Sound Partners and Cross-age Peer Tutoring: Evaluating Outcomes for a Student with a Reading Disability

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Abstract

This single-case experimental study examined the effectiveness of the *Sound Partners* reading intervention, delivered by a high school student tutor, for a seven-year-old female student with a specific learning disability (SLD) in reading. The intervention was implemented during a university-based summer reading program using an ABA (baseline–intervention–follow-up) design. Outcome measures included letter-sound fluency, decodable word fluency, and nonsense word fluency, assessed using FastBridge earlyReading and *Sound Partners* Mastery Tests. Over a 15-day intervention period, the participant received daily, 25-minute, one-on-one sessions focused on foundational reading skills such as phonemic awareness, phonics, and decoding. Results indicated substantial improvements in all measured domains: letter-sound fluency increased from 34 (baseline) to 53 (intervention) to 66.7 (follow-up) correct responses per minute; decodable word fluency rose from 23.7 to

36.5 to 48.7; nonsense word fluency improved from 8.7 to 20.1 to 26.7 correct responses per minute. Improved Rate Difference (IRD) values demonstrated moderate to large intervention effects. Procedural fidelity was 99.5% and interscorer agreement reached 100%, confirming reliable implementation and assessment. The study highlights the potential for high school student tutors to deliver structured, evidence-based reading interventions with strong fidelity, resulting in significant gains for students with SLD. Limitations include the single-subject design and lack of long-term follow-up. Future research should replicate these findings with larger samples and investigate sustained outcomes. *Sound Partners* offers an accessible, effective intervention for schools seeking to improve early literacy among students with reading disabilities.

Keywords: reading intervention, cross-age peer tutoring, learning disabilities

1. Introduction

1.1 Study Background

The 2022 National Assessment of Educational Progress (NEAP) revealed that a substantial portion of public-school 4th and 8th graders in the United States scored below the proficient range in reading. Specifically, over two-thirds of 4th graders and 64% of 8th graders fell short of proficient levels (U.S. Department of Education, 2022). It was not surprising that the NEAP found the gap between students with and without disabilities to be significant. Moreover, research consistently demonstrates that children with specific learning disabilities (SLD) in reading exhibit persistent deficits in reading skills, including decoding, fluency, and comprehension (Duff et al., 2023; Gilmour et al., 2020). Even when students with SLD in reading do show improvements, their gains often fall short of meeting grade-level expectations (Wanzek et al., 2014). Consequently, students with disabilities may be the primary reason schools fail to achieve adequate yearly progress (Eckes & Swando, 2009).

1.2 Interventions for Students with Learning Disabilities

Research consistently demonstrates that reading interventions for students with SLD in reading are effective, especially when they emphasize intensity and foundational skills such as phonological awareness, phonics, and word reading. For example, Vaughn and Wanzek (2014) found positive, meaningful outcomes from research on interventions for students with SLD in reaching spanning over two decades, while Hall et al. (2022) confirmed significant effects in a recent meta-analysis, highlighting dosage and skill focus (e.g., phonological awareness, phonics, word reading) as key moderators. Research consistently demonstrates the importance of intervention intensity (e.g., intervention duration, frequency of response opportunities) and skill focus in determining outcomes for students struggling to read (Boucher et al., 2024).

Students with SLD in reading often struggle with phonemic awareness (i.e., the ability to hear, identify, and manipulate individual sounds or phonemes; Marchand-Martella et al., 2002), a strong predictor of later literacy (e.g., reading and spelling; Hulme et al., 2012; Wimmer et al., 1991). These students require explicit instruction in phonics, which links spoken sounds to written letters and letter combinations. Decades of evidence—from Eldridge et al. (1990) to Clayton et al. (2020)—establish causal links between phonics knowledge and later reading comprehension and fluency. Without strong early phonics instruction, students are more

likely to face persistent reading challenges, whereas systematic phonics instruction improves decoding, word reading, comprehension, and spelling (Ehri et al., 2001).

1.3 Sound Partners

Sound Partners is a phonics-based reading intervention aimed at kindergarten and first-grade students who are not meeting literacy benchmarks (Vadasy, 2024). The program provides students with systematic instruction in phonemic awareness, letter-sound knowledge, blending, decoding, sight word reading, reading fluency, and spelling through structured, scripted lessons built on modeling, practice, and immediate feedback. Students advance as they master each skill level, benefiting from lessons designed to build foundational reading abilities before progressing to more complex tasks. Extensive research shows that students in *Sound Partners* make greater gains in word reading, spelling, fluency, and comprehension than control groups, often achieving medium to large effect sizes (Hall et al., 2022; Marchand-Martella et al., 2002; Vadasy, 2024), though little is known about its impact for students with SLD in reading since outcomes for this group have not been reported.

