appendix for a list of meeting participants.

The overrepresentation of minorities among those who drop out or fail is unsurprising in light of the perennial gap in achievement observed on the National Assessment of Educational Progress (NAEP; http://nces.ed.gov/nationsreportcard) assessments of writing and reading at every grade level. Typically given every four years, the NAEP tests fourth, eighth, and twelfth graders on a variety of academic skills, and the results are considered the "Nation's Report Card." Children are scored as having Basic, Proficient, or Advanced achievement (see Table 1). Children who do not score well enough to achieve even a Basic rating fall into a fourth category: Below Basic.

On the 1998 NAEP writing assessment, all ethnic groups have relatively similar percentages of children performing at the Basic level in the 4th, 8th, and 12th grades, yet there is great disparity in the percentages performing at Below Basic and Proficient levels (National Center for Education Statistics, 1999b; see Figure 1). While fewer than 10% of Whites and Asian/Pacific Islanders score Below Basic in 4th and 8th grades, closer to 30% of Blacks, Hispanics, and American Indians do. Performance at the Proficient level shows the directly complementary pattern; about 30% of Whites and Asian/Pacific Islanders but only about 10% of Blacks, Hispanics, and American Indians achieve the Proficient level. And while the percentage of students at the Below Basic level increased in 12th grade for all ethnic groups, the basic pattern remains the same, with Blacks, Hispanics, and American Indians substantially underrepresented at the Proficient level. The same pattern of disparity is observed when children who are eligible for free and reduced-price school lunches (an index of low socioeconomic status) are compared to those who are not (National Center for Education Statistics, 1999b).

NAEP 1998 Results: Writing

Grade 4

Grade 8

Grade 12

■ Below Basic □ Basic □ Proficient □ Advanced
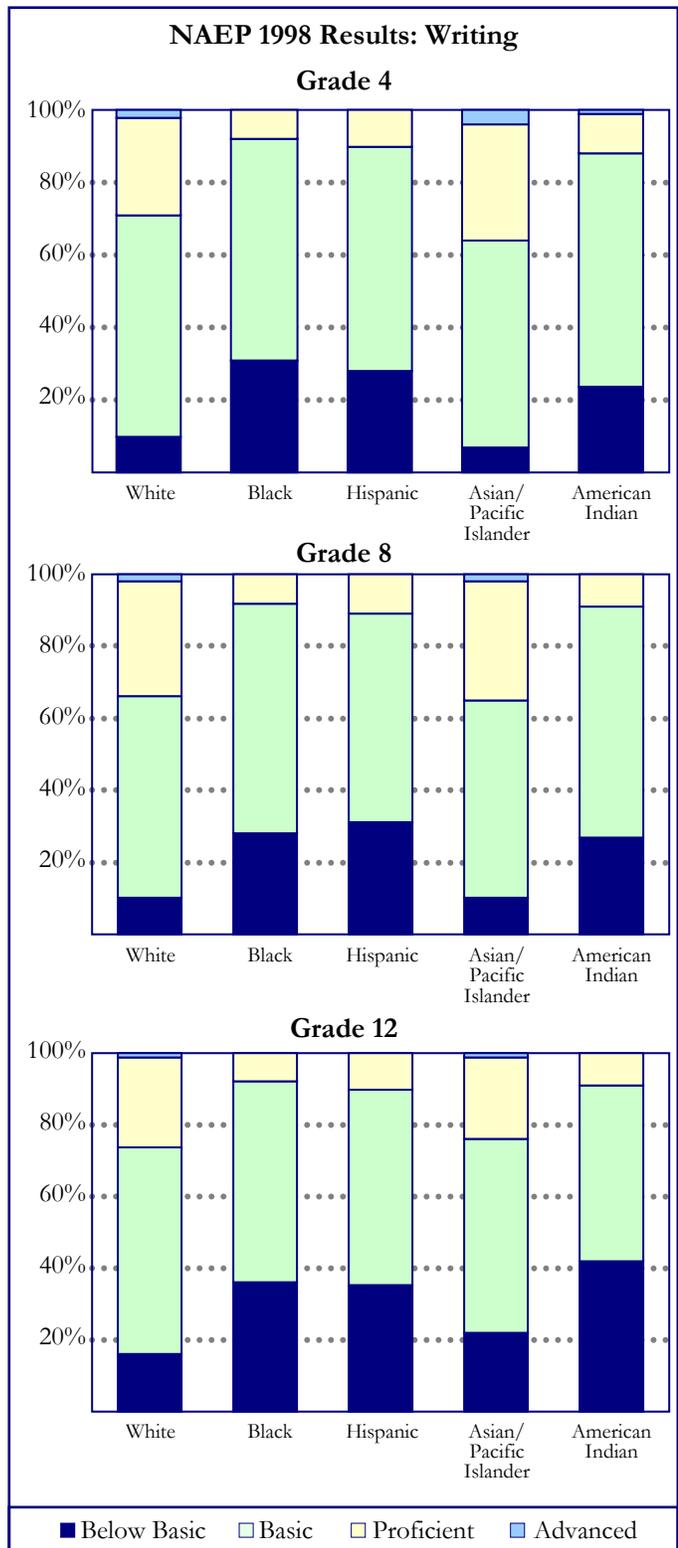
The disparities in reading achievement are more dramatic still. Whites, Asian/Pacific Islanders, and children ineligible for free/reduced-price lunches outperform other groups by an even wider margin (National Center for Education Statistics, 1999a; see Figure 2). Note that over half of all Blacks, Hispanics, and American Indian 4th graders perform at the Below Basic level and little more than 15% perform at the Proficient level or better. A smaller percentage of children from these populations in 8th and 12th grade score at the Below Basic level and a greater percentage at the Proficient level. Yet, we must consider that dropout rates may be just as responsible for the apparent decrease in Below Basic achievers as improved performance. In addition, these figures are still shockingly out of proportion with those for White and Asian/Pacific Islanders. For instance, almost half of White 12th graders perform at the Proficient level or better, while almost half of Black 12th graders perform at the Below Basic level.

Furthermore, the most noticeable statistically significant improvements in performance in reading across the last decade were within the White subgroup. Although the percentage of Black 8th graders performing at the Below Basic level decreased slightly between 1994 and 1998, only the percentage of Black Basic achievers increased. In contrast, the percentage of Whites at the Below Basic level in 8th grade also decreased, but both the percentages of both Basic and Proficient level achievers increased. And among 12th graders, only the percentage of White students at the Proficient level increased. No other minority groups changed significantly in their performance. With increasing percentages of Whites performing at the Proficient level in the 8th and 12th grades, the achievement gap between minorities and Whites actually seems to be increasing. Any way you look at it, the NAEP results show clearly that educational inequities persist. At the same time they suggest that efforts to improve literacy instruction can be successful, at least with one segment of the school population.

NAEP 1998 Results: Reading

Grade 4

Grade 8

Grade 12

■ Below Basic   □ Basic   □ Proficient   □ Advanced
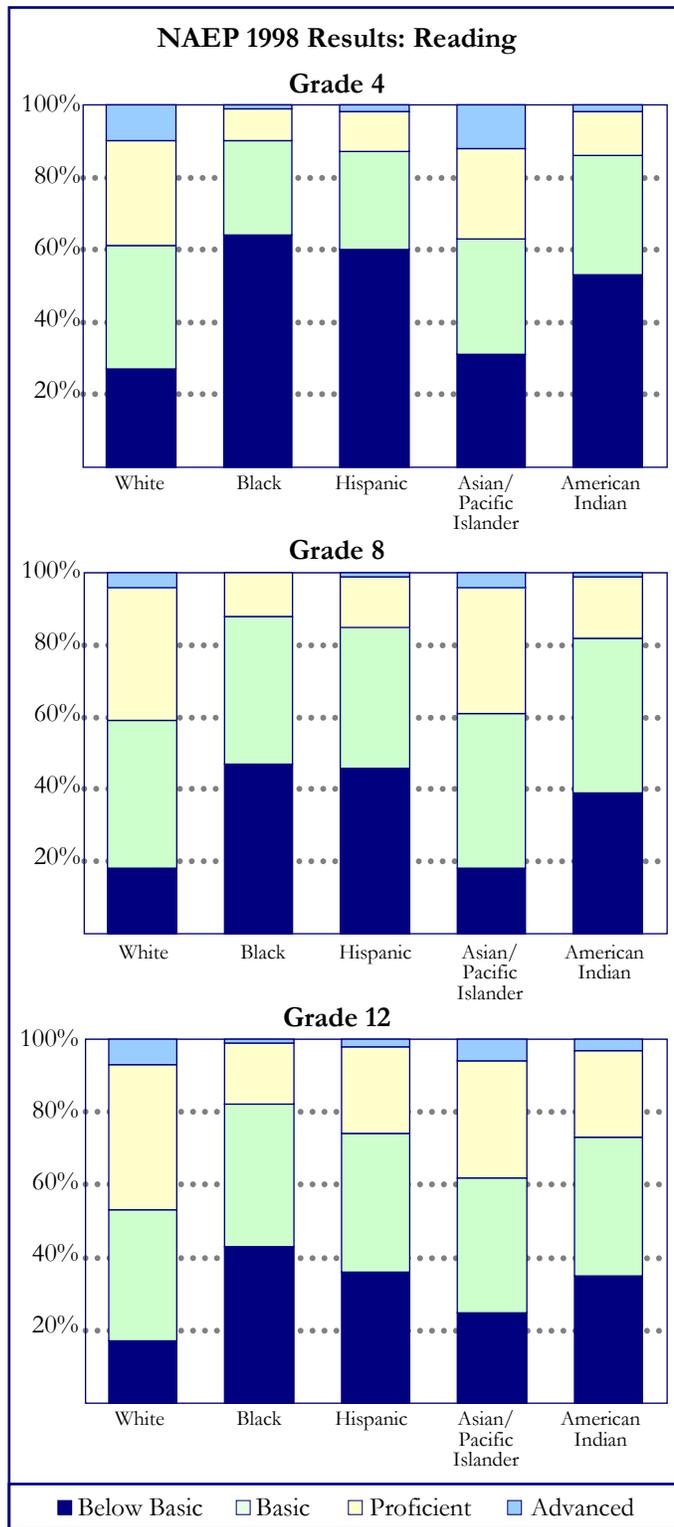
The Connection Between Literacy and the Achievement Gap

School reform efforts, U.S. Department of Education funding for states, and media interest have focused in recent years on early literacy—improving reading instruction in kindergarten through 3rd grade. Nonetheless, interest in adolescent literacy has also been building. Indeed, the shift in attention is notable among many prominent researchers and organizations. The International Reading Association (IRA; http://www.reading.org/) recently issued two different position statements on adolescent and young adolescent literacy (IRA & NMSA, 2001; Moore, Bean, Birdyshaw, & Rycik, 1999). Their 2001 statement in collaboration with the National Middle School Association (http://www.nmsa.org/) calls for greater public and professional attention to adolescent and young adolescent literacy. In 2002, the journal of the College Reading Association (http://explorers.tsuniv.edu/cra/), *Reading Research and Instruction*, published a special issue on adolescent literacy, and in 2003, the American Federation of Teachers' journal *The American Educator* (http://www.aft.org/american_educator/spring2003/index.html) followed suit. What Jeanne Chall and colleagues once dubbed the "fourth-grade slump" has become, in the *American Educator's* special issue, "The Fourth-Grade Plunge" (American Federation of Teachers, 2003). The "fourth grade slump" refers to how most children's growth in reading skills and achievement seems to stall at the fourth grade—a phenomenon noted by teachers, administrators, and researchers alike. The change in language from "slump" to "plunge" points to the growing sense of urgency around addressing the literacy needs of pre-adolescent and adolescent students.

