The Reading for Understanding Initiative:

Key Findings and Implications for States and Districts

About This Report

In May 2016 an Invitational Symposium on the Reading for Understanding (RfU) Initiative was held in Alexandria, Virginia. Co-hosted by ETS and the Council of Chief State School Officers, the symposium brought together 160 state and local education leaders to examine the results of the RfU initiative. The goal of the U.S. Department of Education-sponsored initiative was to accelerate research on reading across grades pre- k-12. In 2010, five grant projects were awarded to focus on learning and instruction and one project focused on assessment.

In this policy report, the authors summarize key insights, themes, and inspiration from the symposium and RfU accomplishments to generate lessons learned, future challenges, and policy and practice recommendations for enhancing reading achievement across the educational developmental span from pre-k to secondary school graduation.

The presentations of the research teams and videos of concluding panel discussions from the symposium can be found at https://www.ets.org/s/research/34239/.

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THE COUNCIL OF CHIEF STATE SCHOOL OFFICERS

The Council of Chief State School Officers (CCSSO) is a nonpartisan, nationwide nonprofit organization of public officials who head departments of elementary and secondary education in the states, the District of Columbia, the Department of Defense Education Activity, and five U.S. extra-state jurisdictions. CCSSO provides leadership, advocacy, and technical assistance on major educational issues. The Council seeks member consensus on major educational issues and expresses their views to civic and professional organizations, federal agencies, Congress, and the public.

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One Massachusetts Avenue, NW, Suite 700 • Washington, DC 20001-1431
Phone (202) 336-7000 • Fax (202) 408-8072 • www.ccsso.org

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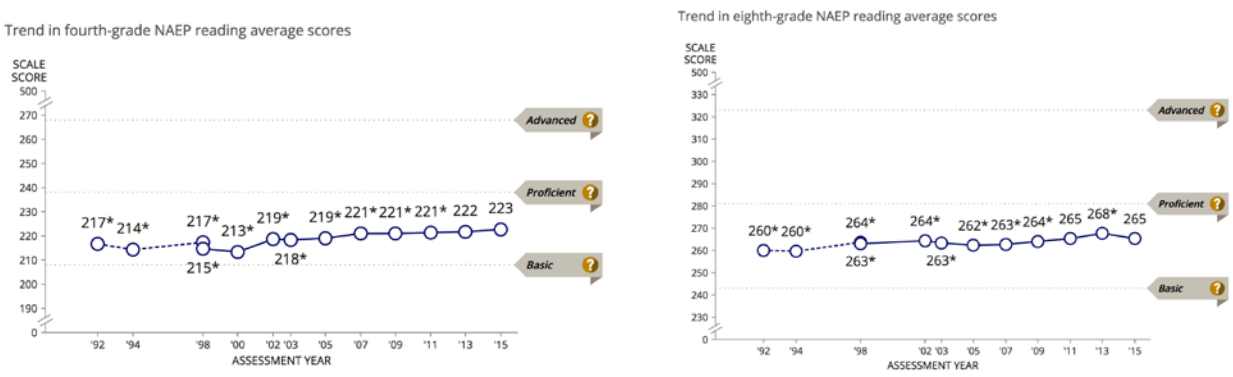
Introduction

It is difficult to over-state the importance of reading comprehension skills—they enable learning about almost all content areas and topics for students while in school and over the course of their lives. Without adequate reading and comprehension skills, an individual's ability to pursue their field(s) of interest, to become and remain self-sufficient, and to engage productively in society are greatly curtailed. In the workplace, the ability to read, comprehend, and analyze complex texts is fundamental to attaining and holding high paying jobs.

Unfortunately, the United States has been falling short of our national aspirations that all students achieve high levels of reading comprehension skills. Over the past seven years, states have taken steps to address this problem by adopting more rigorous reading/literacy standards aligned to college- and career-readiness and investing in teacher training. Despite these actions and the efforts of many dedicated educators, state, national, and international indicators converge to show relatively stagnant growth in reading performance, as illustrated by National Assessment of Educational Progress results.



https://www.nationsreportcard.gov/reading_math_2015/#reading?grade=4

In 2010 the U.S. Department of Education launched a focused, five-year research initiative to "aggressively attack and derive solutions for enabling students to understand what they read."[1] Previous research initiatives had led to insights and subsequent instructional programs that proved to be effective in helping young children become adequate decoders of texts—translating text into sounds and words. But that same energy and focus had not yet been applied with rigor to the problem of comprehension—the complex process that allows one to gain meaning and construct new knowledge from texts.

