



# Investment in Reading Research from Kindergarten through High School

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Fifteen years ago, the National Reading Panel Report (National Institute of Child Health and Human Development, 2000) was released. The report stressed that effective reading instruction should focus on a combination of skills and outcomes, including phonemic awareness, phonics, fluency, vocabulary, and comprehension. It also suggested a framework for implementing instruction and developing policy and research priorities, and it highlighted questions related to the most appropriate instruction to benefit all students in the classroom. A decade and a half later, frameworks and best practices continue to be established with the development, adoption, and implementation of standards targeting college and career readiness. These standards set high expectations for all students and underscore the need for research-based interventions and programs that improve literacy outcomes for a diverse group of learners and prepare them for success in school and beyond.

Achieving the new rigorous standards may be particularly difficult for students with disabilities. Compared to their peers, students with disabilities continue to struggle in reading. The most recent scores from the National Assessment of Educational Progress (NAEP, 2013) indicate that the achievement gap between students with disabilities and their peers is widening and that 69% of 4<sup>th</sup> graders and 60% of 8<sup>th</sup> graders with identified disabilities score below basic levels<sup>1</sup>. The Institute of Education Sciences' National Center for Special Education Research (NCSER) is working to address this gap by funding research that develops and rigorously evaluates interventions to identify those that improve outcomes for students with a wide range of skill levels, to prevent reading disabilities from emerging, and to close the gap or prevent the gap from further widening between students with disabilities and their peers. NCSER also funds research to develop valid and reliable assessments that identify students with disabilities, monitor student progress, and guide instructional decisions, and to determine valid accommodations for large-scale assessments. NCSER-supported research promotes an understanding of the most effective practices that schools can use to improve academic outcomes for students with or at risk for disabilities and their access to college and the workforce.

This paper describes NCSER's investment in literacy in kindergarten through high school and some important findings resulting from this investment. The following sections describe a range of research activities from NCSER-funded projects that have ended to those that are just beginning. More detail about the projects can be found using the Institute's Grant Search Tool at <http://ies.ed.gov/funding/grantsearch/index.asp>.

## Reading: Text Complexity and the Growth of Comprehension

Successful readers rely on a combination of skills as they interact with a range of texts that become increasingly more complex across grades. Successful reading instruction focuses on developing foundational skills to support comprehension such as concepts about print, phonemic awareness, phonics, and fluency<sup>2</sup> and on teaching understanding key features of a text, such as its structure, and integrating information across multiple texts (e.g., Gough & Tunmer, 1986; National Early Literacy Panel, 2008; National Institute of Child Health and Human Development, 2000).

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<sup>1</sup> These numbers include students with 504 Plans.

<sup>2</sup> Respectively, knowledge of print conventions (e.g., left-right, front back) and concepts (book cover, author, text; National Early Literacy Panel, 2008); knowledge that spoken words can be broken apart into smaller segments of sound known as phonemes; knowledge that letters of the alphabet represent phonemes and that these sounds are blended together to form written words; the ability to recognize words easily, read with greater speed, accuracy, and expression, and to better understand what is read (National Institute of Child Health and Human Development, 2000).

***Foundational skills to support comprehension.*** NCSER supports work on the development and rigorous evaluation of intensive interventions to improve foundational skills that support comprehension. Deborah Simmons at Texas A&M University and her colleagues investigated the efficacy of *Early Reading Intervention (ERI)* and systematic variations of its intensity for kindergarteners at risk for developing reading disabilities. First, the team conducted a randomized controlled trial (RCT) that compared the efficacy of the *ERI* intervention to reading instruction normally provided by the schools. Analyses revealed statistically significant effects favoring the *ERI* intervention on foundational alphabetic, phonemic, and decoding skills (Simmons et al., 2011). Second, the team conducted a second RCT to compare standard implementation of *ERI* to an experimental version of the intervention that adjusted instruction approximately every four weeks based on student performance on curriculum embedded measures. The researchers found that frequently adjusting instruction based on students' strengths and weaknesses provides further advantages in improving foundational reading skills that also extend into subsequent grades (Coyne et al., 2000).

Jeanne Wanzek at Vanderbilt University is conducting an RCT to evaluate the efficacy of the *Voyager Passport* reading program. This program contains 30-minute lessons implemented 5 days a week for 25 weeks and addresses foundational literacy skills, vocabulary, and comprehension. The research team plans to conduct two efficacy studies to determine whether *Voyager Passport* and an intensified version of the program improve literacy outcomes for 4<sup>th</sup> graders with or at risk for reading disabilities. The first study compares *Voyager Passport* to instruction and intervention typically provided to students. The second study compares instruction typically provided to students to an intensified version of *Voyager Passport* that includes smaller instructional groups and 15 more minutes of reading instruction per session compare to standard implementation of *Voyager Passport*. In addition, she will investigate whether any advantages are sustained in later grades.

