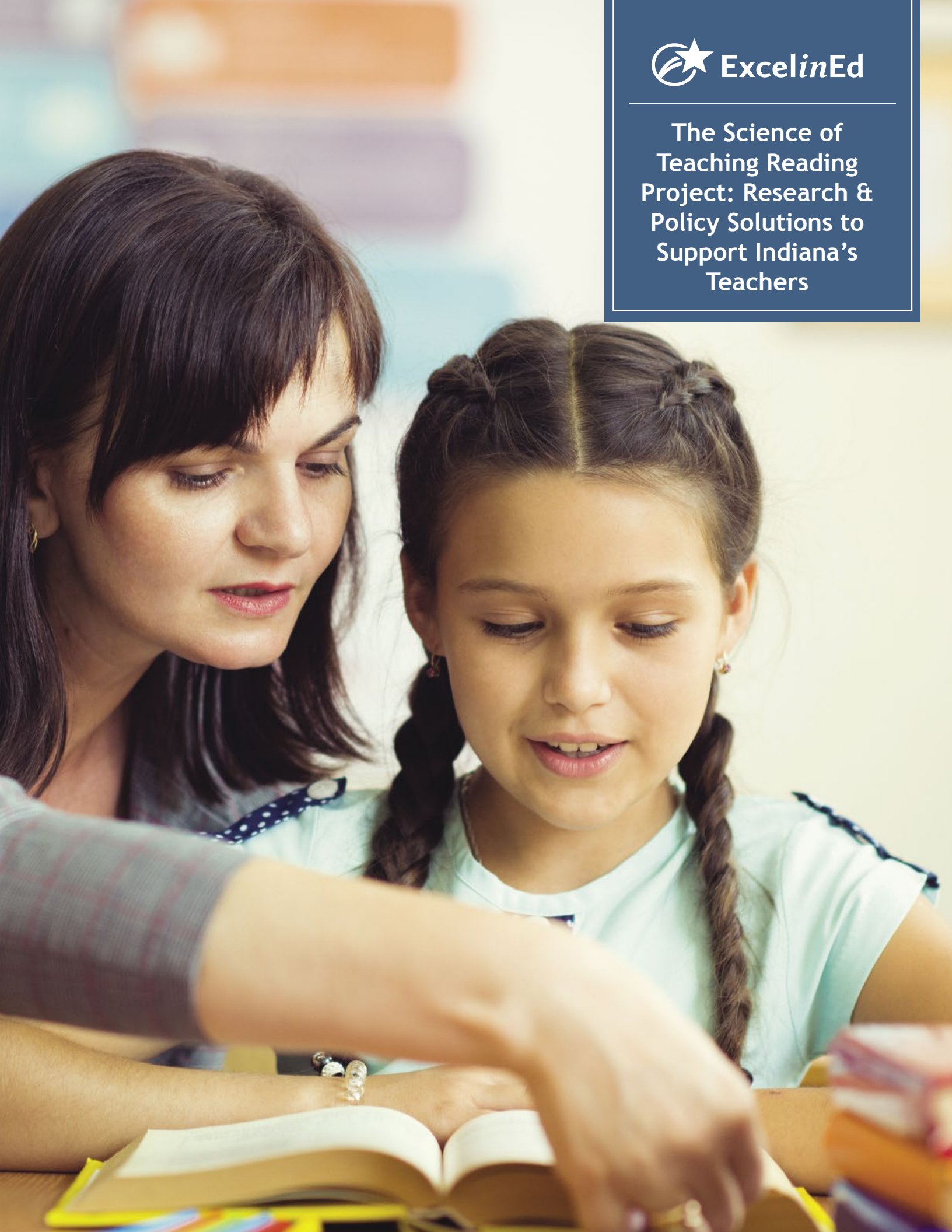




ExcelinEd

The Science of
Teaching Reading
Project: Research &
Policy Solutions to
Support Indiana's
Teachers



A Message from the Foundation for Excellence in Education

On the heels of a pandemic that forced an interruption to in-person learning, some states and policymakers have turned to adopting early literacy legislation aimed at ensuring that children are reading on grade level by the end of third grade. This milestone is at the threshold where students transition from learning to read to reading to learn, serving as a critical indicator of their readiness for success in fourth grade and beyond.