The goals of the Reading for Understanding (RfU) Initiative follow:

- conduct basic research on the development of reading comprehension and learning across the school years pre-k to grade 12;

1 https://ies.ed.gov/ncer/projects/program.asp?ProgID=62

- apply these research results to the development and evaluation of instructional approaches, curricula, technology, teacher professional development programs, and assessments to improve reading comprehension; and
- evaluate those programs in comparison to current practice in schools to determine whether learning had been improved.

A network of over 160 researchers, across six research teams, worked on these issues for over five years. Two teams tackled pre-k and elementary school populations, one addressed the middle grades (4-8), and two teams focused on older adolescents across middle and high schools. A sixth team focused entirely on assessment across the entire developmental span from pre-k to grade 12.[2]

The RfU research teams carried out much of their work with and in schools. They developed instructional programs, materials, and classroom-based assessments, and worked with teachers and other education professionals to implement them. Some teams co-developed content and programs with educators; other teams developed and delivered training and professional development programs. All teams provided guidance regarding adaptation of the instructional programs they designed, as well as how assessments could be used to foster learning aims. However, it is not as if pre-existing school curriculum, instruction, and accountability responsibilities simply were suspended. The research teams worked with (and sometimes around) the constraints of the day-to-day practices, policies, and social norms of schooling.

Overall, the initiative was an ambitious endeavor. No other research program has ever attempted to tackle a subject domain like reading comprehension across pre-k to grade 12 simultaneously. Neither the researchers nor federal sponsors entered this initiative with naive expectations that the challenges in national reading achievement that have persisted across decades could be magically solved in five years of focused research. A more tempered measure of success was sought, more specifically insights into

- the characteristics of interventions at each grade band that yield accelerations in the development of reading comprehension skills, particularly for struggling readers;
- the barriers that impede the use of effective approaches and interventions; and
- a more nuanced understanding of the reading comprehension challenges that should be the focus of future research.

2 The six teams included Educational Testing Service (pre-k-12th assessment); The Ohio State University (pre-k-3rd); Florida State University (pre-k-4th); Strategic Education Research Partnership (4th-8th); the Board of Trustees of the University of Illinois (6th-12th); and the University of Texas at Austin (7th-12th).

Overview of the RfU Research Projects

Five RfU teams tackled the challenge of building curriculum and instruction materials and implementing them for pre-k to grade 12. The sixth team supported the others by developing and evaluating a new generation of assessments of reading comprehension skills.

The ***pre-k*** and ***elementary*** teams focused their efforts on building the language resources and related comprehension skills that are pre-requisite to and supportive of reading comprehension skill development. That is, the main focus was never solely on decoding, though all teams would note the essentiality of decoding instruction during these early years.

Pre-k-3	The Language and Reading Research Consortium (LARRC) studied the role of language skills in listening and reading comprehension in children ages 4 to 8. They focused on grammar, vocabulary, and narration in order to improve listening comprehension and subsequent reading comprehension. Using their findings they developed a 25-week curriculum supplement available in Spanish and English. Results from the first cohort of the field-based randomized controlled trial (N=766 students across grades) indicated large, consistent, and statistically significant effects on targeted skills. https://larrc.ehe.osu.edu/
Pre-k-5	The Florida Center for Reading Research (FCRR) developed integrated multi-component instructional interventions to support students' oral and text comprehension and reading for understanding. This team found that effective instructional practices on precursor skills increase skills and may shift children's growth in reading-related and reading skills, and that interventions need to target multiple components of language in order to have broad impacts on children's skills. http://rfu.fcrr.org/

The ***middle*** and ***high school*** teams each focused extensively on using text to build knowledge across disciplines, both of content and vocabulary, and using structured discussions to facilitate learning and comprehension. The middle grades teams put additional emphasis on argument and debate with goals of building perspective taking, reasoning, and academic language skills, which in turn were needed to facilitate deep reading comprehension. The high school teams emphasized reading and learning in the disciplines and student engagement.