Lynn Gelzheiser at the State University of New York at Albany is investigating the extent to which intensifying or customizing interventions accelerates literacy skills. She and her colleagues developed the *Interactive Strategies Approach- Extended (ISA-X)* for elementary school students with reading disabilities (Gelzheiser, Scanlon, Vellutino, Hallgren-Flynn, & Schatschneider, 2011). The *ISA-X* incorporates instructional goals and strategies related to motivation, alphabets, sight word and high-frequency word learning, language and vocabulary, and comprehension. Emphasis on these goals and strategies are tailored to individual students on an ongoing basis according to their progress. The research team found initial evidence of the efficacy of the intervention for improving basic literacy skills, oral reading accuracy, and comprehension of 4<sup>th</sup> graders when implemented in a one-on-one format (Gelzheiser et al., 2011). They are currently conducting a more rigorous evaluation of a variation of the intervention delivered to small groups of 3<sup>rd</sup> and 4<sup>th</sup> graders with reading disabilities.

NCSER-funded researchers are investigating the promise or efficacy of interventions when implemented in a Response to Intervention framework. Response to Intervention or RTI is a multi-tiered classroom instruction and intervention system that screens students and monitors their progress to identify those who are struggling to provide them with more intensive interventions and support. For example, Rollanda O'Connor at the University of California at Riverside evaluated two intensive reading interventions as part of an RTI program that identified students at risk for reading difficulties in either kindergarten or 1<sup>st</sup> grade. She found that both intensive interventions showed promise for improving outcomes and that for the English learners in her sample, having access to

intensive interventions as early as kindergarten had a greater impact on reading performance over time than starting interventions in a later grade (O'Connor, Bocian, Sanchez, & Beach, 2012).

Hank Fien, Scott Baker, and their colleagues at the University of Oregon are evaluating whether an RTI model for 1<sup>st</sup> grade that includes well-implemented core classroom instruction tightly linked to intensive secondary intervention improves reading outcomes. In this RCT study, schools were randomly assigned to treatment or control condition with schools in both conditions providing 90 minutes of classroom instruction for all students and 30 additional minutes of daily, small group intervention for students who were struggling. In the treatment schools, though, teachers were provided with additional professional development to make instruction more explicit and to increase practice opportunities for students. Also, the treatment intervention was designed to be highly aligned with existing classroom instruction. Preliminary results indicate that the treatment group improved students' decoding over and above those students in the control group and had promising, positive effects on reading comprehension and total reading achievement (Fien et al., 2014).

Other NCSER grantees are developing or evaluating interventions that include systematic instruction in foundational skills that can be implemented in RTI frameworks or as standalone interventions. Carolyn Denton at the University of Texas Health Science Center at Houston and her colleague Emily Solari developed an intensive reading program that includes both large and small group instruction in word-level skills, fluency, and comprehension skills for 1<sup>st</sup> graders at risk for reading disabilities. The program includes 15 minute comprehension lessons provided to the whole class and 30 minutes of additional small-group instruction for at-risk students focused on teaching phonics, word reading, and comprehension as well as time reading specially-developed books. In 2015, the team received funding from NCSER to evaluate the efficacy of the program for improving word reading, fluency, listening, and reading comprehension.

Gwendolyn Cartledge at Ohio State University is developing a computer-based intervention to improve oral reading fluency of early elementary students with or at risk for disability in urban areas. The intervention will be interactive and individualized to student needs with passages that are culturally responsive, depict urban students in a variety of natural environments, and reflect students' interests and personal experiences.

Finally, NCSER invested \$10 million in the *Accelerating the Academic Achievement of Students with Learning Disabilities Research Initiative*. As part of their charge, the research team at Vanderbilt University led by Douglas and Lynn Fuchs will develop and evaluate intensive, supplemental reading interventions for students with learning disabilities in 3<sup>rd</sup> through 5<sup>th</sup> grade. The reading intervention will focus on basic literacy skills and the transition from story-based to informational text. This research will help pinpoint what content, intensity, and length of instruction are optimal for students who continue to show limited or no progress in reading despite receiving intensive instruction.

