An Evaluation of a Direct Instruction Reading Intervention to Improve Outcomes for High School Students in an Alternative Setting

Dissertation

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Alana Oif Telesman, MA, BCBA, COBA

Graduate Program in Educational Studies

The Ohio State University

2020

Dissertation Committee

Moira Konrad, Advisor

Sheila Alber-Morgan

Matthew E. Brock

Theresa Hessler

Abstract

This dissertation is comprised of five distinct chapters. The first chapter is an introduction to Direct Instruction reading interventions as well as an explanation of the challenges experienced by struggling readers identified with emotional disturbances. The next three chapters serve as standalone papers. Chapter 2 is a systematic literature review aimed at determining the evidence base classification for Direct Instruction reading programs. Chapter 3 is a completed manuscript containing the study conducted for this dissertation. Chapter 4 is a practitioner paper that provides teachers with strategies to implement reading instruction in classrooms with students identified with emotional disturbances or challenging behaviors. Finally, Chapter 5 addresses future career and research aspirations.

Dedication

I would like to dedicate this dissertation to several people. First, to my loving husband who has encouraged me, supported me, and most importantly, cooked for me throughout this entire graduate program. Thank you for your unwavering love and support during this challenging journey. I love you. To my parents, for their constant support throughout my lifetime and instilling the values of generosity, helping others, and positivity in me. It is because of you that I feel so passionate about helping underserved populations and those in need. To my siblings, thank you for always listening to my endless talk about studies, papers, and classes. I am lucky to have you in my life! Thank you to my grandparents, Grandma Rina, Grandpa Sam (of blessed memory), Grandma Toby, and Grandpa Dave who cheered me on throughout this process and never doubted that I would accomplish my goals. You have supported me my entire life and I am beyond grateful to you. To Jack and Carol, thank you for all of your love and support throughout the years. I am lucky to call you family. Lastly, to my students who make me love my job and inspire me to return each and every day. Thank you for allowing me to be part of your journey.

Acknowledgments

I owe a tremendous amount of gratitude and appreciation to the staff at the high school where I conducted this study. Thank you for opening your doors to me and allowing me to support your students. I cannot thank you enough for your flexibility and openness, despite limited space and often hectic days.

Thank you to Dr. Gwendolyn Cartledge and Morris Council for always serving as mentors to me. It is because of both of you that I first considered pursuing a doctorate in Special Education. Thank you for your endless support and motivation. Furthermore, thank you for inspiring me with your own work to help struggling learners, particularly those in underserved areas.

I would also like to acknowledge Dr. Moira Konrad who provided me with amazing life advice and unwavering support throughout this entire program. Thank you for your time, your encouragement, and for being a real-life role model for me.

Thank you to my committee for creating an environment that continued to push me and expand my knowledge of the field.

Finally, thank you to Maria Helton, who answered my endless questions at any hour of the day and provided encouragement even when I felt most defeated. You have been a role-model for me since I first met you and I look forward to partnering with you in the future as we pursue our paths in education.

Vita

2008……Beachwood High School

2012……B.A. The Ohio State University

2017……M.A. The Ohio State University

2015 to present……Graduate Trainee, Department of Special Education, The Ohio State University

Publications

Council, M., Cartledge, G., Gardner, R. & Telesman, A. O. (in press). Improving reading within an urban elementary school: Computerized intervention and paraprofessional factors. *Preventing School Failure*.

Telesman, A. O., Konrad, M., Cartledge, G., Gardner, R., & Council, M. (in press). Preventing reading failure for first-grade students in an urban school. *Journal of Special Education*.

Konrad, M., Criss, C., Telesman, A.O. (in press). Fads or facts? Sifting through the evidence to find what really works. *Intervention in School and Clinic*.

Barber, M., Cartledge, G., Council, M., Konrad, M., Gardner, R., & Telesman, A. O. (2018). The effects of computer-assisted culturally relevant repeated readings on English learns' fluency and comprehension. *Learning Disabilities: A Contemporary Journal, 16*(2)*,* 205-228.

Cartledge, G., Kea, C., Watson, M., & Oif, A**.** (2016). Special education disporportionality: A review of response to intervention and culturally relevant pedagogy. *Multiple Voices for Ethnically Diverse Exceptional Learners*, *16*, 29–49.

Yurick, A. L., Telesman, A. O., & Cartledge, G. (in press) Literacy instruction for Children and Youth with Emotional/Behavioral Disorders: Culturally and Linguistically Diverse Learners. *Information Technology.*

Alber-Morgan, S. R., Helton, M. R., Oif, A., & Konrad, M. (2018). Adapt curriculum tasks and materials for specific learning goals. In L. Maheady & L. Rafferty (Eds.). *HLPs for Inclusive Classrooms*. New York: Routledge.

Alber-Morgan, S. R., Konrad, M., Hessler, T., Helton, M. R**.**, & Oif, A. (2018). Identify and prioritize short- and long-term learning goals. In L. Maheady & L. Rafferty (Eds.). *HLPs for Inclusive Classrooms*. New York: Routledge.

Fields of Study

Major Field: Educational Studies

Area of Emphasis: Special Education & Applied Behavior Analysis

Table of Contents

List of Tables

List of Figures

Chapter 1. Introduction

Reading is a critical skill that is connected to life outcomes such as academic achievement, post-secondary opportunities, and even incarceration (Sanford et al., 2011; Wilkerson et al., 2012). Unfortunately, many teachers do not possess sufficient linguistic knowledge to effectively remediate student reading challenges (McCutchen et al., 2009). This is due in part to teacher educators who lack explicit knowledge of the language structure required to successfully prepare preservice teachers to teach reading (Binks-Cantrell, Washburn, Joshi, & Hougen, 2012). Moreover, general training on ways to deliver reading interventions to older struggling readers is almost nonexistent. By third grade, many teachers assume students no longer need to be taught foundational reading skills. Instead, they follow the popular mantra that after third grade, students are no longer "learning to read" but "reading to learn." After third grade, research has documented a clear shift in instructional focus from phonics, to vocabulary and comprehension skills (Wanzek et al., 2013). Additionally, many secondary teachers do not receive instruction on teaching phonemic awareness and phonics skills—both building blocks for emergent readers. For students who struggle with basic decoding skills, lack of instruction becomes even more problematic as they fall further behind their peers in reading. Moreover, classroom content becomes more challenging as students are exposed to increasingly difficult polysyllabic content words (Kearns, 2015). Unfortunately, teachers have very little training on how to teach students to decode

polysyllabic words; lack of knowledge on this subject matter prevents teachers from remediating reading challenges for older struggling readers (McCutchen et al., 2009).

Reading challenges are compounded for students identified with emotional disturbances (ED) who engage in behavior that hinders their access to typical instruction. Students identified with ED may exhibit the following symptoms: (a) unexplained difficulty learning, (b) inability to build or maintain relationships, (c) inappropriate feelings or behaviors surrounding typical events, (d) anxiety and depression, and (e) aggression or noncompliance (Wagner & Davis, 2006). Poor academic performance and maladaptive behavior are highly correlated; because of challenging behaviors, students with ED are often removed from class which significantly impedes their academic achievement, especially in reading (Kaufmann, 2010). According to U.S. Department of Education (2016), over 50% of students identified with ED spend less than 80% of their time in a general education setting. Based on a study by Gage et al. (2017), teachers of students with behavioral challenges were statistically younger than other special education teachers, had fewer years of experience teaching, and were less likely to be fully certified. Moreover, these teachers lacked adequate classroom management strategies to address many of the behaviors they experienced in their classrooms. Because teachers are so consumed with managing behavior, there is a significant gap in the implementation of academic interventions for this particular population. Also, most empirical research targeting students with ED tends to focus primarily on interventions for social behavior, instead of teaching essential reading skills (Rivera, Al-Otaiba, & Koorland, 2006).

Reading challenges are intensified for middle or high school students with ED who fail to receive reading instruction due to the expectation students should already be reading

proficiently (Joseph & Schisler, 2009). The absence of reading instruction in these grades increases achievement gaps between struggling students and their peers (Biancarosa & Snow, 2004). Moreover, behavior challenges often intensify as students get older and experience repeated failure. Rather than attempting challenging classwork, students identified with ED will often engage in behaviors to avoid unpleasant demands. Middle school students' academic and behavioral outcomes are often predictive of their academic achievement and disciplinary records in high school (Afacan & Wilkerson, 2019). Spikes in behavior problems for students in middle school are strongly correlated with increases in the frequency of behavioral incidents in high school (Gagnon, Gurel, & Barber, 2017). Researchers have also found a strong inverse relationship between students' office disciplinary referrals and their grade point average (GPA)—as students' disciplinary referrals increase, their GPAs decline. These factors affect decisions regarding students' most appropriate educational placement. Far too often, students with emotional and behavioral challenges are removed from general education classrooms and placed in more restrictive environments such as behavior-focused alternative settings. Recently, there has been an explosion of alternative options for students who are most at risk for failing in the regular education system (Perzigian et al., 2017). Schools aim to address students' needs in a therapeutic and personalized setting. However, research into the efficacy of these alternative placements has revealed disparate student reading outcomes compared to similarly matched students in public schools (Beken, Williams, Combs, & Slate, 2009). Poor student outcomes suggest two possible issues: First, teachers need access to high quality curricula that can feasibly be implemented in various school settings. Second, teachers need ways to effectively manage student behavior.

Several recent reviews have tried to determine the most effective reading interventions to improve outcomes for students with ED (e.g., Griffith, Trout, Hagaman, &

Harper, 2008; Rivera et al., 2006). Across these reviews, Direct Instruction (DI) reading programs have consistently yielded promising findings. DI programs are scripted interventions that are designed and developed systematically, with frequent progress monitoring. Students begin by participating in placement tests to determine their present level of performance and knowledge. Then they are taught challenging concepts which are carefully broken down into component parts (Adams & Engelmann, 1996). Programs are field tested in the schools wherein teachers provide feedback on any potential problems or suggestions for improvements (Engelmann, 2014). Examples and materials are carefully designed to promote student success and acquisition of material. Students must master material before they can progress to new, more challenging concepts. Designing the curriculum in this manner promotes success and keeps students learning at an efficient pace. Students experience frequent opportunities to respond and actively engage in their own learning. This makes the learning experience more rewarding for teachers and their students as gains become more apparent.

DI reading programs can be feasibly delivered to students who experience repeated reading failure, especially for students with ED. These carefully tested programs provide teachers with ways to implement effective and efficient interventions with little prior training. For students who struggle with problem behavior, a fast-paced instructional program can increase engagement and on-task performance. DI lessons also maintain a specific sequence that can be easily followed by students. This sequence enables students to anticipate what to expect for each activity. Students identified with ED may be less likely to engage in problem behavior when they have a clear understanding of academic expectations. Breaking down challenging concepts into smaller elements, enables students to have more opportunities to successfully respond to new material. Each DI lesson contains 90% reviewed

material which sets up students for success and improves reading confidence (National Institute for Direct Instruction, 2015). Reading confidence is critical as students with reading difficulties often show declining motivation to read (Torgesen et al., 2007). By increasing motivation, students practice important reading skills and receive greater exposure to unknown or challenging words.

Evidence supporting DI's effectiveness has been documented in the research (Marchand-Martella, Kinder & Kubina, 2005; Stockard et al., 2018). Despite positive findings, adoption of DI programs in schools remains scarce. In order to be implemented more broadly, it is critical to determine the current evidence-based classification for DI programs, particularly when implemented with the ED population.

DI programs may help to change the overall trajectory for learners who struggle both academically and behaviorally. Several large questions remain surrounding DI implementation such as what factors are preventing DI adoption, to what extent can DI programs change the learning outcomes for struggling student populations, and can students maintain potential growth over time? This dissertation will begin to address some of these questions. First, Chapter 2 provides a systematic review of the literature on DI reading programs delivered specifically to students at risk or identified with ED. This review will attempt to determine the evidence-base classification for DI reading programs. Next, Chapter 3 presents the findings of a study using REWARDS, a specific DI reading program, to address reading outcomes for high school students with academic and behavioral challenges. For this study, I will examine the impact of the program on students' polysyllabic decoding and oral reading fluency. Additionally, I will determine whether potential gains can generalize to reading passages typically found in high school

curriculum. Chapter 4 will present a practitioner's guide that highlights strategies teachers can implement in their classrooms to improve literacy and behavioral outcomes for their students with challenging behaviors. Finally, Chapter 5 provides a comprehensive discussion of the ways my future research will continue to address important questions for students with ED and their practitioners.

Chapter 2. Literature Review

The following chapter includes a review of literature focusing on Direct Instruction reading programs for students with emotional disturbances.

Abstract

Reading is an essential skill for overall success, yet many students identified with emotional disturbances (ED) struggle to keep up with their peers. Despite common knowledge of this gap, there are few evidence-based practices implemented to improve reading outcomes for this population. Direct Instruction (DI) reading programs have strong evidence supporting their effectiveness for various student populations, yet no reviews have systematically evaluated their effectiveness with the ED population. This paper presents a systematic and comprehensive review of DI reading programs as an intervention aimed at improving reading outcomes for students at risk for or identified with ED. Included studies were evaluated based on standards outlined by the Council for Exceptional Children (CEC, 2014) to determine whether interventions met evidence-based standards.

Keywords: Direct Instruction, literacy, emotional disturbance, evidence-based practice

A Systematic Review of Direct Instruction Reading Programs for Students with Emotional Disturbances

Students identified with emotional disturbances (ED) face a number of challenges compared to their peers that put them at risk for poor life outcomes. They often display (a) an inability to learn that cannot be explained by intellectual, health, or additional factors; (b) an inability to sustain satisfactory relationships; (c) inappropriate behavior or feelings; and (d) general unhappiness or depression (Individuals with Disabilities Education Act, 2018). These characteristics make it challenging for students to be successful in school. Studies have shown students with ED are frequently at least two grade levels behind their peers with gaps widening by secondary school (Adamson & Lewis, 2017). Academic difficulties negatively affect important life outcomes such as graduation rates, employment, and the likelihood of incarceration (Kauffman, 2005). Compounding these challenges is the fact that an ED identification is an extremely subjective disability category in which students are often not identified until they have been experiencing academic failure or severe challenging behavior for extended periods of time. Unlike certain disability categories with early diagnoses, students with ED often experience consistent challenges before receiving any specialized services. The majority of students are identified with ED as adolescents, having passed under the radar for years (Kaufmann & Landrum, 2012). Lack of early intervention often means students miss a critical period of evidence-based instruction that can attempt to remediate academic deficits before they become detrimental. After years of being exposed to failure without adequate support, many students identified with ED display behaviors that make it more difficult to intervene. When presented with academic demands, students can display

extremely challenging behavior in order to escape or avoid undesirable tasks—this problematic behavior further impedes their ability to glean any benefit from academic instruction (Nelson, Benner, Lane & Smith, 2004; Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). Instead of receiving much needed intensive intervention, students with challenging behaviors are frequently removed from academic instruction and separated from peers. In fact, fewer than half of all students identified with ED spend their day in a general education classroom (IDEA, 2018). These factors become even more concerning when looking at more serious school removals. In 2015–2016, students with ED received a disproportionate number of out-of-school suspensions or expulsions compared to peers with other disabilities, even though they only represented five percent of the special education population (IDEA, 2018). Missing extensive amounts of instruction has detrimental effects on students' academic achievement.

Academic achievement is often strongly connected to students' literacy skills, yet students at risk or identified with ED most commonly struggle in the area of reading performance (Kauffman, 2010). For students who start out with reading challenges, these deficits continue to grow as students advance from grade to grade (Yakimowski, Faggella-Luby, Kim, & Wei, 2016).

Although students at risk or identified with ED require effective academic instruction, teachers feel most unprepared to teach this population of students and often require extra support to effectively manage students' behavioral challenges (Prather-Jones, 2011). Lack of adequate teacher training further contributes to poor student academic achievement. Most research targeting reading interventions for struggling learners focuses on the LD population (Vaughn, Levy, Coleman, & Bos, 2002). However,

even though these interventions may be successful for struggling readers with LD, positive results do not always generalize to struggling readers with ED. Challenging behaviors exhibited by students with ED may negatively affect results for typically successful reading interventions (Nelson, Benner, & Gonzalez, 2003). Yakimowski and colleagues (2016) investigated growth patterns in reaching achievement among middle school students with different high incidence disability classifications. Results revealed students identified with LD displayed more growth in reading than those identified with ED. Moreover, the authors found research focusing on reading achievement for disabilities categories other than LD to be lacking. These findings suggest a need for investigating appropriate reading interventions for students with ED.