Grades 4-8	The Strategic Education Research Project (SERP) studied the roles of perspective taking, complex reasoning, and academic language skills in reading comprehension for upper elementary and middle school students. They developed two interventions that incorporate discussion and debate in order to catalyze the growth of reading comprehension skills, and included in one of them a focus on basic reading skills for the struggling adolescent reader. The project also included the development of a professional development model for teachers to support reading comprehension and the use of discussion with an in-depth focus in one content area—science. Results showed the importance of considering "reading" as an area of instruction that continues into the middle grades for a significant number of students, and prioritizing academic literacy and practices, such as academic talk, across all disciplines in middle grades. http://ccdd.serpmedia.org/
Grades 6-12	Project READI (Reading, Evidence, and Argumentation in Disciplinary Instruction) developed instructional interventions that support middle and high school students in developing reading for understanding in three content areas—literary analysis, history, and the sciences. The project focused on the capacity to engage in evidence-based argumentation, drawing on content from multiple texts in discipline-specific ways. The interventions include professional learning materials and experiences for teachers. A large-scale, randomized control, efficacy study of the READI approach in 9th grade biological sciences indicated significant effects of the intervention over traditional instruction on the same content. http://www.projectreadi.org/
Grades 7-12	The PACT (Promoting Adolescents' Comprehension of Text) team studied the cognitive processes associated with reading comprehension to identify malleable processes that may be targets for intervention, as well as the role of engagement and motivation in enhancing reading comprehension outcomes. The team applied their findings to the development of interventions for students with reading comprehension difficulties in grades 7 through 12. The *What Works Clearinghouse* reported that, in a randomized control trial, 8th grade students who had one of the interventions performed significantly better than those in control classrooms. http://www.meadowscenter.org/projects/detail/promoting-adolescents-comprehension-of-text-pact

One team, the ETS team, worked with all of the others and developed a new generation of computer-delivered assessments that shared several key traits:

- Scenario-based–Students are given a realistic purpose for reading a collection of diverse materials as they make decisions and solve problems.
- Technology-rich–The materials range from traditional informational texts, fiction, and biographies to the kinds of materials students encounter in technology-rich, multimedia environments. Students might be asked to respond to email, evaluate websites, or post to simulated blogs.
- A Focus on Collaboration and Communication–These skills are supported and tested through the use of simulated peers in the assessment. For example, test takers "interact" with simulated peers to identify errors, correct misconceptions, and provide feedback on products of learning.
- Meaningful Structure and Sequence–Tasks and activities are structured and sequenced to help scaffold performance for less skilled readers and provide more information on potential student strengths and weaknesses. Performance moderators such as background knowledge and motivation are also measured and can be used to help interpret the reading score.
- Component Measurement–Associated component reading skill tasks (such as word recognition, decoding, and vocabulary) have also been developed to further understand or qualify the performance of students who may have basic reading skill difficulties that interfere with comprehension performance.

Key Insights and Implications for States and Districts

This brief report represents the authors' view of the insights gained from the initiative that are most relevant to state and district leaders. The report is divided into sections based on the major strands were used to organize the National Symposium on Reading for Understanding:

- Assessment
- Curriculum & Instruction
- Professional Development
- Implementation

Each section starts with a brief summary of the research undertaken by the RfU teams. Then recommendations for state and district leaders are provided based on the key insights gained from the six research projects.

Scenario-based assessments (SBAs) are tests that measure, model, and support reading comprehension in a simulated project-like environment. Students are provided with a purpose (making a decision, solving a problem, or applying what they learn to a new situation) for reading a collection of thematically-related materials, as they are asked to evaluate and synthesize information.

For example, in one SBA that requires about one class period to administer, students are asked to decide whether to put a *community garden* in an empty lot (the overarching goal). They read about what community gardens are, the pros and cons of their use, and perspectives from others in the community. They then represent this information in a flyer to inform the community about what they learned.

Component assessments are tests that measure particular foundational sub-skills (such as decoding and reading fluency) that enable students to "get the words off of the page." Component assessments are useful for instructional decision-making, primarily when there is any reason to think students are at-risk of failing to achieve at or above grade level.

Assessment

This report begins with assessment because it represents the starting and culminating point of any learning and instructional cycle and, if properly conceived, can also be used formatively to guide and enhance the instructional program.

- The work of the ETS-led assessment team focused on two types of assessment, *scenario-based assessments* (SBA), which require the application of complex reading comprehension skills, and *components assessments* which measure discrete foundational reading skills (see insert for definitions and go to www.ets.org/research/topics/ reading_for_understanding/ for more information about the ETS RfU Project).

