

A young girl with dark hair is looking down at a book. A woman with glasses and a striped shirt is leaning over her, smiling and looking at the book. The background is a warm, reddish-orange color.

CAN ANYONE TUTOR STUDENTS TO READ?

Learn how anyone – from classroom teachers to college students – can help elementary students make gains in reading.

Executive Summary

Too many U.S. students are unable to read proficiently because they lack the foundational skills needed to decode and comprehend texts. The Children’s Learning Institute (CLI) at UTHealth Houston has launched an online tutoring and intervention curriculum to address this concern, *Accelerated Early Reading Outcomes (AERO)*. An evidence-based curriculum, *AERO* focuses on foundational reading skills using interventions that can be delivered effectively by a wide range of tutors or teachers. **This brief report describes AERO and how we are enlisting tutors – from classroom teachers to college students – to help elementary students make gains in decoding skills and reading.** Regardless of the tutors’ levels of experience, participants find *AERO* is both easy to use and engaging for students. We’ll explain how we implemented the program and the gains students experienced when they received *AERO*. We invite school leaders and anyone interested in increasing a child’s reading skills to utilize these online intervention resources.

Introduction

Increasingly, experts and policymakers view access to high-quality reading instruction as today’s most pressing education issue, as long-term reading achievement is a determinant of school, health, and broad life outcomes (National Assessment of Education Progress., n.d., 11; Nutbeam & Lloyd, 2021, 11; Petscher et al., 2020, 11). Reading achievement is not improving in the U.S. and research shows persistent inequities for students who are experiencing poverty (National Assessment of Education Progress., n.d., 11). Many states are addressing these issues with legislation that requires early screening to identify kindergarten and 1st grade students at risk for reading difficulties (Benson et al., 2019, 10). These states now require an earlier screening, but there’s a shortage of resources and staff to provide interventions and tutoring (Donaldson & Richmam, 2021, 10). There’s an urgent need to identify small-group reading interventions that are feasible for a variety of tutors to implement within a Multi-Tiered System of Support (MTSS), as seen in Figure 1, designed to prevent and remediate reading difficulties (Al Otaiba & Petscher, 2020, 10). This is why *AERO* was created.