This urgency may seem puzzling to those who think only about the mechanics of reading and writing or to adults for whom reading and writing are automatic processes. For the proficient reader, comprehension just seems to happen naturally. If the basics of "decoding"—or accurately sounding out the words on a page—are in place, shouldn't comprehension simply follow? With a solid foundation, isn't the rest simply a matter of improving content knowledge? As one of the IRA position statements emphasizes, "a good start is critical, but not sufficient" to produce proficient, flexible adolescent readers (IRA & NMSA, 2001, p. 1). Notwithstanding the laudable efforts by the U.S. Department of Education to bring all children to similar levels of reading skill by end of 3rd grade, through Reading First funding to states, it would be foolhardy to think that these efforts, even if wildly successful, will by themselves eliminate reading failure or the achievement gap in the middle and high school years.

Learning to read to learn. The disparities observed in literacy outcomes have implications beyond reading and writing skills themselves, because literacy is the prerequisite to academic achievement in middle and secondary school and beyond. The notion that normally developing children "learn to read" prior to fourth grade and then transition into "reading to learn" comes from the work of Jeanne Chall (1983; 1996). This view has been widely disseminated by the popular media. However, even within Chall's own description of her stage theory of reading, the later stages might be more appropriately termed "learning to read to learn" than simply "reading to learn."

As content demands increase, literacy demands also increase: students are expected to read and write across a wide variety of disciplines, genres, and materials with increasing skill, flexibility, and insight. Referring to the increasing complexity in meaning and vocabulary that content area texts present their readers, Chall and Jacobs state that "in order to read, understand, and learn from these more demanding texts, the readers must be fluent in recognizing words, and their vocabulary and knowledge need to expand, as does their ability to think critically and broadly" (2003, p. 14). Alluded to within this brief statement are a number of potential sources of trouble for the adolescent reader: decoding, fluency, vocabulary, background knowledge, and critical thinking.

Yet, this list does not exhaust the factors contributing to adolescents' experience of success (or failure) at literacy tasks. In addition to these requisites, readers must also develop and maintain a

motivation to read and learn (a characteristic commonly acknowledged as declining precipitously during the middle grades), the strategies to monitor and correct their own comprehension during the act of reading (from very specific strategies like outlining and summarizing to more flexible ones like generating questions and building arguments with textual evidence), and the flexibility to read for a wide variety of purposes (to follow directions, to learn new content, to respond aesthetically or critically, etc.) in a wide variety of media (from books and magazines to the ever-evolving array of multimedia options), all while developing their identities not only as readers but as members of particular social and cultural groups. When the child comes from a minority or marginalized social, cultural, or linguistic group, or is a newcomer to the United States, or both, the potential for struggle in any or all of these areas is heightened.

Four sources of differences among readers. The RAND Reading Study Group (RRSG, 2002; http://www.rand.org/multi/achievementforall/reading/readreport.html) posits differences among readers can be attributed to one of four sources: differences between readers, differences within readers, socio-cultural differences, and group differences (see Table 2).

Differences between readers are relatively stable characteristics of readers that influence their success, e.g., accuracy of word identification, reading fluency, and general vocabulary knowledge. Most of the factors listed in the discussion above can contribute to differences between readers. A student's identity as a reader also tends to be consistent, despite the fact that readers often do vary in their ability depending on text and context. The depth and breadth of domain knowledge, discourse skills, and linguistic proficiency can also cause fairly stable differences between readers. In addition, cognitive faculties such as working memory, capacity, processing speed, and attention play a role. Of course, some of these factors change as children grow and develop and many can be modified with instruction, but nonetheless in any group of readers differences in success at comprehension can to a large extent be accounted for by these kinds of inter-individual differences.

Some of these factors also vary *within* readers, i.e., as a function of what is being read and in what context. For instance, the same reader may perform quite differently when reading a history text assigned by the teacher and when reading a self-selected novel. Motivation to read, relevant background knowledge, and degree of personal connection to the text differentiate these two reading tasks, and can influence outcomes. The reader who can maintain high motivation even when reading for other-directed purposes, who has ample background knowledge across a wide array of domains, and who has good strategies to apply when experiencing comprehension difficulties will be a good reader across various sorts of texts and tasks. Most of us, though, find we read with greater comprehension when the topic interests us, when we have considerable background knowledge to bring to bear, and when we understand the purpose and expectations for a specific reading task. The struggling adolescent reader, so familiar to teachers, very often shows a high degree of variation in reading ability, doing quite well with some materials but particularly badly with content area texts.

Table 2. Factors creating differences in reading comprehension (Source: RAND Reading Study Group, 2002).

Between Reader	Within Reader	Socio-cultural	Group
• Word recognition • Fluency • General vocabulary • Oral language ability • Linguistic knowledge • Discourse knowledge • Background knowledge • Strategies • Cognitive abilities (e.g., attention, working memory, etc.) • Metacognitive ability • Motivation • Attitude toward reading • Identity as reader	• Domain-specific vocabulary • Domain-specific knowledge • Text/context-specific motivation • Text/context-specific attitude • Text/context-specific purposes • Text/context specific activity • Text (e.g., topic, difficulty, etc.) • Medium (e.g., multimedia, book, article, chart, poem, etc.) • Assessment used (formal, informal, group, individual, answer-choice format) • Context	• Cultural membership • Discourse community • Ideology • Social practices	• Linguistic group • Ethnicity • Race • Socioeconomic status • Public or private school • School quality

Socio-cultural and group differences also relate to variation in reading success, and may be helpful in formulating hypotheses about the sources of those differences. The facts are clear. Certain groups—ethnic minorities, children from poor families, children attending schools in poor neighborhoods, non-native speakers of English—are very likely to have difficulty learning to read, and to show persistent poor performance through the middle- and secondary-school years. To some extent, those differences may be explained by socio-economic factors; lack of access to educational resources, parental stress, poor health and nutrition, and dangerous neighborhoods no doubt contribute to the poor achievement of all who experience them, and to the poor achievement of minority adolescents who are overrepresented in the lowest socioeconomic levels. But socio-cultural factors have also been implicated in explaining the achievement gap. For example, students who have not learned the implicit values of American schools, who have not mastered the discourse rules of the mainstream classroom, whose familial experience dictates recitation rather than interpretation as the correct response to literacy, or whose native-language stories and arguments have quite a different structure from those of American English, may well confront difficulties in academic achievement and reading comprehension. Too little attention has been paid to developing instructional interventions designed specifically to address these socio-cultural differences.

Instructional Approaches Informed by Research

Helping a child to attain the abilities and bodies of knowledge fundamental to literacy is no small feat, and a variety of instructional approaches have been developed to this end. Each of these approaches presupposes a particular theory of what key link in normal literacy development has been weakened—whether motivation, sense of purpose, knowledge of strategies, flexible use of strategies, basic word-reading skills, background knowledge, or personal connectedness to the material. These varying presuppositions are reflected in the varying emphases within the programs. Rather than attempting to summarize the gargantuan array of reading instructional approaches that target specific skills and the theories behind them, we present a brief summary of a selection that illustrates the range of variation. All those presented here focus to some extent on struggling readers in the middle and high school grades, and attempt to improve literacy achievement among adolescents through instruction targeted at two or more of the factors influencing differences in

reading comprehension in children in 3rd grade or above. We gave preference to approaches that have been studied systematically, in some cases experimentally, and that concentrate on teaching students to "read to learn." Many approaches that fulfill all these requirements were excluded simply due to lack of space. For example, we did not profile Benchmark (Gaskins, 2003; http://www.benchmarkschool.org/), Junior Great Books (Wheelock, 1999; http://www.greatbooks.org/programs/junior/), Success for All (Borman & Hewes, in press; http://www.successforall.com/), or the Wilson Reading System (Wilson & O'Connor, 1995; http://www.wilsonlanguage.com/)—all programs that push in different ways towards making children independent readers and learners. Table 3 presents brief summaries of twelve different instructional approaches, highlighting the age groups targeted, premises behind the approaches, basic approaches to instruction, and areas targeted by instruction. The table also lists one or two recent publications for each program. More detailed descriptions of some of these programs are provided in sidebars. Finally, Figure 3 shows how these same twelve approaches overlap in the specific types of readers that they target, ranging from disabled to advanced.

Table 3. A Sampling of Instructional Literacy Models that Serve Struggling Readers.

