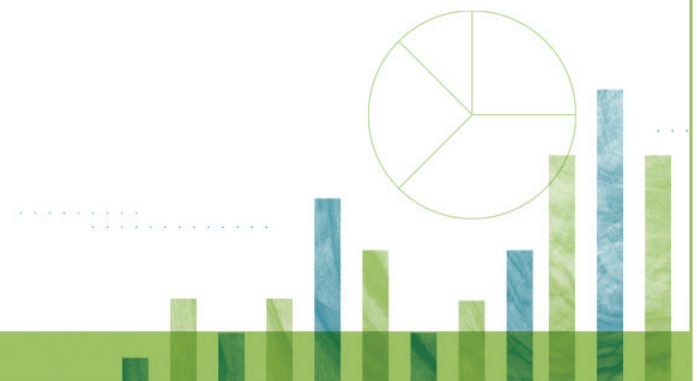**Reading Horizons**

Tyler
INDEPENDENT

Research Study

The Impact of the *Reading Horizons®* Method Implementation on Student Learning

Tyler Independent School District
2021–2022 Academic Year

Where reading momentum begins

TYLER INDEPENDENT SCHOOL DISTRICT

Introduction

During the 2021–2022 school year, 95 teachers in grades K–2 across nine elementary schools in the Tyler Independent School District in north Texas implemented the *Reading Horizons Discovery*® curriculum, which features the Reading Horizons® method based on the science of reading.

The Reading Horizons (RH) method delivers engaging, explicit, systematic phonics instruction through a multisensory approach based on Orton-Gillingham principles. Instruction is cumulative and organized in a sequence that enhances learning and simplifies teaching. Each sound of the English language is explicitly taught along with the letter(s) representing the sound. Five Phonetic Skills are taught to help students recognize short and long vowel patterns in words and syllables. Two Decoding Skills are presented to show students how to decode multisyllabic words.

The multisensory approach used with the RH method enhances learning and memory by simultaneously engaging auditory, visual, and kinesthetic modalities during instruction. A unique marking system is employed to draw student attention to the features and patterns of English and give visual cues for pronunciation. Throughout instruction, students are provided with engaging activities to practice and apply the skills learned. *RH Discovery* was designed to teach the RH method to students in kindergarten to third grade. Finally, Reading Horizons supports districts using its software-embedded assessments (e.g., Spelling and Word Recognition Assessment and Check-Ups) and tools to evaluate the impact of *RH Discovery* on student growth.

Tyler Independent School District, Reading Horizons, and **McREL International** collaborated to evaluate the impact of implementation and student performance, as measured by the Reading Horizons Implementation Integrity Rubric (RHIIR) and the Dynamic Indicators of Basic Early Literacy Skills (DIBELS 8) assessment, respectively.

Results of the study revealed a positive impact of the *RH Discovery* curriculum on DIBELS 8 gain from beginning to end of year assessment periods for students whose teachers implemented the program compared to matched comparison students whose teachers did not implement the program. Specifically, students exposed to the program demonstrated an adjusted 132.08 points from the beginning to the end of the school year, whereas the comparison group demonstrated an adjusted gain of 116.78 points. Although the difference between the two groups was not statistically significant ($p = .14$), the effect size of .31 is considered a substantively important positive effect, according to What Works Clearinghouse[1] Evidence Standards (WWC, 2017).

[1] "The What Works Clearinghouse (WWC) addresses the need for credible, succinct information by identifying existing research on education interventions, assessing the quality of this research, and summarizing and disseminating the evidence from studies that meet WWC standards." (WWC, 2017, pg. 1).

Methodology

PURPOSE

During the 2021–2022 academic year, Tyler Independent School District collaborated with Reading Horizons to study the implementation of RH and explore the impact of the RH method and student learning outcomes in grades K–2 using a rigorous quasi-experimental design.

RESEARCH QUESTIONS

The following guiding research questions informed the study design:

1. To what extent do teachers implement RH with integrity, as measured by the RHIIR?

2. What is the impact of the RH method on the literacy performance growth of students whose teachers implemented the method compared to a matched comparison group of students whose teachers did not implement the method throughout the 2021–2022 school year?

STUDY DESIGN

To determine the extent teachers implemented RH with integrity (Research Question 1), Reading Horizons' strategy team conducted observations of all teachers, measuring their implementation using the RHIIR. The distribution of scores across all classrooms was reported back to the Tyler ISD literacy leaders within two weeks of onsite classroom observations.

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To determine the impact of RH on student literacy growth (Research Question 2), McREL analyzed DIBELS 8 composite performance data from the beginning (Fall 2021) and end of year (Spring 2022) using a matched comparison quasi-experimental design. This matched comparison design controls for any bias in impact estimates that may be due to baseline differences between students exposed to the program and students not exposed to the program related to prior achievement and other demographic factors highly correlated with achievement.

Potential bias resulting from teacher self-selection as RH users was controlled with a rigorous matching strategy called Propensity Score Matching (PSM) — a computer-based algorithm that minimizes the overall distance between groups of cases (Rosenbaum and Rubin, 1985). Using this strategy, grades K–2 students of teachers that newly adopted RH for the 2021–2022 school year were matched to students of teachers in Tyler ISD who did not adopt the program and were not previous RH users. McREL used the beginning of year (Fall 2022) DIBELS 8 composite scores as well as the following student demographic variables for matching:

- Gender
- Race
- Individualized Education Plan (IEP) status
- English Language Learner (ELL) status
- Free- or Reduced-price Lunch (FRL) status

After the matching procedure, all student-level covariates that were used (demographic and prior achievement variables) were controlled statistically in multilevel regression models to assess the impact of RH. Also, because comparison students were allowed to be matched more than once (matching with replacement), weights were created to apply when analyzing the data. A baseline equivalence analysis was also conducted to ensure that the matching procedure resulted in a sample of comparison students who were similar to the treatment students in terms of Fall 2021 DIBELS 8 performance (baseline) and distributions of demographic characteristics.

