

The background of the cover is a collage of three educational scenes. The top scene shows two children, a girl and a boy, looking at a red tablet together. The middle scene shows a smiling female teacher sitting at a desk with a male student. The bottom scene shows a row of colorful books on a library shelf. The entire collage is partially covered by a large red circular graphic on the right side.

# REAPING THE REWARDS

*of the*

## READING FOR UNDERSTANDING INITIATIVE

Executive Summary

NATIONAL ACADEMY *of* EDUCATION

# REAPING THE REWARDS *of the* READING FOR UNDERSTANDING INITIATIVE

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# Executive Summary

In 2009, the U.S. Institute of Education Sciences (IES) allocated \$120 million to establish the Reading for Understanding (RfU) initiative. This initiative responded to concern that children's improvement in reading comprehension had leveled off over the previous few decades, coupled with the observation that research on reading comprehension had sufficiently matured to warrant a major investment in improving student performance. The RfU initiative involved a research and development network of six interconnected teams focused on improving reading comprehension for students in pre-kindergarten (pre-K) through grade 12. The rationale for such a major investment, based on a direct analogy to the United States' highly successful 1960s networked approach to accelerating the goal of a moon landing, was that the severity of the problem, and the likelihood of finding a solution, rendered reading comprehension a wise investment.

Thus, in 2010, six teams of researchers (one focused on assessment and five charged with understanding and improving the development and pedagogy of reading comprehension) were funded to carry out the initiative. Two teams (the Florida Center for Reading Research [FCRR] and the Language and Reading Research Consortium [LARRC]) focused on early reading levels (pre-K through grade 4); three teams focused on older readers from grades 5–12 (the Catalyzing Comprehension through Discussion and Debate [CCDD], Promoting Adolescents' Comprehension of Text [PACT], and the Reading, Evidence, and Argumentation in Disciplinary Instruction [READI]); and one team (the Educational Testing Service [ETS]) focused on assessment. Collectively, the teams studied the development, instruction, and assessment of reading comprehension from pre-K through grade 12. The funding mandate called for a network, a unique feature of this effort that brought site directors and scholars from the six teams together on a recurring basis to share collegial critique and common experiences, and to promote synergies across teams.

In 2016, following the 5-year award period, as the RfU teams continued to analyze data and add to the portfolio of more than 200 publications already generated, IES

funded an invited proposal from the National Academy of Education (NAEd) to synthesize findings, themes, principles, and barriers related to this ambitious attempt to understand and improve U.S. reading comprehension performance. Through this *Reaping the Rewards of the Reading for Understanding Initiative*, the NAEd was charged with answering the question: What has been the yield from this investment? More specifically, the Academy's charge was to synthesize, from this substantial and unprecedented effort, what had been learned about understanding and improving reading comprehension.

To guide the NAEd in answering this question, a steering committee was established; its membership included NAEd members knowledgeable about literacy and reading, the leaders of the six funded teams, and two NAEd members (Annemarie Sullivan Palincsar and P. David Pearson) whom the Academy had recruited as co-chairs of the project. With the steering committee's guidance about the scope and methods of the review, the NAEd staff, with the advice of the co-directors, recruited scholars to assist with the synthesis in three large "buckets" of research—the nature and development of reading comprehension, reading comprehension assessment, and curriculum and instruction to promote reading comprehension. That collective—the steering committee, the scholars serving as authors of the report, the NAEd staff, and the co-chairs—worked on this effort from 2017 through 2019.

## THE YIELD

The synthesis revealed that the RfU initiative was successful in advancing knowledge for all three strands—development, assessment, and curriculum and instruction. Highlights from the synthesis include *key findings* and many *lessons learned* about (1) how we think differently about reading comprehension now than we did in the pre-RfU period, (2) how to implement ambitious efforts such as research networks, and (3) the direction of future research inspired by the RfU.

In this Executive Summary, we offer highlights from this effort that are documented in the chapters that follow. We begin with the three most important contributions of the RfU initiative, the "headlines." Then we move to a more elaborate and specific set of key findings across the work of the six teams, which is followed by a set of lessons learned and, finally, an agenda for future work.