Reading Research for Students with ED

Although research on academic interventions for students with ED continues to be sparse, three reviews targeting reading interventions for students identified with ED were located (i.e., Garwood, Brunsting, & Fox, 2014; Griffith, Trout, Hagaman, & Harper, 2008; Rivera, Al-Otaiba, & Koorland, 2006). In Griffith et al.'s review, researchers attempted to provide practitioners with scientifically based interventions to improve literacy outcomes for students with ED. However, after reviewing 17 articles, the authors concluded interventions varied too greatly from one another to make a conclusion about any single intervention's particular effectiveness. The authors called for conducting more research on individual interventions to determine overall effectiveness. They also suggested future researchers analyze interventions to determine whether they could be considered evidence-based practices in the classroom.

Similar to the previous review, Rivera et al. (2006) evaluated reading interventions for students with EBD in primary grades. The authors located 11 studies that investigated various reading interventions to use with this population of students. Despite strong findings pointing to Direct Instruction (DI) and peer tutoring, the authors could not conclude whether these interventions were scientifically validated due to a limited number of published articles.

Finally, Garwood et al. (2014) expanded upon the previous reviews by specifically focusing on literacy interventions for adolescents with ED. After reviewing nine studies, the authors found evidence supporting interventions that incorporated repetition and DI. Yet again, they could not confirm whether any of the potentially effective interventions described could be considered evidence-based practices for students with ED. Trends from these reviews have highlighted similar findings: (a) DI has presented some merit for effectiveness with students with ED, and (b) more research is still required to determine whether DI can be considered an evidence-based practice for students with ED.

Direct Instruction (DI) Reading Curricula

Direct Instruction (DI) refers to a specific set of curricula that incorporate elements of "direct instruction" which contribute to student achievement. Direct instruction as a method, incorporates critical variables for student growth (e.g., engaged academic time, small group instruction, specific and immediate feedback). These principles, which Rosenshine (1983) highlighted as effective, are integrated into Direct Instruction curricula. DI curricula provide clear and explicit instruction to ensure student growth through carefully sequenced lessons. Lessons are scripted, so teachers can easily

implement intervention with fidelity while focusing attention towards students' responses. DI programs are designed to break down challenging concepts into prerequisite components. Sequencing material in a logical and methodological way allows students to build upon foundational skills in order to acquire more challenging concepts (Adams, 1990). Furthermore, many DI programs emphasize teaching students to mastery so skills do not need to be frequently retaught. Instruction involves the teacher modeling material, guiding students through new concepts, and allowing students to practice new skills independently (Carnine, Silbert, Kame'enui, & Tarver, 2004). Additionally, all lessons are taught with an emphasis on active student responding and immediate error correction which encourages student participation. Combining explicit instruction with opportunities to respond enables students to contact success more frequently. For students who lack motivation to learn after years of frustration and failure, structuring lessons in this purposeful way can make learning more reinforcing. DI programs may be particularly effective for students identified with ED because of the quick-paced lessons that provide little opportunity to engage in problem behavior; carefully structured lessons that make lessons predictable; and strategically broken-down concepts that make challenging material more attainable.

Purpose of this Review

To date, previous literature reviews have either investigated outcomes of DI reading interventions for wide-ranging student populations (Becker & Gersten, 1982; Marchand-Martella, Kinder, & Kubina, 2005) or looked broadly at the effects of several reading interventions on reading achievement for students identified with ED (Garwood, 2018; Stockard, Wood, Coughlin, & Khoury, 2018). With growing concern for the

success of students with ED in the classroom, it is imperative to determine whether DI reading programs can contribute to gains in reading for these learners. This review will contribute to the field of special education in two ways: First it will determine whether DI reading interventions can be considered "evidence-based practices" for students at risk or officially identified with ED. Second, it will highlight specific student reading outcomes when using DI reading programs. The following research questions guide this synthesis: First, what are the characteristics of participants who participated in DI intervention? Second, what are the features of the DI program in terms of dosage, duration, and overall implementation? Third, are DI reading programs evidence-based practices for students with ED? If so, what are the reading outcomes for which they are evidence based? Finally, can DI programs packaged with other interventions also be considered evidence based for students at risk or identified with ED?

Method

Literature Search

The researcher conducted a systematic search of the literature in order to identify published and unpublished studies investigating the effects of DI reading interventions for students at risk or identified with ED. This search involved a multi-gate process (see Figure 1). First an electronic search was conducted with the following databases: Academic Search Complete, Education Full Text, Education Research Complete, ERIC, Open Dissertations, Psychology and Behavioral Sciences Collection, and Psych INFO. No restrictions were placed on the time period of the search. Researchers used the following search string including all possible derivatives to search: Reading OR "word attack" OR "decod*" OR "reading interven*" OR fluency OR comprehension OR

phonics AND “behavior disorder*” OR “emotion* disturb*” OR “challenging behavior” OR “behavior* disab*” OR “behavior problem*” OR “problem behavior*” OR “emotion* disab*” AND “explicit instruction” OR “Direct Instruction” OR “Reading Mastery” or “Corrective Reading” OR “REWARDS” OR Distar OR Funnix OR “teach your child to read in 100 easy lessons” OR “SRA early reading tutor.”

In order to cast a wide net and avoid potential publication bias, theses and dissertations were included as possible articles by including *OpenDissertations* in the search. Only one dissertation study met criteria to be included in the final review. Grants, reports, case studies, qualitative studies, technical reports, and paper presentations at conferences were excluded. Finally, studies were excluded if they were not written in English.

Initially, results from these databases included 101 articles without duplicates. After reading through titles and abstracts, thirty of these articles met the following initial inclusion criteria: the study must be experimental, the study must include reading outcomes, the study must include students with emotional disturbances.

Next, each article was read in depth and information pertaining to the research questions was parsed out and coded into an Excel file (e.g., sample size, disability category, independent variables, experimental design, duration, dependent variables, effects, and results). After extensive coding, the researcher included articles based on the PICO framework: (a) participants were at risk for or diagnosed with ED; (b) a DI reading curriculum was used as the independent variable; (c) the study incorporated an experimental design; and (d) dependent variables consisted of student reading outcomes.

For studies that incorporated students with ED in combination with other disability categories, results needed to be parsed out to specifically represent outcomes for students with ED as opposed to combining all disability categories into one outcome. The term ED was viewed broadly. Included were students who met at least one of the following definitions:

- Students formally labeled as ED based on their individualized education program (IEP) as defined by IDEA (IDEA, 2004).
- Students not formally labeled ED but described in the study as exhibiting problem behavior or emotional and behavioral difficulties and evaluated using a standardized behavior rating scale (e.g. Systematic Screening for Behavior Disorders, SSBS)
- Students placed in an alternative placement specifically due to behavior (e.g., self, contained classroom in a behavioral unit, alternative school placement, juvenile detention center, or correctional facility

DI programs were included if they were listed on the National Institute for Direct Instruction website (www.nifdi.org). The author chose to narrow the curriculum in this manner because several programs claim to be "direct instruction" but are missing important components. By limiting programs to the DI website, the author could ensure consistency. Multicomponent interventions that used a DI reading program in addition to another curriculum or teaching method (e.g., repeated reading) were also included. To be considered, articles needed to specifically target academic variables pertaining to reading such as phonological awareness, letter sounds, decoding, reading fluency, and

comprehension. Finally, included articles were limited to three types of designs: randomized control trials, quasi-experimental, and single subject designs. Qualitative studies or pre-experimental studies were excluded. Twenty-four studies were excluded after applying the previous criteria with six studies remaining.

The researcher then conducted forward and backward searches of these six studies to locate any additional articles. An additional two articles were added for a total of eight articles.

Finally, the researcher hand searched through relevant journals in the field: (a) *Journal of Behavioral Education,* (b*) Journal of Emotional and Behavioral Disorders,* (c) *Behavioral Disorders,* (d) *Behavioral Interventions,* (e) *Education and Treatment of Children,* and (f) *Journal of Positive Behavior Interventions*, and (g) *Journal of Direct Instruction*. This hand search yielded two additional articles for a total of 10 articles (see Figure 1 for a visual representation of search results).

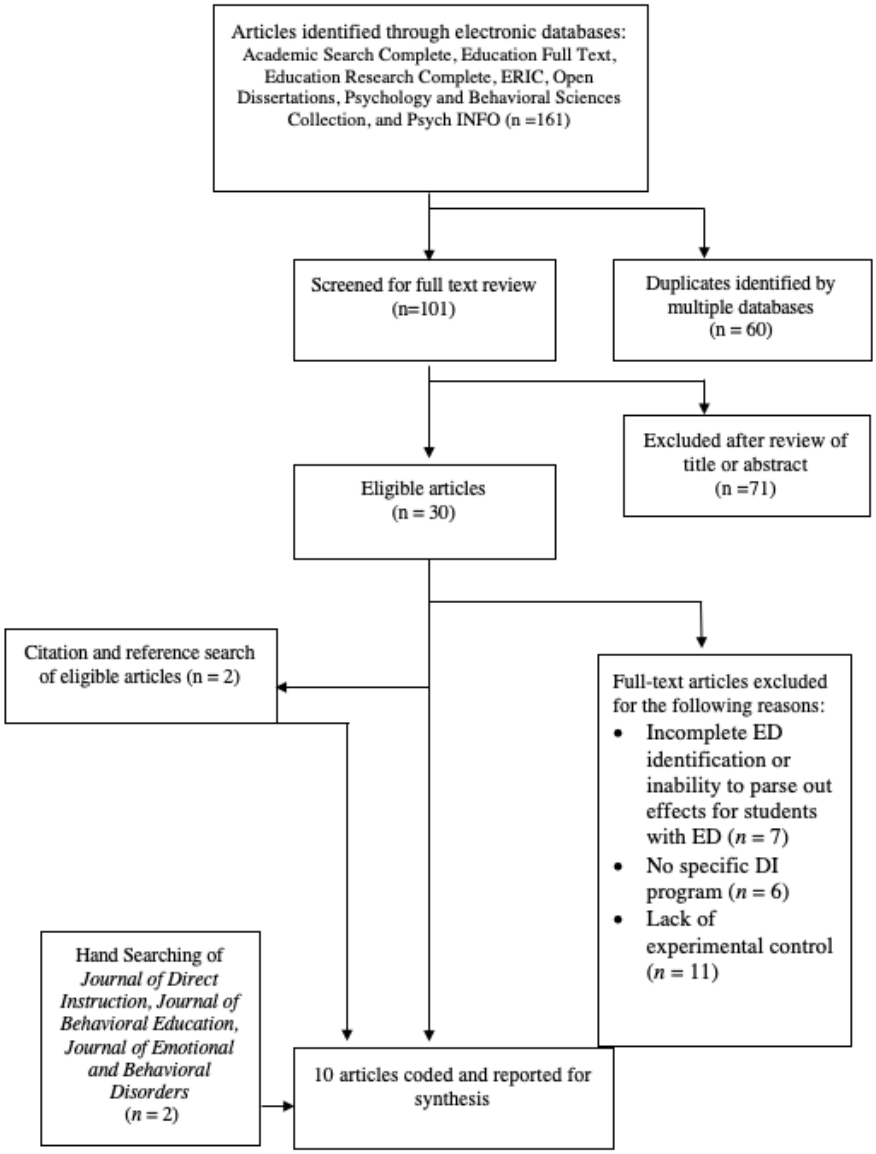


Figure 1. Screening and Search Results

Data Collection and Variables

Characteristics of participants. Participant information was coded based on the following categories: (a) disability label (i.e., emotional disturbance, at risk for emotional disturbance, comorbid when they had both ED and another disability, or other); (b) gender, (c) race or ethnicity (i.e., White, Black, Asian American, Hispanic, Native American, other, or not reported); (d) age; and (e) socioeconomic status.

Study setting. Study settings were coded according to (a) school level (i.e., elementary, middle, high school, post-secondary, or not reported); (b) lunch status (i.e., free, reduced, not reported); and (c) intervention setting (i.e., general education classroom, resource room, self-contained classroom, ED self-contained unit, juvenile detention center, correctional facility).

Intervention features. Interventions were coded as either DI only or a DI packaged. DI packaged meant the DI program was paired with another curriculum or teaching method (e.g., Corrective Reading combined with PALS). Elements of each intervention package were parsed out by (a) length of the lesson, (b) number of lessons or sessions delivered, and (c) duration of the study.

CEC indicators. Studies were evaluated according to the Council for Exceptional Children (CEC) Quality Indicator Standards (2014) in order to answer whether or not DI can be considered an evidence-based practice for this specific population. These standards included 22 indicators for single-case design studies and 24 indicators for experimental group designs. All standards were divided into eight larger categories, including context and setting, participants, intervention agent, description of practice,

implementation fidelity, internal validity, outcome measures, and data analysis. For these categories, each indicator was coded as either "yes" or "no."

Study design and effects. The researcher categorized studies based on research design. Studies were considered single-case designs according to designs outlined by Cooper, Heron, and Heward (2007). Only group designs characterized as randomized-control trials or quasi-experimental designs were included in this study. Quasi-experimental designs were considered empirical studies containing a control group and treatment group but lacking random assignment. Pre-experimental designs were not included as a way to enhance methodological rigor for included studies.

Group and single case designs were compared separately in this review. For single-case design studies, the researcher used visual analysis to calculate success estimates (Reichow & Volkmar, 2010). Success estimates summarize visual analysis of data as a ratio of the number of times an experimental effect was demonstrated out of possible opportunities the effect could have occurred. This is not an effect size and does not describe the magnitude of the effect for intervention. Rather, it shows the consistency of intervention. For group designs studies, Cohen's *d* or in cases with sample sizes smaller than 20, Hedge's *g* was calculated by taking the difference between the pre and posttreatment means and dividing by the pooled standard deviation across groups. Both effect sizes can be interpreted as follows: small effect = 0.15, medium effect = 0.45, large effect = 0.90 (Lipsey, 1990).

Reliability of Study Screening and Coding

A second researcher screened 36% of all article titles and abstracts for possible inclusion. Point-by-point agreement (i.e., number of agreements divided by number of

opportunities for agreement) was calculated. Overall agreement for general screening was 82% across researchers. Both researchers also double coded all variables and computed point-by-point agreement. Overall coding agreement was 95%. Within categories of coding, agreement was 100% for participant characteristics, 100% for study design, 100% for study setting, 92% for study effects, 94% for study implementation, and 93% for CEC indicators.

Results

Characteristics of Participants and Study Settings

Data related to the 135 students who participated in DI studies are presented in Table 1. Participants were mostly male (77%) and ranged in age from 5–18. Participants varied across grade levels with two studies (20%) containing participants in elementary school, one study (10%) including a combination of students in elementary and middle school, and three studies (30%) reporting students in middle school only. Across selected studies, high school represented the most common grade level (40%).

ED diagnosis was broken down differently according to each study, however based on inclusion criteria developed for this review, 71 (67.6%) of participants were characterized as at risk or identified with ED. Of these 71 students, 63 (88.7%) had an official diagnosis of either an emotional disturbance or behavior disorder (BD).

Table 1

Characteristics of Participants and Setting

	Gender		Level			Race						Placement			
Study	M	F	Elementary	Middle	High	White	African Amer.	Asian Amer.	Hispanic	Other	NR	Gen Ed	Resource	SC unit	Alt. School	DC
Allen-DeBoer, Malmgren, and Glass (2006)	4	0	0	0	4	1	3	0	0	0	0	X	X	X	X	✓
Barton-Arwood, Wehby, and Falk (2005)	4	2	6	0	0	0	0	0	0	0	0	X	X	✓	X	X
Benner (2007) *	43	25	57	11	0	29	17	0	5	2	15	✓	✓	X	X	X
Drakeford (2002)	6	0	0	0	6	0	6	0	0	0	0	X	X	X	X	✓
Lingo, Slaton, and Jolivette (2006)	6	1	0	7	0	0	6	0	1	0	0	X	✓	X	X	✓
Scarlato and Ashara (2004) *	9	0	0	0	9	0	0	0	0	0	9	X	X	X	X	✓
Scott and Shearer-Lingo (2002)	3	0	0	3	0	0	0	0	0	0	3	X	X	✓	X	X
Strong, Wehby, Falk, and Lane (2004)	6	0	6	0	0	0	0	0	0	0	6	X	X	✓	X	X
Trout, Epstein, and Michaelson (2003) *	15	3	18	0	0	15	0	0	3	0	0	✓	X	X	X	X
Yawn (2008)	8	0	0	0	8	5	3	0	0	0	0	X	X	X	X	✓

Note. * For group design studies, information listed represents all students participating in the study. SC= Self-contained; DC= Detention Center

Excluding formally identified students, eight students (11.3%) were considered to be at risk for ED because they were purposefully placed in settings for students with emotional or behavioral challenges (e.g., ED self-contained classroom, detention center, facility for juveniles). Of the studies that reported race and ethnicity, students with ED represented a range including Black (68.8%), White (21%), and Hispanic (1%).