1.4 Peer Tutoring

Sound Partners was designed to be implemented by a trained tutor, specifically a paraprofessional educator, in a one-on-one setting. This approach ensures its affordability for schools and facilitates its accessibility to a substantial number of students at risk for reading difficulties (Vadasy, 2024). However, paraprofessional educators are not always available to work with individual students and schools continue to face resource problems. Cross-age peer tutoring, or pairing an older student with a younger student to review concepts or practice academic skills, is one solution to school resource problems. In classrooms, cross-age peer tutoring helps support, rather than replace, teachers' instruction and is adaptable so that it might be applied in a variety of academic domains, courses, and contexts (Barahona et al., 2023). In practice, the older student models academic procedures and skills, provides additional opportunities for the younger student to practice, and offers immediate positive or corrective feedback. Research supports the use of cross-age peer tutoring across various academic subjects, such as reading, writing, spelling, mathematics, science, and social studies (Burton et al., 2022). Specifically, older students can be trained to implement reading interventions, leading to positive outcomes for target students (tutees; Nugent, 2001). However, studies investigating cross-age peer tutoring and reading interventions often employ highly controlled conditions, such as efficacy studies (Wright & Cleary, 2006). Consequently, little is known about the effects of cross-age peer tutors in real-world settings. Moreover, many studies fail to report procedural fidelity data (Bowman-Perrott et al., 2013), which hinders the determination of the extent to which the peer tutor adhered to the designed reading intervention. Lastly, research on cross-age peer tutoring suggests greater benefits for students at risk for reading problems compared to those with SLD in reading, although further research is necessary with this population (Moeyaert et al., 2022).

1.5 Study Objectives

The study's primary objective was to extend previous research on *Sound Partners* by examining its effective on the early reading skills of a student with SLD in reading. Although much of the existing research on *Sound Partners* has demonstrated its impact on early

reading skills of students at-risk for reading failure and students from culturally and linguistically diverse backgrounds (U.S. Department of Education, 2010), very little research exists assessing the intervention when implemented with students with SLD in reading. These students may benefit from *Sound Partners* given its focus on early reading skills such as phonics and decoding and instructional framework (e.g., explicit and systematic instruction).

The study's second objective focused on implementing *Sounds Partners* using a high school student tutor. Research on *Sound Partners* suggests using tutors, such as paraeducators and community volunteers, to deliver the intervention's procedures is effective (Erlbaum et al., 2000). However, research on utilizing high school students to deliver *Sound Partners* is lacking. Specifically, it is largely unknown whether high school student tutors can implement Sound Partners with fidelity or collect progress monitoring and outcome data reliably.

The study's final objective was to serve as a demonstration for educators on how to implement a cross-age peer tutoring intervention for a student with SLD in reading. Previous published work on cross-age peer tutoring has either been group design studies that are difficult to replicate with a single student by a teacher in a classroom (e.g., Akudo et al., 2025) or only provides suggestions to educators on the implementation of cross-age peer tutoring without empirical data (e.g., Chang & Mauer, 2024). Although research involving a single subject limits generalizability of findings, its methodological description can provide educators with specific guidance on procedures that have been shown to be effective in applied settings. This point may be particularly important for this study, as its uniqueness lies in how it employed a high school student as a reading interventionist.

2. Method

2.1 Setting

A university-based summer reading program located in the upper Midwest served as the setting for this study. The program was open to children ages 7 to 14 years. Parents or local school staff referred children to the program. Primary referral concerns for the program included problems associated with decoding words or oral reading fluency. Some children were previously identified with SLD in reading and received special education services through their local public school, although those were not criteria for entry into the program. An on-campus clinic within a medium-sized university housed the program. Individual intervention sessions occurred in standard-sized clinic rooms with tables and chairs. Video cameras were mounted in each room so that sessions could be observed remotely by faculty supervisors and recorded for later review.

2.2 Subject Characteristics

Emma served as the subject for the study. She was a seven-year-old female entering 2nd grade in the fall. Her mother referred her to the program because of continued difficulty with basic reading skills (e.g., letter-sound correspondence, decoding). She had been previously diagnosed with SLD in reading. Emma received special education services during the school year that included explicit instruction in phonological awareness, phonics, vocabulary, and oral reading fluency. Reading instruction in the general education classroom combined elements of phonics and whole language (e.g., emphasizing words as whole units, using context to help decode words and read sentences). Triannual benchmarking assessments

placed Emma below the 10th percentile in letter-sound fluency and word reading fluency. She was below the 5th percentile in oral reading fluency. Given Emma's skill levels, the researchers determined that focusing on phonics and decoding skills was most appropriate.

2.3 Tutor Characteristics and Sound Partners Training

Greg served as the tutor for this study. He was a 16-year-old male entering 11th grade in the fall. He worked in the summer reading program as a high school student volunteer. He had no previous experience as a reading tutor or working with younger children in any capacity (e.g., babysitter). Greg attended a one-hour training session delivered by a graduate student in school psychology familiar with *Sound Partners*. The training consisted of didactic instruction, modeling, and practice with immediate feedback. It covered the rationale for the *Sound Partners* program, an overview of the *Sound Partners* teaching model, and intervention and assessment components. Greg was required to achieve a 100% on a brief procedural fidelity and interscorer reliability assessment before serving as a tutor in the program.