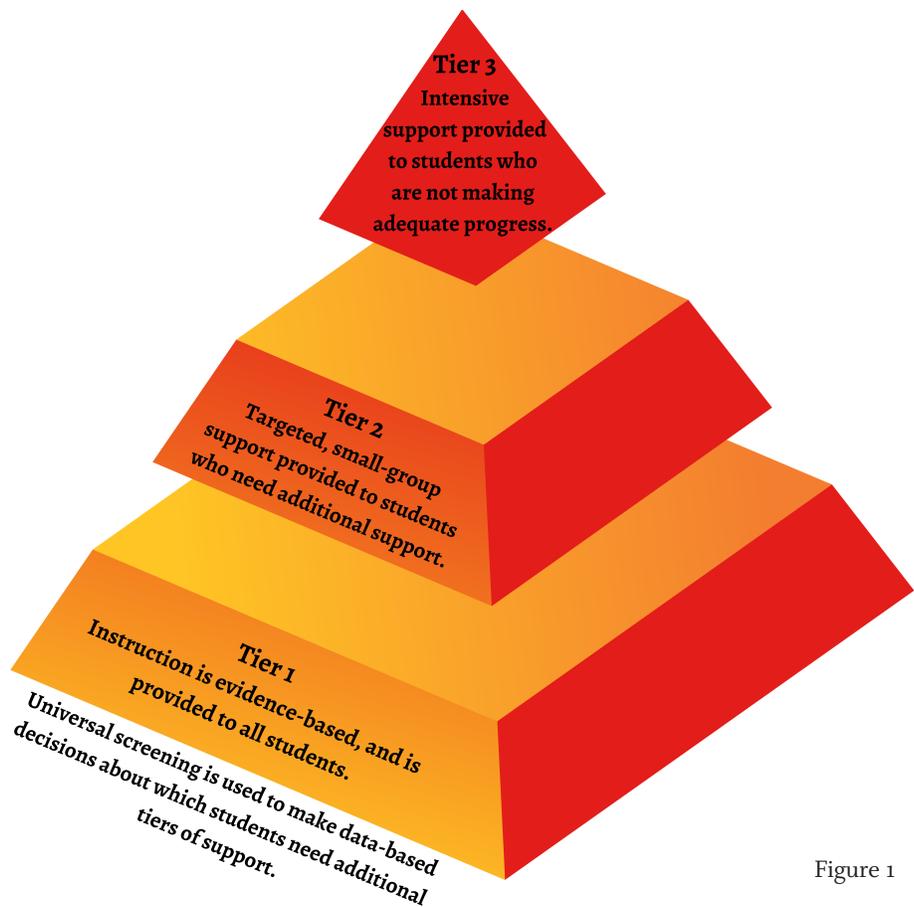


Figure 1

What is a Multi-Tiered System of Support (MTSS)?

An MTSS for reading is a continuous improvement framework to efficiently deliver instructional resources to meet students’ needs. An MTSS can address various areas of learning such as reading, math, or social-behavioral skills.

Research Foundations for AERO

A team of educators and researchers at CLI designed AERO to align with the science of reading and to meet the [Every Student Succeeds Act](#) (ESSA) requirements (Figure 2). ESSA requirements help guide schools in using instructional practices that are known to work.

There’s promising evidence of effectiveness from a randomized control trial of a previous version of AERO. Researchers at CLI studied impacts with 98 1st grade students experiencing reading difficulties (Solari et al., 2018, 12). This experimental study found significant group differences on distal, standardized measures of word reading, decoding, and fluency for students who received the initial version of AERO (Effect sizes are moderate; ES Range = 0.41 to 0.57).

Components of AERO also have promising evidence of effectiveness in improving kindergarten to 5th grade students’ literacy outcomes, based on findings from multiple practice guides prepared by the [What Works Clearinghouse](#) (WWC) and summarized in the table below.

What are the ESSA Requirements?
ESSA requires schools to use programs in Tier 1 or Tier 2 out of the four tiers of evidence. This is designed to ensure that districts and schools identify approaches that are likely to work with various populations, as opposed to promising or basic rationale approaches.

Tier 1 studies with "strong evidence" must find positive effects, be a well-designed experiment, include a large sample of students, and take place at multiple sites.

Tier 2 studies with "moderate evidence" must meet the same criteria but are well-designed quasi-experiments.

Figure 2

AERO Key Components	WWC Recommended Practices	Levels ¹
Screen students to determine if they are scoring below the benchmark and are at risk of experiencing reading difficulties. Screening for reading difficulties and intensive intervention is particularly important for English learners (ELs) .	“Screen all students for potential reading problems at the beginning of the year and again in the middle of the year.” ²	 MODERATE EVIDENCE
Provide 20 minutes of explicit, systematic instruction 3 or 4 times a week to small groups of students who completed a screening measure and were found to be at risk of experiencing reading difficulties.	“Provide intensive, systematic instruction on up to three foundational reading skills in small groups to students who score below the benchmark score on universal screening.” ²	 STRONG EVIDENCE
AERO delivers explicit, engaging instruction on phonological skills to improve awareness of sounds in words and skill in mapping these sounds to graphemes .	“Develop awareness of the segments of sounds in speech and how they link to letters .” ³	 STRONG EVIDENCE

¹ U.S. Department of Education (2022) under Every Student Succeeds Act requires educators to select evidence-based approaches that have been shown to improve student outcomes.

² Gersten et al. (2007, 2008) report strong evidence base and promising practice for Tier 2 small-groups that meet 3 to 5 times per week for 20 minutes or more. Screening for RD is particularly important for English learners.

³ Foorman et al. (2016) report strong evidence for developing phonemic awareness and linking sounds to letters.