Collectively, these studies are addressing important questions about the intensity needed to help students with or at risk for disabilities learn to read. They address instructional features and content such as the amount of time spent on learning reading skills, group size, and tailoring interventions to meet students' individual needs.

***Foundational skills for secondary students.*** Many students in middle and high school struggle to master basic literacy skills. NCSER-funded projects also focus on improving foundational skills for these secondary students with or at risk for reading disabilities.

Greg Roberts and his colleagues at the University of Texas at Austin are evaluating whether students who received an intensive, two-year intervention demonstrate improved reading, language, and engagement outcomes compared to their peers who did not receive the intensive intervention. The intervention incorporates explicit instruction in foundational skills and comprehension with a special emphasis on improving access to social studies and science text. The intervention was provided to a full class of no more than 10 students per class for 50 minutes per day. Preliminary results indicate that students who received the two-year program demonstrated improved reading comprehension scores compared to students who did not receive the intervention. However, despite these encouraging findings, students who received the intervention continued to read well below grade level (Vaughn et al., 2014).

A study being led by Beth Calhoun at the University of Miami is also investigating the efficacy of an intensive intervention and the amount of foundational instruction that will result in the greatest improvement in students' basic reading and comprehension skills. She is comparing the efficacy of two versions of an intervention developed for middle school students with reading disabilities. Both versions of the intervention address deficits in phonological decoding, spelling, fluency, and comprehension skills, but they differ in the amount of allotted instructional time devoted to phonological decoding or comprehension. Finally, David Houchins at Georgia State University is developing an intervention package that includes the Scholastic *READ 180* program for implementation in juvenile justice settings and testing its promise. The package provides classwide, small group, and individual instruction in reading, writing, and vocabulary. It also includes supplemental computer-programs commonly used with *READ 180* and other classwide instructional activities. This study will evaluate implementation of the intervention package in a novel setting: juvenile justice facilities. It will also evaluate the promise of the package for improving multiple reading outcomes, including basic reading skills, fluency, vocabulary, comprehension, spelling, and writing skills.

***Foundational skills for students with intellectual disabilities or hearing impairments.***

NCSER also supports research for students who historically have not received foundational reading skills instruction. Historically, students with intellectual disabilities have been taught isolated skills or specific sight words considered to be important for daily living (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006). NCSER-funded research has demonstrated that students with intellectual disabilities across a range of developmental levels and ages can learn foundational reading skills (Browder, Mimms, Spooner, & Ahlgrim, 2008).

Diane Browder at the University of North Carolina at Charlotte demonstrated that the *Early Literacy Skills Builder* program that she and her colleagues developed improves phonological awareness and phonics skills and that comprehensive reading instruction produces better reading outcomes when compared to instruction that provides sight words alone for students with intellectual disabilities in special education classrooms (Browder et al., 2008). Pamela Hunt at San Francisco State University and Elizabeth Kozleski at the University of Kansas were funded in 2015 to determine whether the *Early Literacy Skills Builder* program would produce the same positive outcomes when implemented in a general education setting. Patricia Mathes and Jill Allor at Southern Methodist University found that the intervention that they developed had similar results to the Browder et al. study; however, in

order to reach basic levels of literacy, students with intellectual disabilities needed instruction that lasted two to three years longer than that provided to typically developing students (Allor, Mathes, Roberts, Cheatham, & Champlin, 2010). Jill Allor and Stephanie Al Otaiba are also extending work in this area and developing an intensive intervention focused on phonological awareness, phonics, vocabulary, fluency, and comprehension skills for kindergarteners and 1<sup>st</sup> graders with intellectual disabilities.

Paul Alberto and his colleagues at Georgia State University developed a curriculum that includes visual literacy, sight-word, and phonics instruction for adolescents with intellectual disabilities. They found that the intervention helped students to sound out simple words and recognize pictures and words taught (Alberto, Fredrick, Hughes, McIntosh, & Cihak, 2007). Chris Lemons at Vanderbilt University and Cynthia Puranik at the University of Pittsburgh are currently developing and evaluating the promise of a reading intervention for elementary school students with Down syndrome. The intervention will incorporate critical components of foundational reading skills such as phonological awareness, decoding, sight word reading, fluency, and vocabulary and address the challenges with memory, expressive language, and motivation often exhibited by students with Down syndrome.