Studies took place across a wide range of settings. Four studies (40%) took place in resource rooms housed within participants' public schools. Participants in two studies (20%) were placed in self-contained ED units separate from public school education. Finally, four studies (40%) took place in more restrictive environments including correctional facilities and detention centers. Across settings, participants received intervention in a variety of formats including individually (n = 2), peer-mediated (n = 1), small group (n = 3), whole class (n = 1) and unspecified (n = 2).

Study Features

Intervention. Data related to study features can be found in Table 2. *Corrective Reading* (Engelmann, Hanner, & Johnson, 2002) was the most widely implemented DI program across this review (n = 7). Other DI programs included *Reading Mastery I (n* = 1*)* (Engelmann & Bruner, 1988), *Teach Your Child to Read in 100 Easy Lessons (*Engelmann, Haddox, & Brunner, 1986*) (n* = 1), and *Horizon's Fast Track A-B* (Engelmann et al., 1997) *(n* =1). Out of ten studies, five studies (50%) added additional resources or curricula to their DI reading program to target reading skills such as fluency. The most commonly added intervention component was *Great Leaps Reading* (Mercer & Campbell, 1998) (see Table 2*)*.

Table 2

Study Break Down

Study	*N*	*N* at risk or identified ED	Intervention	Number of sessions/study duration	Reading Outcome Measures	Behavior DV	Findings
Allen-DeBoer, Malmgren, and Glass (2006)	4	4	Adapted *Corrective Reading* program	22–37 lessons completed over 9-week period	Oral Reading Fluency; Reading Accuracy, Reading Fluency and Reading Comprehension measured with Gray Oral Reading Tests, 3rd edition (GORT-S; Wiederhold & Bryant, 1992) (pre/post)	Anecdotal	Participants improved Oral Reading Fluency (ORF) by an average of 36 WCPM. Participants made gains of .06 to 2.3 grade levels on standardized fluency measures as well as from 0.3 to 4.1 on comprehension measures. Behavior: Teachers reported changes in students' desire to read during class and attend sessions.
Barton-Arwood, Wehby, and Falk (2005)	6	6	*Horizons Fast Track* and PALS	121 Horizon sessions and 101 PALS. Four times per week over 27-week period	Phonemic blending, Phonemic segmentation, Nonsense word fluency, Word reading, Oral Reading Fluency, Horizon word reading	Total Inappropriate Behavior	All six students improved phonemic blending, word attack skills, and Horizon word reading. Decoding gains showed limited transfer to ORF. Behavior: No clear functional relation between improved reading and behavior.
Benner (2007)	68	10	*Corrective Reading*	25–40 lessons delivered over a four-month period	Basic Reading Skills, Letter Word Identification, and Word Attack subtests measured with WJ-III; Oral Reading Fluency measured with DIBELS	Not Measured	Students identified with ED demonstrated statistically significant gains in their basic reading and word attack skills relative to students with LD. Effect size estimates based on the mean change score of ED and LD students were large in magnitude.

Continued on Next Page

Table 2 Continued

Study	*N*	*N* identified ED	Intervention	Number of sessions/study duration	Reading Outcomes Measures	Behavior DV	Findings
Drakeford (2002)	6	6	*Corrective Reading*	18–24 sessions over 8-week period	Oral Reading Fluency; Corrective Reading Placement Test (pre/post)	Attitude assessment; measured by the Rhody-Secondary Reading Attitude Assessment	All participants improved reading fluency. All participants made grade-level gains of half a year to a full year. Behavior: Participants demonstrated noticeable changes in attitude toward reading.
Lingo, Slaton, and Jolivette (2006)	7	2 (all had behavioral objectives on IEP)	*Corrective Reading*	6–20 lessons completed	Oral Reading Fluency; Reading achievement measured with WRMT-R	Direct observations collected during reading activities	All participants improved ORF from baseline to intervention. Participants also showed evidence of transfer of fluency gains to grade-level generalization passages. Behavior: No clear functional relation
Scarlato and Ashara (2004)	9	9	*Corrective Reading*	4 days per week over 19-week period	Word Identification, Word Attack, Word Comprehension and Passage Comprehension measured with WRMT-R	Not Measured	Sixty percent of the CR scores on WRMT-R subtests showed moderate to large gains after intervention and 73% showed moderate to large gains on cluster scores.
Scott and Shearer-Lingo (2002)	3	3	*Teach Your Child to Read in 100 Easy Lessons* (TYC) and *Great Leaps (GL)*	TYC implemented for approximately two weeks.	Oral Reading Fluency	Rate of on-task behavior	Two thirds of participants made fluency gains during the *TYC* phase of the study. All participants made fluency gains once *GL* was added to instruction. Behavior: All participants showed a slight increase during *TYC* and marked increase with *GL*.

Continued on Next Page

Table 2 Continued

Study Break Down

Study	*N*	*N* at risk or identified ED	Intervention	Number of sessions/study duration	Reading Outcomes Measures	Behavior DV	Findings
Strong, Wehby, Falk, and Lane (2004)	6	4 (all were at self-contained school for behavior	*Corrective Reading* and *Great Leaps*	*Corrective Reading* 4 days a week for 7 weeks and then added repeated reading	Oral Reading fluency, Comprehension, and grade-level generalization passages	Not Measured	Students demonstrated moderate growth in ORF during *CR* implementation. For 4 out of 6 participants, adding repeated reading resulted in increased ORF rates. Comprehension gains mirrored fluency gains.
Trout, Epstein, and Michaelson (2003)	18	12	*Reading Mastery I* and *Great Leaps*	30-minute sessions for 7 months daily	Letter sounds, blends, and high-frequency sight words	Not Measured	Students in treatment outperformed their matched at-risk peers and their norm-referencing peers on letter sounds, and blends. They outperformed matched peers on sight words.
Yawn (2008)	8	7 (all were in juvenile detention center)	*Corrective Reading* and repeated reading (RR)	20–22 *CR* only sessions. Delivered 6–13 sessions with CR and RR for 3.5 months	Oral Reading Fluency and comprehension; Word Identification, Word Attack, and Passage Comprehension measured with WRMT-R.	Reading Attitude Likert Scale (RALS)	All participants improved ORF. Adding RR continued to enhance all participants' ORF. Participants' reading comprehension showed mixed effects. Students showed greater comprehension gains when RR was added to CR. Behavior: Scale indicated intervention may have had a positive impact on students' attitudes toward reading.

Barton-Arwood et al. (2005) also combined the Peer-Assisted Learning Strategies (PALS; D. Fuchs et al., 2001) curriculum with DI instruction. Of the studies using a DI package, three cases initially implemented DI reading programs in isolation in order to first improve prerequisite reading skills. Researchers then added another supplemental curriculum to target reading fluency once students made decoding gains. The other two cases (Scott & Shearer, 2002; Trout et al., 2003), used a combined package as their main intervention for the duration of the study.

Implementation. A wide array of personnel with varying degrees of training delivered DI reading interventions. In the majority of studies (n = 5) general education and/or special education classroom teachers delivered intervention. Interestingly, in one study (i.e., Scott & Shearer-Lingo, 2002), the researcher delivered intervention for the first half of the study and then transferred control over to the classroom teacher. In two other studies, researchers led intervention separately from classroom teachers. Finally, peer tutors delivered intervention to their counterparts in one study (i.e., Yawn, 2008).

All intervention agents participated in a wide array of training, coursework, and professional development to prepare for intervention. Most commonly, training included an in-service or workshop where personnel received instruction on how to deliver intervention. Workshops and training varied in length from a 3-hour session (i.e., Lingo et al., 2006) to a full, 3-day in-service training (i.e., Trout et al., 2003). In some workshops, authors specified that personnel received modeling, coaching, and corrective feedback. Other training descriptions were more ambiguous and did not describe the exact protocol staff followed (Lingo, et al., 2006). In two studies, researchers trained classroom teachers how to implement intervention (i.e., Scott & Shearer-Lingo, 2002;

Strong et al., 2004). Undergraduate and graduate researchers were trained in workshops or completed courses for their program of study. Finally, peer tutors trained simultaneously in three phases across four days prior to data collection (i.e., Yawn, 2008).

Intervention delivery. Studies were broken down according to duration of lessons, number of sessions/lessons delivered, and overall time period. The majority of intervention sessions (n = 7) lasted 30–45 minutes. In Drakeford (2012), intervention lasted approximately one hour which was the longest intervention session length out of all selected studies. Conversely, Scott and Shearer-Lingo (2002), provided intervention for a brief 25 minutes (with only 10 minutes of intervention consisting of DI curriculum).

Across six studies, students received intervention either three times a week (n = 2), four times a week (n = 2), or on a daily basis (n = 2). Few studies reported the number of lessons participants completed however for studies that did report sessions, there was a huge discrepancy. Delivery ranged from as few as six intervention sessions (Lingo et al., 2006) to over 100 lessons (Barton-Arwood et al., 2005). Similar to lesson delivery, there was a large difference in total study duration. Six studies lasted a brief period of approximately 2–4.5 months whereas two studies lasted more than seven months. Information regarding study duration was missing for two studies in this review.

CEC Indicators. Seven of the 10 studies met all CEC quality indicators for single-case and group-design studies (see Table 3). Three studies did not meet CEC standards, (i.e., Drakeford, 2002; Scott & Shearer-Lingo, 2002; Scarlato & Ashara, 2004) due to issues with implementation fidelity, internal validity, and/or outcome measures. Most commonly, these studies lacked information on interobserver agreement and/or

treatment integrity data. In addition to these gaps, Scott and Shearer-Lingo (2002) lacked the minimum number of baseline data points to make experimental conclusions.

All studies met CEC's criteria for incorporating socially important outcomes (i.e., reading). However only two studies (i.e., Lingo et al., 2002; Yawn, 2008) included social validity measures using Likert style questionnaires with open-ended responses to ascertain student and classroom teacher perceptions of intervention. Two additional cases (Drakeford, 2002; Scarlato & Ashara, 2004) included anecdotal reports of students' responses and changes in attitude throughout intervention. Although these measures cannot be quantified, positive student comments affirm they perceived DI as an acceptable program.

Despite limitations, two of the three studies (Drakeford, 2002; Scarlato & Ashara, 2004) were retained for further analysis for the following reasons: Studies were missing aspects of treatment integrity, interobserver agreement, and detailed descriptions of settings. Despite these flaws, they presented ample data to make a determination about the intervention's effectiveness. Both studies were published before the implementation of more stringent indicators to determine overall study quality. These indicators were released in 2014, with earlier versions published by Gersten et al. (2005) and Horner et al. (2005). All ten studies were published before the 2014 CEC standards were released, and six out of ten studies were published before the release of the 2005 guidelines. Excluding older studies would make it difficult to establish an evidence-based classification because much of this determination is based on replication of similar studies over time. Scott and Shearer-Lingo (2002) was not included in analysis due to an insufficient amount of data across baseline and intervention phases. Inclusion or

exclusion of the selected studies did not affect the evidence-based determination as none contributed to an evidence-based classification.

Table 3

CEC 2014 Quality Indicators

	CEC Quality Indicators								
Study	1.0 Context and Setting	2.0 Participants	3.0 Intervention Agent	4.0 Description of Practice	5.0 Implementation Fidelity	6.0 Internal Validity	7.0 Outcome Measures/Dependent variables	8.0 Data Analysis	Met?
Allen-DeBoer, Malmgren, and Glass (2006)	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Barton-Arwood, Wehby, and Falk (2005)	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Benner (2007) *	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Drakeford (2002)	✓	✓	X	✓	X	X	✓	X	No
Lingo, Slaton, and Jolivette (2006)	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Scott and Shearer-Lingo (2002)	✓	✓	✓	✓	X	X	X	✓	No
Scarlato and Ashara (2004) *	✓	✓	✓	✓	X	✓	X	X	No
Strong, Wehby, Falk, and Lane (2004)	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Trout, Epstein, and Michaelson (2003) *	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Yawn (2008)	✓	✓	✓	✓	✓	✓	✓	✓	Yes

Note. * = Group design study.

Study Design and Effects

Data related to study design and effects are reported for seven single-case and three group design studies in Table 4. All single-case studies used either multiple baseline or multiple probe designs across participants. All group design studies employed pre-post quasi-experimental designs.

Group designs. Benner (2007) reported statistically significant differences between students with ED and students with learning disabilities (LD) across two literacy outcomes (i.e., basic reading skills and word attack). Students with ED surpassed their LD counterparts, demonstrating large changes in magnitude with nearly one full standard deviation of growth on decoding measures. Although students with ED showed large changes in magnitude on their decoding skills, they made smaller gains than their LD counterparts on oral reading fluency.

The second quasi-experimental design (i.e., Scarlato & Ashara, 2004) also highlighted important differences between treatment and control students identified with ED. Authors used standardized change scores to compare discrepancies between treatment and control groups. Standardized change scores were calculated by dividing each participant's change score by a standard deviation of 15 and averaging these change scores for each group. For comparison purposes, these data were transformed into Hedge's *g* to understand overall changes in standard deviation between the two groups. Hedge's *g* is used for sample sizes smaller than 20, but can be interpreted with the same effect size benchmarks as Cohen's *d*. This study reported large changes in magnitude across all seven dependent variables (i.e., letter word identification, word attack, word comprehension, passage comprehension, basic reading skills, reading comprehension,

and total reading skills). Effect sizes ranged from $g = 1.15$ (i.e., passage comprehension) to $g = 2.21$ (i.e., word comprehension). In all, students with ED who received *Corrective Reading* intervention surpassed control groups by one to two standard deviations, demonstrating extremely large changes between treatment and control groups.

Similar to the studies above, Trout and colleagues (2003) found medium and large changes in magnitude across three outcomes (i.e., letter sounds, blending, and sight word reading) when comparing at-risk peers in treatment to at-risk peers in a control group. Researchers noted large discrepancies between groups, with the treatment group surpassing the control group on identification of letter sounds and blends (see Table 4). Interestingly, at-risk peers who received this DI packaged intervention also surpassed scores of norm-referenced control peers who did not present behavioral or reading risk.

Table 4

Study Design and Experimental Effects for Students with ED

Study	Intervention	Research Design	P.A.*	Letter Sounds	Word ID	Oral Reading Fluency	Comp.*	CBM*	Behavior Outcome
Allen-DeBoer, Malmgren, and Glass (2006)	Adapted *Corrective Reading* program	SCD: MB across participants				4/4			
Barton-Arwood, Wehby, and Falk (2005) *	*Horizons Fast Track* and PALS	SCD: MB across participants	Blends 4/6 Segment 3/6	2/6		5/6		6/6	0/6
Benner (2007)	*Corrective Reading*	Quasi-experimental			*d* = .47	*d* = -.31			
Drakeford (2002)	*Corrective Reading*	SCD: MB across participants				3/3			
Lingo, Slaton, and Jolivette (2006)	*Corrective Reading*	SCD: MB across participants			*g* = 1.86	6/7 7/7 Gen			0/7
Scarlato and Ashara (2004)	*Corrective Reading*	Quasi-experimental					*g* = 2.08		
Scott and Shearer-Lingo (2002) *	TYC and *Great Leaps (GL)*	SCD: MB across participants				n/a			
Strong, Wehby, Falk, and Lane (2004) *	*Corrective Reading* and *Great Leaps*	SCD: MB across participants				4/6* 4/6 Gen			

Continued on Next Page

Table 4 Continued

Study	Intervention	Research Design	P.A.*	Letter Sounds	Word ID	Oral Reading Fluency	Comp.*	CBM *	Behavior Outcome
Trout, Epstein, and Michaelson (2003)	*Reading Mastery I* and *Great Leaps*	Quasi-experimental	$d = 6.58$	$d = 2.69$	$d = 0.8$				
Yawn (2008)	*Corrective Reading* and repeated reading (RR)	SCD: MB across participants				3/4	0/4		

Note. For single case designs I calculated success estimates (Relchow & Volkmar, 2010) which shows the number of effects (numerator) over the number of opportunities (denominator). This is a summary of the consistency of the effect for the dependent variable and not an effect size. For quasi-experimental designs, I am reporting effect size as either Hedge's *g* or Cohen's *d*. Both statistics are interpreted as follows: Small effect =. 02; Medium effect = 0.5; Large effect = 0.8.
CBM = Curriculum based measure according to that specific study. * = Combination of DI program with another curricula (i.e., DI package). Effects represent this combined package. Gen = Generalization passages

Single-case designs. Before evaluating effects for single-case designs, the researcher applied single-case research design standards to each study (Kratochwill et al., 2013). After reviewing each study, six out of seven studies met initial criteria for *meeting standards* (see Table 5). Scott and Shearer-Lingo (2002) was not included because it failed to display the minimum number of data points in each phase to determine an effect; This study also failed to meet CEC's 2014 standards. Across all six single-case designs, researchers demonstrated experimental effects in 51 of 84 opportunities across seven dependent variables. Effects were most consistent for oral reading fluency (36/43).