	Boys Town Reading Curriculum	*Collaborative Reasoning*	*Concept-Oriented Reading Instruction (CORI)*	*Guided Inquiry Supporting Multiple Literacies (GISML)*
Age Group	High school	Upper elementary	Upper elementary	Upper elementary
Premises	Instruction should be informed by diagnostic assessment and targeted to students' individual strengths and weaknesses. Ability grouping allows for concentrated instruction with small groups (10-15 students) at an appropriate level.	By taking a critical stance toward reading and allowing students complete freedom in determining which of the class' arguments are most convincing, students are encouraged to become critical in and take ownership of their reading.	The use of authentic knowledge and concept-oriented goals for reading instruction promotes motivation and a deep engagement with reading, and thereby a deeper understanding of texts.	Through teacher modeling and small and large group practice of the scientific process, students learn scientific content and internalize the scientific process, while strengthening their literacy skills through an authentic purpose.
Basic Approach	Four 16-week courses correspond to Chall's reading stages 1 through 4. Students meet in small groups for 45 minutes, 5 days a week. Literacy software plays a central role.	Teacher generates a single central question for a text and students take positions in response to that question. As a group, students develop arguments in favor of and against each position, drawing on the text, previous texts, and wider knowledge and experience.	Students receive explicit instruction in comprehension strategies in the context of content learning that relates in authentic ways to students' experiences. The approach relies on "an abundance of diverse, interesting texts" (p. 123), as well as giving students opportunities for choice and collaboration.	Students in small groups (or pairs) investigate general scientific questions through active inquiry. They build theories and predictions, perform experiments, document results, relate results to predictions, and report findings to the larger group to be checked against others' results and used in generating new theories and predictions. Process is repeated until class agrees on the answer.
Targeted Areas	Stage 1: decoding, fluency. Stage 2: decoding, fluency, vocabulary, reading for enjoyment. Stage 3: vocabulary, writing, reading for information. Stage 4: study skills, strategies, reading for information, writing.	Discourse knowledge, domain-specific vocabulary, domain-specific knowledge, background knowledge, and metacognitive ability	Motivation, engagement, strategies, domain-specific vocabulary, domain-specific knowledge, and background knowledge	Domain-specific vocabulary, domain-specific knowledge, background knowledge, and strategies
Citation	Curtis & Longo, 1997	Chinn, Anderson, & Waggoner, 2001	Guthrie, 2003	Palincsar, Magnusson, Collins, & Cutter, 2001

Table 3 (continued). A Sampling of Instructional Literacy Models that Serve Struggling Readers.

	Questioning the Author	*RAVE-O*	*READ 180*	*Reading Apprenticeship*
Age Group	Upper elementary	Middle grades	All grades	Late middle school and high school
Premises	By considering their understanding of a text as they "initially encounter" it, students learn that they are active agents in their own comprehension, and further that texts and authors are fallible, leading to a critical stance.	Dyslexics with more than phonological problems need an intervention that develops each of the skills underlying fluent word recognition: retrieval, automaticity, vocabulary, engagement, and orthography (hence RAVE-O).	Computer-supported instruction gives struggling students a more anonymous, less publicly risky way of reading. Instruction informed by constant diagnostic assessment will promote better than average annual gains among struggling readers.	A "literacy ceiling" limits the academic achievement of adolescents (p. 86). "Master[ing] academic literacy practices" requires telling students what to do, modeling how to do it, and "demystifying" the process (p. 88-89).
Basic Approach	Teachers prompt students to interact with texts through open-ended questions (called "queries") that require students to respond not only with what they understood from the text, but also with evidence from the text ("What is the author trying to say? What did the author say to make you think that?"; p. 44).	Multi-faceted, engaging instruction focusing on improving processing speed (both in visual and auditory recognition of words and retrieval of meaning) in small groups for 30-minute sessions. Literacy software plays a central role.	In 90-minute periods, students receive 30-min. whole group instruction with teacher, 20-min. small group instruction with the teacher, 20-min. independent reading time with optional audio support, and 20-min. direct background knowledge, vocabulary, decoding, and spelling instruction via software.	Teacher takes on role of disciplinary "master" or expert, and students are apprentices. Together they participate in a "collaborative inquiry into reading and reading processes as they engage with subject-area texts" (p. 89).
Targeted Areas	Metacognitive ability, discourse knowledge, linguistic knowledge, and in some cases domain-specific vocabulary, domain-specific knowledge, and background knowledge	Word recognition, fluency, attitude, comprehension, and cognitive abilities	Word recognition, fluency, background knowledge, vocabulary, and comprehension	Reader identity, metacognitive ability, fluency, general vocabulary, domain-specific vocabulary, domain-specific knowledge, background knowledge, and syntax
Citation	Beck & McKeown, 2002	Wolf & Katzir-Cohen, 2001	Hasselbring, Goin, Taylor, Bottge, & Daley, 1997; Interactive, Inc., 2002	Greenleaf, Schoenbach, Cziko, & Mueller, 2001

Table 3 (continued). A Sampling of Instructional Literacy Models that Serve Struggling Readers.

	Reciprocal Teaching	Scaffolded Reading Experience	Strategic Instruction Model	Transactional Strategies Instruction
Age Group	Any grade level	Any grade level	Middle and high school	Any elementary grade level
Premises	Explicit instruction in and modeling of a fixed ordering of strategies coupled with increasing opportunities for practice in a collaborative environment leads students to take ownership of the process of drawing meaning from texts and promotes active processing of text.	Giving students "adjustable and temporary" support in reading challenging materials, promotes the ability to read well independently. No one element (such as note-taking or pre-teaching vocabulary) is considered essential. Support and the methods of support should be adapted to both reader and text.	Consistent, intensive, and explicit instruction is key to the success of at-risk and learning disabled students. By providing teachers with instructional approaches that work regardless of the learning context, teachers are able to teach students how to learn and to use their learning in effective ways.	Investigations of effective reading comprehension instruction revealed that teachers typically emphasized constant student transactions with text where strategies served as a conduit for the transaction. The strategies teachers used varied, but the focus on instrumentality did not.
Basic Approach	Teachers and students take turns leading iterative discussions of reading through 4 steps: predicting, questioning, summarizing, and clarifying.	Teachers carefully plan what support students will need for a specific text and how best to give it before, during, and after reading and then implement that plan.	Students are provided with a series of strategies and teachers with routines that aim at improving not only literacy, but also academic achievement.	Teachers instruct students in strategies through direct instruction and modeling, coaching during student practice, student modeling and explanations for each other, and integration of strategies throughout the school day.
Targeted Areas	Metacognitive ability, strategies, motivation, discourse knowledge, and engagement	Engagement, motivation, strategies, and metacognitive ability	Decoding, strategies, metacognitive ability, general vocabulary, domain-specific vocabulary, domain-specific knowledge, and background knowledge	Metacognitive ability, strategies, linguistic knowledge, and discourse knowledge
Citation	Palincsar, 2003	Fournier & Graves, 2002	Center for Research on Learning, 2001; Deshler et. al., 2001	Pressley & Wharton-McDonald, 1997

[11]

Note that the 12 programs we did choose are all designed to address the needs of struggling readers. While some of these approaches are no doubt being used with English-language learners (ELLs), none of them is specifically designed to address the learning challenges of ELLs. The general working assumption in teaching adolescent literacy has been that all struggling readers have the same sorts of problems; this assumption may be valid, but it seems likely that some subsets of ELLs bring unique problems, and unique strengths, to the task of learning to read to learn in English. Indeed, the needs of adolescent ELL readers is one area where we have identified a large knowledge gap between what we currently know and are doing and what we need to know and do in order to close the achievement gap for this population.

The 12 featured approaches have some similarities—foremost among these is the pedagogically sound approach of scaffolding child learning by providing and gradually withdrawing support to encourage eventual mastery of a taught strategy or skill—but the approaches differ in many important ways. These differences signal the difficulty of remedying the wide range of problems children can have with reading with any single approach.

The RAVE-O (http://ase.tufts.edu/crlr/raveo.html) and Boys Town Reading Curriculum (http://www.girlsandboystown.org/pros/training/education/FAME_program.asp) focus on readers who still struggle with basic decoding tasks. While RAVE-O is designed for use with children in the middle grades, Boys Town is for high school aged youth. These programs build not only decoding skills, but develop fluency and vocabulary as well. Each is intensive and short-term.

Programs like Concept-Oriented Reading Instruction (CORI; http://www.cori.umd.edu/), Guided Inquiry Supporting Multiple Literacies (GISML; http://www.soe.umich.edu/gisml/), and Reading Apprenticeship (http://www.wested.org/stratlit) address literacy needs outside of the language arts context, helping students perform the specialized literacy tasks of other disciplines, like history or science. CORI is a natural fit for teachers using thematic instruction and is designed for use with upper elementary students. GISML is designed for the same age group, but focuses on teaching students the scientific method while focusing on genres and products

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Questioning the Author … in Action

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 4th grade students discusses a passage about hermit crabs that includes the line "As the crab grows, it changes its shell for 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, 2002, pp. 564-565.

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specific to the field of science. Reading Apprenticeship, designed for late middle school and high school use, literally approaches each subject from a master-apprentice perspective and stresses how the requirements and uses of literacy change depending on the subject.

Programs such as Collaborative Reasoning (http://www.ed.uiuc.edu/ber/csr/_rp/default.htm), Reciprocal Teaching, and Questioning the Author (http://www.lrdc.pitt.edu/) focus specifically on strengthening comprehension through improving children's questioning skills. Reciprocal Teaching is designed to be used at any age or grade level and gives children explicit instruction and practice in developing predictions and questions and checking for answers while they read. Questioning the Author targets upper elementary students and teaches children to generate questions throughout the reading process and to develop critical thinking skills by regarding the author and text as fallible. Collaborative Reasoning also targets upper elementary grades and develops critical thinking skills, but is more teacher-centered in that the teacher provides a single, central question that students then answer by developing arguments based on the text.

The READ 180 program (http://teacher.scholastic.com/read180/) and Scaffolded Reading Experiences (http://www.onlinereadingresources.com) are unusual in that they are applicable at any grade level. READ 180 is a publisher curriculum that follows a Reading Workshop approach, but is innovative in its use of computers. Computer software is used for direct, individualized instruction and is complemented by whole and small group instruction led by the teacher, as well as individual reading time. Scaffolded Reading Experience, also designed for any grade level, is not a curriculum, but rather a framework teachers use in preparing their instruction. Support is targeted not only to students' needs, but also to the demands of specific texts and tasks, with the ultimate goal of students learning to use taught strategies on their own in flexible ways.

The Strategic Instruction Model (http://www.ku-crl.org/htmlfiles/sim.html) and Transactional Strategies Instruction also focus on supplying students with strategies and teaching them to use them adaptively, but are designed for use with specific grades. While the Strategic Instruction Model targets middle schools and high schools, Transactional Strategies Instruction targets elementary schools. Each emphasizes modeling and providing students with flexible routines that ultimately improve their ability to comprehend and monitor their own comprehension.