MEASURES

Implementation integrity—The RHIIR contains five indicators that measure implementation integrity across four levels of practice:

- *Level 1 Emerging:* The educator is still learning about this element or is in the early stage of planning how to do this in the classroom.
- *Level 2 Exploring:* The educator has begun to experiment with this element in the classroom but has yet to form daily habits that directly impact student learning.
- *Level 3 Engaging:* The educator consistently implements this element, has identified lessons learned, and made minor improvements. Consistent practices translate to impacts on student learning.
- *Level 4 Empowering:* The educator can leverage the program's full intent, making meaningful adaptations that equitably serve all students.

Student performance—The Dynamic Indicators of Basic Early Literacy Skills (DIBELS 8) is a timed assessment that includes six grade-specific reading subtests: letter naming fluency, phonemic segmentation fluency, nonsense word fluency, word reading fluency, oral reading fluency, and maze. The current study used the DIBELS 8 composite score for beginning and end of year assessments, which consider each student's scores on all the relevant subtests and yields weights that can be used to calculate an overall score. The advantage of using the composite score is that it accounts for the different scales of scores for subtests and the measures where students vary more in their scores. According to the assessment developers, the composite score used in DIBELS 8 is the most robust predictor of risk and is superior to any subtest in its reliability and accuracy of its predictors.

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[1] University of Oregon (2020). *Understanding DIBELS® 8th Edition Composite and Measure Scores.* https://dibels. uoregon.edu/sites/dibels1.uoregon.edu/files/2021-05/UnderstandingDIBELS8CompositeScores_0.pdf

Overview of Program Implementation

During the 2021–2022 school year, Tyler Independent School District purchased and implemented the direct instruction curriculum and software and supported their implementation by offering the Reading Horizons' in-person professional learning to all teachers as well as the Reading Horizons' Coaching Days, which is approximately two days of support per year. Tyler Independent School District held 43 professional learning sessions throughout the year and trained seven teachers and instructional coaches in the district to become certified district facilitators. A typical Tier 1 (full class) lesson occurred whole class on a daily basis, for approximately 30 minutes, from August through June.

Results

Question 1: To what extent do teachers implement RH with integrity, as measured by the RHIIR?

Across the 48 classrooms where RH methods were observed, most teachers demonstrated evidence of Exploring or Engaging levels on the progression of practice for each of the five key indicators of implementation integrity. More than 50 percent of classroom teachers scored at an *Emerging* or *Exploring* level for four of the five indicators of the rubric. For the remaining indicator (Effective Communication for Meaningful Connections), just over 50 percent of the classroom teachers scored at an *Engaging* or *Empowering* level.

VISUAL 1

District Summary
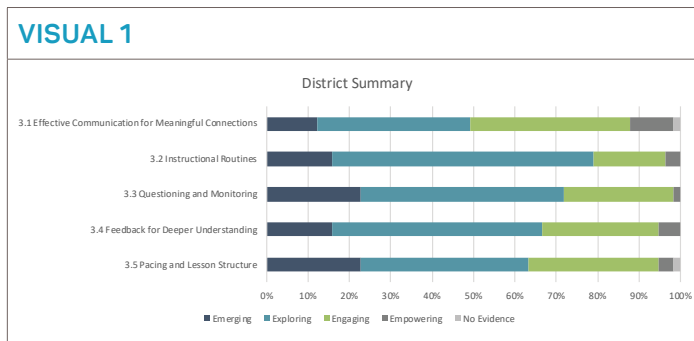
Question 2: How much do students grow as a result of exposure to the RH method throughout the 2021–2022 school year?

As a result of exposure and teacher use of the RH method, students' DIBELS 8 composite score grew an average of 32.01 points from the beginning to end of year assessments as compared to average growth of 15.05 points for students who were not exposed. Although not statistically significant, the effect size of .31 (indicating a .31 standard deviation difference in gain between RH users and non-users) is considered a substantively important effect.

Conclusions

This study was conducted to estimate the impact of the outcomes from the *RH Discovery* curriculum on DIBELS 8 literacy gains from beginning to end of year assessments as well as to determine the relationship between implementation of the RH method and student literacy performance. Results of the study suggest that if schools purchase *RH Discovery* and implement it under similar conditions as schools included in this study, positive impacts may be found on literacy gain outcomes over the course of only one school year of implementation. The impact analyses on achievement gains were conducted in the context of a quasi-experimental (matched comparison) design to establish baseline equivalence between students exposed and not exposed to the program. As a result, the analyses provided unbiased estimates of the impact of *RH Discovery* on student achievement gains.

It is important to note that the implementation of the program in Tyler ISD occurred over only one school year, and as shown in the observation data, most teachers (an average of 67 percent across all rubric indicators) were implementing at the *Emerging* and *Exploring* levels. Despite the moderate implementation, the effect size of .31 is substantial. It is expected that with continued practice and support from RH, and with teacher implementation moving to the *Engaging* and *Empowering* levels, the program will be even more impactful for improving student literacy performance.