## HEADLINES

**Knowledge is cause, consequence, and covariate of reading comprehension.** How we think about the role of learners' knowledge in explaining, assessing, and facilitating reading comprehension is broader and deeper than it was before the RfU initiative. Our understanding of the types of knowledge necessary for particular acts of reading have expanded beyond the familiar triad of declarative, procedural, and conditional knowledge to also include disciplinary and epistemic knowledge. In particular, disciplinary knowledge about topics—such as how explanation and argumentation operate, what count as claims and evidence, how oral and written discourse conventions shape those processes, and how we come to know what we know—are central to students' acquisition of knowledge and inquiry practices within disciplines. Additionally, the RfU research provides a deeper understanding of the role that conventional knowledge



sources play in fundamental processes such as inferencing (filling in gaps, such as the motive of a character, left unsaid by the author) and comprehension monitoring (evaluating how well you *really* understood the last paragraph). Finally, the RfU highlighted the “other side” of the all-important relationship of knowledge to comprehension. For decades, we have emphasized how knowledge shapes comprehension, but only more recently have we focused more on how comprehension shapes knowledge—knowledge that is then available to use in other learning and application tasks. Much of the RfU work focused on using the fruits of comprehension to apply to other tasks, such as writing an argument, telling a story, or solving a problem. Nowhere is this progress better reflected than on the assessment front, where the RfU work successfully validated a comprehension assessment, the Global Integrated Scenario-Based Assessment (GISA). GISA measures both “close reading” of texts plus the ability to use knowledge gained from reading to carry out application tasks within a contextualized scenario that privileges purpose-driven activity within a simulated social setting.

**Language drives every facet of reading comprehension.** As with knowledge, the RfU has helped us both to broaden and deepen the ways we think about the role of language in explaining, assessing, and facilitating reading comprehension. We have known for almost a quarter century that different facets of language provide strong explanations for the nature and quality of reading performance at different levels of development. Early on, in kindergarten through grade 2, subword processes like letter-sound knowledge and phonemic awareness tend to explain the majority of the variance in reading achievement, while more meaning-based language variables, including receptive and expressive vocabulary, explain increasing proportions of the variance as students move into grades 2 and 3. What we did not know before the RfU was how important the more sophisticated facets of academic and disciplinary language would become in explaining and improving advanced levels of reading comprehension, such as those we encounter in middle and high school. But even for more traditional facets of language, such as more basic lexical and grammatical elements, the RfU teams were able to unpack and evaluate their contributions to comprehension performance in greater detail than ever before. As with the knowledge agenda, the RfU teams also made progress in the assessment of some of these more sophisticated facets of language.

**Reading is an inherently cultural activity.** On the face of it, this headline is old news, but the RfU portfolio breathes new life into the claim that all facets of reading are contextualized. Development always occurs in a particular situation—in a classroom, at a community center, or around a kitchen table. Decontextualized assessment may not be the best way to monitor development over time or to ascertain pedagogical effects. Assessments like GISA represent a step in the right direction. Most importantly, successful classroom-level comprehension interventions require fundamental changes to classroom cultures, not just changes to routine instructional practices. These changes in classroom cultures, which are inherently situated (they look a little different in every classroom), include alternative expectations for the tasks, social supports, talk, and purposes that surround reading. The most successful interventions in the RfU portfolio, particularly for older students, involved *collaborative* work groups that undertook close reading and *dialogically-based discussion* of challenging, often controversial, texts

with the immediate goal of mining the texts for information that students could use to meet the longer-term goal of *applying what they learned* to new problems or situations. Conceptualizing the implementation of interventions as needing to affect classroom cultures, rather than only improving technical proficiencies, suggests a different stance toward promoting classroom and school change. This sort of change demands teacher learning as well as student learning, and many RfU teams required teachers to learn new approaches to pedagogy as prologue to effective teaching. Teacher learning involved viewing professional development and one's own learning as a long-term, continuous journey within professional learning communities. In pursuing an even more ambitious goal, teachers were involved in the design, delivery, and critique and revision of curricular materials, pedagogical routines, and professional development activities in a design-based laboratory where teachers worked alongside researchers and curriculum designers in a continuous improvement enterprise.

### KEY FINDINGS

A high-level summary of key findings adds detail to the headlines, offering new understandings across the three major strands of development, assessment, and curriculum and instruction.