Greg also received ongoing support, supervision, and feedback through the study. Debriefing between the tutor and first author was provided for five minutes before and after each tutoring session. This time afforded the tutor to understand the session's schedule, ask questions, obtain information about Emma's progress, and discuss issues or problems that might have occurred during the session.

2.4 Dependent Variables

The primary outcome variables used for the study were letter-sound fluency, decodable word fluency, and nonsense word fluency. The FastBridge earlyReading evaluation system served as the assessment tool (Illuminate Education, 2023). Letter-sound fluency was measured using FastBridge Letter-Sound Fluency subtest. Letter-Sounds Fluency is a one-minute timed assessment designed to measure a student's beginning decoding skills. Students are required to provide sounds for lowercase letters in isolation. There are 108 letters (10 rows, 10 letters per row with eight words in the 11th row) per assessment. Correct letter-sounds per minute was calculated by subtracting the number of errors from the number of letter-sounds attempted.

Decodable word fluency was measured using FastBridge Decodable Words subtest. Decodable Words is a one-minute timed assessment designed to measure a student's ability to read phonetically regular words (e.g., "ran," "tap," "cot"). There are 50 words (10 rows, 5 words per row) per assessment. Correct decodable words per minute was calculated by subtracting the number of errors from the number of words attempted.

Nonsense word fluency was measured using FastBridge Nonsense Words subtest. Nonsense Word is a one-minute timed assessment designed to measure a student's ability to read phonetically regular words that are not real but can be decoded using English phonics principles (e.g., "mof," "jin," "tep"). Nonsense Words controls for words the student might already know and read without using decoding skills. There are 50 words (10 rows, 5 words per row) per assessment. Correct nonsense words per minute was calculated by subtracting the number of errors from the number of nonsense words attempted.

Mastery Tests from the *Sound Partners* program were used to determine Emma's placement within the Sound Partners lesson sequence and evaluate intervention outcomes. Mastery Tests include content taken directly from the previous 10 lessons. They require students to sound out letters or letter pairs, write letters or letter pairs that are said to the student, decode words in isolation, spell words that are said to the student, and read irregular sight words (e.g., "don't," "their," "are"). A percent correct is computed for each skill domain (i.e., sounds, word reading, spelling, sight word reading). The *Sound Partners* program has an interpretive guide indicating whether the student has mastered the skill area (i.e., can go forward to the next set of lessons), needs to review missed items and then go forward to the next set of lessons, or needs to redo previously completed lessons. Mastery Tests at Levels 3, 4, and 5 were given during baseline. The Mastery Tests for Level 5 was given when Emma completed the study's first 10 lessons. She was administered Mastery Tests for Levels 6 and 7 during the follow-up phase.

2.5 Procedures

Emma's mother met with the first author to discuss the program including intervention procedures, study phases and timeline (e.g., baseline, follow-up), and confidentiality and privacy protections. She was also notified of any potential risks and benefits of participation. She then provided informed consent for Emma to participate in the study and confirmed that Emma was not engaged in other reading interventions during the study's implementation. Emma's mother also provided informed consent for Emma to participate in the summer reading program using the clinic's standard consent to treat process. Finally, Emma and her mother met the interventionist.

2.5.1 Baseline Phase

The study began by collecting baseline data across three days. During the baseline phase, Greg administered to Emma one subtest from Letter-Sound Fluency, Decodable Words, and Nonsense Words of the FastBridge earlyReading evaluation system each day. Greg had an administrator form and Emma had a student form for each subtest. The protocol for the Letter-Sound Fluency subtest began with Greg telling Emma she would be providing sounds for letters on a page. Following a practice trial of three letters, Greg announced the start of the assessment. He timed Emma for one minute, putting slashes through letters on his administrator form for incorrect responses or when Emma didn't respond within three seconds. For both the Decodable Words and Nonsense Words subtests, Greg indicated to Emma that she would be reading words on a page. He announced the start of the assessment, timing Emma for one minute. Like with the Letter-Sound Fluency subtest, Greg put slashes through incorrectly read words or when Emma didn't respond within three seconds. Per the FastBridge protocol, Greg was instructed not to provide feedback to Emma on correct of incorrect sounds or words. Different letter and word lists were used each day during the baseline phase.

On the third day of the baseline phase, Greg administered Mastery Tests at Levels 3, 4, and 5 to determine Emma's placement in the *Sound Partners* program. Mastery Tests reflect lessons already taught. For example, Lessons 21 to 30 are assessed in Mastery Test 3. Lessons 31 to 40 are assessed in Mastery Test 4. Table 1 shows Emma's percent correct for each skill domain across the three Mastery Tests. Based on her results, Ella was placed at Lesson 41.