DI only effects. Four of six qualifying single-case design studies demonstrated *strong evidence* (Kratochwill et al., 2013) and specifically looked at the effect of the *Corrective Reading (CR)* DI program, on students' reading fluency outcomes. Across these studies, findings were most consistent for ORF (23/24), and least consistent for comprehension (0/4) and behavior (0/13) (see Table 4).

DI package effects. Two out of six single-case design studies (i.e., Barton-Arwood et al., 2005; Strong et al., 2004) looked at the effects of DI combined packages on student reading outcomes (see Table 4). Yawn (2008) also added a repeated reading component to *CR* intervention; however, it was excluded from the DI package analysis because the combined intervention package lacked experimental control. Similar to DI only interventions, effects for packaged DI interventions were most consistent for ORF (13/18). Barton-Arwood et al. (2005) also reported results for the following reading outcomes: blending (4/6), Phonemic Segmentation (3/6), Nonsense Word Fluency (2/6), word reading (6/6), and behavior (0/6).

Evidence-Based Classification

DI only intervention. Based on CEC's (2014) Evidence Guidelines criteria, DI reading curricula garners different classifications depending on reading outcome. According to guidelines, studies can be classified into one of five categories: *evidence-based practices*, *potentially evidence-based practices*, *mixed effects*, *insufficient evidence*, or *negative effects*. DI curricula (specifically *Corrective Reading*) is considered a *potentially evidence-based* practice for improving ORF outcomes for students at risk or identified with ED. In order to meet this classification, researchers must present two to four methodologically sound single subject studies with positive effects (CEC, 2014). This review revealed three methodologically sound single-subject designs containing positive ORF effects for 14 participants (i.e., Allen-DeBoer et al., 2006; Lingo et al., 2006; Yawn, 2008). No evidence was found for changes in student behavior when implementing DI programs. Despite promising outcomes for other reading outcomes (e.g., phonemic awareness, word identification, and word attack) there were an insufficient number of studies to assign an evidence-based classification.

DI package intervention. Additional studies are needed to determine whether or not DI curriculum combined with other interventions can be classified as evidence based. Most commonly, DI programs were combined with repeated reading interventions to address fluency in addition to decoding skills (Scott & Shearer-Lingo, 2002; Strong et al., 2004; Trout et al., 2003; Yawn, 2008). Despite positive preliminary outcomes, Strong et al. (2004) and Trout et al. (2003) were the only interventions that combined DI and repeated reading to qualify as methodologically rigorous. Barton-Arwood et al. (2005) was also a methodologically rigorous study but was the only study combining DI with PALS. Based on CEC's classification of evidence-based practices, there were not enough

methodologically sound studies combining DI with additional interventions to support an evidence-based classification.

Table 5

Single-Case Design WWC Evaluation Criteria

	First Screening: Does the Design Meet Standards? (Must meet all four criteria to be screened for evidence)				Second Screening: Visual analysis and Evidence-Base Criteria				
Study	Independent variable systematically manipulated?	Outcome variable measured by more than one assessor?	Three attempts to demonstrate an intervention effect?	Each phase includes minimum of three data points?	Predictable and Stable Baseline?	Predictable level of responding within each phase?	Differences from adjacent phase?	Minimum effect in three tiers?	Meets Evidence?
Allen-DeBoer, Malmgren, and Glass (2006)	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Barton-Arwood, Wehby, and Falk (2005) *	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Drakeford (2002)	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Lingo, Slaton, and Jolivette (2006)	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Scott and Shearer-Lingo (2002) *	✓	✓	✓	X					No
Strong, Wehby, Falk, and Lane (2004) *	✓	✓	✓	✓	✓	✓	✓	✓	Yes
Yawn (2008)	✓	✓	✓	✓	✓	✓	✓	✓	Yes

Discussion

Overall findings from this review yielded seven studies that met CEC indicator standards and two additional studies published prior to the development of CEC quality standards which met many, but not all, of the indicators. Across these nine studies, DI programs are considered practices that are *potentially evidence based* for improving ORF outcomes for students with ED.

Teachers need assistance identifying and using evidence-based practices to improve reading outcomes, especially for the ED population. Previous reviews suggested DI reading curricula may produce positive reading outcomes, yet they did not systematically analyze whether DI reading programs are considered evidence-based practices for the ED population. The purpose of this review was to determine whether DI reading curricula could be considered evidence-based practices for students identified with ED.

Among the special education community, there still continues to be an ambiguous way of determining who qualifies as ED; students at risk or identified with ED continue to meet broad, subjective standards (Maag, 2006). Many students who qualified in the past are no longer being identified, reserving the ED label for those with extreme problem behaviors. This review purposefully cast a wide net to include students considered at risk for ED or those in settings primarily reserved for students with problem behaviors. Because ED continues to be an extremely subjective category, it is challenging to pinpoint for whom exactly DI would be a good match. Findings from this review provide compelling evidence that DI can be effective for a wide range of students

considered to be at risk for ED, even without an official diagnosis. In the majority of these studies, participants did not necessarily have an official ED diagnosis but instead, were placed in restrictive settings due to problem behavior (e.g., self-contained behavioral units, correctional facilities). These students were significantly behind in reading, yet majority of participants still managed to make ORF gains when provided with DI reading instruction. For students considered "difficult to teach," these gains are extremely promising.

When looking at student demographics across studies, most students who received DI intervention were middle or high school aged adolescents. These findings further highlight that students with ED may not receive intervention until they have been experiencing failure for years. Forty percent of studies selected provided intervention services to students who were detained or in correctional facilities, underscoring the sad reality that delinquents are disproportionately comprised of older struggling readers and nonreaders (Foley, 2001).

In regard to race and ethnicity, African American students from low socioeconomic settings were the most common group to participate in DI studies. Unfortunately, this does not come as a surprise as minority students are often overrepresented with an ED disability label (Kramarczuk Voulgarides, Fergus, & King Thorius, 2017). These findings shed light onto a current challenge for DI programs. Originally, DI was created to provide intervention to children from "very impoverished backgrounds" (Stockard et al., 2018, p. 481). However, after years of reported effectiveness, DI programs continue to struggle with widespread adoption across different populations, socioeconomic factors, and settings.

Additional challenges for DI include the inconsistency of program delivery, dosage, and duration. Although studies found DI programs contributed to positive student gains, only two cases (i.e., Barton-Arwood et al., 2005; Trout et al., 2003) delivered intervention for the majority of the school year. Most interventions were brief, lasting up to four months, with those delivering intervention ending the study before students completed the entire intervention sequence. For students with such intense behavioral and academic difficulties, failure to receive an adequate dosage of intervention may affect reading results. DI programs are designed sequentially, often beginning with foundational skills and building toward more challenging concepts. By terminating intervention early, it is possible students missed opportunities to expand upon newly learned skills. As previously mentioned, mixed results were found when looking at participates' comprehension. Comprehension is a composite skill requiring students to use prerequisite skills such as decoding, fluency, and vocabulary knowledge in order to make gains (National Reading Panel, 2000). Consequently, by cutting programs short, it is possible students did not have opportunities to practice integrating basic skills to attend to more complex tasks, like reading comprehension. More studies must follow the stipulated DI program protocol before making claims about program effectiveness. This sentiment is underscored by Stockard et al. (2018) who found strongest results and effect sizes appeared for groups of students who had more extensive exposure to DI programs and additional years of intervention. Benner (2007) was the only study without positive effects for ORF, yet some participants completed less than one third of the total *Corrective Reading* program. Thus, results from this study must be interpreted with caution.

Success estimates across single-case designs show high consistency for ORF and large effects for two quasi-experimental group designs. Only one additional methodologically sound single-subject design study is needed to change classification from *potentially evidence based* to *evidenced-based practice*. Although there were positive outcomes across other reading variables such as phonemic awareness, word identification, and word attack, there were not enough studies to support an evidence-based classification. Results for phonological awareness demonstrated moderate consistency and large effect sizes across studies. Moreover, word identification and word attack skills presented extremely large effect sizes. Despite promising findings, more methodologically sound studies are needed to demonstrate positive outcomes across different reading variables.

In reference to packaged programs, (e.g., combining DI with repeated reading) there is promising, although limited evidence to support an evidence-based classification. Only four studies demonstrated positive ORF gains when looking at DI packaged interventions and of these four, only two met CEC quality standards. One important question to ask is why DI programs are so often packaged with other interventions, particularly for fluency? When reading about DI programs, one of the most commonly mentioned reasons for selecting DI programs was to target students' decoding skills (Barton-Arwood et al., 2005; Strong, et al., 2004; Trout et al., 2003; Yawn, 2008). DI programs were often implemented first to improve basic foundational decoding skills so students could then participate in fluency building interventions. Moreover, some DI programs do not explicitly focus on teaching reading fluency. For example, *Corrective Reading*, places a large emphasis on targeting decoding strategies so students can read

increasingly difficult material with greater accuracy rather than repeated reading. Many practitioners and researchers err in assuming improved decoding will naturally transfer to improved reading fluency. This is not always the case, especially for lower performing readers who make smaller decoding gains not easily detected in longer passages. In fact, research has reiterated that fluency is a skill often needing to be explicitly taught to struggling readers (Chard, Ketterlin-Geller, Baker, Doabler, & Apichatabutra, 2009). Strong oral reading fluency results suggest that DI programs not only improve students' decoding skills, but gains are robust enough to transfer to noticeable improvement with connected text.

Despite clear improvements in reading fluency, there continues to be mixed results as to whether DI programs can improve student comprehension. Across all studies selected, only two studies considered comprehension as their dependent variable (i.e., Scarlato & Ashara, 2004; Yawn, 2008). Results were conflicting, highlighting a need to conduct additional research in order to determine the effect of DI programs on students' reading comprehension. Even though all ten studies specifically targeted students with ED, only two (i.e., Barton-Arwood, et al., 2005; Lingo et al., 2006) directly measured behavior as an outcome. Anecdotal evidence from multiple studies reported changes in student behavior during intervention however due to a lack of data, no functional relation can be determined. More empirical research needs to be conducted to determine whether a relation between gains in reading performance and reduction in student problem behavior exists. These findings echo results from previous literature reviews, (i.e., Griffith et al., 2008; Rivera et al., 2006), which called for more systematic investigations into the reading/behavior relationship.

Implications for Practice

Findings provide important implications for educators of students at risk or identified with ED. First, implementing DI programs can improve reading outcomes for this challenging population of students. For teachers who are frustrated with lack of student progress, implementing DI reading programs may be one way to spur student growth. Instead of expending time and energy developing reading materials that may not lead to student improvement, teachers can save resources by using scripted, research-tested programs. Some critiques have argued using a script stifles educators' teaching styles, but appropriate DI implementation allows teachers to spend their energy more fully on students' responses and improvement (Eisenbach, 2012). Moreover, built in opportunities for students to engage with material mean fewer opportunities for problem behaviors (Sutherland & Wehby, 2001). When interviewing students about DI programs, students overwhelmingly reported enjoying intervention and finally feeling successful in an academic setting (McDaniel, Houchins, & Terry, 2013).

Students who received greater dosage and exposure to intervention displayed the greatest effects. Intervening early, before students have experienced a prolonged period of academic failure can help to close the achievement gap (Blachman et al., 2014). Moreover, when implementing DI programs, it is critical to maintain program fidelity and monitor student gains. There are many DI reading programs that contribute to student reading gains, so it is important for practitioners to investigate which programs would most effectively target necessary reading skills. Practitioners can combine DI programs with other curricula to target skills not heavily emphasized in DI instruction. As always,

practitioners must use their professional judgement to design the most impactful reading package to meet each student's needs.

Limitations and Future Directions for Research

This review's findings are consistent with previous conclusions about the effectiveness of DI reading programs and extends these findings to the ED population. Despite positive outcomes, several limitations must be addressed.

First, the relatively small number of studies included reflects the paucity of methodologically sound DI reading studies specifically targeting the ED population. Although searches were systematic and comprehensive, it is possible some studies were inadvertently missed. For example, when coding articles, many studies were excluded because of weaker experimental designs even though they met other inclusion criteria. Also, group designs were excluded if they failed to parse out effects specifically for students with ED. Attempting to parse out these scores would require an integrative-data analysis well beyond the scope of this paper. Studies including interventions with components found in DI programs were excluded if they were not listed on the National Institute of Direct Instruction website. These studies still provide important insight into incorporating direct instruction techniques with students with ED (see Table 6).

Table 6

Interventions with Similar DI Principles

Citation	Intervention	Description of Intervention
Daly, Persampieri, McCurdy, and Gortmaker (2005)	ESC (Early Reading Intervention: Pearson & Scott Foresman, 2004)	126 lessons including teacher guides and easy to follow teacher resource packets. Each activity is designed to last only 3-5 minutes. Placement test determines where students should begin.
Metsala, David, and Brown (2017)	SpellReadTM. (2012). Austin, TX: PRO-ED.	Quick-paced activities to increase phonemic awareness, sound-spelling knowledge and decoding. Each 60-minute lesson is highly scripted.
Nelson, Stage, Epstein, and Pierce (2005)	Stepping Stones to Literacy (Nelson, Cooper & Gonzalez, 2004)	Scripted program containing 25 pre-reading activities. Lessons are quick paced, lasting 10-20 minutes.
Wehby, Falk, Barton-Arwood, Lane, and Cooley (2003)	Open Court (Adams, et al., 2000) and Peer-Assisted Learning Strategies (PALS)	Open Court is based on explicit instruction of making and blending sounds into words. Lessons are fast-paced, teacher-directed and progress sequentially.
Wehby, Lane, and Falk (2005)	Scott Foresman Reading Program (Foresman, 2000) and Phonological Awareness Training for Reading (Torgeson & Bryant, 1994)	Scott Foresman Reading provides direct, systematic, and research-based instruction that aligns with state standards. Lessons are fast-paced, and teacher delivered.
Marchand-Martella, Martella, Nelson, Waterbury, Shelly, Cleanthous, and Hatfield (2002)	Sound Partners Reading Program (Vadasy & Pool, 1997)	Explicit, balanced phonics-based tutoring program that provides students with instruction in early reading skills. Incorporates scaffolded practice led by teacher instruction.

Future research should compare the efficacy of these interventions to other DI programs to determine whether there are differences in student outcomes.

Second, none of the reviewed studies were published in the past decade. Lack of recent publications on this topic is concerning and may suggest a decline in DI usage in the schools. Future research should continue to investigate why DI programs are not being consistently used in schools. In order to ensure that DI becomes classified as an *evidence-based practice*, more studies meeting current CEC standards need to be conducted.

Finally, the definition for participants at risk or diagnosed with ED remained broad. No specific distinctions were made between students with ED and those who had comorbid reading disabilities. Moreover, not all students were formally labeled as having ED. Because of this definition, it is possible that students were included who may not end up with an ED diagnosis. However, restrictive placements such as juvenile detention centers were considered to be strong indicators of maladaptive behavior. Future researchers need to clarify how to define those at risk for ED so students can receive intervention earlier in their schooling.

Conclusion

This review extends previous literature by finding DI reading programs to be a *potentially evidence-based practice* for improving ORF skills for students at risk or diagnosed with ED. DI reading programs can improve reading outcomes for students who often make minimal academic gains. Students identified with ED deserve opportunities to experience academic success, and their teachers deserve effective programs to help foster

student gains. There continues to be much to learn about closing the achievement gap for students with ED, but with DI reading interventions, we can begin to move the needle in the right direction.

Chapter 3. Experimental Study

This chapter is a manuscript describing an experimental study conducted to determine the effectiveness of a reading intervention delivered to high school students who were reading well below grade level and placed in a behavioral, alternative high school setting.