Indiana's literacy legislation, adopted in 2010, required the development of a reading remediation plan for grades one through three. Over the last decade, Indiana has expanded its early literacy efforts and is committed to ensuring that more children become proficient readers. Outlined in Indiana's Priorities for Early Literacy, the road to reading proficiency begins with supporting "evidence-based practices aligned with the Science of Reading." Also included in this plan is the state's strategy for increasing educators' knowledge and understanding of the Science of Reading through professional development and coaching.

ExcelinEd partnered with the Indiana Department of Education (IDOE) and the Florida Center for Reading Research to take a closer look at Indiana's current landscape of teacher knowledge of key literacy components *and* how they should be implemented in evidence-based reading instruction. ExcelinEd believes that deploying a needs assessment survey is vital to identifying specific instructional areas in which teachers need additional support. The comprehensive assessment will allow IDOE to develop a strategic, customized approach to professional learning.

How can the findings from this report help? Findings from the Indiana needs assessment survey provide critical information for IDOE and corporation and school leaders on teachers' professional development needs in both theory and practice, including how teachers could benefit from coaches to assist shifting their instructional practices. Findings from this report may also be used for policy considerations as the state considers ways to improve teacher preparation related to the Science of Reading.

Report from the Florida Center for Reading Research

Literacy Needs Assessment Survey Development

The Florida Center for Reading Research, ExcelinEd and IDOE identified validated items for the literacy needs assessment from the Teacher Knowledge of Early Literacy Skills survey found in Appendix A of the REL Southeast report, *Educator outcomes associated with implementation of Mississippi's K-3 early literacy professional development initiative*, (Folsom, Smith, Burk & Oakley, 2017).

The items were purposely selected to represent key concepts from the reading content area (phonemic awareness, phonics, spelling, vocabulary, fluency, comprehension). The intent was to create a literacy

needs assessment survey for teachers in kindergarten and grade one and grades two and three that would reflect their overall knowledge of the literacy components and understanding of instructional application of foundational reading skills. While the survey was designed to gain insight into the overall knowledge of teachers, it was not intended to collect data on the actual abilities of teachers to teach those specific aspects of reading. Items were selected so that the survey could be completed within 30 minutes.

School Selection and Literacy Needs Assessment Survey Administration

Teachers from a stratified sample of 30 schools were selected to complete the survey. The sample included schools with the census designation of city, rural, suburban and town as well as a mix of public and charter schools, including schools both under and not under priority status for school improvement. In addition, 15 alternate sites were identified as potential replacements in the sample.

IDOE provided survey information to the leaders of the 30 selected schools the week of January 5, 2022, and survey information to the alternate schools on January 18, 2022. The survey was open for data collection from January 31, 2022, to March 1, 2022, and 174 teachers, representing 19 schools, completed the survey during this time. A total of 94 teachers in kindergarten and grade one and 80 teachers in grades two and three completed the survey, with one teacher not reporting grade-level information. Participating schools received a stipend of \$500 for teacher completion of the survey.

 **30**
schools
selected to complete the survey

19
schools
completed the survey 

 **174**
teachers completed the survey

Data Analysis

Florida Center for Reading Research staff scored the survey items and summarized the results using percent correct (in 25-percent intervals) and measures of central tendency (mean and median) by grade bands (kindergarten and grade one and grade two and three teachers). Nearly half of the items focused on factual

knowledge of the components of literacy, while the other half focused on teachers' knowledge of how to apply this information when working with students. Appendix A provides the selected items used for the Indiana Needs Assessment.