Table 1. Emma's Sound Partners Mastery Test Scores across all Study Phases

	Level 3 (Baseline)	Level 4 (Baseline)	Level 5 (Baseline)	Level 5 (Intervention)	Level 6 (Follow-up)	Level 7 (Follow-up)
Skill Domain						
Sounds	100% (Mastered)	100% (Mastered)	67% (Not Mastered)	96% (Mastered)	96% (Mastered)	88% (Review Needed)
Word Reading	100% (Mastered)	93% (Mastered)	80% (Not Mastered)	87% (Review Needed)	93% (Mastered)	93% (Mastered)
Spelling	100% (Mastered)	92% (Mastered)	53% (Not Mastered)	92% (Mastered)	66% (Redo Lessons)	58% (Redo Lessons)
Sight Words	100% (Mastered)	91% (Mastered)	75% (Not Mastered)	100% (Mastered)	83% (Review Needed)	100% (Mastered)

2.5.2 Intervention Phase

The *Sound Partners* intervention was implemented for approximately 25 minutes each day during the intervention phase. The intervention lessons followed the procedures highlighted in the *Sound Partners* manual. Lessons focused on teaching phonics skills and then applying those skills to reading words, sentences, and short, instructionally appropriate books. Components included saying the sound of letters or letter pairs, writing the letter or letter pair that makes the sound with and without the interventionist providing a cue word (e.g., "pig" for the /p/ sound), reading words with and without the interventionist providing cues (e.g., "what sounds does hush start with?"), spelling words, and reading sentences. Table 2 highlights other components of the *Sound Partners* lessons.

Sound Partners lessons integrate content and activities so that students learn to make connections between skills. For example, alphabetic principles involving letter-sound correspondence are initially introduced to students and then used to teach segmenting, decoding, and spelling. In addition, words used for decoding are also used for spelling. Finally, all lessons feature interventionist modeling, multiple opportunities to respond and practice skills, immediate corrective feedback and error correction, and reinforcement of correct responding.

Following each day's lesson, Greg administered to Emma one subtest from Letter-Sound Fluency, Decodable Words, and Nonsense Words of the FastBridge earlyReading evaluation system. Procedures for this mirrored those used during the baseline phase. In addition, Greg administered to Emma Mastery Test 5 following the 10th lesson (i.e., session #13). Emma then proceeded to the Level 6 lessons and completed five lessons at that level.

Table 2. Sound Partners Lesson Components

Feature	Purpose
Alphabetics	Presents relationships between letters and sounds to help build fluency when combining sounds into words.
Segmenting	Develops awareness that individual sounds are combined to make words.
Decoding	Teaches strategies to combined sound to read unfamiliar words. Lesson components allow for repeated opportunities for word reading in context-free, sentence, and story reading.
Spelling	Offers additional practice in reading and sounding out words. Provides connection between decoding and encoding (i.e., writing the sounds of letters and letter pairs to make words).
Sight Words	Promotes learning to read words that cannot be sounded out using decoding skills.
Sentence Reading	Emphasizes that reading has meaning.
Storybook Reading	Emphasizes that reading has meaning and helps begin building reading fluency (i.e., word reading accuracy with appropriate pace).

2.5.3 Follow-up Phase

The follow-up phase mirrored the baseline base. Greg administered to Emma one subtest from Letter-Sound Fluency, Decodable Words, and Nonsense Words of the FastBridge earlyReading evaluation system on each of the phase's three days. She was also administered Mastery Test 6, despite only completing five lessons at that level, and Mastery Test 7, despite completing no lessons at that level.

2.5.4 Behavior Management Strategies

Although behavior management strategies are not part of the Sound Partners program, several behavioral approaches were employed to maximize Emma's engagement and minimize problems with distraction, off-task behavior, and minor noncompliance. First, Greg reviewed with Emma behavioral expectations (e.g., remain seated when working) before each session. Second, Greg used verbal and nonverbal redirection to encourage engagement. Finally, the researchers implemented a simple reward system starting on session eight. This reward system involved Emma earning tokens for engaging in target behaviors (e.g., sitting appropriately in chair, complying with reading tasks, following instructions). The tokens were then exchanged for small prizes and snacks following each session.

2.6 Experimental Design and Data Analysis

An ABA design was used to assess the effects of the Sound Partners program on Emma's letter-sound fluency, decodable word fluency, and nonsense word fluency. Baseline data were collected across three consecutive sessions. The Sound Partners program was implemented over 15 consecutive days. Finally, a follow-up phase (or return to baseline) was conducted over three consecutive days.