NCSER is also funding the development and study of promising approaches for teaching the critical components of reading, including phonological awareness and phonics, to young students who are deaf or hard of hearing. The median literacy rates of high school graduates who are deaf have remained consistently around the 4<sup>th</sup> grade level for decades (Allen, 1994). Research suggests that young children who are deaf or hard of hearing are able to learn sound and letter correspondence (Bergeron, Lederberg, Easterbrooks, Miller, & Connor, 2009). NCSER is supporting a Research and Development Center that will further this research to learn how best to support younger students who are deaf and hard of hearing. The Center team, led by Amy Lederberg and Susan Easterbrooks at Georgia State University, plans to investigate the language and literacy skills of students in kindergarten through second grade over the school year as a function of child, classroom, and school characteristics as well as interactions between child and instructional characteristics. They will also develop and evaluate a series of interventions for early elementary students with a range of hearing loss and literacy skills.

***Reading and Understanding Literature and Informational Text.*** Explicit instruction in key features of literature and informational texts designed to convey factual information, across a range of disciplines or delivery modes, can improve comprehension (e.g., Armbruster, Anderson, & Ostertag, 1987, Baumann & Bergeron, 1993; Meyer & Poon, 2001). NCSER is funding several grants to promote this skill. Interventions are being developed to improve comprehension and knowledge of text structure, or the way the text is organized, as well as improve students' learning of content. Joanna Williams at Columbia University is developing a classwide, supplemental instructional program embedded in social studies content for 2<sup>nd</sup> graders who are at risk for or have reading disabilities. The program will teach five structures commonly found in informational text and improve comprehension and knowledge of social studies content. Results from a study evaluating the promise of a program focused on a common structure, cause and effect, indicate that, compared to students who received content instruction only as well as students who received no instruction, students receiving the cause/effect intervention demonstrated higher performance on combining simple sentences into more complex sentences and answering comprehension questions. Results also indicate that students who received the intervention learned the same amount of social studies content as students who only received content instruction, and both groups

learned more than their peers who received no instruction. This suggests that using lesson time to teach reading comprehension strategies does not detract from learning subject area content (Williams et al., 2014).

Several other promising interventions are currently being developed to promote comprehension across content areas. Rollanda O'Connor is creating an intervention for middle school students with or at risk for disabilities. The intervention will provide instruction in both U.S. history and reading skills and focus on the use of graphic organizers, strategies for summarizing text and finding the main idea, word analysis skills, and vocabulary skills. It will also include a focus on discussion and integrating knowledge and ideas from history texts at or below grade level. Sandra and Ron Gillam at Utah State University are developing a class-wide language intervention for early elementary school for students with language impairments and English learners at risk for language difficulties. The intervention is designed to improve oral language proficiency and spoken narration. Finally, Lynne Anderson-Inman and Carolyn Knox at the University of Oregon are developing an intervention to help secondary students with specific learning disabilities access and understand information they learn online or through other digital media. They will also determine whether online learning poses particular problems for students with specific learning disabilities and whether skills and strategies appropriate for reading traditional print are the same as those needed for online learning and reading. The three projects include small pilot studies to determine whether the interventions being developed have promise for improving comprehension.

As a group, these NCSER-funded development projects will shed light on strategies that have promise for improving reading comprehension for students with or at risk for disabilities who often do not know how best to approach text in their content classes.

## Language and Vocabulary

Students enter elementary school with a wide range of vocabulary knowledge. Differences in the numbers of words heard and learned have been observed as early as the toddler years (Fernald, Marchman & Weisleder, 2013; Hart & Risley, 1995), and those who enter school with limited vocabulary knowledge tend to remain behind their peers (Biemiller & Slonim, 2001). College and career ready standards include the expectation that students acquire and use an extensive vocabulary to demonstrate independence as readers and focus on understanding words and phrases in general academic and domain-specific content.<sup>3</sup>

While NCSER has not funded many studies focused solely on teaching or assessing vocabulary, Michael Coyne at the University of Connecticut and his colleagues have demonstrated promise of their intensive vocabulary intervention for early elementary school. The intervention is provided in small groups to students at risk for reading disabilities. It reinforces words introduced during whole-class instruction and includes activities designed to promote a fuller understanding of these target words. Preliminary results from a pilot conducted during the development study indicate that students who participated in the supplemental intervention learned more words than if they had received whole-class instruction alone (Loftus et al., 2010; Maynard, Pullen, & Coyne, 2010). However, in a second study from this grant, immediate differences in knowledge of learned words were not maintained on a delayed posttest (Pullen, Tuckwiller, Konold, Maynard, & Coyne, 2010).