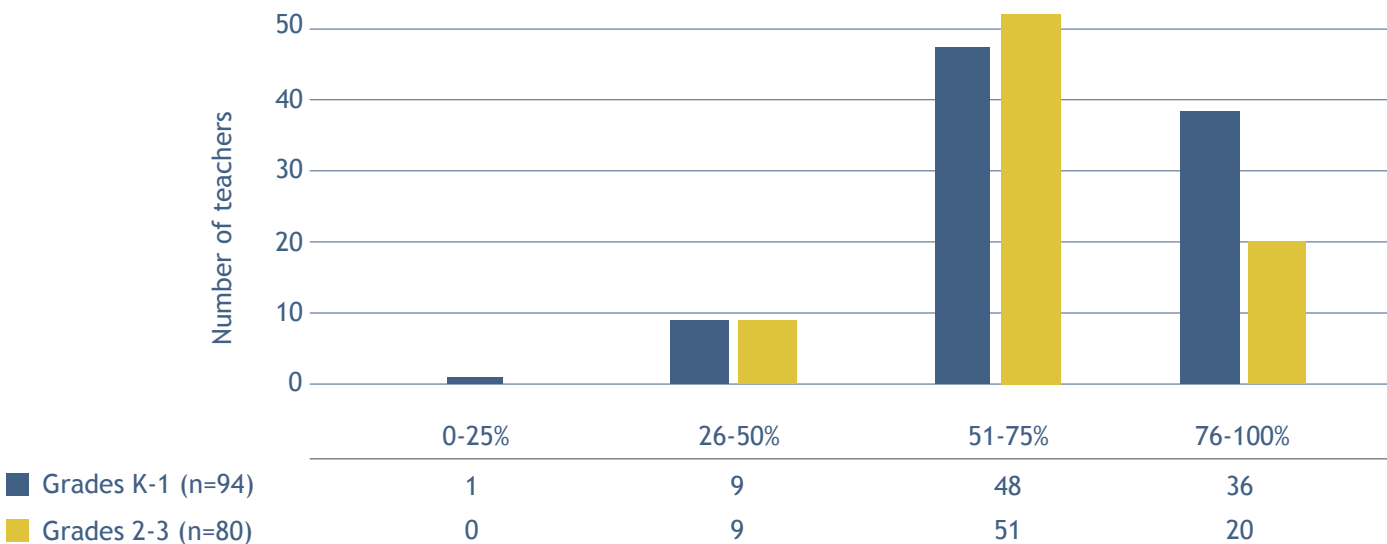
Teacher Performance on Literacy Needs Assessment Survey Items

Of the 94 kindergarten and grade one teachers completing the survey, one respondent scored between zero-25 percent correct; nine respondents scored between 26-50 percent correct; 48 respondents scored between 51-75 percent correct; and 36 respondents scored between 76-100 percent correct. The median score for kindergarten and grade one teachers was approximately 74 percent correct, and the mean score was close to 70 percent correct. None of the 80 grade two and three teachers completing the survey scored between zero-25 percent correct, while nine respondents scored between 26-50 percent correct; 51 respondents scored between 51-75 percent correct; and 20 respondents scored between 76-100 percent correct. The median score of grade two and three teachers was approximately 68 percent correct, and the mean score was closely aligned at slightly over 67 percent correct. On average, the kindergarten and grade one teachers performed slightly higher than grade two and three teachers as noted in Table 1.

The average percentage correct across all 174 teachers was approximately 69 percent correct. This means that teachers, on average, missed at least 6 of the 19 survey items. Overall, teachers performed higher on the items focused on factual knowledge. Although this online survey could only measure factual knowledge and a teacher's knowledge of how to teach foundational reading skills in the classroom, the results of the survey suggest that Indiana teachers would benefit from professional development. Goals of this professional development would be to 1) build teachers' knowledge on providing instruction in the foundational skills of reading and 2) support teachers in being able to translate that knowledge into classroom practice.