We selected an ABA design because of its appropriateness for evaluating the effects of interventions on relevant outcomes variables. The ABA design is part of the family of single case experimental (SCE) designs commonly used in applied settings where additional research on evidence-based practices is needed (Horner et al., 2005). SCE designs rely on an idiographic (vs. nomothetic) framework to evaluate the effects of treatments on individuals in specific contexts and assess active treatment components. When conducting experimental research in natural settings, SCE designs allow researchers to individualize the treatments (e.g., modify elements for different subjects and introduce treatments along different timeframes), reliably measure the independent (i.e., procedural fidelity) and dependent (i.e., interscorer agreement) variables, select meaningful methods for measuring outcomes, and use ecologically valid implementation procedures. Group designs, such as randomized controlled trials, do not allow for this level of individualization nor are they often feasible in applied settings (Horner et al., 2005).

One often cited limitation of SCE design is how results might generalize to other individuals and settings (Axelrod, 2017). Limited generalizability is addressed several ways. First, SCE designs require operational definitions of subject characteristics, settings, outcome variables, treatment phases, and tactics to assess procedural fidelity and interscorer agreement. These details allow for systematic replication across multiple studies and researchers (Horner et al., 2005). Second, providing specific study features assists practitioners in determining whether the cases presented in the study apply to cases in their practice (Rolfe, 1998). Finally, SCE

designs are well suited for meta-analytic research. Several meta-analytic approaches have been used to understand the generalizability of results from SCE design research by combining data across studies and identifying trends in how individuals respond to treatments (Horner et at., 2005).

Effectiveness of the Sound Partners program at improving Emma's letter-sound fluency, decodable word fluency, and nonsense word fluency was determined through visual inspection of the graphical representation of the data, descriptive analyses of mean percentages and ranges of the dependent variables, calculation of rate of improvement (i.e., Emma's scores from the last session subtracted from her scores from the first session then divided by the total number of sessions), and computation of Improved Rate Difference (IRD). IRD is a nonparametric measure of overlap that determines the improvement rates between phases (e.g., baseline and intervention; Parker et al., 2009; Vannest et al., 2013). Parker et al. (2009) provided the following guidance for interpreting IRD: values less than .5 have small effects, values between .5 and .7 have moderate effects, and values greater than .7 have large effects.

2.7 Procedural Fidelity and Interscorer Agreement

To assess Greg's procedural fidelity when implementing the *Sound Partners* program and assessing Emma's letter-sound, decodable word, and nonsense word fluency and performance on the *Sound Partners* Mastery Tests, all sessions across all phases of the study were video recorded. A graduate student familiar with *Sound Partners* and the FastBridge earlyReading evaluation system viewed each video recording and determined the number of steps completed correctly and incorrectly by following *Sound Partners* procedural checklists and checklist protocols developed by the researchers. Procedural fidelity was calculated by dividing the number of steps followed correctly by the total number of steps and multiplying by 100%.

Interscorer agreement was calculated for 100% of sessions across all phases of the study. To assess interscorer agreement for the FastBridge earlyReading evaluation system, the graduate student viewed each video recording and calculated correct letter-sounds, decodable words, and nonsense words per minute for each session and then calculated the percentage of agreement between their data and Greg's data by dividing the number of agreements by the sum of the number of agreements and disagreements. The fraction was then multiplied by 100%. The same process was used to assess interscorer agreement for the *Sound Partners* Mastery Tests. The graduate student computed the percentage of agreement between their data and Greg's data by dividing the number of agreements by the sum of the number of agreements and disagreements. The fraction was then multiplied by 100%. This was done for each Mastery Test skill (i.e., Sounds, Word Reading, Spelling, and Sight Word Reading).

3. Results

3.1 Procedural Fidelity and Interscorer Agreement

Greg's procedural fidelity across all study phases was 99.5%. Interscorer agreement of all outcomes measures was 100%. Table 3 summarizes the percentage of steps completed for each study component and interscorer agreement across the study. According to Axelrod (2017), procedural fidelity and interscorer agreement data above 90% are considered high.

Taken together, Greg delivered all study procedures with exceptionally high fidelity and his administration of all outcome measures was reliable. The data indicate Greg administered the procedures as designed and collected highly accurate outcome data.

Table 3. Procedural Fidelity and Interscorer Agreement across all Study Phases

Study Phase	Procedural Fidelity	Interscorer Agreement FastBridge earlyReading	Interscorer Agreement Mastery Tests
Baseline	100%	100%	100%
Intervention	99%	100%	100%
Follow-up	100%	100%	100%