Abstract

This study sought to examine the effectiveness of REWARDS (Reading Excellence: Word Attack and Rate Development Strategies; Archer, Gleason, & Vachon, 2000) to deliver advanced decoding strategies to struggling adolescent readers. Specifically, this study looked at the effects of REWARDS on students' decoding and oral reading fluency skills (ORF). Four, high school students in an alternative school setting participated in the study for 6–12 weeks. Results revealed a functional relation between the use of REWARDS and student gains in decoding and ORF. All students demonstrated moderate to substantial gains on their ability to decode polysyllabic words. In addition, Rate of Improvement (ROI) calculations highlight substantial growth for students compared to expected growth. These findings extend the previous research base for Direct Instruction reading programs, particularly for students with challenging behaviors. Limitations and future implications are discussed.

Keywords: Reading interventions, emotional disturbances, alternative settings

Improving the Reading Trajectory for High School Students in an Alternative Setting

Reading is a critical skill that contributes to many important life events such as graduation rates and economic stability (Blachman et al., 2014). Yet, in the United States, students are continuing to receive inadequate reading instruction. According to The Nation's 2017 Report Card, only 26% of eighth-grade students are reading proficiently (National Assessment of Educational Progress, NAEP). Outcomes are even more shocking for students identified with disabilities with only 12% reaching proficient reading levels. These dismal outcomes have important implications for school-based instruction. With increases in teacher accountability, schools are becoming more concerned about improving struggling learners' performances on state-level assessments (National Center for Learning Disabilities, 2018). There has been an influx of professional development geared specifically toward addressing early reading intervention. Moreover, researchers continue to investigate early intervention as a means for remediating reading skills for emergent readers. This emphasis on reading intervention has not directly transferred to reading instruction for older, struggling learners. There continues to be a gap when trying to determine the most effective reading interventions to improve outcomes for secondary learners. Vaughn and colleagues (2010) randomly assigned struggling sixth-grade students to either a Tier 2 multicomponent reading intervention or a control condition. Students in the treatment condition participated in a packaged reading intervention targeting decoding, fluency, vocabulary, and comprehension instruction. They received intervention in groups of 10–15 students for the entire academic year while students in the control condition continued to receive "business as usual" instruction. Results revealed positive outcomes for students in the

treatment condition, yet there were no substantial changes in the overall achievement gap between treatment and control students. Other studies focusing on reading interventions for older, struggling readers have mirrored these findings (Vaughn et al., 2011). Researchers continue to be unsure of the most effective ways to remediate reading deficits for older, struggling learners.

These challenges are compounded for struggling readers who also present with emotional and behavioral challenges. Students at risk or identified with emotional disturbances (ED) are highly susceptible to academic and social failure (Kauffman & Landrum, 2012). Challenging behaviors are pervasive, often impeding a student's ability to benefit from academic instruction. Students identified with ED exhibit such symptoms as (a) unexplained challenges in learning, (b) inability to build or maintain interpersonal relationships, (c) inappropriate feelings or behaviors under normal conditions, and (d) aggression or noncompliance (Rock, Fessler, & Church, 1997). Low academic performance and maladaptive behavior are highly correlated. One explanation for this correlation is students with ED are frequently removed from class because of their challenging behaviors, which substantially impedes their academic achievement, especially in reading (Garwood, Varghese, & Vernon-Feagans, 2017). To underscore this point, only 46% of students with ED spend 80% or more of the school day in general education classrooms (U.S. Department of Education, 2015). Researchers noted that most students with ED were frequently removed from their general education classroom and placed in more restrictive settings such as self-contained ED classrooms and behavior-focused alternative settings (Perzigian et al., 2017; Wilkerson et al., 2016)

Behavior-focused Alternative Placements

Nearly half of students served in alternative schools are identified with emotional and behavioral disorders (Foley & Pang, 2006). These findings are in stark contrast with public schools where less than one percent of the population contains students with this same identification. Additionally, students in behavior-focused alternative schools are often comprised predominately of minorities from low socioeconomic backgrounds (Perzigian et al., 2017). Although many alternative settings claim to provide individualized academic and behavioral intervention in a therapeutic environment, conclusions from recent studies have documented very different outcomes. Findings have consistently reported lower outcomes for students placed in behavior-focused alternative placements compared to less restrictive settings (Wilkerson, Gagnon, Melekoglu, & Cakiroglu, 2012). For instance, Afacan and Wilkerson (2019) investigated whether students in behavior-focused alternative schools demonstrated significantly different reading results compared with matched samples of middle school students in traditional public schools. The authors located students' fifth and eighth grade reading scores and used a retrospective cohort model to compare outcomes for students in both alternative and public-school settings. Using a one-to-one matching method, students in alternative settings were matched to students with similar characteristics from the public school in an attempt to reduce bias in characteristic differences. Results revealed significantly lower reading outcomes on standardized reading assessments for students placed in alternative settings compared to matched peers in public schools. Unsurprisingly, all students identified with ED regardless of school setting were below proficiency in reading.

These findings are concerning, especially when considering that alternative education placements often lack high quality instruction and teachers. Many teachers

continue to lack sufficient training and knowledge about ways to implement effective reading interventions for students with challenging behaviors, especially those in middle or high school (Gagnon & Barber, 2015; Houchins, Puckett-Patterson, Crosby, Shippen & Jolivette, 2009). Moreover, there continue to be teacher shortages and higher rates of attrition specifically in lower income schools and alternative school settings (Boe, 2013). Despite calls for more rigorous teacher requirements and certifications, there is an unequal distribution of qualified special education teachers in public school environments compared to alternative school settings (Mason-Williams, 2015). Better qualified and more experienced teachers often work in schools with higher performing, less challenging students (Goldhaber et al., 2014).

Students placed in alternative settings have experienced persistent failure in their previous learning environments and require the most effective, qualified, and knowledgeable teachers in order to make academic and behavioral gains. Despite common knowledge of this need, staffing improvements in alternative placement settings have yet to be documented. While trying to combat teacher attrition, an emphasis must be placed on enhancing the quality of instruction delivered to this vulnerable population. Teachers in the field need research-based reading programs that require little teacher preparation and training. Delivering an intervention that is effective and can produce positive student outcomes may be one way to improve teacher motivation while also changing the academic trajectory for their learners.

Direct Instruction Reading Programs

Direct Instruction (DI) reading programs may be one possible solution for teachers needing additional support. These programs are also structured with specific

elements that may be especially helpful for engaging students with challenging behaviors. DI reading curricula are scripted, research-tested programs that deliver systematic instruction. Lessons are carefully designed to break up larger concepts into component parts so students can acquire material more easily. For students experiencing frustration with academic concepts, breaking up the material into manageable parts may help alleviate undue frustration. Lessons are logically sequenced, requiring students to master material before progressing to more challenging concepts. They are also designed to be fast paced, with frequent opportunities for students to respond. By carefully crafting lessons in this manner, students are more likely to spend time engaging in learning content as opposed to challenging behaviors. Additionally, students are provided with instant teacher feedback to minimize misunderstandings and reduce errors early in the learning process. DI programs allow students to contact success more frequently than standard teaching formats in which students passively receive new material; this format may be particularly beneficial for student with ED who may lack motivation due to reading challenges (Logan, Medford, & Hughes, 2011). When implemented with validity and consistency, DI programs have contributed to student reading gains. For teachers who lack adequate literacy training, these programs may be a way to produce student growth.

DI Research

Many literature reviews have highlighted the benefits of using DI to improve specific reading outcomes for wide ranges of student populations, whole school reforms, and different subject areas (Burke, Boon, Hatton, & Bowman-Perrott, 2015; Stockard, Wood, Coughlin, & Khoury, 2018). Results have consistently been positive. In the largest

meta-analysis for DI to date, Stockard et al. (2018) analyzed 328 studies that incorporated DI and included a broad range of research designs, student populations, and subject areas for a comprehensive review of DI's effectiveness. Results from this meta-analysis found consistently strong, positive outcomes across 50 years of research including studies with myriad research designs, populations, subject areas, and programs.

Despite general findings pointing to DI's potential, some DI programs require additional testing to strengthen evidence of their effectiveness. One largely understudied DI program is REWARDS (*Reading Excellence: Word Attack and Rate Development Strategies*; Archer, Gleason, & Vachon, 2000). The REWARDS curriculum is specifically designed to teach polysyllabic decoding strategies to older, struggling readers. According to the National Reading Panel (NRP, 2000), decoding (i.e., phonics) is one of the five critical reading pillars for overall reading success. Phonics is heavily emphasized in early grades but is faded once students pass third grade, with a new emphasis placed on comprehension and vocabulary (Wanzek et al., 2013). For students who have missed foundational phonics instruction, it becomes challenging to keep up with reading material as it becomes progressively more difficult (Kearns, 2015). Older students need compensatory strategies to decode unknown words, especially polysyllabic words. These words become more prevalent in reading materials and often are essential to comprehension. Despite the importance of decoding, few programs exist that specifically target decoding strategies for older leaners. REWARDS is one program that teaches students how to use strategies to decode polysyllabic words individually and within the context of passages. Telesman et al. (2019) conducted a pilot study to determine the impact of REWARDS on students' polysyllabic decoding and oral reading

fluency. Four students in an alternative high school were selected to participate in intervention due to poor reading performance and behavior challenges. Students completed twenty REWARDS lessons, each lasting approximately 30–45 minutes. Results revealed compelling evidence in favor of REWARDS intervention with this population. All four students improved their ability to decode real and nonsense polysyllabic words and exceeded predicted reading fluency outcomes delineated for typical peers at the same reading level. Results on student questionnaires indicated students enjoyed the REWARDS program and felt it could be an effective program for their peers. Despite positive findings, more studies are needed to determine whether REWARDS can be considered an evidence-based practice for students with reading and behavioral challenges. The purpose of this study was to replicate Telesman et al. (2019) to strengthen the research base behind REWARDS and highlight a feasible intervention for practitioners to incorporate in their practice.

The following questions were addressed in the current study:

1. Is there a functional relation between REWARDS and students' improved decoding on real and nonsense word lists?
2. Is there a functional relation between REWARDS and students' improved fluency on Aimsweb passages?
3. Is there a functional relation between REWARDS and students' fluency on grade-level generalization passages?
4. Will REWARDS change students' Rate of Improvement (ROI) index?
5. What are students' and teachers' opinions on the goals, procedures, and methods of REWARDS?

Method

Setting

This study took place in an alternative school setting serving students in fourth through twelfth grade. The school was located in a large Midwestern city, with over 80% of its students coming from economically disadvantaged homes. The student population at the time of the study was 52% Black, 33% White (non-Hispanic), 14% Multiracial, and 1% Hispanic. Study participants were selected from 9th, 10th, and 11th grade classrooms. The study first took place on the second floor of the school in an open space surrounded by a temporary partition. This space contained two desks, a long table, and two white boards. Halfway through the study, the group was relocated to the school's library due to limited space.

Participants

Four high school students (two females and two males) identified with emotional disturbances (ED) and concurrently exhibiting below-average reading performance participated in this study (see Table 7). Tyson began baseline later than the other three participants because he replaced a previous participant who needed to drop out after week three of baseline due to unrelated health concerns.

Students were identified with emotional disturbances as indicated in their individualized education programs (IEP). All students attended an alternative high school for students who were previously unsuccessful in a typical classroom setting.

To qualify for this study, the researcher assessed students' reading using Aimsweb grade level passages and the Word Attack (WA) and Word Identification (WI) subtests from the Woodcock Johnson IV Tests of Achievement (WJ–IV-ACH; Schrank,

McGrew, Mather & Wendling, 2014). In order to meet the criteria to be considered reading below grade level, students needed to demonstrate grade equivalency (GE) scores below a 5.0 GE on the WA and WI subtests and read below the 50th percentile on an 8th grade Aimsweb passage. No exclusions were applied based on race, ethnicity, or language.

Experimental Design

Table 7

Participant Information

Student	Grade Level	Races/Ethnicity	Aimsweb Oral Reading Fluency Percentile	Woodcock Johnson Tests of Achievement		Behavior Description per IEP
				Letter Word ID	Word Attack	
Dante	9th	African American	<1st	4.2 GE	3.5 GE	Noncompliance, Verbal Aggression, Physical altercations with peers and occasional staff
Jayden	10th	White	11th	3.5 GE	2.0 GE	Severe social anxiety, depression, self-injurious behavior
Dayna	10th	White	11th	2.7 GE	2.8 GE	Social anxiety, depression
Tyson	11th	African American	3rd	3.3 GE	1.6 GE	Noncompliance, Verbal Aggression, Physical altercations with peers

The researcher used a multiple probe across participants single-case design. In this design, participants served as their own controls and were brought into intervention at staggered intervals. Decisions to begin intervention were based on students' scores on nonsense word probes. Four out of five participants begin baseline at the same time and repeated measures of baseline were taken until students demonstrated stable and steady responding patterns. The first student to demonstrate steady state responding began intervention while the remaining participants continued in baseline. Staggering the intervention ensured that increases in student performance could be attributed solely to the independent variable (Cooper et al., 2007).

Dependent variables. The researcher collected data on the following dependent variables:

Number of real words decoded correctly in 30 seconds. Students read randomized daily words lists containing 500, 3–6 syllable words (i.e., polysyllabic words). Real word lists contained specific prefixes, suffixes, and vowel sounds directly taught during intervention (see Appendix A). Students had 30 seconds to read words aloud. The researcher counted the total number of correct and incorrect words read within this 30 s interval and graphed these data.

Number of nonsense words decoded correctly in 30 seconds. Students were also administered a randomized word list containing 500, *nonsense* polysyllabic words. Similar to real word lists, students had 30 s to read aloud words ranging from 3–6 syllables (see Appendix B). Nonsense words were created by combining prefixes, suffixes, and vowel patterns following standard English patterns. Each syllable in the polysyllabic word was considered to be decodable. The purpose of incorporating

nonsense word lists was to determine whether students could generalize decoding strategies taught in intervention to words they had never encountered. All decisions regarding when to begin intervention were made according to students' nonsense word reading scores. Students read real and nonsense word probes during each baseline session and after each intervention session.

Number of words read correctly in one minute on Aimsweb Passages. Students were also administered grade-level passages taken from Aimsweb (www.aimsweb.com) to determine whether potential decoding gains generalized to improved reading fluency (see Appendix C). Students had 1 minute to read passages aloud and the researcher calculated their correct words per minute (CWPM) by subtracting any errors from total words read. Words counted as errors if students misread the word or paused for longer than three seconds before reading the word. During intervention, students read an Aimsweb passage after every third intervention session due to the limited number of passages available.

Number of words read correctly in one minute on grade-level CommonLit passages. Students were also administered grade-level passages taken from *CommonLit Texts* (www.commonlit.org) after each intervention session. These passages differed from Aimsweb's fictional passages because they contained nonfiction stories that mirrored Science and Social Studies topics typically presented in high school classrooms (see Appendix D). Selected passages ranged in Lexile from 1050 to 1100 and were randomly assigned to students after each intervention session. Students had 1 minute to read each passage and the researcher calculated CWPM just like Aimsweb passages.

Students' rates of improvement (ROI) on Aimsweb passages. Students' ROI was calculated according to their average ORF scores taken from baseline and intervention on Aimsweb passages. According to Aimsweb's National Norms Table, students' estimated average weekly word growth rates can be calculated based on their initial CWPM. Participants' estimated ORF scores were calculated by multiplying their estimated average weekly word growth by the number of weeks they participated in intervention and adding this number to their initial ORF score.

Independent variable. The independent variable for this study was REWARDS (Reading Excellence: Word Attack and Rate Development Strategies; Archer, Gleason, & Vachon, 2000), a Direct Instruction reading program containing 20 loosely scripted lessons. Students each received 4–5 sessions per week, with each session lasting approximately 25–40 minutes across 6–12 weeks. The researcher delivered each lesson to students independently.

To help with potential behavioral challenges, students were provided with a visual checklist that listed each activity needed to complete each lesson. Students could earn one point for each completed activity, for a total of ten points each day. Students traded in these points for small items such as a snack or drink after the lesson.

Procedures

Screening. Researchers screened students with parental or guardian permission using an Aimsweb passage and the Word Attack and Word Identification subtests of the Woodcock Johnson IV Tests of Achievement (WJ–IV-ACH; Schrank et al., 2014). To be included in this study students needed to (a) fall between 6th and 12th grade in school, (b) produce a Word ID grade equivalency (GE) score at least two grades below their current

grade level, (c) generate a GE word attack score of less than 5.0, (d) read below the 50th percentile on an eighth-grade Aimsweb passage, and (e), meet previously described emotional and behavioral disturbance classifications per their IEP.