Table 1: Teacher Performance on the Literacy Needs Assessment Survey

Number of teachers by percentage-correct range and grade level

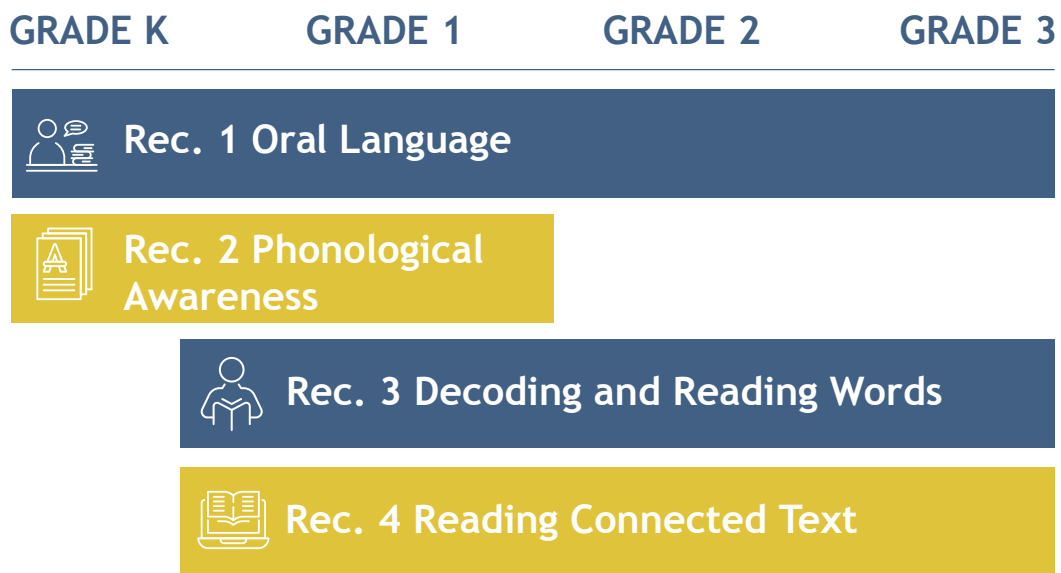


Connections to Research and Potential Next Steps

The National Reading Panel Report (2000) and subsequent research examined by the panel of experts that developed the *Foundational Skills to Support Reading for Understanding in Kindergarten Through 3rd Grade* practice guide (Foorman et al., 2016) confirmed that quality instruction in academic language, phonemic

awareness, phonics, vocabulary, spelling, fluency and comprehension are all important components of reading. The recommendations in the practice guide incorporate all of these components. The developmental sequence of the recommendations in the practice guide are depicted in Figure 1.

Figure 1: Developmental Sequence of Recommendations



This survey focused on Recommendation 2 and Recommendation 3 in this developmental sequence from the practice guide. Recommendation 2 indicates that teachers must know and be able to teach the prerequisites of reading, including phonemic awareness, which is the ability to identify individual sounds, or phonemes, that make up the words heard in speech. Phonemic awareness falls under the umbrella of phonological awareness, which pertains to the ability to hear and manipulate units of sound in spoken words. This is an important skill to master and helps students as they begin to associate sounds with letters and ultimately begin to read. Although this skill is typically taught in kindergarten and grade one, as reflected in the figure above, it is important that grade two and three teachers also know how to provide instruction in phonemic awareness in case they have students in their classroom who have not mastered this skill.

Recommendation 3 indicates that teachers in both grade bands need to have knowledge and skills to teach

students to decode and read words. This means that teachers should have a working knowledge of phonics and be able to teach phonics skills so students can learn to “crack the code” of reading. In addition, teachers should know and be able to teach spelling, vocabulary and comprehension skills effectively so that students build their skills as they move throughout the school year and from grade to grade.

It is important to note that the sample size for this project was small and that the number of questions on the literacy needs assessment survey were extremely limited. Therefore, while the survey provides some insight into teacher knowledge of foundational reading skills overall, it was not possible to identify specific strengths or needs according to specific aspects of reading. The findings show that more research will be needed to ascertain the specific needs of Indiana’s teachers in individual areas but that the teachers may certainly benefit from professional development focused on increasing their knowledge and ability to teach foundational reading skills.

References

Folsom, J. S., Smith, K. G., Burk, K., & Oakley, N. (2017). *Educator outcomes associated with implementation of Mississippi’s K-3 early literacy professional development initiative* (REL 2017-270). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from <http://ies.ed.gov/ncee/edlabs>.

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Supporting Student Success through Science of Reading Partnership

Literacy is a means of interpreting, understanding, identifying and creating the communication of facts, ideas and well-developed opinions. These skills enable individuals to achieve their goals, develop their knowledge and participate fully in their community and the wider society. Developing these skills is essential in our increasingly information-rich, digital and fast-changing world. The Indiana Department of Education (IDOE) was pleased to have a role in this Science of Teaching Reading Project, as it helped us examine teacher knowledge of early literacy skills and teaching competencies. The study offers a systematic investigation of educators' early literacy knowledge and application, which [Indiana's Priorities for Early Literacy](#) lists as targeted areas for professional development support.

Results from the literacy needs assessment survey will be used to further inform professional development that supports Indiana's educators in delivering scientifically-based literacy instruction to all students. As part of our efforts to support teachers and students, IDOE will partner with up to 200 Indiana school leaders over the next two years to interview and hire a literacy coach to serve in each school building. Each coach will provide consistent, job-embedded support for K-2 teachers using research-based instructional practices rooted in the Science of Reading framework. Further, IDOE will create a collaboration network whereby coaches in this literacy cadre can share curricular and formative assessment resources in support of educators as they continue to ensure kindergarten through grade two students are reading on or above grade level.