Figure 3. Instructional Models and the Types of Readers They Target

Disabled   Struggling   Average   Proficient   Advanced

Boys Town

Collaborative
Reasoning

CORI

GISML

Questioning
The Author

RAVE-O

READ 180

Reading
Apprenticeship

Reciprocal
Teaching

Scaffolded
Reading
Experience

Strategic
Instruction
Model

Transactional
Strategies
Instruction
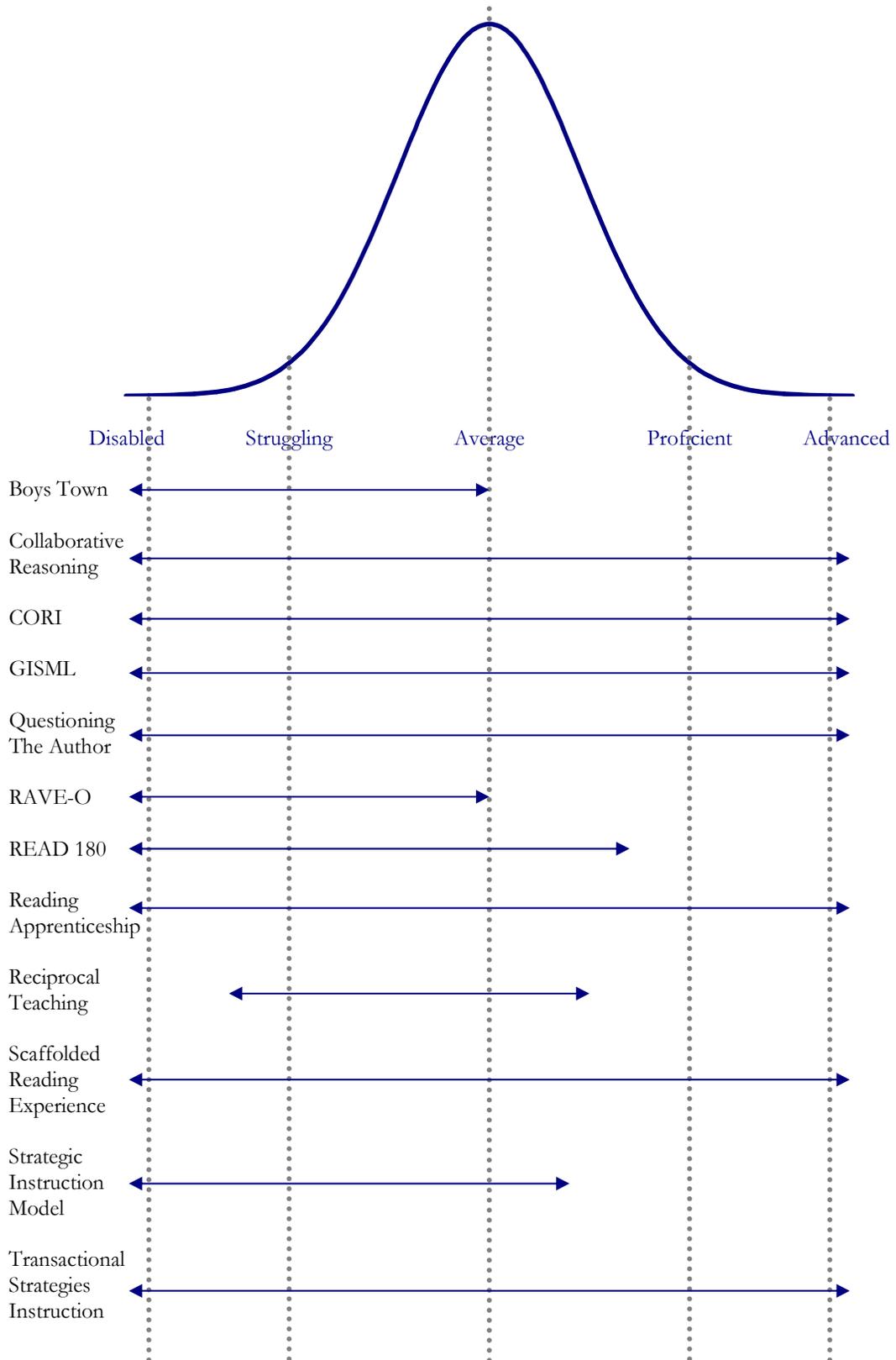
Other Approaches Informed by Research

The intervention or instructional approaches listed in Table 3 represent only one approach to intervening with struggling adolescents. Rather than specifying instructional activities, it may be more productive to focus on teacher professional development, to refine assessment tools, to develop more appropriate texts, or to engage in reform at the school level. Improvement in any of these areas may well have payoffs for adolescent literacy outcomes. Yet the research-based knowledge on which any of those changes might be based is largely lacking.

Professional development and support. As is apparent from the number of approaches that were and could have been included in Table 3, middle and secondary teachers do not lack instructional choices. A persistent problem reported by instructional model developers and researchers, however, is that teachers do not use the tools available to them, for myriad reasons. In some cases, a lack of systemic or building support limits the effective implementation of a model. In other cases, support is in place, but resources are lacking. Teachers themselves may be resistant to change because they do not have the appropriate knowledge base in reading development to understand the new approach; teachers who are willing to change may be unable to sustain change without ongoing professional development and/or collegial support. As the RAND Reading Study Group (RRSG) pointed out, we need to insure our teachers "have a deep knowledge about the reading process and reading comprehension" (2002, p. 49). We must provide ongoing professional development and support in order to achieve the long-lasting change in practices necessary to truly change literacy outcomes. The IRA and NMSA statement (2002) echoes this call for better teacher preparation and ongoing development. To accomplish this goal, the RRSG suggests we need to determine "the knowledge base…teachers need for effective reading comprehension instruction," a comparison of the "relative power" of ways of conveying this knowledge, and an understanding of how closely "teacher preparation experiences relate to teacher practices and student performances" (2002, p. 51).

Improving assessments. In addition to better implementation of instructional reforms through improved professional development, there is a need for more precise and diagnostic assessments of later reading ability. Standardized measures of reading comprehension are notoriously insensitive to the changes wrought by interventions, in large part because of their focus on lower level comprehension skills and their use of short texts. That is, standardized measures do not typically ask children to analyze a text or synthesize across multiple texts. Nor do these measures allow for assessment of metacognition, or on-line processing of text, making them unhelpful as diagnostic tools when teachers suspect comprehension problems in their students. Indeed, the lack of reliable, validated measures of reading skill after the early grades is a problem noted by the IRA and NMSA (2002) in their position statement and by the RRSG in its report: "understanding the nature of the problem of reading comprehension requires having available good data identifying which readers can successfully undertake which activities with which texts" (RRSG, 2002, p. 52). In fact, the RRSG makes the argument that without the development of better assessments that attend to the multitude of sources of comprehension and its breakdown, carrying out research on reading comprehension and evaluating instructional innovations will continue to be very difficult. Existing tools simply do not provide the refined level of information that researchers and teachers alike need to target instruction most effectively.

Improving texts. Another piece of the puzzle of improving adolescent literacy is the texts themselves. Although the publishing industry is increasingly producing more diverse and motivating texts for youth to read, the IRA/NMSA position paper calls for the increased development of print and non-print "material that will appeal to linguistically and culturally diverse students" and the inclusion of a wide selection of those and other materials in classroom and school libraries (2002, p.

2). Given the developmental needs of adolescents and young adolescents, choice is a key factor in motivating them to read. In addition, matching texts to readers is not as simple as picking a motivating text at a reader's decoding level. Researchers have found that background knowledge interacts with reading comprehension in unexpected ways. Although a lack of background knowledge might be expected to consistently produce lower comprehension, a few studies have indicated that this is not always the case. Even a modicum of background knowledge in a tangentially related domain can improve comprehension and recall of a technically specific text (Sinatra, Beck, & McKeown, 1993). Additionally, though coherent texts (texts that include comprehension-aiding transitions) have traditionally been thought to promote better comprehension in all readers, this assumption turns out to be false in some cases. In fact, one study found that, while students with low or no background knowledge comprehended coherent texts better than less coherent texts, students with greater background knowledge actually inferred and understood more from the less coherent texts (McNamara, Kintsch, Butler-Songer, & Kintsch, 1996).

       Where to begin improvement efforts. With all of these potential obstacles to the development of proficient reading comprehension and options for addressing them, simply deciding exactly where to center efforts at improving the outcomes of struggling adolescent readers can be a challenge. Four of the recommendations made in the IRA and NMSA joint statement are addressed specifically to state leaders, district leaders, and policymakers; they identify the need for high-quality literacy programs, reading materials, and staff development, as well as legislation that would further "school- and district-wide efforts to improve student reading achievement" (IRA & NMSA, 2001, p. 2). As is reported in more detail below, public and private organizations have begun to respond to this call for action. Indeed, in many cases, the response predates the call.

Private and Public Approaches to the Gap

       Adolescent literacy is a topic that cuts across the work of most public and private funding institutions that aim to improve educational outcomes in America. We present in this section sketches of nine public and private organizations seeking to improve academic achievement in some way. These organizations do not represent all funders of pre-adolescent and adolescent literacy programs, but merely serve as a representative sample of some of the biggest and most active funders in the field. The sketches were developed by posing a standard list of questions to key individuals within each of the various organizations. The sketches provide neither exhaustive nor detailed summaries, but rather overviews of each organization's work and how it intersects with adolescent literacy. Some have strikingly similar approaches in their work; in fact, many partner in their efforts. Some, such as the federal organizations, focus on research, while others, mainly the private foundations, center on development. But each has taken important steps towards insuring educational equity in America. Some of these steps are summarized below. The sidebar portraits offer a more in-depth look at each funder.

       Private systemic approaches. Carnegie Corporation of New York (Carnegie; http://www.carnegie.org/), the Bill and Melinda Gates Foundations (Gates; http://www.gatesfoundation.org/) and the W. K. Kellogg Foundation (Kellogg; http://www.wkkf.org/) are partners, along with a number of other funders, in a major national initiative to establish "early college" high schools. These high schools offer students the opportunity to earn two years of college credit while still earning their high school diploma usually through collaboration with local community colleges. Gates and Carnegie are also partnered in another major initiative that seeks to create smaller high schools. The small high schools, which have no more than 400 students enrolled per school (100 per grade), are created by redesigning large high schools and by creating entirely new high schools.