AERO Key Components	WWC Recommended Practices	Levels ¹
AERO provides systematic decoding instruction that teaches students to sound out words by using knowledge of grapheme-phoneme correspondences, common affixes, and flexible strategies to decode multisyllabic words .	“Teach students to decode words, analyze word parts, and write and recognize words. ” “Build students' decoding skills so they can read complex multisyllabic words” ⁴	 STRONG EVIDENCE
AERO utilizes decodable and connected texts (i.e., texts aligned with instruction in grapheme-phoneme correspondences; texts with sentences that connect to one another) for students to practice reading fluency. AERO provides opportunities to engage in repeated readings of texts while answering and asking questions about the text.	“Ensure that each student reads connected text every day to support reading accuracy, fluency, and comprehension.” “Consistently provide students with opportunities to ask and answer questions to better understand the text they read.” ⁵	 MODERATE EVIDENCE
AERO embeds opportunities to practice handwriting and spelling alongside instruction focused on letter identification and knowledge of grapheme-phoneme correspondences. It also provides opportunities to practice building sentences .	“Teach students to become fluent with handwriting, spelling, and sentence construction. ” For English learners “Provide regular, structured opportunities to develop written language skills. ” ⁶	 MODERATE EVIDENCE
AERO provides explicit vocabulary instruction so that students understand academic words featured in texts they read and listen to aloud. Students have opportunities to use and elaborate on these words before and during reading.	To support English learners, “Provide extensive and varied vocabulary instruction ” and “teach a set of academic vocabulary words ... using a variety of instructional activities.” ⁷	 STRONG EVIDENCE

AERO Components

AERO is based on the science of reading and is designed to address the shortages of effective resources and experienced staff by training tutors to deliver small-group reading intervention with minimal coaching and preparation time. AERO includes two levels, AERO Foundations and AERO Essentials, and consists of lessons that are designed and sequenced to build reading skills, confidence, and independence. Lessons include:

- Systematic routines to teach foundational reading skills in **20-minute sessions 3 to 4 days per week**.
- **Concise and explicit teacher talking points** with scaffolding tips to guide all levels of learners.
- A variety of engaging, brisk activities that support reading development, writing, and language skills, are **delivered on an online platform**.

Let's dive deeper into the science of reading and the AERO resources.

What is the Science of Reading?

The term “science of reading” has been used by researchers and media to refer to various ideas. We use this term to refer to a body of accumulated research that:

⁴ Foorman et al. (2016) report strong evidence for developing decoding skills. Vaughn et al. (2022) also report strong evidence for decoding instruction that gradually focuses on complex, multisyllabic words.

⁵ Foorman et al. (2016) report moderate evidence for daily reading practice in connected texts. Vaughn et al. (2022) report strong evidence for repeated reading when questions provide a purpose for reading

⁶ Graham et al. (2012) and Baker et al., (2014) emphasize the importance of routine practice in handwriting, spelling and other mechanics of written language.

⁷ Baker et al. (2014) and Gersten et al. (2007) emphasize the importance of vocabulary instruction for English learners who are receiving intervention.

- Describes the **explicit and systematic** instruction most students need to learn to read. Reading is not like language or other skills children can learn naturally without direct teaching.
- Identifies **teacher practices** that effectively address reading difficulties. Instruction must address reading errors and be engaging to motivate these readers.

The combination of skills students need to learn through teacher practices can be summarized by the learning tree shown in Figure 3.