Additionally, Indiana educators will have on-demand access to a curated set of literacy training sessions focused on elements of the Science of Reading framework, authored and presented by state and national literacy experts. Recordings of all sessions will be available to educators and parents in the [Indiana Learning Lab](#), IDOE's free digital resource library. IDOE will also collaborate with university faculty from educator preparation programs throughout Indiana to develop targeted pre-service educator training in the Science of Reading. IDOE understands that students who acquire critical literacy skills and are successful readers at a young age are better positioned to excel in other areas of their lives for many years to come. Building educators' understanding of foundational literacy skills and offering ongoing professional development and curricular resources are crucial steps to support Indiana's teachers and students. These steps are essential for effective implementation of scientifically-based literacy instruction, helping Indiana's schools to ensure students are on track for reading success.

As this process to improve early literacy begins, IDOE realizes that development of literacy skills does not end after students leave their classrooms or teachers complete a professional development program. Long-term success in Indiana will require collaboration among teachers, schools, and families as we work together at the state and local levels to foster continuous improvement and create a brighter future for all students.

ExcelinEd supports state leaders in transforming education to unlock opportunity and lifelong success for each and every child. Our work includes leveraging the results of state-specific research to offer policy solutions that translate to rising student achievement.

The results of the Indiana Science of Teaching Reading Project provide timely data and actionable guidance for a targeted approach to building elementary teachers' capacity in the knowledge and application of the Science of Reading.

In order to achieve successful outcomes, the following are policy solutions that policymakers can consider to support educators in improving literacy instruction and student achievement:

Extend Science of Reading Professional Development beyond K-2 Educators.

Teacher knowledge and instructional practices are key determinants in the literacy development of young children. Literacy instruction and outcomes are improved when states adopt a professional learning model that focuses on evidence-based foundational skills instruction aligned to the Science of Reading.

To achieve maximum impact, consider leveraging state and federal funding streams to equip educators throughout the early elementary continuum from pre-kindergarten through fifth grade. Determine who will be trained (e.g., district/school administrators, teachers, literacy coaches/reading specialists) as well as when the training will occur and how IDOE will support educators making shifts in instructional practice.

Develop a Statewide Model for District Implementation.

After investing time and resources in ensuring that teachers are trained in the Science of Reading, it is important to create clear expectations for effective implementation. When educators return to their schools after training, how will they transfer theory to instructional practice?

Best practices for reading instruction grounded in science should be reflected in the district's adoption of high-quality resources and practices. This includes instructional materials; teachers' lesson plans; school schedules that allow for a designated, uninterrupted reading block; and administrator/coach classroom observation forms. Additionally, accountability for implementation must occur at all levels—including IDOE, local school leaders, building administrators, support staff and teachers—to identify examples of effective or ineffective implementation. Identifying gaps helps to target support.

Establish “Boots-on-the-Ground” Support and Sustainability with Literacy Coaches.

An effective literacy coaching model supports teachers, transforms instruction and provides a foundation for sustainability through the development of teacher leaders focusing on literacy improvement.

School-based literacy coaches work in partnership with teachers to improve instructional practice and student reading outcomes school-wide. As site-based personnel, literacy coaches provide ongoing, embedded professional development and support. A comprehensive approach includes teacher training on evidence-based reading instruction and using data to inform instruction; observing, modeling or co-teaching lessons; opportunities for immediate feedback and reflection; and support in curating high-quality instructional materials.

Schools not participating in IDOE's literacy coaching cadre may consider scaling efforts and impact through development of literacy coaching training modules to equip and leverage potential or existing school-based coaches already employed within corporations. An additional consideration for scaling efforts may include spotlighting teachers who embrace the Science of Reading and have improved student achievement. The classrooms of these teacher leaders could serve as learning labs for other teachers who need to see the Science of Reading in action.

In Conclusion

Indiana has taken a bold and intentional step to closely examine teachers' early literacy knowledge and practice through the Science of Teaching Reading Project. The results provide timely data to IDOE as the department plans and implements a targeted approach to supporting early literacy teaching and learning.

In every state, transforming student achievement in early literacy requires multiple, sustained steps by leaders and

educators at every level of an education system. Targeting state resources where they will have the most impact is a vital part of this work.

The research-based recommendations for consideration provided here identify strategic actions to successfully transform and sustain early literacy instruction and achievement. *ExcelinEd* celebrates Indiana's commitment to early literacy improvement and is committed to providing support in the months and years ahead.