Each of the other five research teams also developed assessments, primarily classroom-based such as quizzes and discussion questions, which targeted skills where gaps were identified (e.g., academic language, perspective taking, inference making, progress monitoring).

These projects found that a combination of carefully designed and utilized assessments can facilitate, guide, and enable effective instructional approaches and accelerate learning.

All the evidence suggests that some percentage of students continues to struggle mastering foundational skills through to secondary school, thwarting learning from text in the content

areas. Component assessments that measure foundational skills complement higher level comprehension measures by helping teachers to distinguish weakness in component skills from weakness in higher level comprehension processes. This distinction can lead to a better alignment between students' needs and instruction. Knowledge of the origin of the difficulty can be directed toward remediating the problem if both types of assessments are provided. It should be noted that while both types of assessments will benefit English language learners, new assessments specifically targeted to second language needs should be developed to focus instruction.

Recommendations for State and District Leaders Regarding Assessment

- ***Provide assessment activities mimic quality learning and instruction***. Good teaching practices should align with the processes required in assessment tasks. While preparing students for taking state reading literacy tests is a necessary requirement, the measurement priority during a high stakes assessment is to sample skills broadly, not for students to learn the text content in order to meet a learning goal or reason about an issue. However, in school or classroom assessments it is a priority that students learn from and reason about what they read, as well as practice the skills and strategies necessary to achieve complex goals. In statewide summative assessments as well as those used at the district, school, and classroom levels, tasks designed to mimic learning activities will provide meaningful guidance for tailoring curriculum and instruction across grades and across school subjects. Which leads us to the next recommendation.

- ***Provide assessment activities that include complex, goal-directed tasks where academic learning from text is a primary goal***. Answering isolated questions about a single passage is not the same as learning and reasoning about content knowledge from text. The goal of most reading in school is to learn new subject knowledge. A second common goal, in and out of school, is to learn enough about a topic or issue to make a decision, solve a problem, understand a point of view, or argue a point (e.g., Should I apply to this academic program or this job?). For learning from text to occur, text content must be integrated with one's prior knowledge, creating new knowledge. Further, providing a complex goal (e.g., see Community Garden example in call-out box) demands that students allocate attention to appropriate skills and strategies necessary to the task. (See Curriculum and Instruction, below, for further discussion.)

- ***Demand not only transparency in what the assessment measures and the level of performance expected, but also tests worth teaching to - not merely reliable and valid score reports.*** This information is essential to ensuring that teaching and testing are aligned. Test scores are part of an assessment's value, but educators also need to understand the construct (what the test was designed to measure) and the test design (how the items and tasks are designed to measure the construct) to make effective use of the results to tailor instruction.

- ***Make users of test scores aware of how motivation and background knowledge mediate assessment performance and score interpretation***. Users cannot automatically assume that every student score is a true estimate of their reading ability. Low or high knowledge of topics presented on a test can result in misinterpretations of the strengths or weaknesses in comprehension skills underlying that performance. Further, the instructional approach one recommends may differ significantly based on whether the examinee expends high or low effort when taking the test, or if other emotional states (e.g., anxiety) impact performance. When feasible, use methods for measuring knowledge or motivation during a test, to estimate the impact of these critical comprehension correlates.

- ***Prioritize disciplinary and multiple source reading in assessments.*** There is a significant mismatch in the passages and questions used in current assessments versus the variety of comprehension skills required to learn from text in academic (and non-academic) environments. The cognitive strategies used to understand and learn from a science article differ from those applied to a historical document or a novel. Assessments should capture this fundamental difference across academic domains. Further, given the proliferation of information on the internet, the ability to evaluate credibility, understand multiple perspectives, and corroborate information across sources is an essential 21st century skill to assess.

- ***Prioritize computer- or web-based assessments, because most reading and learning in the world and in the future will take place on electronic devices.***[3] Paper-only reading comprehension is inadequate preparation for the workplace and post-secondary technology-based learning environments in today's society. Further, computer-assisted assessment affords multiple advantages in administration, construct coverage, cost and time efficiency, and scoring, which are impossible to mimic in paper-only assessments.

- ***[Districts] Prioritize the identification of students with foundational skill weaknesses in reading, especially beyond grade four***. Component assessments are designed for this purpose. Identifying the proportion of at-risk or struggling readers is a key step needed for district and school level planning for professional development, interventions, and associated policy decisions. For identified at-risk or struggling students, reading assessments should measure foundational reading skills in tandem with higher level reading comprehension skills through early secondary schooling or until foundational skills are commensurate with grade level expectations.