With respect to the *nature and development* of comprehension, the RfU portfolio of work:

- Described the heightened importance of both word and world knowledge in explaining comprehension development, especially for inferential reasoning and comprehension monitoring.
- Rendered the Simple View of Reading more complex by proposing different models of how the broad components of listening comprehension and decoding interact at various stages of development and adding additional variables (facets of knowledge, language, and other internal processes) to account for the complexity of comprehension during the adolescent years.
- Demonstrated that language is most productively regarded as a single construct, or perhaps as a cluster of closely related skills.

Regarding *assessment*, the RfU portfolio of work:

- Demonstrated that standards of authenticity, complexity, and psychometric adequacy can be achieved in a single assessment system that assesses text comprehension, learning, and application.
- Instantiated knowledge as an integral component of reading comprehension that should be integrated into the assessment of comprehension, not simply controlled.
- Developed specialized tests of subcomponents of reading that can, and in some cases do, contribute to larger batteries that address a range of comprehension-related variables—prior knowledge, academic language, perspective taking, inference making, evidence-based argument, and reading and self-regulatory strategies.

For *curriculum and instruction*, the RfU portfolio of work:

- Produced a range of positive, but often inconsistent, results on a wide range of measures across the K–12 continuum.
- Revealed that effects were greater and more consistent for curriculum-aligned than for curriculum-independent measures of key outcomes.
- Demonstrated that the strongest effects were observed for measures of vocabulary, morphology, comprehension monitoring, and knowledge acquisition.
- Revealed that the interventions that “moved the needle” on reading comprehension and a host of related measures (such as vocabulary, knowledge acquisition, application, and enabling skills) were characterized by well-orchestrated, multi-component instruction.
- Established that reading comprehension interventions were often (if not always) coordinated with content-area learning goals, usually with comprehension activity enacted in the service of content acquisition.
- Provided evidence that when positive outcomes did not emerge on both comprehension and content learning, advances in one did not come at a cost to the other.

## LESSONS LEARNED

We learned a great deal from the RfU initiative about the nature of the research process as well as specific issues related to the general question of “what works.” More specifically, several lessons stand out as unique and significant.

**Being able to design research with a long runway for implementing projects enables more robust and credible research.** The research model enacted in the RfU initiative provides a demonstration of what is possible in the design, implementation, and analysis of lines of inquiry with the affordances of adequate funding, more generous time frames, and a diverse array of expertise to carry out the work. When there is a sufficiently long runway, scholars have the opportunity to exploit the complementarity of research methods, scholarly traditions, and academic disciplines. Add to that mix the opportunity of the RfU network to serve as a crucible for sharing collegial critique and insight, and the affordances multiply.

**Teacher professional learning can serve as either a bridge or a barrier to successful implementation.** Within the RfU, we learned much about facets of pedagogy that are easier and harder to learn, the barriers to teacher learning and uptake, and the contextual supports that account for positive changes in teacher knowledge and practice. Three observations are warranted from the study of teacher learning and uptake: (1) the more complex the pedagogy, the lower the likelihood of implementation; (2) the more teachers are embedded in all aspects of the intervention, the greater their uptake of important aspects of the intervention; and (3) a major roadblock to teacher uptake of new practices is the accountability infrastructure of reform movements. The more test scores matter, the less the likelihood that teachers will adopt novel teaching practices.



**The RfU research portfolio increased our understanding of the barriers to “moving the needle” on comprehension achievement.** Because the randomized controlled trials and efficacy studies in the RfU were well designed and well implemented, the typical explanations for failing to move the needle (shortcomings related to design, duration, and measurement issues) could be ruled out. What remain as more plausible explanations are the inherent difficulty of this sort of work (researchers, professional developers, teachers, and students are being asked to undertake more challenging agendas) and unrealistic expectations (i.e., we might believe that moderate [0.50] if not large [0.80] effect sizes are achievable when the more realistic expected value for work of this sort is nearer the small [0.20] standard).

**Learning to read and reading to learn surfaced in the RfU portfolio as complementary goals, rather than separate stages of development.** The conventional wisdom in reading is that first students learn to read and then they read to learn. Within the RfU work, to the contrary, researchers found that these two complex processes were more likely to be interwoven across students’ school careers. In the primary grades, even as early as kindergarten, students can read to learn as they learn to read. The case for complementarity between reading to learn and learning to read is stronger than the case for separate, encapsulated stages. Conversely, there is evidence that, even in middle school, when reading to learn is prominent in the disciplines of history, science, and literature, there is still much to learn about how to read effectively, such as language and vocabulary, the special nature of academic discourse, and strategies for unpacking dense grammatical structures. Also, while both learning to read and reading to learn have much in common across history, literature, and science, they also differ within each discipline.