For Carnegie, these efforts are part of its Schools for a New Society, which is one of three initiatives within the foundation's Education Program of grant-making and has systemic reform at its heart. For Kellogg, the early college high schools are also but part of a larger Youth and Education program. But for Gates, they are the heart and soul of its grant-making.

Adolescent literacy has become a major concern in both the small high school and early college high school initiatives, despite their focus on organizational, school-wide reform. Grantees came back to funders with concerns about the challenge of students' lagging literacy skills. In response to and other these concerns, Gates funded the creation of a source-book for grantees that included an 84-page chapter on literacy. The chapter offers summaries of different methods, profiles of schools implementing methods, tools for literacy instruction, how-to guides, professional development guides, and lists of recommended reading. The small high school and early college initiatives are emblematic of Gates' systemic approach to remedying the achievement gap and

CARNEGIE CORPORATION OF NEW YORK (CARNEGIE)

How do you address the achievement gap or trying to improve educational outcomes in general?
Carnegie addresses the achievement gap through three major initiatives in its Education Program: Advancing Literacy: Reading to Learn; Schools for a New Society; and Teachers for a New Era. The Advancing Literacy initiative seeks to improve literacy learning from 4th grade onward by supporting the development of effective literacy models that address the needs of underserved groups, research on comprehension and content area literacy and its dissemination, and efforts to make assessment data more useful to teachers. The Schools for a New Society initiative supports large-scale school reform by promoting district-community partnerships, the redesign of large schools into small schools, the creation of early college high schools, and the dissemination of effective models. The Teachers for a New Era initiative seeks to improve teacher preparation in a minimum of six institutions by creating a culture of inquiry among prospective teachers, better partnerships between schools of education and their university's faculty of arts and sciences, and better mentoring and induction practices. The Rockefeller Foundation is funding and organizing the evaluation of this effort. In addition, each of Carnegie's three major initiatives is also committed to policy and evaluation studies.

What initiatives do you currently sponsor that in any way addresses struggling adolescent readers?
Carnegie has found literacy, especially comprehension, to be a huge issue at every site in its Schools for a New Society effort. Carnegie's urban reform initiative is working with the National Association on Bilingual Education in an effort to bring issues related to English Language Learners to the forefront of districts' reform efforts. The Advancing Literacy initiative funds a wide variety of projects that address adolescent literacy. For instance, Carnegie supports the National Writing Project in adding informational reading component to its efforts, the Center for Applied Linguistics in developing a literacy model for secondary school English language learners, and the Alliance for Excellent Education in promoting more favorable funding for adolescent literacy. Carnegie also supports technology-centered efforts, such as the Center for Applied Special Technology (CAST) to develop of a web-based, reciprocal teaching tool and GrowNet provision of New York City assessment data to teachers in the form of individualized student reports that show areas of weakness and how to address them with instruction.

How would you represent the current goals or objectives of your grant-making?
Chief among Carnegie's goals in education is to better prepare students to enter "the age of the knowledge worker." Now more than ever, it is unacceptable for youth to enter the workforce and higher education with sub-par literacy skills.

How do these goals and objectives relate to how you think about adolescent literacy?
As witnessed by the variety of literacy initiatives, Carnegie takes a number of different entry points to improving educational equity. Although the central problem could be seen as the lack of appropriate instruction and support after 3rd grade, the solution to that problem is not singular. To insure high quality instruction, Carnegie targets current teachers' practice through its literacy initiative, school organization through its school reform initiative, and future teachers' practice through its teacher education initiative. In addition, Carnegie aims to increase awareness of the crisis in literacy and education in general, which it defines as the lack of support, funding, and infrastructure to pull off good instruction in classroom.

literacy's role in them is only growing.

The William and Flora Hewlett Foundation (Hewlett; http://www.hewlett.org/) also funds systemic school reform efforts through its urban education reform efforts, most notably in California and New York. Dedicating its efforts to a handful of focal communities, Hewlett invests in district-wide reform. The two primary investments are in the Bay Area School Reform Collaborative and the San Diego Unified School District; however districts in Oakland City, East Palo Alto, and New York City are also supported. Hewlett is also studying its efforts and is particularly interested in generating knowledge for the field as a whole about the conditions and school and district capacity necessary for effective and efficient systemic change. Hewlett has also found that literacy plays an important role in its grant-making, particularly because the "fourth grade slump" is rampant in California, one of Hewlett's focal areas.

While the Rockefeller Foundation (Rockefeller; http://www.rockfound.org/) also supports systemic school reform in California, New York, and Wisconsin, it also distinguishes itself from many private foundations by its focus on research. Through the research it funds, Rockefeller investigates the causes of educational inequity and what allocations of funds seem to best eradicate it. In addition, Rockefeller is particularly focused on improving the achievement of bilingual students through its support of the work of Laurie Olsen, who investigates dual language education.

Broader even than the efforts at school-wide and district-wide change apparent in many private foundations' work, Kellogg takes a community perspective in its grant-making. Initiatives such as Engaging Latino Communities for Education (ENLACE) and Supporting Partnerships to Assure Ready Kids (SPARK) seek to improve academic achievement among traditionally underperforming populations by creating partnerships among community organizations, families, and schools. Kellogg aims to engage the larger community in the work of improving educational outcomes and thereby improve not only the outcomes for individual children, but also the tenor of the community and relations of groups within it. This emphasis on schools and education within larger communities is a distinguishing characteristic of Kellogg's work.

   Private targeted approaches. In addition to their systemic education reform efforts, most of these private organizations also support work that is specifically focused on literacy. For instance, Hewlett funds the Strategic Literacy Initiative (SLI) based at WestEd. SLI uses the Reading Apprenticeship framework (see discussion of Instructional Approaches above) to improve

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W.K. KELLOGG FOUNDATION (KELLOGG)

How do you address the achievement gap or trying to improve educational outcomes in general?
   Through its Youth and Education program, Kellogg looks to improve higher education access and completion among youth vulnerable to school failure. Kellogg is currently approaching this goal through three initiatives and general grant-making. One such initiative is Engaging Latino Communities for Education (ENLACE), which began in 1997, and should continue for 4 or more years. In the past, other initiatives have targeted specific populations for support: women, rural youth, African-Americans, and Native Americans. Other initiatives include Supporting Partnerships to Assure Ready Kids (SPARK) – which supports academic achievement by preparing children ages 3-6 for the transition to formal schooling – and New Options for Youth Through Engaged Institutions – which will identify and support innovative and promising alternatives to traditional school environments for youth between 12 or 13 and 24 years old and thereby improve academic outcomes among youth failed by traditional schooling.

What initiatives do you currently sponsor that in any way addresses struggling adolescent readers?
   Adolescent literacy is not currently a stated focus of Kellogg initiatives, however it intersects with ENLACE and New Options for Youth in important ways. ENLACE's focus on Latinos naturally involves a focus on second language acquisition. ENLACE attempts to recasting bilingual education as "English plus" education. Kellogg posits that the debate regarding bilingual education is based on the false premise that one must choose between languages when a second language is really an added advantage. A stated outcome for New Options for Youth is that in addition to graduating high school and gaining entrance to desired higher education and work opportunities without requiring remediation, youth are able to "read, write, and compute at or beyond a 12th-grade level."

How would you represent the current goals or objectives of your grant-making?
   Kellogg endeavors through long-term commitments to foster the positive development of vulnerable youth as complete individuals. Vulnerable youth are defined as experiencing a combination of challenges in their development. They "lack of family and community support and resources for learning; are in unstable family situations or child care settings; enter school behind their peers and fail to catch up; have high rates of absenteeism; and are discounted from learning by virtue of their race, class, gender, ethnicity, economic status, or geographic location." While learning and education are clearly a priority in the Youth and Education department, the larger goal is to aid youth in reaching their full potential as adult members of society by supporting coordination and collaboration among the various environments youth inhabit.

How do these goals and objectives relate to how you think about adolescent literacy?
   Literacy is but a part of the developmental progress of adolescents. In fact, while improved academic and literacy outcomes are goals, Kellogg addresses them not simply by focusing on schools, but also by casting a wider net to include family and community by promoting partnerships between these groups and schools. This holistic approach permeates the entire Youth and Education program at Kellogg and is viewed as critical to promoting true improvement in academic and literacy outcomes. Kellogg sees its funding as concentrated on developing partnerships and engaging higher education institutions in their communities, and while literacy is an integral part of this effort, it is not the focus.

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adolescent literacy achievement and overall engagement in high school. Hewlett and Carnegie both support the work of the Center for Applied Special Technologies (CAST). While Hewlett targets CAST's work to pilot a system of digitized text with corresponding embedded reading strategies for English Language Learners in fourth and fifth grade, Carnegie supports CAST's work to adapt Reciprocal Teaching (see discussion of Instructional Approaches above) for computerized use. CAST is creating a web-based tool for teachers to use in individualizing and embedding reciprocal teaching prompts within websites specifically assigned by teachers. This work addresses the achievement gap both through its potential for the increased dissemination of a proven instructional approach and its ability to ease the instructional burden of adapting instruction to individual students' needs. Support of CAST is but one aspect of both Carnegie's and Hewlett's targeted funding.

Carnegie also funds a number of targeted efforts through its Advancing Literacy: Reading to Learn initiative. Beyond supporting CAST's work, Carnegie supports the Center for Applied Linguistics in its development of a nationally applicable literacy model for secondary school English Language Learners and the National Writing Project in adding an informational reading component to its efforts. Carnegie also works with the Alliance for Excellent Education, GrowNet, and a variety of other groups working toward improving literacy achievement after third grade. Through its third and final Education initiative –Teachers for New Era– Carnegie supports the improvement of teacher education. While this effort focuses on building more solid collaboration between

schools of education and faculties of arts and sciences, mentoring, induction, and creating a teacher culture of inquiry are among its top goals, and in the field at large these issues are seen as crucial in better preparing teachers specifically to teach literacy at all grade levels.