Curriculum & Instruction

As noted, five RfU teams tackled the challenge of building curriculum and instruction materials and then implementing them for pre-k to grade 12. We note that no RfU team

3 This will also necessitate that states, in partnership with districts, ensure all students have access to technology within the learning environment in order to develop digital literacy skills.

started with the premise of teaching to the common core state standards or state standards,[4] though the instructional programs produced would, in retrospect, be found to be consistent with these standards.

Synthesizing insights for curriculum and instruction across all of the RfU projects in just a few pages clearly requires over-simplification of the richness of their accomplishments. However, we can codify a few key, priority insights. In doing so, we first need to clarify our terminology. In common usage, the terms *reading* and *comprehension* are sometimes used interchangeably and sometimes used to distinguish sets of skills. Reading ability often is used to mean what we have called foundational skills, that is, the set of visual processing skills that get the words off the page into one's head. These skills include decoding, word recognition, vocabulary, and syntax, and culminate in fluent reading. If there is an assumption of understanding or comprehension, it is usually at a basic or literal comprehension level.

Comprehension could be thought of as something simple, like literal recall or recognition of the gist of what one has read, as referred to in the previous paragraph. But this is not what is meant or measured in reading comprehension tests across grades. We would not have nearly 30 percent of students below basic comprehension levels by this simple definition. Rather, comprehension refers to a more complex construct of understanding what one reads, and that is what is measured on assessments. At a minimum, this construct of comprehension requires sophisticated language processing (vocabulary and grammar), inference, reasoning, perspective taking, and interpretation. It requires regulating a set of skills and strategies toward goals of building new knowledge, making a decision, solving a problem, or applying what one learns. Note that this description of comprehension applies to reading (visual processing of texts) or listening, or comprehending any mixture of media (e.g., animation, film). While the RfU teams differed in the specific definitions of comprehension they used to guide their research projects, they would all agree that some mixture of these higher order processes is required to read for understanding.

With this in mind, we highlight four common *misconceptions* that should to be addressed by the education community:

1. Reading (i.e., print-based foundational skills) should be the sole or even primary focus of early elementary reading instruction (pre-k through grade 4). While foundational skills (e.g., decoding and reading fluency) must continue to be a priority, comprehension development is an equivalent priority. This comprehension development is mediated through oral language comprehension and development. Individual differences in vocabulary and the sophistication of language skills are wide among children already at pre-school, and this gap needs to be addressed as soon as formal schooling commences and continued until the gap is narrowed.

4 The call for proposals for the RfU initiative was released before the common core state standards.

2. Reading comprehension instruction is complete by grade 4 or 5. We have long sent a mixed message to students (and teachers) by treating reading comprehension as if it is a skill set that is mastered in elementary school, even as we set content standards and outcome tests of reading literacy through high school. The complex construct of reading comprehension or reading for understanding as measured across pre-k through grade 12 needs to continue to be explicitly developed through middle and high school, addressing the varying cognitive strategies applied to reading in each discipline.

3. Literacy involves only the ability to gain knowledge or information through text. The research conducted and reviewed through the RfU projects demonstrates that the application of language, academic vocabulary, reasoning, and the social contexts of literacy are essential elements to developing and applying literacy skills.

4. Comprehension is a solitary activity. Reading is often thought of as an activity involving one reader and one text, but comprehension is more than this solitary interaction; it is a social activity that involves listening skills, the sharing and co-constructing of ideas and perspective taking. Rich literacy environments involve students and teachers interacting to scaffold understanding and provide feedback on each other's ideas. An understanding and appreciation of varying points of view and perspectives are part of the interpretive fabric of reading for understanding.

To address these misconceptions, we structure our recommendations for state and district leaders around three shifts:

1. instructional focus on reading comprehension, pre-k-12;

2. the integration of complex literacy skills; and

3. greater emphasis on reading to learn.

Recommendations for State and District Leaders regarding Curriculum & Instruction

- ***Ensure early elementary and pre-school curricula focus on language development, comprehension, and knowledge-building, as well as foundational reading skills.*** While foundational skills (e.g., decoding and reading fluency) must continue to be a priority, comprehension development is an equivalent priority. This comprehension development is mediated through oral language and visual media. Individual differences across children in vocabulary and the sophistication of language skills are wide, even at the start of schooling. Enhancing language comprehension should include building academic content knowledge in science, social studies, and so forth. If children are more sophisticated users and producers of language, with adequate knowledge of academic domains, it may mediate the so-called fourth grade slump seen in reading comprehension tests.