**The RfU research advanced understanding of both general and specific aspects of reading comprehension.** In summarizing contributions to development, we noted how the RfU complicated the Simple View of Reading. Regarding the RAND heuristic model,<sup>1</sup> with its emphasis on the independent and joint influence of the reader, task or activity, and text within a sociocultural context on comprehension, the RfU made progress on all four of these key constructs. That said, in our view, the RfU work taught us more about reader and activity (task) variables than it did about text and context variables. Regarding adolescent/disciplinary literacy, the RfU initiative shifted the emphasis of comprehension instruction to an emphasis on students actively and collaboratively constructing and extracting meaning from texts, using language in the form of rich conversations about text to sharpen and deepen their understanding, and using the knowledge gained from reading, thinking, and talking to solve problems and explain how and why things in the world work the way they do.

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<sup>1</sup> RRSg (RAND Reading Study Group). (2002). *Reading for understanding: Toward a research and development program in reading comprehension*. Santa Monica, CA: RAND Corporation.

**We need to add both breadth and depth to our study of the knowledge-comprehension relationship.** We need to move beyond the aphorism that we learn what is new in terms of what we already know in favor of more complex, even reciprocal views of the knowledge-comprehension relationship.

**Writing in response to reading and learning from text is a likely candidate for improving reading comprehension.** Writing and reading bear an inherently complementary relationship. We know that reading informs writing, but we do not know as much about how writing, as the natural complement to and outcome of reading comprehension, improves reading. This relationship was implicit in all of the middle and high school interventions—CCDD, PACT, and READI. Much work remains to be completed about the role that writing can play in promoting integration and analysis of key textual ideas. It is time to address this important pedagogical agenda.

**Given the tension within the RfU between the assembly and orchestration models of skill acquisition, the field (perhaps with the leadership of IES) should undertake a major national initiative, including meta-analyses and new research studies, to evaluate the relative merits of competing theories of the process and pedagogical models of delivery.** Albeit with different terminology, the issue of which metaphor—assembly or orchestration—better captures the character of reading (and reading comprehension) development is one that arose in each strand of this review. It is time for the field, and IES, to allocate more conceptual and financial energy to this important but underanalyzed question. It makes a difference in how we design interventions to improve both comprehension and foundational word-level skills.

**Affect and conation deserve more emphasis in our research on comprehension development, assessment, and pedagogy.** The facets of learning that entail engagement, motivation, self-efficacy, and social well-being deserve more attention in our study of comprehension and learning. We need to know more than what we learned from the RfU about how these affective, dispositional, and social factors moderate and/or mediate learning from text in the short term, and shape students' reading in the long term.

## OVERARCHING CONTRIBUTION OF THE RFU INITIATIVE

On a final note, as we think about the legacy of the RfU initiative, there are, by our collective reading, two complementary lessons. First is a lesson about making clear the theory of reading comprehension at play in our work. What the RfU demonstrates is that whether we are studying the nature and development of reading comprehension, creating assessments of reading comprehension, or working actively to improve reading comprehension, how we conceptualize reading comprehension will necessarily shape what we examine and, ultimately, what we achieve. The RfU made fundamental strides in elaborating what it means to comprehend what we read and, thus, in how we understand its development during schooling, how we can better assess the nuances and sources of comprehension, and what it means to improve comprehension and learning from text.

Second is a lesson focused more specifically on improving reading comprehension in school-based settings. The RfU initiative taught us about how much it takes to achieve even small effects for increases in student reading comprehension performance. It is a matter of commitment and sustenance. We witness the most impressive effects when we see strong and supportive professional learning communities that hold high standards and provide continuous support, in the form of coaching and careful monitoring, to help teachers acquire practices that promote the widest student engagement in higher-order talk within intentionally collaborative discussions about interesting and thought-provoking texts—all moving toward a target of applying what students learn in such a process to some issue, problem, or project worth addressing.