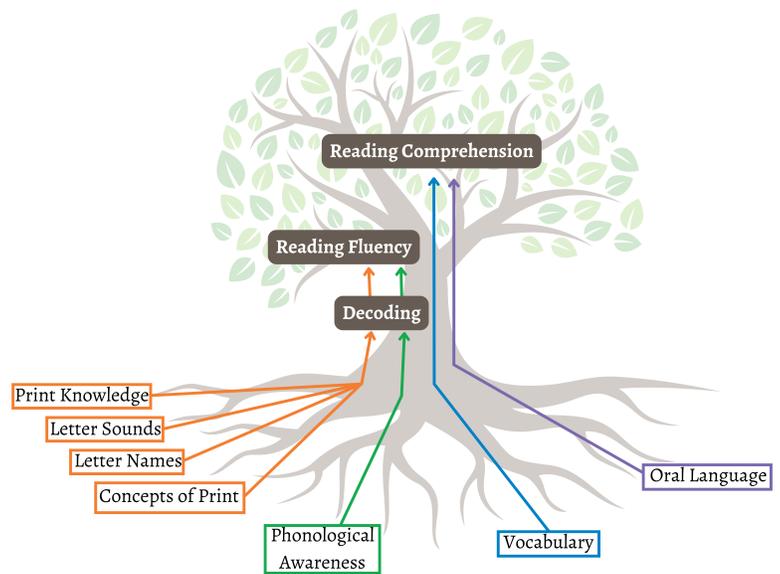


Figure 3

AERO Resources

AERO is the product of more than 10 years of research and development. This evidence-based curriculum concentrates on explicit instruction in letter names and sounds, phonological awareness, phonics, text reading, and fluency. It also includes vocabulary and comprehension support. *AERO* includes 104 curriculum units (example shown in Figure 4), made up of hundreds of activities that align with the science of reading core skills (shown in Figure 5) and are designed to teach students with varying reading proficiencies. To determine which *AERO* unit is right for each student, *AERO Assessments* are administered. These assessments are integrated with the curriculum and guide student placement and progress through lessons.

An important element of *AERO* is providing immediate feedback to correct students' reading errors that promote effective decoding strategies (Smith et al., 2016, 12) rather than guessing using less efficient clues (Davis et al., 2020, 10).

AERO also offers simple training courses. *AERO*

Figure 4

According to the science of reading if students want to become successful readers they must master:

1. **Phonics:** individual letters and combination of letter sounds in spoken language
2. **Phonemic awareness:** hear, identify, and manipulate individual sounds in words
3. **Vocabulary Knowledge:** understand the meaning of a variety of words
4. **Fluency:** ability to read automatically and without slowing down to decode words
5. **Comprehension:** understand the meaning of sentences, passages, or texts
6. **Writing:** mechanics of letter formation and build to understanding of how to spell words

Figure 5

Trainings are a comprehensive series of independent, self-paced, online courses that prepare teachers and tutors to teach the curriculum. By providing both the *AERO Assessments* and *AERO Trainings* we are setting up tutors for success with easy and accessible online resources.

Bringing AERO Online

After using paper-pencil interventions for more than 10 years, CLI created the technology-based platform for *AERO* in 2021. The platform gives tutors, educators, and school teachers an online approach with new improvements and features to save time and costs.

Such improvements included:

- Automated, **data-based decisions** creating small groups of similarly skilled students using the CLI Engage **small grouping tool** and students' placement test scores
- Less prep time through **online student practice activities** that include drag and drop, plus other engaging interactive features with connected text readings
- *AERO assessments* that use automated decisions to differentiate instruction according to students' scores and to determine if review or **reteaching of activities** is needed
- A curriculum that was **easier for new tutors to learn** through *AERO Trainings*, using clearly organized routines, and concise teacher talking points

This suite of *AERO* resources will be available on the [CLI Engage platform](#). Each *AERO* tutor can use a tablet or laptop device to log in and use the suite of resources. Students will use a tablet device (school partners report access to ample devices) for selected interactive practice activities, and a dry erase board and markers for some writing activities.

Implementing AERO

In the 2021-22 school year, school leaders in the Houston metro area were concerned about their students' foundational reading skills after the learning disruptions from the COVID-19 pandemic. They were looking for an engaging, small-group reading intervention that could accelerate learning for students who needed MTSS Tier 2 support. Due to ongoing pandemic stressors and limited staff, they needed to rely on additional tutors outside of their typical staff. Therefore, they worked with CLI to identify and train a range of tutors (Figure 6) to deliver *AERO*.