- ***Ensure schools have the resources and policies that enable middle and high schools to address the needs of students who fail to achieve mastery of foundational reading skills.*** Most students who fail to achieve comprehension also show only adequate to weak foundational skills. Perhaps not weak enough to be classified as reading or learning disabled, but well below average for their grade level. They are often slow and non-fluent when reading grade level texts. They do not recognize or decode words automatically and are slow to learn new vocabulary from texts on their own. They expend their attention and memory resources on these lower level processes at the expense of higher level comprehension and reasoning processes. They are reluctant readers; they do not read widely or frequently on their own. State and district leadership is needed when a high prevalence of such students is clustered in middle and high schools, because those schools may not have structures and expertise in place to intervene or remediate foundational and comprehension skills, and meet curriculum content standards simultaneously at scale.

- ***Ensure an instructional focus on reading comprehension beyond elementary and through secondary schooling.*** As students progress through middle and high school, instruction should include the specialized ways of reading, thinking, and conveying information needed for each of the content areas. This implies that content area teachers at all grade levels should include the reading comprehension strategies used in their subject area. Whenever content is being learned from text (print, digital, or other), instructional support for the necessary reading comprehension skills should be embedded.

- ***Ensure that multiple literacy skills are integrated within curricula and instructional materials and provide exemplars.*** State and district leaders play a critical role in setting expectations and providing exemplars for quality curricula and instructional materials. While at times it may be appropriate to teach reading comprehension in isolation, most often advanced literacy skills—including listening, language, vocabulary, perspective-taking—should be integrated in content area instruction, as the skills and strategies necessary to achieve larger learning goals such as how to build new knowledge with texts, to reason and debate an issue, or to solve a problem with texts.[5] It follows, then, that

    - ***The development of content area instructional units should involve both literacy teachers and content area teachers*** to ensure students are supported in the development of reading comprehension skills across the pre-k-12 continuum.

5 As an analogy, think of how a science teacher considers it their responsibility and mission to teach research skills appropriate to the science discipline. In chemistry this includes using beakers, flasks, and burners to mix chemicals or prepare solutions; in biology, this might include dissections or growing cultures, etc. Now think of reading in the disciplines as another research skill needed to learn chemistry or science knowledge and reasoning from text sources about those sciences.

- ***Academic language development*** should be facilitated concurrently with reading comprehension development across the entire span of schooling. This variant of language is the currency of learning environments and should be practiced/developed productively, both in classroom discussions and in written communication. Informal, *conversational language* use should also be encouraged, but helping students to learn and command an academic register of language use will strengthen their confidence and competence in future learning (and workplace) settings.

- ***Realistic texts of varying types and formats*** should be incorporated across the curriculum, including fiction and non-fiction, print, digital, and others, to reflect the many sources of information, inspiration, and communication they will encounter as adults. Textbooks and trade books written explicitly for educational use serve a didactic purpose. But the world of literacy beyond the school is much richer and varied than the controlled and closely edited texts prepared by educational publishers and test companies. The internet better represents the richness of literacy the student can expect beyond schools. While access to technology in today's classrooms can be limited by school funding, failure to integrate technology with learning underrepresents the reading comprehension construct and may increase the achievement gap. In addition, technology affords access to information, an opportunity to exercise critical thinking skills, and can be used to scaffold and enrich literacy environments.

- Curricula should encourage ***language-rich environments*** with ***discussion and debate*** of the ideas and content found in texts as a primary pedagogical vehicle for increasing comprehension. The social context of literacy use and practice should be seamless and synonymous with the practice of learning to comprehend individual text sources. Strong readers often self-explain in their own heads when constructing and reasoning about texts. However, this internal dialogue should be modeled externally for less skilled readers and scaffolded through social interactions.