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<sup>3</sup> <http://www.corestandards.org/ELA-Literacy/introduction/students-who-are-college-and-career-ready-in-reading-writing-speaking-listening-language>

These findings suggest that, for many children with or at risk for disabilities, vocabulary knowledge may not increase if they are left to learn words incidentally or do not receive explicit vocabulary instruction. In addition, these results suggest that knowledge of new words will not be retained unless they are reviewed frequently. Dr. Coyne is currently conducting a randomized controlled trial of the intensive vocabulary intervention to investigate further its short- and long-term impacts on kindergarteners at risk for specific reading disabilities.

## Writing

As is the case for reading, students with disabilities struggle with writing (U.S. Department of Education, 2011). The NAEP data (2011) indicate that 63% of 12<sup>th</sup> graders with disabilities score below basic levels in writing.<sup>4</sup> NCSER has supported three projects that focus on improving writing by utilizing a specific writing model called *Self-Regulated Strategy Development (SRSD)*. The *SRSD* model teaches students how to plan, compose, and edit text. The model includes instruction in writing techniques and self-regulation strategies.

Kathleen Lane at the University of Kansas evaluated the efficacy of the model on the writing of 2<sup>nd</sup> graders with or at risk for behavioral disabilities and found that *SRSD* showed promise for improving writing quality on both opinion essays and stories (Lane et al., 2011). Linda Mason at Penn State University used the *SRSD* model to improve persuasive writing of high school students with behavior disorders and also found some preliminary evidence for improved essay quality (Mason, Kubina, & Hoover, 2011). Finally, Kimberly Wolbers at the University of Tennessee is adapting the *SRSD* model for students who are deaf or hard of hearing and collecting data on its promise for this population of students.

## Assessing Literacy

In addition to supporting intervention development and evaluation, NCSER funds the development and validations of assessments to identify students with or at-risk for disabilities, guide instruction, and monitor progress.<sup>5</sup>

**Screening.** NCSER supports research investigating the validity and accuracy of screening measures for use with young elementary students. Donald Compton and his colleagues at Vanderbilt University recommended using a two-step screening procedure for identifying 1<sup>st</sup> grade students at risk for reading difficulties or disabilities and improving screening efficiency (Compton et al., 2010). The two-step process involves administering a quick screening assessment to all students in the classroom as the first step, and then administering a longer battery of assessments to those students falling below the screener cut-point. The researchers administered measures of sight word efficiency (that is, the ability to pronounce printed words), identification of nonsense words and frequently and infrequently used words, and phonemic decoding to all students in the classroom. They found that, of these measures, the phonemic decoding measure was the most accurate measure to use as the first step for identifying students who were not at risk for reading disabilities and for reducing the number of students who needed the second step of additional screening.

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<sup>4</sup> This number includes students with 504 Plans.

<sup>5</sup> NCSER also supports work to determine valid accommodations for large-scale assessments that is not discussed in this document. More information related to these studies can be found in the *Synthesis of IES Research on Reading and Writing*.



Hugh Catts and his colleagues at the University of Kansas conducted a similar study with kindergarteners and found that a screening battery of multiple basic literacy skills administered at the beginning of kindergarten could accurately predict good and poor readers by the end of 1<sup>st</sup> grade. They also found that the response of these students to instruction, measured in terms of growth in letter naming fluency, significantly predicted future reading outcomes (Catts, Nielsen, Bridges, Bontempo, & Liu, 2015).

Research conducted by Gerald Tindal and his colleagues at the University of Oregon investigated predictors of reading accuracy, fluency, and comprehension skills at the end of first grade (Smith et al., 2014). The researchers investigated whether end-of-the-year performance is better predicted by a one-time assessment of word reading fluency at the beginning of first grade or by growth in word reading fluency from fall to winter. They found that for the lowest performing students, the growth score was the better predictor of end of the year reading performance. This finding suggests that instruction has a role in predicting future reading outcomes and should be considered in screening procedures.

Finally, Adelaida Restrepo at Arizona State University is developing a screener for speech-language pathologists to use in early elementary school to identify Spanish-speaking students at risk for language impairment. She has developed measures tapping a variety of literacy skills and is currently determining which combination of measures most accurately classifies Spanish-speaking students at risk for language impairment from those without impairment.

Taken as a group, these four projects indicate that screening and assessment procedures can be relatively easy to administer and can accurately and reliably identify students who will most likely struggle with reading throughout elementary school and beyond. Accurately identifying students who are at risk for reading disabilities is critical information for schools and teachers to provide the necessary intensive interventions as early as possible and to prevent or attenuate future difficulties.