Figure 6

Effective Instruction Across a Range of Educators

There's some truth to the claim that "teaching reading is rocket science" (Moats, 2020, 11). Ideal circumstances would allow all children to learn to read from skilled reading tutors. Unfortunately, these types of tutors are rare. The good news is that when provided with training and effective instruction materials, accumulated research shows that small-group reading interventions can be delivered effectively by teachers, assistants, or volunteers (Neitzel et al., 2021, 11; Slavin et al.,



Figure 7

2010, 12). As noted, we designed *AERO* for circumstances where there are many students identified as needing reading intervention and not enough tutors. We needed to rely on teams of tutors (Figure 7) with varying past experience and knowledge of how to support students with reading difficulties. Specifically, our work took place in Texas where a state law passed, in response to the COVID-19 pandemic recovery efforts, requiring public schools to offer intervention for students who fail literacy screenings. Although there's tremendous support from legislators, educators, and parents for these new protocols, we needed to rapidly deploy resources for tutors to provide these students with about 30 hours of focused reading intervention during the school year (Donaldson & Richman, 2021, 10). We reimagined *AERO* with this in mind so that a range of tutors, not just reading interventionists or veteran teachers with specialized knowledge of reading difficulties, could instruct students effectively.

Although other effective approaches train diverse types of tutors to provide supplemental reading instruction (Elbaum et al., 2000, 10; Tepper Jacob et al., 2015, 12; Ritter et al., 2009, 11), *AERO* requires limited materials, resources, and expertise. To achieve the scale of reading intervention needed to combat the learning loss observed after the COVID-19 pandemic (National Assessment of Education Progress., n.d., 11), reading interventions must be easy to deliver and low cost (Slavin, 2021, 12). *AERO*'s approach is to have materials widely available to all schools. By using a technology-based suite of tools, *AERO* is able to deliver a diverse, robust package of resources for tutoring programs with tight budgets.

AERO also differs from other online apps that only provide automated independent practice for students. *AERO* uses small group tutor-delivered activities because adult guidance combined with student interaction with peers is important to motivate students struggling with reading. It also differentiates instruction to match each student's needs (Scheifele & Löweke, 2017, 12; McDonald Connor et al., 2009, 11; McDonald Connor et al., 2019, 11).

Settings, Tutors, and Instruction

The first area CLI worked in was a rural location (hereafter, Site 1) that could hire a combination of college students and elementary school staff to be tutors, who did not have classroom teaching experience. The second area included schools in an urban setting (Site 2). At some of these schools, CLI had implemented *AERO* in the past, and at one school *AERO* tutoring was a new service. Tutors employed to work at Site 2 were used by CLI in prior years with a few new participants added. The profile of individuals serving as *AERO* tutors varied. They ranged from having no experience, to having more than five years' experience

tutoring for CLI. Given that some sites could hire licensed teachers as tutors and others utilized college students, *AERO* was a good fit because it required limited training. At Site 1, students experiencing reading difficulties received *AERO* in summer reading enrichment programs. At Site 2, students with reading difficulties took part in pull-out lessons three to four times each week during the regular school day.

A short ramp-up period was important for addressing learning loss, therefore the tutor training included five self-paced, online training modules. At Site 1, tutors completed the courses during a single week, with daily opportunities for group review, practice, and to ask questions. These group sessions were facilitated by a CLI tutoring manager. At Site 2, both new and experienced *AERO* tutors completed the online training modules. New tutors shadowed experienced tutors and began to practice leading lessons. At both Site 1 and 2, CLI tutoring managers also monitored delivery of early tutoring sessions to give support and immediate feedback.

Using *AERO Assessments*, Site 1 had 103 rising 1st to 5th grade students that were identified as eligible. These students received eight weeks of instruction at a YMCA summer program. At Site 2, 42 3rd to 5th grade students were screened and identified as eligible. These students received fifteen weeks of instruction at one school during regular class days.

Monitoring Progress

To form small groups of students with similar reading needs, tutors used *AERO Assessments*. They also administered a standardized fluency measure from the DIBELS suite (DIBELS, n.d., 10). Tutors reported that the placement assessments were simple to administer. Scheduling groups was sometimes a challenging task due to other student requirements. All sites provided quiet locations where tutors delivered lessons. However, consistent internet access for the online curriculum and activities was sometimes a challenge. Site 1 noted that internet speed was a common issue, due to the rural location.