- As implied above, ***instruction should directly address the development of thinking and reasoning skills*** concurrent with comprehension development across the lifetime. This development should occur even before students can read independently. Instruction in the content areas, including English classes, needs to include the specific thinking and reasoning strategies required in that discipline. The act of reasoning or thinking about text itself is a knowledge-building activity. In this sense, it both supports comprehension and is comprehension.[6]

6 It is often overlooked that reasoning generates knowledge, it is not just a process applied to text content, after knowledge is acquired. When one reasons about or reflects on a text, or compares and contrasts ideas on a topic, one generates inferences or re-organizes what one knows about the topic. This is new knowledge that was perhaps not ever represented explicitly in the source texts.

- The context and setting of literacy practices within instructional units should be ***purposeful, goal directed, and engaging.*** Students should not read to simply answer basic reading questions, but to solve problems or make decisions as they engage in rich literacy activities. Comprehension is a means to an end, not merely an end in itself.

- ***Ensure that the texts used within instruction increase in reading level, complexity, and length across the grades.*** To be prepared for the reading demands of post-secondary education, students should be called upon to develop fluency and stamina with language as represented in print sources through the inclusion of texts of increasing length, complexity, and volume that are commensurate to their grade levels.

- ***Monitor and develop policies to support dispositions such that students see engagement in print reading as natural and necessary to their personal and social development***. This goes beyond appreciation for literature or a joy of reading. Increasingly, easy access to social media, smart phones, and streaming video are competing with extended print reading for students' time and engagement. For many purposes, these alternate media (which often include some limited print reading requirements and navigation skills) are sufficient for learning or solving a problem (e.g., how-to videos). States and districts need to show leadership and devise creative strategies that schools and teachers can use to engage students. Each RfU team addressed motivation and engagement. No simple answer emerged, though a strong focus on goal directed, relevant learning activities that engage students in big conceptual questions in social learning environments may be sufficient in the near term for most classrooms. However, the long-term problem of students disengaging from reading and learning in their school careers is a problem that needs to be addressed.

- ***[Districts] Ensure that all content area instruction includes "reading to learn"* (for districts specifically).** "Reading to learn" requires the student to extract and evaluate information from texts, identify the big, conceptual ideas across texts and not merely the 'main ideas' of individual texts, reason, make inferences, and generalize their knowledge beyond the text and topic in question. Some of the strategies employed vary cross disciplines. Therefore, ***a disciplinary approach to reading should be used, particularly at the middle and high school levels***, so that all students learn to "read to learn" in each discipline.

Professional Development

The implications of the research conducted under RfU are quite significant for teacher preparation programs and for state and district professional development programs. First and foremost, it is now clear that reading proficiency should be the responsibility of every teacher (not just reading and ELA teachers), as well as every educational professional and school administrator. This includes content area teachers, whose aspirations should not only be about building students' content understanding, but also developing the specific skills used within that discipline to learn from and critically evaluate content.

Recommendations for State and District Leaders Regarding Professional Development

- ***[States] Require that teacher preparation incorporate research-based, discipline-specific reading comprehension training into the pre-service training of all teachers***. Also, because the field of cognitive science is rapidly developing, states should require teacher preparation programs to update their curriculum to reflect new advances to comprehension instruction as they are developed.

- ***[States and Districts] Require in-service teachers who are not proficient in the instruction of discipline-specific reading comprehension skills to engage in professional development and then incorporate them into instruction.*** Comprehension instruction should reflect the expectations of the discipline. Consequently, content area teachers will need expert knowledge about how to teach reading for understanding in their discipline. For instance, teachers and students should read history texts in a manner that is consistent with disciplinary expectations (e.g., distinguish primary from secondary sources); this is different from how they should read a science text.

During the RfU project, professional development took on many forms from assistance with implementing interventions to co-development of materials and programs to knowledge transfer on the latest best practices. District leaders may want to require principals to identify faculty/staff with primary responsibility for reading literacy development and organize annual, common, school-wide reading literacy development plans with monitoring of progress. A parallel but less intensive plan could be implemented for faculty-wide reading literacy development for all other content area faculty.

The RfU projects identified some insights into key elements of such professional development offerings:

  - ***Receptive and productive development of academic language*** should be a priority, especially with underserved groups whose language experiences outside of school may diverge from the academic language use expected in school.

  - ***Knowledge building*** across topic and subject areas using rich oral language vocabulary, as well as visio-graphic materials should continue to be a priority, with attention being given to how this knowledge can be integrated with text reading and comprehension.

  - ***Social interactions and communication*** that foster perspective taking and multiple points of view should also be developed as pre-requisites to advanced comprehension skills. Students need to be agents of their own learning, but also collaborators in a socially constructed environment.