Baseline. Four students meeting inclusion criteria were initially selected to participate in this study. However, three weeks into the study, the fourth student received a serious concussion and was removed from school for several weeks with no plan to return. The researcher selected a fifth student who met inclusion criteria to replace the fourth-tier participant. Due to these circumstances, the new fourth-tier student has a delayed baseline compared to the other participants. During baseline, the researcher individually provided each participant with four baseline measures: a randomized word list containing 500 real, polysyllabic words; a randomized word list containing 500 nonsense, polysyllabic words; a standardized Aimsweb fluency passage; and a grade-level CommonLit passage. Before bringing a student into intervention, his or her nonsense word reading needed to be stable or show a deteriorating trend. The student with the steadiest responding on nonsense word probes began intervention first. Students remaining in baseline were probed again once the participant receiving intervention began demonstrating visually noticeable gains from baseline. After probing all remaining participants, the student who demonstrated the steadiest responding was given three consecutive probes immediately before beginning intervention. These stringent procedures were followed in order to meet What Works Clearinghouse's Pilot SCD Standards Without Reservations (WWC, 2017). Classroom reading instruction taking place at the time of this study consisted of students listening to books on tape and answering comprehension questions. Students were also given vocabulary quizzes once a

week. There was zero explicit reading instruction provided and students did not have exposure to any decoding strategies.

Preference Assessment. Students completed a preference assessment that listed potential incentives to earn for completing reading activities (see Appendix E). Students ranked items from most to least desirable and also wrote in ideas for additional incentives they would potentially like to work for during intervention. These items were then included as possible incentives students could earn by trading in points.

Training. Before beginning intervention, students received a brief, scripted training on how to follow protocol while receiving intervention. Students learned how to follow behavioral rules and how to award themselves points for each completed reading activity. The researcher reviewed behavioral expectations and showed students the sequence of activities to be completed in each lesson. Students also learned how to log points earned throughout intervention.

Intervention. All students received a personalized binder containing written behavioral reminders, lesson logs, incentive points log, incentives list showing trade in values, and REWARDS lesson. Behavioral reminders listed the behaviors expected for students to follow while participating in the REWARDS lesson. Students also used a visual activity log which listed each activity to complete during that specific lesson. This log was laminated so students could track their points after completing each activity. When lessons ended, students logged their total points earned for completing each activity (see Appendix F). Depending on the number of points earned, students could trade points for small incentives such as chips, drinks, or candy.

During each lesson, students (a) read different vowel combinations, (b) identified different prefixes and suffixes, (c) practiced scooping words into syllables, (d) read words containing new patterns, (e) read new words in sentences and paragraphs, (f) and practiced spelling new, polysyllabic words. The REWARDS program is based on explicit instruction techniques including the following components: teacher modeling, guided practice, independent practice, corrective feedback, breaking down learning targets into smaller parts, and active student responding. After finishing each lesson, researchers assessed student growth by giving a real and nonsense word probe as well as a CommonLit ORF passage.

Generalization and maintenance. Students read a CommonLit passage after every session to determine whether decoding skills generalized to passage reading. In order to compare student growth to normative samples, students also read an Aimsweb passage after every third lesson. To measure maintenance, researchers gave students all four probes (i.e., real word list, nonsense word list, Aimsweb passage, and CommonLit passage) approximately two weeks and one month after finishing all 20 lessons in the program. Tyson only received one maintenance check three weeks after completing intervention because of the school's winter break schedule and personal absences.

Social Validity

Students. After finishing intervention and maintenance, students completed a questionnaire to share their perceptions of REWARDS intervention (see Appendix G). The questionnaire asked questions about the quality of lessons, perceptions of the program, and whether or not students noticed a difference in their reading after completing intervention. Five questions were given with a rating scale of 0–4 (0

indicating “disagree” and 4 indicating “agree”) and two questions were open ended, allowing students to write in their responses.

Principal/Teacher. The school’s principal who also taught in the classroom for part of the day, completed a questionnaire asking about the acceptability of intervention goals, procedures, and outcomes following the conclusion of the REWARDS study. This questionnaire contained eight questions with a 4-point scale.

Interobserver Agreement (IOA)

Two graduate assistants (GAs) collected interobserver agreement across all phases of the project (i.e., baseline, intervention, generalization probes, and maintenance). A second observer was present for at least 30% of baseline, intervention, and generalization probes. Exact agreement was calculated by taking total agreements divided by the number of agreements plus disagreements and multiplied by 100. The mean IOA calculations for all students across each phase of intervention were as follows: During baseline, real and nonsense word list IOA was 87.5% (range: 50%–100%), Aimsweb generalization probes was 98.0% (range: 93%–100%), and CommonLit probes was 97.8% (range: 94%–100%). During intervention, real and nonsense word list IOA was 94.5% (range: 73%–100%), Aimsweb generalization probes was 98.1% (range: 94%–100%), and CommonLit probes was 98.6% (range: 96%–100%).

Procedural Integrity

A second observer was also present for 30% of baseline, intervention, and maintenance sessions to ensure the researcher consistently followed protocol for all participants. The observer used procedural checklists enumerating each critical step of intervention including lesson delivery, behavioral incentive plan, and probes taken at the

end of each lesson (see Appendix H). Each step on the checklist was added, divided by the total number of steps possible, and multiplied by 100 to get the percentage of steps completed for each session. The breakdown is as follows: baseline 100%, intervention 99.8% (range: 92%–100%), and behavior 98.7% (range: 80%–100%).

Data Analysis

Visual analysis. Researchers used visual analysis to determine the effect of reading intervention on students' decoding and fluency skills. Visual analysis consisted of looking at the trend, level, variability, and immediacy of effect for each data point across baseline, intervention, and maintenance. The multiple probe design demonstrates experimental control by showing a change in the dependent variable only once the independent variable is introduced.

DHPS effect size. In addition to visual analysis, the researcher calculated a *DHPS* (Hedges, Pustejovsky, & Shadish, 2013) effect size across all participants in order to get a numeric effect size. This metric is calculated using a hierarchical model to produce a between subjects' effect for specific single subject designs with a minimum of three participants. It was designed to correspond to Cohen's *d,* a statistic most commonly used in group design studies. Results can be interpreted as follows: small effect = 0.2, medium effect = 0.5, and large effect = 0.8.

Results

The following section provides student results according to each dependent variable by incorporating visual analysis and mean changes in student performance. Effect size estimates are also presented based on each dependent variable within this

study. Finally, student and teacher social validity measures will be highlighted according to results gathered from questionnaires completed after the study ended.

Real Polysyllabic Word Decoding

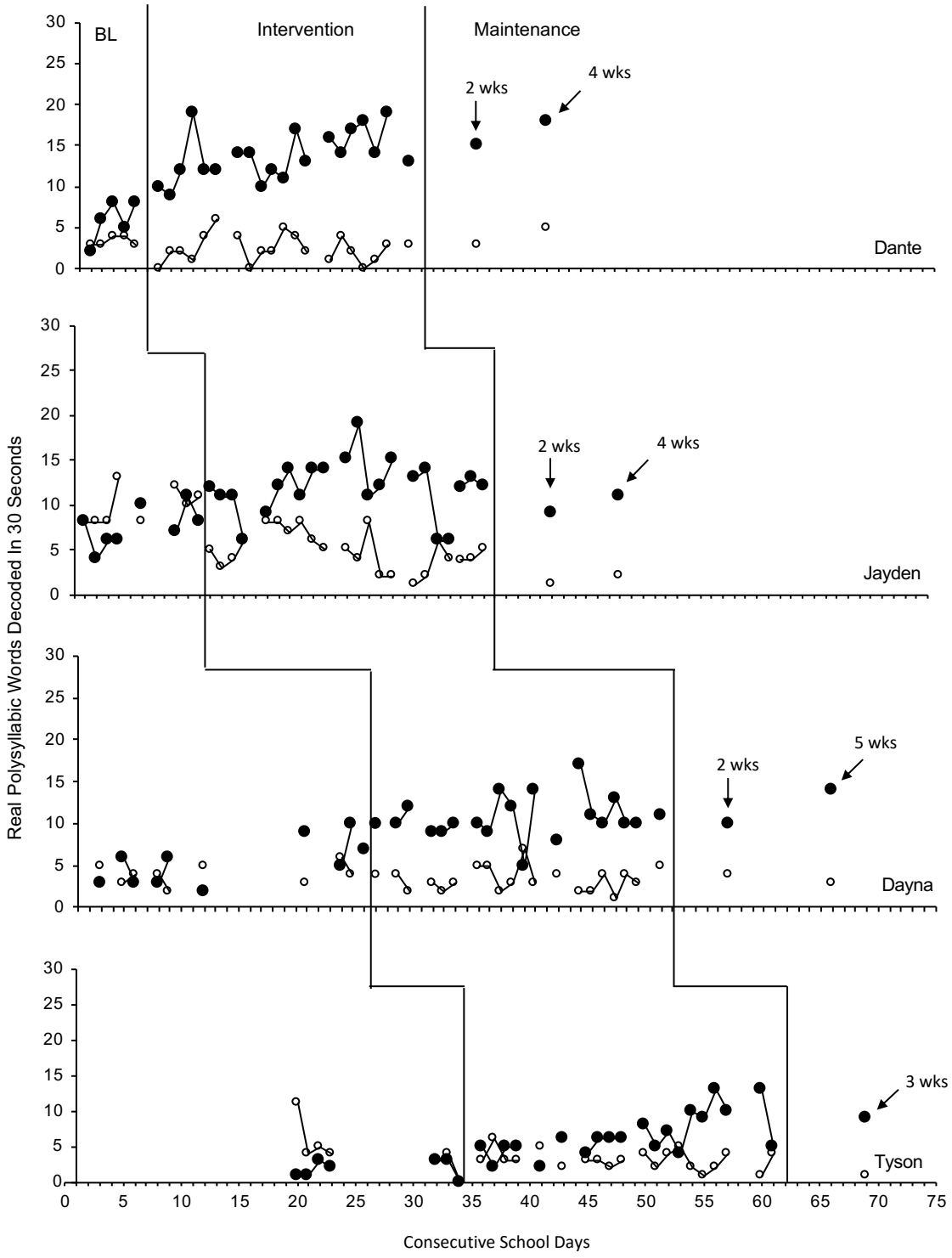
Students' decoding gains on real, polysyllabic word lists from baseline, intervention, and maintenance are presented in Figure 2. All four students show an upward trend from baseline through intervention when reading real polysyllabic word lists.

Dante. Dante's results demonstrate zero overlapping data points from baseline through intervention. Dante increased his decoding skills immediately upon receiving targeted intervention and continued to make steady improvements as evidenced by his increasing trend throughout intervention. His mean decoding for real polysyllabic words increased from 5.8 words in 30 s (range: 2–8) to 13.8 words (range: 9–19) during intervention. His data path follows a clear upward trajectory, with minimal variability, highlighting potential improvement in his ability to decode polysyllabic words. Dante's baseline data have a slight upward trajectory which makes it challenging to declare a clear functional relation. Dante maintained his improved performance during fluency checks taken 2 weeks and 1 month after completing intervention.

Jayden. Jayden's data were slightly more variable than her peers. Despite this variability, Jayden's decoding errors decreased substantially from baseline through intervention and maintenance with zero overlapping data points. Jayden's mean real word decoding improved from 7.5 correct words (range: 4–11) during baseline to 11.8 words (range: 6–19) during intervention.

Dayna. Dayna needed several sessions to practice her decoding skills before a clear change in level was depicted in her data. However, her data show an upward trend halfway through the REWARDS program. Dayna increased her real word decoding from 5.4 words (range: 2–10) during baseline to 10.7 words (range: 5–17) during intervention. Apart from one outlier around day 40, Dayna's data are relatively stable with little variability. Dayna maintained her progress on probes taken 2 weeks and 1 month after completing intervention.

Tyson. Tyson mirrored Dante's decoding gains, with 18 of 20 data points surpassing baseline performance levels. Similar to Dante, Tyson had minimal overlap from baseline through intervention. Although Tyson made minimal gains shortly after receiving intervention, there is a clear shift in his decoding trajectory toward the second half of intervention as depicted by the steep upward trend. Tyson's decoding improved from 1.8 words (0–3) during baseline to 6.55 words (range: 2–13) during intervention. He maintained this growth on a maintenance probe taken three weeks after completing intervention.



Note. Solid circles represent correct real words read and open circles represent errors.

Figure 2. Real Polysyllabic Decoding Results

Nonsense Polysyllabic Word Decoding

Participants' decoding gains on nonsense word reading are presented in Figure 3. All participants show an upward trend from baseline through intervention when reading nonsense, polysyllabic word lists. Moreover, participants displayed very few overlapping data points from baseline through intervention, highlighting compelling evidence for experimental control.

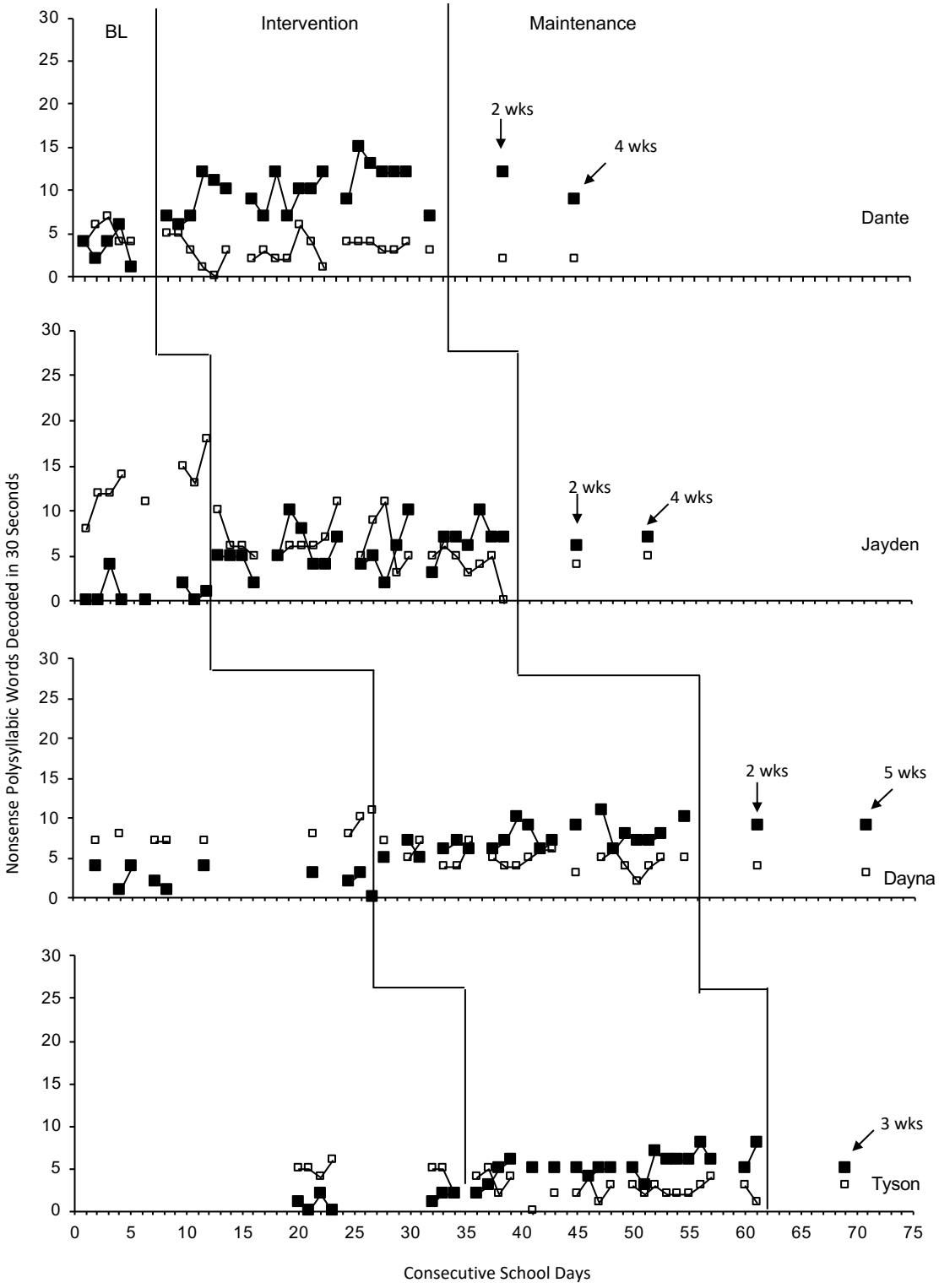
Dante. Similar to real word decoding, Dante had zero overlapping data points from baseline through intervention when reading nonsense polysyllabic words in 30 s. Dante's data depict a steep, upward trend immediately upon starting intervention. His data show slight variability during the middle of intervention but become more stable toward the second half of intervention. Dante improved his nonsense word decoding from 3.4 words (range: 1–6) during baseline to 10 words (range: 6–15) during intervention. He maintained these gains on maintenance checks taken 2 weeks and 1 month after completing intervention.