Rockefeller has specifically targeted literacy in several smaller discretionary funds through its Working Communities Program. One such grant was made to the Haan Foundation for Children in order to support its work to design a 4-year study intended to produce scientific evidence for policymakers and the education field about the most effective ways of teaching children to read. Because Rockefeller is focused on researching and improving the education of English Language Learners and especially immigrant children, it anticipates much of its funded work yielding information directly useful to targeted literacy initiatives.

Public approaches. While many of the private foundations support educational research, the heavy-hitters in this realm are government agencies. Each agency has its own agenda, but each addresses literacy in some way. And in many cases, agencies collaborate in the creation of funding opportunities.

For instance, the Institute of Education Sciences (IES; http://www.ed.gov/offices/IES/), the National Science Foundation (NSF; http://www.nsf.gov/), and the National Institute of Child Health and Human Development (NICHD; http://www.nichd.nih.gov/) together support the Interagency Education Research Initiative. This initiative aims at improving academic achievement

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INSTITUTE OF EDUCATION SCIENCES (IES)

How do you address the achievement gap or trying to improve educational outcomes in general?
The IES sees its role in resolving educational inequity as primarily in stimulating and supporting educational research of the highest quality. Quality is determined by the scientific and methodological rigor of study design, as well as by the overall purpose of the research. IES also supports the translation of research into practice mainly through the dissemination of research findings. Current IES initiatives include the Program of Research in Reading Comprehension and the Cognition and Student Learning Research Grant Program, both of which are in their second year, and the What Works Clearinghouse. IES also cosponsors a number of partnered initiatives, such as National Literacy Panels, and the Adolescent Literacy, and Interagency Education Research Initiatives.

What initiatives do you currently sponsor that in any way addresses struggling adolescent readers?
Research on instruction and assessment are crucial components of IES grant programs. Depending on the initiative, the domain can vary from reading and literacy to math and the sciences. Developing instructional interventions and assessments thereof is a major focus of the Reading Comprehension initiative. IES does not necessarily look for a particular pedagogy as much as for a rigorous evaluation of instructional effects. The Interagency Education Research Initiative, which IES supports with NSF and NICHD, is heavily focused on implementation as broken down into two phases. The first phase is the accumulation of empirical evidence of efficacy, and the second phase is for the investigation of scaling up efforts. The most direct link to adolescent literacy is probably the Program of Research in Reading Comprehension; however each of the initiatives intersects with this area. The Reading Comprehension initiative aims to "(a) understand factors in reading comprehension that contribute to the achievement gap for students; (b) build on that understanding by developing targeted interventions and teaching practices designed to eliminate the achievement gap; and (c) develop assessments that are not only reliable and valid for diverse students of different ages, but that also efficiently identify weaknesses in comprehension that can be addressed through instruction." IES sees itself as resurrecting the research focus on comprehension that occurred in the 80's and helping the literacy field to build on this excellent knowledge base.

How would you represent the current goals or objectives of your grant-making?
To support rigorous education research and thereby "establish a scientific foundation for educational practice." IES targets research to support by the likelihood that it will bring about substantial improvement in academic achievement.

How do these goals and objectives relate to how you think about adolescent literacy?
The focus on reading comprehension arises because a large proportion of 4th graders nationally struggle to read, and the corresponding low level of reading achievement is accompanied by low levels of achievement in other core content subjects.

NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT (NICHD)

How do you address the achievement gap or trying to improve educational outcomes in general?
The NICHD funds a broad spectrum of research that attempts to close the achievement gap. The NICHD is involved in a number of other interagency initiatives that intersect with adolescent literacy: "The Interagency Education Research Initiative," which focuses on educational interventions in reading, math, and the sciences; the "National Literacy Panel on Language Minority Children and Youth," which seeks to summarize what is known in this area; and early and adult literacy initiatives.

What initiatives do you currently sponsor that in any way addresses struggling adolescent readers?
The main effort that intersects most directly with adolescent literacy is the current RFA for Research in Adolescent Literacy. The focus on adolescent literacy extends to both methods of instruction and basic research of the mechanisms of literacy development. Through this research, the NICHD hopes to contribute to the understanding of what characterizes adolescent readers who struggle, adolescent readers in general, and how the factors affecting their development change over time. Characteristics and factors naturally include those of the readers themselves (cognitive, perceptual, behavioral, genetic, hormonal, and neurobiological), but also include instructional and environmental ones as well. Furthermore, adolescent readers are viewed as active agents who "navigate and work through" their own literacy development. The Interagency Education Research Initiative, which NICHD supports with IES and other federal groups, is heavily focused on implementation as broken down into 2 phases. The first phase is the accumulation of empirical evidence of efficacy and the second phase is for the investigation of scaling up efforts. While no particular pedagogy is adhered to, a solid foundation of empirical evidence is requisite for the support of scaling up efforts.

How would you represent the current goals or objectives of your grant-making?
Although this is a one-time only RFA (for projects up to 5 years in length), it represents an announcement that this is a new area of focus for NICHD. With this area having been identified as an under-researched area, investigator-initiated applications (submitted 3 times a year) that deal with adolescent literacy will continue to be considered and are encouraged.

How do these goals and objectives relate to how you think about adolescent literacy?
Firstly, the term adolescent is defined broadly by NICHD as middle and high school children, or the "after nine" group. NICHD also emphasizes that literacy includes both reading and writing. The two are seen as intimately linked; while reading instruction begins much earlier and continues into and through adolescence, substantive instruction in writing (beyond mechanics and spelling) is done during this time. Adolescent literacy interventions must also take into account social and emotional factors in addition to cognitive ones. At the same time, NICHD is committed to better understanding the basic processes that underlie literacy development in teenagers.

by breaking down educational reforms into two critical phases. Projects funded in the first phase are accumulating evidence of the effectiveness of educational innovations. This phase may be seen as building the requisite proof that an innovation is worth investing in further. The second phase is for proven innovations and focuses on investigating scaling up, or more widespread implementation, of these innovations. The innovations span not only reading, but also math and the sciences. Another impressive collaboration is the sponsorship of the National Literacy Panels by IES and NICHD. The most recent of these focuses on English Language Learners and seeks to summarize current knowledge in this area for better dissemination not only within the education field, but also among policy-makers and other stakeholders.

The collaboration most focused on redressing the achievement gap among adolescents through literacy is the Adolescent Literacy Research Initiative. The Office of Vocational and Adult Education (OVAE; http://www.ed.gov/offices/OVAE/) joins IES, NICHD, and other governmental agencies in supporting this initiative, which seeks to develop new knowledge of the cognitive, perceptual, behavioral, and other mechanisms underpinning the continued development of reading and writing development in adolescence. Funded projects will become part of an Adolescent Literacy Research Network. The Network will serve not only to expand the field's knowledge base, but also to better disseminate findings.

Despite its natural focus on science and mathematics, the National Science Foundation also sponsors research that touches upon literacy independent of its share in government agency collaborations. For instance, it has funded the work of renowned researchers in the literacy field, such as Walter Kintsch and Annemarie Palincsar. NSF's support of literacy and general educational improvement are most apparent when technology meets the classroom, as in its support of Kintsch's efforts to bring real-time feedback to students writing on classroom computers by applying sophisticated linguistic theory. Individually, IES sponsors the Program of Research in Reading Comprehension, and OVAE has its Closing the Achievement Gap: Factors that Contribute to Improved Minority Achievement research agenda. While the former supports basic research and assessment development as well as interventions, the latter focuses on identifying a handful of effective high schools and thoroughly researching how they have managed to close the achievement gap locally.

NATIONAL SCIENCE FOUNDATION

How do you address the achievement gap or trying to improve educational outcomes in general?
NSF seeks to improve math and science education and outcomes in the K-16 system through its Advancing Mathematical Sciences Education initiative, which focuses on teacher preparation and professional development, curriculum development both in math and in using math across subject areas, introducing new materials and technologies into classrooms, and research on how math is learned. NSF gives its highest priority, however, to the Math and Science Partnership (MSP), which began on 2002 as part of the Bush administration's *No Child Left Behind* initiative. Budgeted at $200 million in 2003 and 2004, MSP aims to improve math, sciences, and engineering achievement for all students at all grade levels and do so through three categories of projects. MSP "Comprehensive" projects aim to do this by fostering partnerships among high education institutions, multiple school districts, and cultural and community organizations with a focus on improving achievement in math and sciences across the entire K-12 educational continuum. MSP "Targeted" projects aim to improve achievement in a narrower range of grade levels and/or subject areas. MSP "Research, Evaluation, and Technical Assistance" projects provide evaluation, research, and expertise for the entire MSP network, often by aiding the implementation and evaluation of Comprehensive and Targeted MSP projects.

What initiatives do you currently sponsor that in any way addresses struggling adolescent readers?
While NSF does not focus on literacy in any explicit way, reading and writing skills play a necessary role in math and science achievement, particularly in later grades and at the college level. Students must be able to comprehend the texts they read and to communicate their thoughts effectively in writing. A few funding efforts that intersect with literacy include the work of Annemarie Palincsar, the OECD network, and many projects funded through the Research on Learning and Education (ROLE) initiative. NSF has funded Walter Kintsch's work to provide real-time feedback to students writing on the computer using latent semantic analysis. Because technology does not stand still, NSF attempts to encourage its development in directions that will be useful to society in promoting better educational outcomes and further technological advancement.

How would you represent the current goals or objectives of your grant-making?
NSF has three broad goals in all its grant-making: to develop a diverse, engaged, and internationally competitive workforce, to promote mathematical and scientific discovery and utilize those discoveries in the advancement of society, and to provide improved tools for the research and education communities.

How do these goals and objectives relate to how you think about adolescent literacy?
Literacy, when conceived of as reading and writing, is seen as a means to an end. However, NSF also sees itself as promoting scientific and technological literacy. NSF defines the concept of literacy more broadly, as including numeracy and scientific literacy.

Intersection of Public and Private Funding Efforts

The profiles above make clear that each organization has a unique approach in its work relevant to adolescent literacy, and yet that the interests of the various organizations often overlap. Table 4 summarizes the areas of funding and the stated challenges, to aid the reader in comparing the work of these organizations with one another, both to identify areas of overlapping interest, and lacunae in the funding patterns.[2] Given the ongoing nature of each organization's funding efforts, the table will quickly become out-of-date; however, the snapshot it presents may be of value in stimulating further discussion in the field about how to conceptualize and coordinate funding efforts.