Typically, alternating units in *AERO* include an individual mastery check assessment. Each mastery check assessment includes cut points to categorize student results as either green, yellow, or red. A “green” score indicates sufficient mastery to move to the next unit. A “yellow” score indicates a need for a quick review activity. A “red” score indicates a full reteach lesson is necessary. We revised tutoring groups/schedules every 6-8 weeks based on the data. On prepared spreadsheets, tutors also logged student attendance at tutoring sessions, including the tutor name, time/date of the session, students present, and the lesson taught. Student absences were the main barrier to receiving intervention, so we explained to parents why their child’s routine attendance was important. We offered make-up sessions when possible after students were absent.

Tutor Responses to AERO

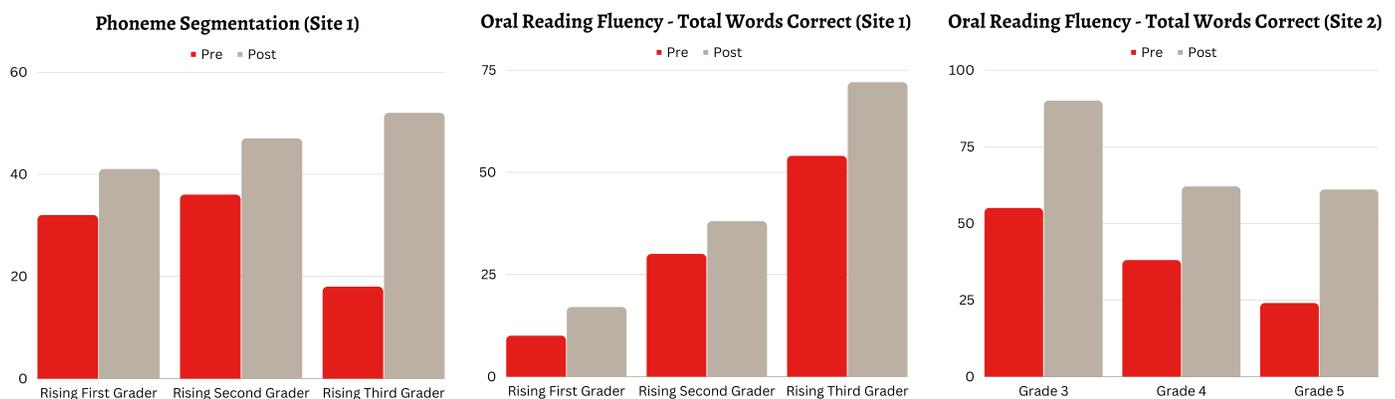
Researchers at CLI conducted interviews and focus groups with tutors to understand their satisfaction with the new, technology-based *AERO* tutoring and intervention curriculum. This included questions addressing ease of using the online resources, preparation time for each tutoring session, and student engagement with the online activities as well as writing activities. Many tutors gave high praise for the program. One tutor said, “I loved watching the difference in student learning from beginning to end!” Tutors agree that ***AERO* was easy to deliver** to students with tablets, whiteboards, and markers. All tutors were new to using

the online platform but there was consensus that “After a few sessions, it is smooth.” One tutor explained a benefit of the online lesson platform, “It’s time saving...you drag down the letters and things like that are good time savers” in comparison to other traditional, paper-pencil programs she used.

Tutors also commented on the ease of the online platform which promoted data-based decision making. For example, one tutor explained the most beneficial part of the program was the mastery checks given at the end of units, “I like the assessments. I think they’re quick. I think they’re efficient and they give not only the teacher feedback, but when the kids do well they get an immediate sense of accomplishment.” Tutors also explained how easy it is to differentiate instruction based on student response to AERO mastery checks. For example, when a student was quickly mastering concepts, a tutor said, “You can just zip over from one unit to the next... it is so easy just to get into a different unit if, because of the assessment, you could tell right away they were ready for [a] more advanced unit...”

AERO’s Effectiveness Shows Through the Data

At Site 1, 37 students completed the program and have full pre/post data. This included 15 rising 1st graders, 16 rising 2nd graders, and 6 rising 3rd graders. These students made significant gains in phoneme segmentation and oral fluency skills after participating in AERO, which are shown in Figure 8 and 9, illustrating average student gains. It is important to note that students who took part in more sessions also made greater gains. At Site 2, 42 students participated in the program. This included 16 students in 3rd grade, 15 in 4th grade, and 11 students in 5th grade. These students also made significant improvements in oral reading fluency, as shown in Figure 10. It is important to note that 3rd grade students made larger gains when they received more tutoring sessions.