Appendices

Appendix A. Indiana Needs Assessment Survey Items

Item	Question	Choice A	Choice B	Choice C	Choice D	Correct Answer
1	What does morphemic analysis help students do?	identify letter-sound correspondence	blend speech sounds	examine words for meaningful parts	separate syllables into onsets and rimes	C
2	What is the primary difference between the purpose of introducing sight words and vocabulary words to your students?	sight words are learned through decoding and vocabulary words are not	sight words are learned on sight and vocabulary words are learned by decoding	sight words are related to recognition and vocabulary words are related to meaning	none of the above	C
3	What is the instructional strategy that focuses on teaching the correspondences between sounds and letters?	phonics	phonemics	orthography	phonology	A
4	Two or three times each week Mrs. Hruby teaches “phonics through spelling” with her students. She pronounces words sound-by-sound as her students listen, write the appropriate letters, and then blend the letters to identify the words. Why is this activity likely to be effective?	reinforces students’ recognition of common spelling errors	requires students to use letter-sound relationships to blend unfamiliar words	reviews and strengthens students’ ability to recognize and blend word chunks	prepares students to combine letter-sound relationships with meaning-based clues	B
5	Mr. Lewis’ class has been learning spelling rules for adding “ing” to base words. He is looking for groups of words that illustrate the various rules to give his students a complex challenge. Which of the following groups of words would be best for this purpose?	hopping, running, sending, getting	hoping, buying, caring, baking	seeing, letting, liking, carrying	jumping, living, making, during	C
6	Why is metacognition important in reading comprehension?	It helps students to monitor their comprehension.	It makes the teacher aware of when the students are experiencing difficulty during reading.	It prompts students to create mental images.	It causes automatic processing of the text so that students can make meaning of the text.	A

Item	Question	Choice A	Choice B	Choice C	Choice D	Correct Answer
7	As a teacher reads aloud to his students from a social studies text he comments aloud, “This word pioneer is in bold print so that means it is an important word,” and “The chapter headings in the book can help me understand the main ideas in the book, so I will be sure to read them.” The teacher is helping students improve their comprehension of informational text primarily how?	teaching them how to use graphic organizers	modeling attention to useful features of informational text	improving students’ recall of the details of the text	teaching them how to infer word meanings from context	B
8	Which of the following is an example of reading comprehension instruction that helps to promote active construction of meaning?	independent silent reading	doing a think aloud	sounding out difficult words	looking up words in a dictionary	B
9	Which is a distinguishing characteristic of phonemic awareness instruction?	uses printed letters	uses two cueing systems	manipulates sounds	links meanings to sound	C
10	Following her lesson on recognizing diphthongs in words, Mrs. Byrnes wants to provide her students with additional practice. Which type of text should she select to provide the best practice?	predictable text with repetitious phrases	authentic text from children’s literature	text with a high percentage of decodable words	a wordless picture book	C
11	A teacher assigns pairs of students to take turns and reread a text aloud to each other three times. What skill will this activity strengthen most effectively?	choral reading	text comprehension	fluency development	automatic word recognition	C
12	How many morphemes are in the word “unhappiness?”	2	3	4	5	B
13	Which phonemic awareness activity would be the most difficult for a student?	blending phonemes into real words	blending onset-rime units into real words	deleting a phoneme and saying the word that remains	segmenting words into phonemes	C
14	How many phonemes are in the word “box?”	1	2	3	4	D
15	Which of the following is NOT an irregular high frequency word?	when	does	were	said	A

Item	Question	Choice A	Choice B	Choice C	Choice D	Correct Answer
16	What is the spelling rule for using a 'ck' at the end of a single syllable word?	when the vowel sound is a diphthong	when the vowel sound is short	when the vowel sound is long	all of the above	B
17	What is one reason that teaching students the meanings of a new word's parts (affixes and root words) is useful for vocabulary development?	helps students learn alternate spellings for words	helps students increase their fluency	helps students decode multi-syllabic new words	helps students comprehend other new words	D
18	Which of the following is the best description of reading fluency?	Reading fluency is the ability to read grade-appropriate text with good comprehension and a high degree of engagement.	Reading fluency is the ability to read grade-appropriate text with a high degree of accuracy and comprehension.	Reading fluency is the ability to read individual words, including both real words and nonsense words, with a high degree of accuracy.	Reading fluency is the ability to read grade-appropriate text accurately, effortlessly, and with appropriate intonation and expression.	D
19	Fluency serves as a bridge between which two processes?	word recognition and comprehension	comprehension and vocabulary	phonological awareness and comprehension	word recognition and vocabulary	A