OFFICE OF VOCATIONAL AND ADULT EDUCATION (OVAE)

How do you address the achievement gap or trying to improve educational outcomes in general?
OVAE addresses the gap most directly through its research initiative: Closing the Achievement Gap: Factors That Contribute to Improved Minority Achievement. This study will identify high schools that have succeeded in closing the achievement gap between their minority and non-minority students. Utilizing state assessment data, OVAE will identify high-minority secondary schools from various parts of the country that have successfully made progress in closing the achievement gap in mathematics and/or reading over several years. From this pool, ten to fifteen schools will be selected for in-depth case studies designed to understand how these schools function and how their operations support the academic achievement of minority students. Investigators will collect data through interviews, focus groups, and document reviews to gain insights into each school's operations and the dynamic interactions between leadership; curriculum and instruction; school culture; and school organization and structure. The study will explore how these schools are organized to support academic achievement and document examples of specific practices and polices that contribute to the academic success of minority students. OVAE sees itself as taking the lead in the U.S. Department of Education on high school reform and recently sponsored a summit designed to bring national focus to the dialogue on improving high school outcomes.

What initiatives do you currently sponsor that in any way addresses struggling adolescent readers?
OVAE is sponsoring along with the National Institute of Child Health and Human Development (NICHD), and the Office of Special Education and Rehabilitative Services (OSERS) and the Institute of Education Sciences (IES), a competition to develop new knowledge in the area of adolescent literacy. The focus of this effort is the discovery of cognitive, perceptual, behavioral, genetic, neurobiological, and hormonal mechanisms that are influential in the continuing development of reading and writing abilities during the adolescent years, and on methods for the identification, prevention, and remediation of reading and writing disabilities in adolescents. These grants supporting multidisciplinary research projects, which may be single or multi-site, will become part of an Adolescent Literacy Research Network. Adolescent literacy is seen as a non-negotiable part of OVAE's movement to improve high school outcomes.

How would you represent the current goals or objectives of your grant-making?
OVAE has an interest in supporting grant and research activities that will improve the quality and effectiveness of secondary education and support academic achievement of those students who traditionally have been held to lower expectations.

How do these goals and objectives relate to how you think about adolescent literacy?
OVAE's mission is to strengthen career and technical education programs and to support the U.S. Department of Education's commitment to reading proficiency for all students. To address our mission, OVAE partners with leading organizations in order to strategically fund research efforts of enough magnitude to address the complex issues of educating young adults. The research conducted through the Adolescent Literacy Research Network literacy will expand the knowledge base on the best methods for helping struggling young adult readers develop the reading and writing skills needed to meet high academic standards.

Table 4. A vision of the intersection of funding and challenges across nine private and public institutions.

	Carnegie, Education Program	Gates	Hewlett, Education Program	IES	Kellogg, Youth & Education	NICHD	NSF	OVAE	Rockefeller, Working Communities
Direct Literacy Projects	F	f, C	f, C	F	f	F		F	
Assessment	f	f	C	F, C		F, C			
Educational Technology	f		F	F		F	f	f	
Classroom Instruction	F	C	C	F	f	F	F	f	
School-wide Reform	F	F	F		F		F	f	
Grades PreK-3			F	F	F	F, f	F		F
Grades 4-8	F		F	F	F	F, f	F		F
Grades 9-12	F	F	F	F	F	F, f	F	F	F
Higher Education	F	f			F			f	
Teacher Preparation	F		f	f		f	F		
Teacher Professional Development	F	f	f	f		f	F		
School/Community Partnerships	f	F			F		F		F
Infrastructure to Support Reform[1]	C		F			F		F	F
English Language Learners	C			f	F	F			F

Key: F=Focal Funding Effort, f=Additional Funding Effort (usually smaller, discretionary grants or offshoots of focal efforts), C=Stated Challenge
[1] Infrastructure refers to the systemic and human resources necessary to effecting reform.

Reconceptualizing Funding Efforts. Though evidence of considerable overlap of interests among the public and private funding institutions emerges clearly from Table 4, this overlap was not apparent to many of these institutions' representatives before reading the first draft of this report and attending the May 30th literacy funders meeting. Further common ground was established at the meeting itself. Finbarr Sloane of the National Science Foundation contributed a heuristic for placing each institution's efforts onto a common funding landscape, which the other attendees helped to further develop. This heuristic is presented in slightly elaborated form in Figure

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[2] Note that the table does *not* represent the full range of topics that might have been included, e.g., specific cultural groups served, policy initiatives, evaluation efforts, and basic research.

4. The primary contribution of this heuristic is that it provides a common set of categories that all the funding organizations can use to conceptualize the area(s) specifically targeted by their own funding, making areas of overlap and complementation more apparent.
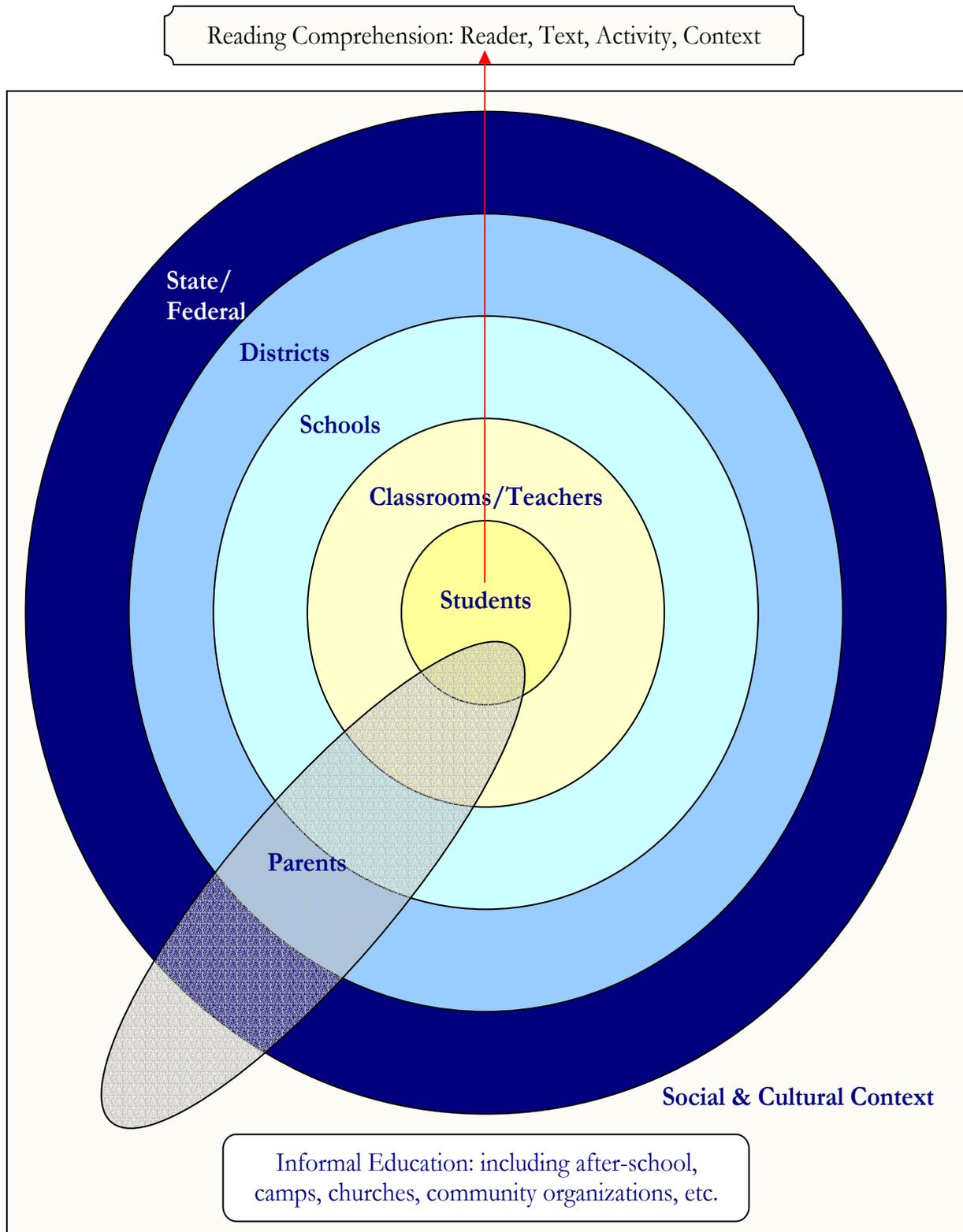
Areas of Common Interest and Challenge. Several areas of common, cross-cutting interest emerged from the discussion on May 30th. Three areas generated the most discussion:

(a) the need for better networking and information-sharing,

(b) evaluation of programs, and

(c) tools for evaluation and general information gathering.

The idea of creating and improving networks and information sharing was perhaps the most generative topic at the meeting. Interest in compiling and sharing usable research-based knowledge about literacy is not limited to this group. The *What Works Clearinghouse (WWC)* has been designed by the U.S. Department of Education to provide information about experimentally evaluated programs and curricula; inevitably, given the distribution of programs, funding, and researcher effort, the vast majority of what will enter the WWC will relate to early reading instruction. It was suggested that the National Institute for Literacy (NIFL; http://www.nifl.gov/) may have the infrastructure to support further dissemination. The Harvard Family Research Project (http://www.gse.harvard.edu/~hfrp/), which maintains on-line networking and database resources on family involvement and out-of-school time, was recommended as a good model of the type of strategic communication that might be helpful within the field of adolescent literacy. The idea of a common index of funding opportunities and requirements, with links to specific initiative on the funders' websites, was highlighted as particularly useful not only to funders, but also to researchers, schools, and districts seeking funding. In addition, the idea of sharing the process, progress, and results of funded initiatives was suggested. One mechanism for sharing this information may be to organize an annual one-day event at American Educational Research Association (AERA; http://www.aera.net/). Although AERA is a convenient venue for researchers and funders, dissemination to other groups of stakeholders will require a different venue. Finally, it was also suggested that any program funded that overlaps with adolescent literacy be encouraged to participate in an Adolescent Literacy Funders Forum (ALFF), which could serve not only as a dissemination tool, but also as a collaboration- and idea-generating one.