***Developing diagnostic frameworks.*** Diagnostic frameworks can be used to match instruction to students' strengths and weaknesses and improve language and literacy outcomes. Three NCSEF-funded researchers are developing and validating assessments that can be used as diagnostic frameworks for elementary, middle, and high school. Nickola Nelson at Western Michigan University is further validating an assessment called the *Test of Integrated Language and Literacy Skills (TILLS)*. *TILLS* has been developed to identify whether a student has a primary language impairment or a language-based learning disability. This tool will also develop profiles of language and literacy strengths and weaknesses across a variety of outcomes including vocabulary, phonemic awareness, decoding, listening and reading comprehension, and writing.

Similarly, Charity Rowland at Oregon Health and Science University is adapting the *International Classification of Function—Children & Youth* to profile the skills and needs of students who use augmentative and alternative communication (AAC). She selected items from the *International Classification of Function—Children & Youth* most relevant to the communication skills of AAC users to create diagnostic profiles with the goal of improving communication outcomes for them.

Finally, Robert Hoffmeister at Boston University is developing an assessment for students who are deaf or hard of hearing called the *American Sign Language Assessment Instrument (ASLAI)*. The *ASLAI* is being developed to measure students' conversational abilities, academic language knowledge, and metalinguistic skills.

Using the valid and reliable tools developed by the NCSER-funded measurement studies, educators will be able to identify students who may have language or reading problems across a number of literacy skills and domains. Perhaps more importantly, the tools described above will also provide information on specific reading-related skills that educators should target with intensive interventions to further improve literacy outcomes for these students.

**Monitoring progress.** Progress monitoring measures can be a useful tool for guiding instruction. Frequent monitoring of student progress gives teachers feedback on whether students understand what has been taught or whether adjustments to instruction need to be made to match students' individual needs. NCSER currently funds two research projects that are developing and validating progress monitoring measures for use with elementary school students. The first project led by Gerald Tindal at the University of Oregon will establish the reliability<sup>6</sup> and validity<sup>7</sup> of a progress monitoring tool, the *easyCBM*. They will also create national norms using a representative sample of students from kindergarten through 5<sup>th</sup> grade who encompass a wide range of socio-economic, ethnic, and language backgrounds. Likewise, Theodore Christ at the University of Minnesota is developing, evaluating, and finalizing a set of tools to be used for progress monitoring in elementary school.

In 2013, NCSER funded two projects to investigate how existing progress monitoring tools should be used to promote positive literacy outcomes. Theodore Christ is developing guidelines for the reliable and valid interpretation of reading data obtained via progress monitoring to guide teacher decisions and practices. Nathan Clemens at Texas A&M University will identify the progress monitoring measures that are most reliable, sensitive to growth, valid, and feasible for monitoring reading progress for kindergarten.

The results of these NCSER-funded measurement projects will help teachers and school staff identify those students that need continued or more intensive support in order to improve their reading skills.

## Future Directions

NCSER-funded researchers are building a strong research base for interventions and assessments that educators can use to ensure that students with or at risk for disabilities have the opportunities to meet college and career ready language arts standards and experience success in school and beyond. In particular, NCSER-funded research related to examining foundational reading skills across a variety of grades and skill levels is well developed, and the results of these studies could have an immediate impact in the classroom and on student success.

However, additional research is needed to identify the best ways to develop foundational skills for students with intellectual disabilities or sensory impairments or for those who demonstrate persistent learning problems. There is still a need to understand the scope, sequence, and intensity of interventions or programs that will be most effective for these students across a wide range of grade

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<sup>6</sup> "The degree to which test scores for a group of test takers are consistent over repeated applications of a measurement procedure and hence are inferred to be dependable and consistent for an individual test taker; the degree to which scores are free of random error of measurement for a given group" (AERA, 2014).

<sup>7</sup> "The degree to which accumulated evidence and theory support a specific interpretation of test scores for a given use of a test. If multiple interpretations of a test score for different uses are intended, validity evidence for each interpretation is needed" (AERA, 2014).

and skill levels. Finally, more research is needed to develop and evaluate interventions that focus on writing and language development to help students with or at risk for disabilities engage in discussions and present their knowledge and ideas orally and in writing.

While the investment of NCSEER significantly contributes to the production and evaluation of measures for identifying students with or at risk for disabilities and understanding their instructional needs, more research is needed to determine which measures or combination of measures and assessment schedules will most accurately and efficiently identify students with or at risk for disabilities across grade levels.

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