3.2 Letter-Sound, Decodable Word, and Nonsense Word Fluency

Figure 1 provides a visual depiction of the Emma's letter-sound, decodable word, and nonsense word fluency across baseline, intervention, and follow-up phases. Table 4 provides IRD values and magnitudes between phases for letter-sound, decodable word, and nonsense word fluency.
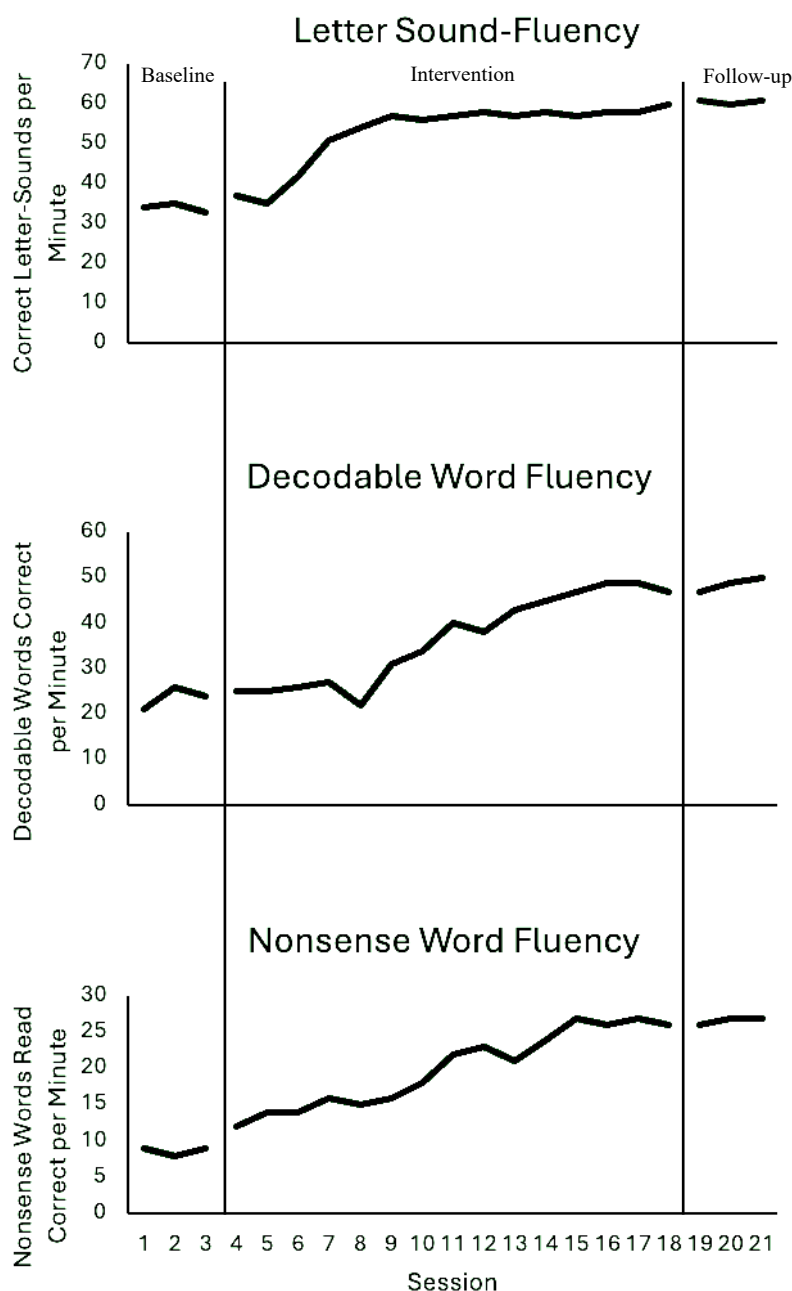
Figure 1. Emma's Letter-Sound, Decodable Words, and Nonsense Words Fluency across all Phases of the Study

Emma's reading skills markedly improved following the Sound Partners intervention across letter-sound fluency, decodable word fluency, and nonsense word fluency. Her correct letter-sounds per minute increased from a baseline average of 34 to 53 during the intervention and 66.67 during follow-up, with an overall improvement rate of 1.29 per day and large effect indicators (IRD: 0.93–1.00), demonstrating significant gains. For decodable word fluency, her scores rose from 23.67 during baseline to 36.53 during intervention and then 48.67 words per minute during follow-up, with a rate of improvement of 1.38 per day and large effect post-intervention (IRD: 1.00). Nonsense word fluency followed a similar upward trajectory,

rising from 8.67 during baseline to 20.07 during intervention and 26.67 words per minute during follow-up, and a daily improvement rate of 0.86, also reflecting a large effect (IRD: 1.00). Overall, the data consistently shows the Sound Partners intervention had a substantial and positive impact on Emma's foundational reading fluency skills.

Table 4. Improve Rate Difference (IRD) Comparisons across all Study Phases and Outcome Variables

	Baseline-Intervention (Magnitude)	IRD	Baseline-Treatment (Magnitude)	IRD
Outcome Variable				
Letter-Sound Fluency	0.93 (Large)		1.00 (Large)	
Decodable Word Fluency	0.60 (Moderate)		1.00 (Large)	
Nonsense Word Fluency	1.00 (Large)		1.00 (Large)	

Emma was administered Mastery Test 5 following the 10th lesson (i.e., session #13 during the intervention phase). Results indicated that she had mastered Sounds, Spelling, and Sight Word Reading, but needed to review two words (i.e., "hunter," "swims") from Word Reading. She was administered Mastery Test 6 and 7 during the follow-up phase. For Level 6, results indicated she had mastered Sounds and Word Reading, needed to review two sight words (i.e., "heads," "says"), and needed to redo several spelling lessons. For Level 7, results indicated that Emma mastered Word Reading and Sight Words, needed to review sounds three sounds (i.e., "ai," "ea," "ew"), and needed to redo several spelling lessons. Table 1 provides Emma's Mastery Test Level 5 (baseline and intervention phases), 6 (follow-up phase), and 7 (follow-up phase) scores across all skill domains. Findings from the Mastery Tests indicate Emma successfully completed Level 5 lessons and demonstrated partial acquisition of skills assessed in the Level 6 and 7 Mastery Tests.