A related topic of major interest was the evaluation of programs. Pertinent to this discussion was the problem of balancing the need to evaluate efficacy before scaling up and the need to effect change as quickly as possible. Consensus was apparent on the need for multiple methods of evaluation, both quantitative and qualitative, both experiments and case studies. One problem brought up by a private funder was that many national evaluators do not understand literacy or how programs work. Although the idea of common research design guidelines was brought up, it was eschewed in favor of the idea of common measures. Common measures would ensure that programs evaluated for their impact on comprehension, for example, would be assessing the same constructs and be held to the same standards, allowing comparison across programs and funding initiatives. At the same time, better definition of reasonable outcomes intrinsically related to program goals is needed.

Figure 4. The Adolescent Funding Landscape: A Heuristic for Locating Organizations' Efforts

Reading Comprehension: Reader, Text, Activity, Context

State/Federal

Districts

Schools

Classrooms/Teachers

Students

Parents

Social & Cultural Context

Informal Education: including after-school, camps, churches, community organizations, etc.

The focus on networking and evaluation during the funders meeting evolved into a discussion of strategies and tools to support these efforts. While many funders were aware of initiatives generally considered to be successful (for instance the high school reform movement in Alabama), they all experience difficulties accessing rich information about these initiatives. Additionally, some funders expressed a desire to understand better what is happening not only in successful schools, but also in schools more generally. A school-targeted, self-evaluation tool was suggested as one means of gathering information quickly and efficiently. Although many initiatives employ these, they tend to be specifically focused on the initiative itself. Funders suggested it may be useful to have a single tool or rubric not aligned to any one particular initiative, distributed to every school participating in any of the programs funded by the private and public organizations most active in adolescent literacy research. The tool might include questions as basic as "how many pages did students read and write in each class or classroom?" Models suggested included the Sheltered Instruction Observation Protocol (SIOP; http://www.crede.ucsc.edu/tools/professional/siop/siop.html): a tool the Center for Applied Linguistics (http://www.cal.org/) has developed with support from Rockefeller and Carnegie. The information generated by such a tool was seen as helpful not only to funders and researchers, but also potentially to principals and administrators. On a related note, it was proposed that gathering information about what teachers know (or think they know) about middle and high school literacy and language would be another useful undertaking.

Other areas of common interest emerged during the funders' discussions: transnationalism, ELLs and special education, and literacy coaches. Transnationalism—the increasingly prevalent trend of children and their families who travel frequently between two home countries—was brought up as a challenge because so little is known about how patterns of transnational movement and identification impact adolescents; yet the number of transnational children in schools, especially in states like New York and California, is growing quickly. ELLs and special education were brought up as areas that are subject to considerable ignorance and misunderstanding, and that are woefully under-funded. For one thing, there is a need to promote better understanding among educators, parents, and the broader public of the differences among the many models for teaching ELLs English, as well as the benefits of biliteracy. Moreover, ELLs continue to be both over- and under-referred for special education services, presumably as a function of teacher attitudes and knowledge about second language acquisition. Efforts focused on figuring out what teachers know about ELL literacy, and what they need to know, as well as on devising professional development and preservice courses to better prepare teachers for the ELLs they will encounter, would be invaluable. In addition to upgrading teacher knowledge, funders highlighted that many parents need to be educated about second language learning and biliteracy to be able to advocate appropriately for their children. Finally, while many of the organizations represented at the meeting had funded efforts that incorporated literacy coaches and coaching in their school improvement initiatives, it was agreed that the topic of coaching needs systematic study. Funders felt such study could focus on answering questions such as: What constitutes coaching? What qualifications should coaches have? What duties should coaches have? Is there any evidence that coaching is an effective professional development tool? Are coaches an effective intervention in adolescent literacy outcomes? Some funders strongly felt that before we heed the call to put a coach in every high school, these questions need to be answered.

[29]

Next steps for the ALFF

The discussions that took place on May 30th provided not only food for thought, but also ground for next steps that funders as a group might take. Primary among these was the move to continue meeting as a group. Towards this end, the group will be invited to attend a high school summit being held by OVAE at the Washington Hilton on October 8th. It was suggested that the group might meet privately the day before or after this larger meeting. Other funders that should be invited included the National Institute for Literacy, the Office of English Language Acquisition, and the Office of Special Education and Research Services (OSERS). Additional private funders might include the Annie E. Casey Foundation, the John D. and Catherine T. MacArthur Foundation, the Charles Stewart Mott Foundation, the Open Society Institute, and the Spencer Foundation. However several members of the group also emphasized the need to keep the group small in order to keep it productive.

In addition, it was suggested that a more focused agenda be developed for the next meeting. Items that might be included on that agenda included formally placing each organization's initiatives on the heuristic in Figure 4. Additional next steps mentioned were more discrete. The federal funders promised to share information about the projects being funded in their current round, as soon as they are announced in October. The National Literacy Panel report on ELL literacy, which will be available in April of 2004, will be disseminated to the group. It was also suggested that the group develop a funders' calendar of events related to adolescent literacy. The proposal to start an email listserv for the group has already been fulfilled and will hopefully prove a useful tool in accomplishing the other next steps. Finally, it was suggested that a written document such as this one be produced every 6 to 12 months as a means of keeping the group and other interested parties abreast of developments in this rapidly evolving field.

Guidance for Teachers, Schools, and Districts

We would be remiss not to draw at least a few guiding principles of practical use to educators from our review of education research literature and the work of federal and private funding agencies. These principles are based on this review and are intended merely as tools for those attempting to close the achievement gap in their classrooms, schools, and districts. In many cases, they may simply seem like common sense, but hopefully at least some will provide food for thought.

As mentioned above, many high schools that are undergoing systemic change through the Small High School and Early College High School initiatives have found that organizational change is not enough. Funders described how schools and districts came back with requests for aid in addressing students' literacy needs and providing teachers with better literacy instructional tools. The lesson here is that communicating with teachers and preparing for instructional implications of systemic change are valuable investments of time and forethought. In addition, because such issues come up again and again, resources from others who have implemented successful changes can be beneficial.

When looking for instructional innovations in adolescent literacy, there is an array of interventions from which to choose. A careful and specific definition of your goals will help in making appropriate choices. In addition, seek out critical views that categorize or compare across approaches. While professional journals are an obvious source, the internet and reports such as this one can provide useful information as well. The federal government has provided a catalogue of

approaches that have scientific evidence of their effectiveness via its What Works Clearinghouse (http://www.w-w-c.org/).

As discussed above, funders expressed some frustration over the variety of measures used to evaluate programs. Although work needs to be done across the field to determine what outcomes might be reasonably expected from various innovations at the systemic and classroom levels, there are steps that programs and the teachers, schools, and districts who use them can take to promote more consistent measurement practices. When looking for measures to use in assessing the effectiveness of your program or for monitoring student progress, one good place to start is the Reading First Analysis of Reading Assessment Instruments for K-3, which provides a list of reliable measures by grade and skill (available at: http://idea.uoregon.edu/assessment/analysis_results/ assessment_results.html). Although the measures are limited in the grades they cover, they provide a useful guideline to the types of measures federal agencies are likely to respect. Generally speaking, finding existing measures with some research base that provide the information you are seeking is preferable to measures designed specifically for program purposes because established measures allow funders, researchers, and programs themselves to compare across programs.

Finally, related in some ways to each of these guiding points is that teachers and administrators should strongly advocate for greater professional dialogue both among educators and with researchers and funders as well. Teacher-knowledge is truly vast and largely untapped. The Internet stands as a potentially powerful tool for accomplishing true nationwide collegiality and professional discourse. Being able to share with and learn from one another's struggles to close the achievement gap through a variety of mechanisms is invaluable and worth fighting for.

Conclusions: The Adolescent Literacy Knowledge Gap

In this brief paper, which is meant more to orient the reader to a number of issues than to review all the relevant information about those issues, we have tried to make the following points:
- o The minority achievement gap results primarily from the poor literacy accomplishments of African-American, Latino, ELL, and low-income children in the United States. Shrinking the gap will require improving literacy instruction for those groups in particular.
- o While we know what to do to ensure widespread success at 3rd grade reading, we know much less about how to help pre-adolescents and adolescents with the challenges of learning to read to learn, reading in the content areas, and reading critically.
- o While a number of different instructional programs have been developed to improve adolescent literacy, there is little coordinated research designed to address pressing questions about those programs.

One idea in particular generates hope that quick progress can be made in shrinking the minority achievement gap: the prospect of forming an Adolescent Literacy Funders Forum (ALFF) that takes shared responsibility to coordinate and share information about initiatives, and ultimately perhaps even to coordinate their activities, focused on these issues. We propose that the Carnegie Literacy Funders Meeting participants commit to pursuing ALFF and to revisiting the following topics, as they represent the research and development initiatives that this review and our first meeting have generated as most important:
- o We need to know more about effective adolescent literacy instruction. What are the most promising instructional programs focused on improving adolescent literacy outcomes? Are they indeed effective in improving literacy? Are they cost-effective? Which works best with which subgroups of struggling readers? What kind of professional development and support do teachers need to implement them effectively? Why do teachers often abandon them even

after having started to use them? What kinds of structural changes in the organization of high schools are needed to enhance their effectiveness? What supports from the district and state levels are most helpful?

o Even for those instructional programs that claim effectiveness, there are currently no widely-known mechanisms to disseminate information about how they work or how to emulate them. How do we best disseminate information about exemplary practices? How do we identify the schools and teachers that are doing a relatively good job, perhaps even in the absence of particular programs or particular funding initiatives?

o We do not have programs focused specifically on the needs of struggling adolescent ELL readers, though they constitute a large and growing proportion of the "adolescents at-risk of dropout." Analysis of the challenges peculiar to the second-language reader, and to the adolescent immigrant, is a prerequisite to designing optimal programs. Identifying schools, districts, or teachers that are doing a better-than-average job with this group and analyzing what they are doing might jump-start the search for more effective practices.

These three topics fall far short of exhausting the possible approaches to improving literacy outcomes for high-risk groups, but a systematic and coordinated approach to them would bring us a long way ahead on this important agenda. What is obvious is that we must start learning simultaneously from research and from practice; the traditional approach of waiting for the translation of knowledge from basic research into new curricula, new instructional approaches, and better teacher preparation will simply take too long, and represent a waste of human potential.

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Appendix: Carnegie Corporation of New York Adolescent Literacy Funder's Meeting

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