Get AERO in Your School

What can schools do to improve student reading difficulties when they have limited access to staff to deliver evidence-based reading interventions? AERO is an evidence-based intervention that can be readily delivered at scale because a variety of tutors can be quickly trained to implement this program. There are five key steps (developed by AERO) to increase student access to reading interventions, which can rapidly accelerate student learning.

These steps include:

1. **Identify tutors:** Consider who in your school and community can be an AERO tutor. Evaluate the background expertise of your team and bandwidth to learn a new program, so you can select an approach that meets your needs and schedule.
2. **Train your team:** Contemplate which *AERO Trainings* can be done independently, how you will confirm understanding of content, and what aspects require ongoing support.
3. **Assess and schedule:** Give students who were flagged at universal screenings *AERO Assessments* to determine where to start them in the program. Using the small grouping tool, create groups of students who have similar placement test scores. Schedule students to meet with a tutor three to four times a week.
4. **Implement and monitor:** As you start tutoring students, regularly meet and discuss lessons learned to improve delivery of the intervention with support from supervisors or other experts, as needed. Monitor student progress in the AERO dashboard and adjust instruction to match their learning needs.
5. **Check dosage:** Are students receiving at least three days a week of intervention? If not, identify barriers and seek to address them, as frequency of reading intervention is a predictor of growth.

AERO is here to help your students succeed, not just in the short-term, but for the length of their academic careers. Consider how your school and community can leverage the *AERO* resources to support students who are struggling with reading.

Want to learn more about *AERO*? [Contact the CLI Solutions Group.](#)

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Appendix

Descriptive Statistics: AERO at YMCA (Study 1)

	Pre					Post			
	N	Min	Max	Mean	SD	Min	Max	Mean	SD
Rising 1 st Graders									
Phoneme Segmentation	15	1	52	33.33	16.69	3	74	41.60	21.03
Oral Reading	15	0	79	9.93	19.89	0	137	16.13	33.82
Rising 2 nd Graders									
Phoneme Segmentation	16	4	63	38.31	16.67	13	74	48.94	17.45
Oral Reading	16	2	93	30.50	28.07	2	102	37.56	30.49
Rising 3 rd Graders									
Phoneme Segmentation	6	0	31	18.50	11.90	47	59	51.50	4.93
Oral Reading	6	8	87	56.17	31.26	11	115	71.50	34.81

Note. Phoneme Segmentation = DIBELS Phoneme Segmentation Fluency. Oral Reading Fluency = DIBELS Oral Reading Fluency.

Descriptive Statistics: AERO at Schools (Study 2)

	Pre					Post			
	N	Min	Max	Mean	SD	Min	Max	Mean	SD
3 rd Graders									
Word Reading	9	1	30	9.00	8.77	17	113	59.44	29.82
Oral Reading	13	10	109	55.15	34.01	44	148	90.23	30.50
4 th Graders									
Word Reading	10	0	11	4.70	3.74	12	82	36.00	21.74
Oral Reading	12	1	105	36.58	29.57	4	119	66.08	39.87
5 th Graders									
Word Reading	10	0	25	8.30	8.42	31	110	59.40	23.90
Oral Reading	10	2	58	25.80	17.02	18	101	63.20	29.09

Note. Word Reading = Researcher-developed curriculum-based measure. Oral Reading = DIBELS Oral Reading Fluency.

ABOUT AERO

Accelerated Early Reading Outcomes (AERO) is a tutoring and intervention curriculum for struggling readers. The product of more than 10 years of development and based on the science of reading, AERO provides instruction in the areas of letter names and sounds, phonological awareness, phonics, text reading, fluency, vocabulary, and comprehension. Additional sets of resources are provided to ensure student success, and facilitate effective and quick adoption of the curriculum: AERO Assessments and AERO Trainings.

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