4. Discussion

4.1 Main Findings

There were three primary objectives of this study. First, the study investigated the effects of *Sound Partners* on the early reading skills of a student with SLD in reading when implemented during a summer reading program. Second, the study examined the effects of *Sound Partners* when implemented by a high school student tutor. Regarding the first objective, results indicated that *Sounds Partners* significantly improved the student's letter-sound, decodable word, and nonsense word fluency. Moreover, the student mastered phonics skills (e.g., sounding out letters or letter pairs) and reading phonetically regular and irregular words that were included in the *Sound Partner* lessons. Regarding the second objective, results revealed that a high school tutor, properly trained and supervised, could implement *Sound Partners* with near perfect fidelity and assess the student's reading skills with perfect interscorer reliability. The third objective was to provide educators with specific guidance on procedures that have been shown to be effective in an applied setting. Taken altogether, the current study suggests that a high school tutor can provide structured reading intervention to a student with SLD in reading leading to marked improvements across all targeted domains.

In many ways, these findings are not surprising. *Sounds Partners* was designed to provide students in early elementary grades with supplemental instruction in phonics and word reading skills (Vadasy, 2024). Targeting these skills using explicit and systematic instruction proves to be effective for beginning readers (see Castles et al., 2018) and *Sounds Partners*, specifically, has been shown to improve reading performance for students at-risk for reading failure (U.S. Department of Education, 2010). *Sound Partners* was also designed to be implemented by tutors in one-on-one settings (Vadasy, 2024). Research indicates the intervention is effective when delivered by school-based paraprofessionals, community volunteers, and college students (Elbaum et al., 2000). Finally, *Sound Partners* was deemed a good match given Emma's reading challenges related to phonics and decoding. Clinically, the researchers expected positive results because of this match. Early literacy and reading interventions should be selected, in part, on how they specifically address a student's skill deficit area (Albritton & Johnson, 2024). Moreover, students with SLD in reading thrive when instructional frameworks emphasize explicit and systematic instruction, high rates of active student engagement and teacher feedback, and ongoing progress monitoring (Coolong-Chaffin et al., 2024), all of which are components of *Sound Partners* and were incorporated in this study.

The study's results are important for several reasons. First, the findings extend the research on *Sound Partner* by demonstrating improvements in early word reading skills for a student with a SLD in reading. Emma's primary deficit areas were phonics and decoding words, and previous assessment indicated she was significantly behind her peers in these areas. The *Sound Partners* intervention specifically targeted skills commonly cited as problems for students with SLD in reading (see Fletcher et al., 2019). While *Sound Partners* has been found to be helpful for low performing students or students at-risk for serious reading problems (e.g., English Learners; e.g., Kuhn & Albers, 2022), there is much less support for its effectiveness with students with SLD in reading. However, the effectiveness of *Sound Partners* with a student with SLD in reading was not surprising. As mentioned earlier, the selected intervention (i.e., *Sound Partners*) should complement the student's skills deficit area regardless of whether a formal diagnosis exists.

Also of note, the intervention achieved noteworthy outcomes despite being implemented across only 15 lessons. Group design studies investigating *Sound Partners* have required many more lessons. For example, Marchand-Martella et al. (2002) needed between 34 and 90 lessons across at least four months to obtain significant improvements on standardized achievement tests. Other SCE design studies employing *Sound Partners* to improve letter-sound and nonsense word fluency required more lessons to produce similar outcomes. For example, Kuhn and Albers (2022) needed, on average, 50 intervention sessions (range = 33 to 74) to obtain effect sizes between .50 and 1.00 for letter-sound and nonsense word fluency. In the current study, Emma achieved effect sizes between .93 and 1.00. The reasons for Emma's remarkable improvements in so few lessons are largely speculative. For example, Emma worked with Greg for 25 minutes per day for 15 consecutive weekdays. Perhaps the intervention's dosage was appropriate for Emma's need. In addition, the intervention was implemented during the summer, and she had no other academic commitments. Perhaps Emma was able to be more focused on reading without being academically fatigued.