Jayden. Jayden made marked improvement on her ability to decode nonsense, polysyllabic words. She improved her word reading from 0.9 words (range: 0–4) during baseline to 5.5 (range: 0–10) during intervention. Similar to her real word reading, Jayden's data are moderately variable, even though they still depict an upward trend from baseline through intervention. Jayden maintained her growth on maintenance checks taken 2 weeks and 1 month after finishing intervention.

Dayna. Dayna's data highlight a functional relation between REWARDS and her improved nonsense word reading as depicted by the zero overlapping data points from baseline through intervention. Dayna's nonsense word reading improved from 2.7 words

(range: 1–4) during baseline to 7.4 (range: 6–11) during intervention. Her data path is stable and follows a clear upward trend. Similar to the previous participants, Dayna maintained her decoding skills on nonsense word probes taken 2 weeks and 1 month after completing intervention.

Tyson. Similar to the other participants, Tyson had minimal overlapping data points from baseline through intervention, highlighting a functional relation between the REWARDS program and his improved nonsense word decoding. He improved his nonsense word decoding from 1.1 words (range: 0–2) during baseline to 5.3 words (range: 2–8) during intervention. Tyson maintained his performance on probes collected three weeks after he finished intervention. His data depict minimal variability and a clear upward trend beginning immediately after starting intervention.



Note. Solid squares represent correct nonsense words and open squares represent errors.

Figure 3. Nonsense Word Decoding Results

Aimsweb and CommonLit Passage Fluency

Students' oral reading fluency gains on Aimsweb and CommonLit passages during baseline, intervention, and maintenance are presented in Figure 4. Three out of four participants (i.e., Dante, Dayna, Tyson) show noticeable gains with an upward trend on both Aimsweb and CommonLit passages.

Dante. During baseline, Dante's mean ORF score on CommonLit passages was 82 CWPM (range: 73–88) compared to 109 CWPM (range: 66–130) during intervention. Similar to Dante's real word reading, his data depict a relatively stable upward trend with exception of three data points in the middle of intervention.

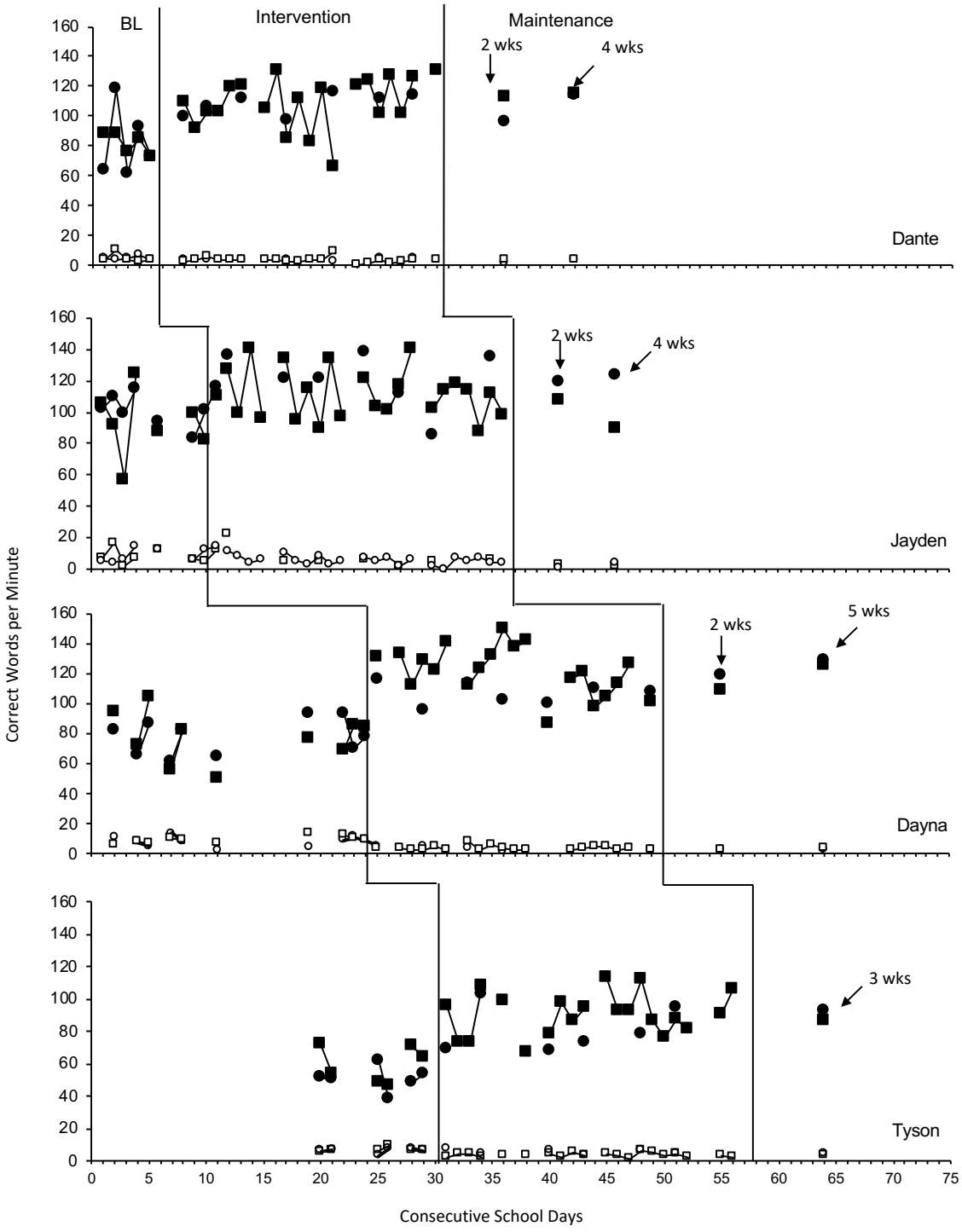
Dante's baseline ORF on Aimsweb passages was also 82 CWPM (range: 62–118) and increased to 108 CWPM (range: 99–116) during intervention. According to Aimsweb's National Norms, Dante's average reading fluency during baseline initially placed him below the first percentile compared to his peers. After intervention, Dante improved his fluency ranking, to the 11th percentile.

Jayden. During baseline, Jayden's mean ORF score on CommonLit passages was 95 CWPM (range: 83–125) compared to 114 CWPM (range: 90–141) during intervention. Despite these gains, Jayden's data are highly variable. She initially showed an increase in level upon starting intervention, but her trendline appears to be slowly declining even though it is still above baseline performance. Her fluency on Aimsweb passages began with 103 CWPM (range: 84–116) during baseline and increased to 119.6 CWPM (range: 86–139) during intervention. According to her initial Aimsweb mean performance during baseline, Jayden's percentile ranking placed her in the 11th percentile

compared to her peers. This ranking increased to the 24th percentile after completing intervention.

Dayna. When given CommonLit passages, Dayna improved her reading fluency from 77.3 CWPM (range: 50–104) during baseline to 121.4 CWPM (range: 87–149). Her data depict a steady upward trend from baseline through intervention. During the second half of intervention, Dayna's ORF dipped slightly, but began increasing again after three sessions. She averaged 77.6 CWPM (range: 64–93) on Aimsweb passages during baseline and increased her performance to a mean of 106.3 CWPM (range: 95–119) during intervention. When beginning the study, Dayna was reading at the 3rd percentile compared to her peers. This ranking increased to the 13th percentile after completing intervention. She also maintained her ORF gains on both measures two weeks and one month after completing intervention.

Tyson. Tyson demonstrated a functional relation between the REWARDS reading program and his improved ORF on both CommonLit and Aimsweb measures as evidenced by minimal overlapping data points from baseline to intervention. His data depict a clear, upward trend from baseline through intervention. On CommonLit passages, Tyson improved his ORF from 59.5 CWPM (range: 47–72) during baseline to 89.7 CWPM (range: 67–113) during intervention. On Aimsweb passages, Tyson started off baseline with a mean score of 51 CWPM (range: 38–62) and improved to 81 CWPM (range: 68–103) during intervention. Tyson maintained his ORF growth on a maintenance measure taken 3 weeks after completing intervention.



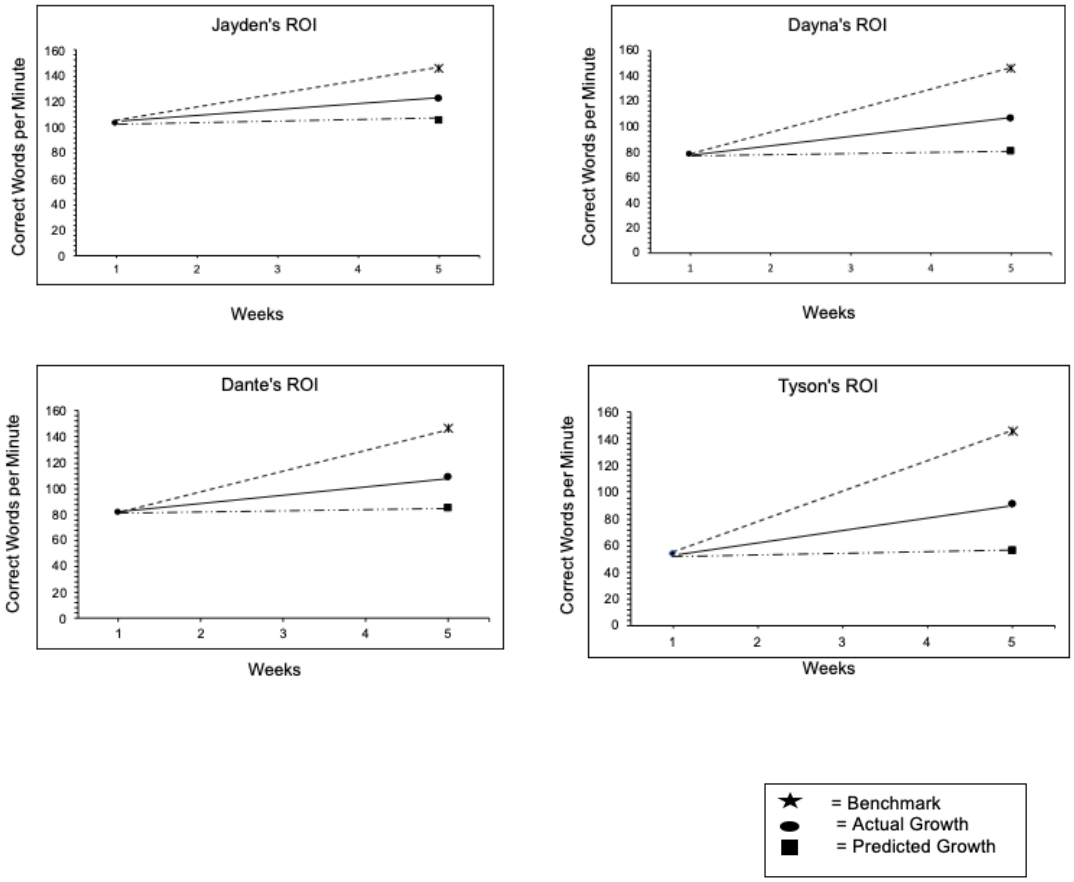
Note. Solid circles represent correct words read on Aimsweb passages. Open circles represent errors on Aimsweb passages. Solid squares represent correct words read on CommonLit Passages. Open squares represent errors on CommonLit passages.

Figure 4. Oral Reading Fluency Results.

Rate of Improvement (ROI)

All participants surpassed predicted ORF outcomes after only five weeks of intervention according to Aimsweb norms (www.aimsweb.com). As shown in Figure 5, students' ORF on Aimsweb passages surpassed the estimated growth rates that would be expected without targeted reading intervention. Moreover, all participants increased their percentile rankings by over ten percentile levels in just five short weeks.

Figure 5. Students' Rate of Improvement



DHPS Effect Size

Participants demonstrated large effect sizes across all dependent variables. First, they yielded a very large effect of $d = 1.42$ for their ability to correctly decode real, polysyllabic words. They exhibited an even larger effect of $d = 1.77$ on their ability to decode nonsense, polysyllabic words. Participants also yielded remarkably high gains on their oral reading fluency probes with effect sizes of $d = 1.39$ and $d = 1.03$ on respective CommonLit and Aimsweb passages. These effect sizes well exceed effect sizes typically found in the literature for struggling adolescent readers (Hill et al., 2011).

Social Validity

All students reported that they enjoyed the REWARDS reading program. Most items were rated as "4" (agree) and a few were rated as "3" (somewhat agree). Students wrote that they appreciated receiving help with their reading and learning new reading strategies. When asked, students reported they would not change any components of the program and that they noticed improvement in their reading. All students said they would continue to use the REWARDS reading strategies when approaching unfamiliar words.

The principal rated all survey questions as "4" (agree), which was the highest score possible. When asked whether he would "like to use the REWARDS program in the future" the principal wrote that he agreed. He also asked the researcher if there was anyone who could continue this intervention during the following year. The principal mentioned that he was surprised he never had any student issues when asking participants to leave the classroom to work on REWARDS. He said he often experienced student refusal when asking students to participate in other reading interventions.

Discussion

Reading is critical for future success, yet little is known about how to improve poor reading performance for high school students identified with emotional and behavioral challenges. Much of the literature has examined early intervention procedures for emerging readers, yet few studies have determined how to improve decoding skills for older, struggling readers (Rivera et al., 2006). In this study, I provided direct reading intervention using the REWARDS reading program to four high school students who were reading well below grade level and were identified with emotional and/or behavioral concerns. After receiving only 20 instructional lessons, all participants made decoding and reading fluency gains on real and nonsense word lists as well as fiction and nonfiction passages. Findings extend the research base for implementing reading interventions with this population in several ways:

First, gains were demonstrated for all four participants when provided with real, polysyllabic word lists. Increases in mean decoding performance revealed decoding gains from baseline through intervention for three out of four participants (i.e., Dante, Dayna, Tyson). Despite improvement in mean performance, students' baseline data slow slight upward trends, making it difficult to determine a functional relation between REWARDS and students' improved real word decoding. Intervention decisions were based primarily on nonsense word decoding, which meant the researcher did not wait for real word stability in baseline. Jayden also demonstrated noticeable improvement in her ability to decode real polysyllabic words as evidenced by her substantial reduction in decoding errors from baseline through intervention. Jayden's data show variability in her performance which is not surprising given her significant emotional and behavioral

needs. For example, on days 32 and 33 of intervention, Jayden informed me that she was unable to sleep due to encountering substantial bullying at school. On these days, Jayden struggled to stay awake during the intervention sessions. According to the literature, Jayden's fluctuations in performance are common; emotional challenges and environmental situations can negatively affect academic performance for this population and often lead to avoidance of academic tasks (Garwood, 2018). Interestingly, although Jayden had limited sleep, she still chose to attend intervention sessions each day they were offered.

A second finding highlighted the importance of robust vocabulary exposure for struggling readers. During this study, the researcher noticed students not only possessed weak decoding skills, but also had substantial deficits in vocabulary knowledge. When given real and nonsense word lists, participants struggled to determine whether words on their list were real or nonsense. It was apparent students had extensive deficits in vocabulary, which made it difficult for them to recognize many real words even after they used decoding strategies appropriately. Students' lack of exposure to grade-level vocabulary terms likely made it challenging for them to recognize the words they attempted to decode. Although they correctly decoded each word part, participants struggled to phonetically alter the word to make it identifiable. For example, students saw the word <impractical> and would read the final syllable /cal/ without a schwa. Without exposure to vocabulary and elements of language comprehension, these students continued to struggle to decode even though they had sufficient strategies to approach words. These findings are supported by Ouellette and Beers (2010), who argued that there may be more complex relations among oral vocabulary, word reading, and reading

comprehension than we originally understood from Gough and Tunmer's (1986) *Simple View of Reading*. In their study, the authors found that students' breadth of oral vocabulary predicted decoding for older students. For high school students with reading challenges, exposure to more complex vocabulary words may be critical for enhancing decoding skills and further developing reading comprehension. Perhaps student gains would have been more robust had they developed a stronger grasp of grade-level vocabulary terms.