- The foundations for ***evaluating the credibility and integration of multiple sources*** (whether text, oral, or visual) should also be introduced, as preparation for more advanced multiple source reading comprehension.

- Teachers should keep up to date on the forms, genres, devices, and uses of ***digital technologies***, as that is the reading literacy world they are preparing students to enter. While the type and prevalence of devices and displays (e.g., laptops, tablets, smart phones, white boards), communication platforms (e.g., email, blog, twitter, snapchat), and resources (e.g., world wide web, Wikipedia) continue to change and expand at a dizzying pace, educators must do their best to prepare children from the earliest ages to be flexible in their approach to learning and adapting to the dynamic literacy environment of our age. This requires a mindset for integrating both formal reading and writing contexts with more informal and dynamic digital environments.

- Teachers and educators need to enhance their ability to ***create language rich environments and discussions*** that foster language development and listening comprehension, as well as reading comprehension. In the early grades, language development and listening comprehension instruction should be done even before students have learned or mastered reading of printed text.

Implementation

If continuous improvement and enhancement in reading literacy is to ever be achieved, then there must be mechanisms that allow solutions to be tested within classrooms, evaluated, implemented more broadly, and sustained over time.

The RfU research teams worked with schools that had a need to enhance reading outcomes for their student populations. On the whole, each of the RfU projects brought technical expertise, ready to use professional development, curriculum and instructional content, evaluation tools, and monetary resources to schools. Each team did their best to be accommodating to the curriculum and logistical needs of participating schools and districts. Yet each team faced multiple barriers to implementing their instructional programs—trade-offs that sometimes compromised the evaluation of the efficacy of the programs. As of the writing of this report, teams were less than optimistic that schools would be able to sustain the instructional programs they put in place beyond the duration of the projects.

Imagine that we had solid evidence that the instructional programs implemented by the research teams would be effective. What would it take for them to become instantiated and institutionalized in the schools? It is toward this aim that we offer the following recommendations for district leaders, as well as the state leaders who advise and support them.

Recommendations for State and District Leaders Regarding Implementation

- ***Ensure the rules, regulations, and policies that govern school organization and schedules accommodate implementation and sustainability of new programs designed to enhance student achievement.*** The role of district leadership in transforming the teaching of language and literacy will be essential to implementing and sustaining change. Coverage of the curriculum is important, but content cannot really be learned or mastered absent advanced comprehension skills needed to sustain and enhance disciplinary learning. Some time should be set aside for exploring new approaches for student learning and professional development.

- ***Encourage curriculum design research that collaboratively engages educators with researchers and provides time to explore and implement new approaches for improving reading***. For innovation in research to be implemented and sustained in schools, ***a*** different relationship between educators and research is required. The approach needs to take into account not only the logistics of implementing a study, but also factors impacting the likelihood of instantiating a sustainable change.

- ***[Districts] Integrate the expectation of innovation and change into policies and plans***. While structure and routine schedules are important for the success of any institution, a mindset for innovation and improvement is important for keeping pace with a dynamic learning environment.

- ***[Districts] Monitor how well change is sustained over the long term.*** Reading is a complex skill that develops over time; changes are gradual and growth is slow. Educators should explore the use of new measures that can capture smaller, more realistic changes in student growth and monitor more modest changes over time.

Conclusion

The work of the RfU initiative has not yet concluded. While all six project teams have finished their grants, the gathering of and reporting on the data collected will go on for years, as well as the development and dissemination of the instruction and assessment products that were initiated. For example, the National Academy of Educational is working on a synthesis of the RfU project, with reports and supplemental monographs on specific issues forthcoming (https://naeducation.org/reaping-the-rewards-of-reading-for-understanding/).

In this brief report, the authors attempted to capture some key insights to serve as principles for action now. Adapting to the gradual accumulation of solid, stable empirical findings of research is important, but so too is learning to adapt educational practices to better serve children of today, large percentages of whom continue to fail to achieve reading comprehension levels at the standards set for our nation. In the spirit of empirical science, innovations in policies and practices should be considered and implemented where needed, but with an eye toward understanding better what works for whom and when. The insights shared here hopefully can serve as a foundation for such innovation.

Council of Chief State School Officers

One Massachusetts Avenue, NW, Suite 700
Washington, DC 20001-1431
voice: 202.336.7000 | fax: 202.408.8072