Finally, the current study is unique in that a high school student served as the tutor. The findings related to this are important for several reasons. First, Greg delivered *Sound Partners* with exceptionally high procedural fidelity after a short training session followed by a fidelity check and with minimal supervision. Second, Greg demonstrated exceptionally high interscorer agreement indicating the outcome data are reliable measures of Emma's performance. Finally, Greg was able to achieve remarkable results as Emma's tutor despite no previous experience as a reading tutor. According to Vadasy (2024), *Sound Partners* was designed to be implemented by paraeducators who would be capable of delivering reading interventions if provided with user-friendly protocols and research has supported its use when delivered by paraeducators (e.g., Vadasy & Sanders, 2008), community volunteers (e.g., Marchand-Martella et al., 2002), and graduate students (Kuhn & Albers, 2022). However, studies suggest that effects are stronger when interventions are delivered by teachers and paraeducators than nonprofessionals (e.g., parents, community volunteers; Nickow et al., 2020). This finding makes the current study's results even more remarkable. Specifically, Greg executed the intervention's procedures with near perfect fidelity and collected reliable data suggesting that a high school student may be able to deliver *Sound Partners* as effectively as someone working in a school. Moreover, Emma made significant improvements across all outcome variables which only underscores Greg's effectiveness as a tutor.

4.2 Limitations and Directions for Future Research

Despite the encouraging results, the study was not without limitations. First, the sample size and unique study characteristics (e.g., setting, subject, tutor) limits the study's generalizability. Future research might expand upon this work by replicating the study's method with other students with SLD in reading and high school student tutors.

Second, *Sound Partners* was implemented for 15 lessons across 15 days. Consequently, Emma was only exposed to a fraction of *Sounds Partners'* full program and assessed on only 5 of 10 Mastery Tests. Although Emma made noteworthy progress despite limited exposure to the entire *Sound Partners program*, her true response to *Sound Partners,* as it was designed, is largely unknown. Moreover, any observed changes in Emma's reading skills might be an artifact of the study's short timeframe and limited number of administered assessments (e.g, FastBridge earlyReading subtests). For example, she might have responded quickly to the intervention thus eventually plateauing or showing decreased performance if additional data were collected. Future research should consider using *Sound Partners* in its entirety with students with SLD in reading and assessing skill acquisition over the program's entirety. Related, no long-term follow data were collected on Emma's letter-sound, decodable word, or nonsense word fluency. As a result, there is no way to determine whether the effects of *Sound Partners* held up over time especially as Emma started second grade in the fall. Future research must evaluate the intervention's effects across time.

Finally, the study's design (i.e., ABA) does not allow for causal inferences to be made about the relationship between the independent and dependent variables. A multiple baseline design across skills (i.e., letter-sound fluency, decodable word fluency, nonsense word fluency) would have allowed the researchers to establish a causal relationship. However, extending the

baseline phases would have resulted in fewer assessments of those skills. Future research that implements *Sounds Partners* over a longer period will be able to employ a multiple-baseline design across skills without sacrificing the frequency outcome data are collected.

4.3 Conclusions

The limitations notwithstanding, the current study offers some promising findings. The study's results indicate that *Sounds Partners* can be an effective intervention for improving the phonics and decoding skills of a student with SLD in reading. In addition, the study found that a high school student tutor could deliver *Sound Partners* with fidelity resulting in significant improvement for a student with SLD in reading. These findings offer several important implications. First, educators should consider *Sound Partners* a viable intervention for students with SLD in reaching and, more specifically, students with deficits in phonics and decoding skills. This is especially important given the need for schools to identify evidence-based interventions targeting early reading skills (Coolong-Chaffin et al., 2024).

Second, schools might consider utilizing high school student tutors to implement evidence-based interventions. Given that many public schools face significant resource challenges, taking advantage of existing human resources, such as high school students, to delivery supplemental and intervention programs makes sense (Vadasy, 2024). Schools might implement peer tutoring by recruiting academically strong or motivated high school students to serve as tutors for younger students. Tutors would then receive formal training and participate in ongoing supervision to develop instructional skills, understand evidence-based intervention practices, and foster positive relationships with their tutees. Sessions can be organized during or after school, with consistent scheduling (such as weekly sessions) being crucial for building trust and maximizing effectiveness. Training and supervision by teachers or other school staff (e.g., school psychologists) is essential for maintaining program quality, ensuring safety, and providing guidance to both tutors and tutees.

Finally, the current study's findings should be considered exploratory. For example, the results cannot be generalized to suggest cross-age peer tutoring using *Sound Partners* is effective beyond this study's specific context (e.g., setting, procedures, tutor-tutee dyad). However, researchers might build upon this study by continuing to collaborate with schools and clinics to study the effectiveness of cross-age tutoring interventions targeting early reading skills. Moreover, understanding how reading interventions, like *Sound Partners*, impact students with SLD under real world conditions will contribute greatly to the science of reading literature.

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Authors contributions

Dr. Axelrod and Mr. Axelrod were responsible for study design, study implementation, and data collection and analysis. Drs. Axelrod and Fontanini-Axelrod drafted and revised the manuscript. All authors read and approved the final manuscript.

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