Third, similar to real words, all participants made steady gains on their ability to decode nonsense, polysyllabic words. For emerging readers, nonsense word decoding is one benchmark commonly measured to identify potential reading difficulties (Good, Baker, & Peyton, 2008). The DIBELS Nonsense Word Fluency (NWF) measure is designed to monitor the degree to which students have mastered letter-sound correspondences. Moreover, using nonsense words helps determine which strategies the students are using to read the word. This is a more valid way to measure student decoding gains because it ensures that students have no previous exposure to the words they read. It is still unclear whether training students to read nonsense words generalized to improved decoding on real words. However, based on data in Figures 1 and 2, it appears there is a correlation between increases in nonsense word decoding and improvement in real word decoding. Also, participants' improved nonsense word decoding suggested that students were implementing newly learned decoding strategies from the REWARDS program to unknown words.

Next, three out of four participants made marked improvement on their ORF from baseline through intervention on both Aimsweb and CommonLit passages. When looking

at these data, a positive correlation between improved decoding and increases in ORF is clear. According to visual inspection, there was greater variability among CommonLit passages than Aimsweb excerpts. CommonLit passages were chosen according to a specific Lexile range (i.e., 1050–1100), yet there were still large discrepancies in the rigor of the passages. For example, some passages presented information about the current situation in African countries. For students with limited background knowledge, not knowing how to pronounce African countries was a challenge that affected their overall fluency scores. Despite the rigor of passages, students appeared to be more engaged when reading CommonLit nonfiction passages than fictional Aimsweb passages. Several students asked to continue reading their passage even when the one-minute timing commenced.

Fifth, equally if not more convincing of the students' reading growth, are the data depicted on the ROI graphs in Figure 5. According to students' projected outcomes, all students were estimated to gain 2 to 4 additional words on their ORF over a 5-week period. However, students surpassed this projection, increasing ORF scores by an average of 28 words (range: 19–38) in five weeks. Student gains are remarkable given the short duration of the reading intervention. These outcomes refute well-cited arguments that students' reading trajectories significantly decline as they get older (Wei, Blackorby, Schiller, 2011). Instead, findings shed light onto the importance of continuing to provide remediation to struggling readers in middle and high school.

Finally, students' positive reactions to the REWARDS program must be noted. Participants selected for this study had high rates of truancy, work refusal, and demonstrated withdrawn and/or challenging behaviors. However, in spite of these

challenges, all students choose to participate in intervention each day and presented no behavioral challenges during the entire intervention. In their social validity questionnaires, students expressed they were happy to finally receive reading support.

Limitations and Directions for Future Research

Several limitations of this study suggest possible avenues for future research. First, participants received REWARDS reading intervention in a one-on-one format. Students worked individually with the researcher, which may have contributed to their positive feelings toward the REWARDS program. On her survey, one student wrote she enjoyed receiving individualized help on her reading. This comes as no surprise as many of these students were reading well below grade level and may be embarrassed to receive intervention in a larger group format. It was very apparent that students became more confident reading in front of the researcher as the study progressed. Despite these positive findings, future research should consider replicating this study and delivering intervention to larger groups of students.

Second, the researcher focused on decoding and ORF measures for this study. Student comprehension was not explicitly measured. Anecdotally, it appeared that students comprehended the material they read based on the follow up questions they asked about the stories and situations. For example, after reading a story about Tonya Harding and Nancy Kerrigan, Tyson asked me what happened to Tonya after the incident occurred. Future research should consider directly measuring potential comprehension gains from the REWARDS intervention.

Finally, classroom reading instruction at this alternative high school was minimal. During reading blocks students watched movies, listened to audiobooks, answered

comprehension questions from read alouds, and played on their phones. Because of this inadequate instruction, it is possible that REWARDS appeared to have more robust outcomes in comparison to the lack of instruction occurring in the general education setting. Unfortunately, inadequate academic instruction continues to be the norm among behavior-focused alternative school settings (Beken et al., 2009). Future research should consider comparing REWARDS with another research-based program to determine whether it produces more robust outcomes.

Implications for Practice

The REWARDS program can be feasibly used by practitioners in their classrooms to improve student reading outcomes. Although the researcher delivered intervention in a one-on-one format, it is possible to deliver this instruction in small groups. However, it should be noted that many of the students in this study were embarrassed about their low reading performance and were very resistant to allowing other students to witness their reading. For struggling learners, these behaviors may be common. It is important to group students appropriately to limit these social challenges. Creating a safe and supportive classroom environment may be one way to counteract some of these challenges.

Additionally, for teachers of students with behavioral challenges, designing an instructional routine that fosters student engagement while using this program will be essential. Teachers should consider incorporating the visual activity checklist to help students stay on-task and clarify the next steps in their instruction. The REWARDS program provides a wonderful structure that can be easily followed. However, there is also room for teachers to enhance some of the content by adding in more practice drills, opportunities for more active student responding, or finding additional reading passages.

Conclusion

The REWARDS reading program can improve decoding and ORF outcomes for high school students identified with emotional and behavioral challenges. Surprisingly, there is little research on ways to improve decoding skills for high school students, particularly those identified with emotional and behavioral challenges. Data from this study highlighted positive experimental effects between the REWARDS program and student reading gains. These findings are supported by students' ROI graphs which show reading growth rates substantially higher than those projected for all four participants. This study provides preliminary evidence that implementing the REWARDS reading program can help struggling high school readers make marked improvement on their decoding and reading fluency. Furthermore, it shows potential to maximize reading outcomes for an often-neglected population of students. All students deserve the opportunity to reach their full potential and experience effective reading instruction.

Chapter 4. Practitioner Paper

The following chapter includes strategies for teachers to deliver effective reading intervention to students with emotional and behavioral challenges in the classroom.

Abstract

Reading is a critical skill for school success, yet teachers continue to struggle to deliver effective reading instruction to students with emotional and behavioral disorders. Challenging student behavior, academic struggles, and lack of effective reading resources make delivering effective reading instruction difficult. Teachers need tools to design and deliver reading instruction while simultaneously managing classroom behaviors. By combining effective reading instruction with effective classroom management skills, teachers can produce more robust outcomes for their struggling learners. This paper will provide strategies, techniques, and examples for practitioners to incorporate into their reading blocks to improve students' overall reading performance.

Designing and Managing Effective Reading Instruction for Students with Emotional and Behavioral Disorders

In a ninth grade self-contained EBD classroom, Ms. Riley carefully structures her reading block to make sure her students are practicing their reading skills while staying on task. Instead of seeing pencils thrown across the room or students on their cell phones, Ms. Riley watches and listens as all of her students chorally read the words written on the board before breaking up into partners to practice reading fluency. Ms. Riley feels confident that she is addressing her students' reading needs. However, Ms. Riley's class did not always run so smoothly.

Many educators struggle to provide effective reading instruction, especially for older students who are reading well below grade level. Whereas some teachers may have received training on evidence-based reading instruction in their educator preparation programs, reading courses are often geared toward early intervention with a focus on young, emergent readers. Although reading is essential, many educators feel lost when trying to structure their reading blocks to meet their students' diverse learning and behavioral needs. These challenges become even more problematic for teachers who work with students identified with emotional and behavioral disorders (EBD) who are addressing severe challenging behavior while trying to teach children to read.

Selecting effective reading interventions for struggling readers is challenging. Knowing what key features to look for in a curriculum will help teachers make better choices to support their students with reading and behavioral challenges. The purpose of this paper is to provide teachers of students with EBD guidance for (a) selecting and

designing appropriate reading curricula and (b) structuring their classroom environment to maximize students' on-task behavior and reading outcomes.

Part One: Evaluating and Designing Your Curriculum

The National Reading Panel (NRP, 2000) identified five essential pillars of reading instruction to help students learn to read: phonemic awareness, phonics, vocabulary development, reading fluency, and reading comprehension strategies. Given that many curricula are missing some of these important pillars, it is important to identify areas that are lacking, so teachers can supplement as needed. The Curriculum Evaluation Checklist (see Figure 6) is a tool that allows teachers to evaluate reading pillars in a curriculum as "strong," "weak," or "missing." If certain skills are "strong," you do not need to supplement additional materials. However, to best support your students, you will need to supplement with additional materials if skill instruction is "weak" or "missing." The checklist has broken down each of the critical reading skills to assist you in deciphering the strengths and weaknesses of your curriculum. This checklist can serve as a resource to support your reasoning for why you have made certain instructional choices. Categories with an asterisk indicate that there is a systematic sequence to follow when teaching that particular reading pillar. The University of Oregon has wonderful resources including Curriculum Maps that highlight each reading pillar and their instructional priorities across grade levels. This can be used in conjunction with the curriculum checklist below (reading.uoregon.edu) to evaluate your curriculum.

Curriculum Checklist

Strong (S) Weak (W) Missing(M)

1. Does the curriculum include **phonological components**? * S W M
   - Word Counting
   - Rhyming
   - Alliteration
   - Blending
   - Segmenting
   - Sound manipulation

2. Does the curriculum provide explicit **decoding** support? * S W M
   - Explicit teaching of **short** and **long vowels**
   - Definition and practice with **six syllable types**
   - Introduction and practice reading beginning and ending **blends**
   - **Syllable division** (how to break up and read multisyllabic words)
   - **Multisyllabic** word practice
   - Other: _____

3. Does the curriculum specifically address **spelling instruction**? * S W M
   - Spelling words are purposefully selected and grouped according to pattern
   - Spelling words are connected to targeted reading words
   - Clear progression of spelling simpler to more complex words
   - Other: _____

4. Does the curriculum explicitly address **vocabulary** instruction? S W M
   - Word Selection (see Three-Tiers Framework, Beck, McKeown, & Kucan, 2013)
   - Semantic webs
   - Morphology
   - Cloze Procedures
   - Explicitly teaching Context Clues
   - Other: _____

5. Does the curriculum include opportunities to identify **syntax** (grammar)? S W M
   - Explicitly teaches parts of speech
   - Sentence diagramming
   - Cloze Procedures
   - Sentence restructuring
   - Other: _____

6. Does the curriculum address **comprehension** strategies? S W M
   - Semantic mapping
   - Identifying different text structures (i.e., descriptive, sequence, compare/contrast, problem/solution, cause/effect)
   - Opportunities for self-monitoring and self-questioning
   - Opportunities to summarize

Figure 6. Curriculum Evaluation Checklist

Phonemic awareness. Phonemic awareness is a subcategory of phonological awareness that specifically focuses on hearing and manipulating individual speech sounds (i.e., *phonemes*) within a word. Strong phonemic awareness skills will help struggling readers with future decoding and spelling. Look at your curriculum to see if students are provided opportunities to listen to individual sounds and blend them to form words, or hear whole words and break (i.e., segment) them into component sounds. Strong curricula will go beyond basic blending and segmenting drills by including opportunities to manipulate words by adding and deleting sounds to create new words. Phonemic awareness is solely auditory so you should not see any letters incorporated into these drills.

Decoding. It is imperative students are provided with robust opportunities to practice explicit decoding skills. Does your curriculum have a scope and sequence to target different decoding patterns? If so, does it start out with basic phonics skills that increase in rigor throughout the lessons? Are specific sound patterns taught (e.g., short vowel sounds, blends, silent-e syllable types, compound words, vowel teams)? You should also find a progression from single syllable word types to polysyllabic word types. A robust decoding curriculum will provide students with word attack strategies for breaking apart polysyllabic words into easy to read single syllables. If you do not have a scope and sequence, it is important to find or make one, so you know how to help your students make progress and have a clear understanding about when to advance to more challenging concepts.

In order to help your struggling readers, decoding instruction must contain all of the components listed on your curriculum checklist (see Figure 6). Beware. Decoding

does not mean that the student looks at the first letter of the word and then uses the pictures or context clues to guess the word. It is also not memorizing high frequency/sight words or using flashcards to recite the entire word from memory. These approaches to teaching reading are inefficient and often ineffective.

Spelling instruction. Effective spelling instruction can enhance students' understanding of key relationships between letters and sounds, ultimately strengthening their reading skills. Spelling instruction is infrequently taught in the classroom, yet it is critical for struggling readers; research has shown learning to spell and learning to read have many of the same foundational skills. When students learn to spell, they gradually integrate information about print and speech sounds which ultimately supports memory for new words (Moats, 2005).

Spelling instruction in many classrooms contains a weekly list of 10 to 20 words based on classroom content or other subjects related to the general curriculum. For strong spellers, this type of spelling list may be acceptable; however, for struggling readers, spelling lists should be based on similar spelling *patterns*. Spelling assessments should not be a completely random list of words or words that may only be connected because they came from the same book or center around a common topical theme.

Strong curricula should contain spelling instruction that reinforces similar patterns students are learning during reading instruction. For example, if the student is learning to read short vowels, words selected for spelling practice should contain short vowels so the student can practice this skill. When looking at your curriculum, check to see if there is a sequential and explicit way spelling instruction is taught. Are students given words that are grouped similarly together? Is there a heavy focus on writing sentences that feature

new spelling patterns students have recently learned? If students are being taught to decode words in the curriculum, is there a complementary section that focuses on spelling these specific patterns?

Vocabulary. There are many ways your curriculum can address vocabulary instruction. Scan through the table of contents to determine whether your curriculum will specifically address vocabulary terms by providing a list of vocabulary words to be covered throughout the curriculum. Often, vocabulary instruction is grouped with comprehension portions of your text and unknown words are highlighted or bolded for students to learn while reading larger comprehension passages. If this is the case, look to see whether there is an emphasis on understanding specific unknown words in the text. For example, do students need to define these terms in their own words? Can they practice using these words in sentences? Are they able to generalize these words into other contexts?

Weak vocabulary instruction provides minimal practice and exposure to unknown words. Students may only encounter the word once or twice before they continue on in the curriculum without encountering the word again. Strong curricula will provide frequent practice opportunities for students to review these words and continually check for maintenance by reviewing past words from the curriculum.

There are many different ways to supplement your curriculum if you find vocabulary instruction to be lacking. First, you will want to determine how to select the vocabulary words you will want to teach. Beck, McKeown, and Kucan (2013) break up vocabulary words into three tiers. The first tier consists of everyday words that students experience frequently. Words from this first tier do not need to be explicitly taught to

students as they will likely encounter them independently (e.g., *tired, dog, happy)*. The second tier consist of words that mature language users will learn, often through written text. These words are encountered less frequently in conversation but can be found more often in text. Students are less likely to learn these words independently, yet the words can have a powerful impact on their ultimate word knowledge and comprehension (e.g., *contradict, illuminate, fervent)*. These are the words that should be taught during vocabulary instruction. Finally, tier three words are limited to specific topics or content areas, are encountered less frequently, and will not be of high utility to most students (e.g., *allele, filibuster, herbivore)*. Teaching tier three words will be less valuable to students than instructing words from the second tier.

Once you have selected the most relevant tier two words to teach, you can begin instruction. One effective strategy to help students learn unknown words is to teach students to complete semantic webs—these webs help students make connections to their own lives, to other known vocabulary, and to past experiences. Making these connections will increase the chances that students will not only remember this vocabulary, but also use it more frequently. Another strategy is to explicitly teach students how to use the context of the sentence or paragraph to figure out the general meaning of the unknown word.

Finally, teaching students the etymology behind the word and connections to other words through morphology instruction can have beneficial effects on students' vocabulary acquisition and comprehension of the text. Look to see if your curriculum breaks apart words to teach different morphological patterns. If you are looking for resources to help supplement using these strategies, see Table 8.

Comprehension. Comprehension is the most critical piece of any reading curriculum. There is no purpose to reading without understanding what is being read. When you look through your curriculum you will likely find comprehension questions for students to answer after they have read various passages. Although this is one way to address comprehension, it is not sufficient for struggling readers. Teach students strategies to increase their comprehension by teaching self-monitoring and self-questioning skills.

Self-monitoring and self-questioning. *S*trong readers can engage with the text by asking questions and checking for understanding. Struggling readers, however, are often so focused on the mechanics of reading that they do not always monitor whether or not they comprehend what they are reading. Teaching students how to read strategically has important implications for their comprehension (Rouse, Morgan, Cullen & Sawyer, 2014). Enhance your curriculum by teaching students to self-monitor their reading by asking self-generated or teacher prepared questions at the beginning, middle, and end of their reading (Crabtree, Alber-Morgan, & Konrad, 2010). These strategies will help students recall important information, access background information, and know to look back at the text when they fail to understand what they read (Gajria, Jitendra, Sood, & Sacks, 2007).

You can supplement any reading materials in your curriculum by placing visual symbols throughout the text to serve as a reminder for students to ask questions and also monitor their comprehension while they read. This will prevent students from getting to the end of a reading passage without having understood any of the material. You will likely need to model how to generate appropriate text questions for struggling students.

Guide students through the types of questions you can ask and model how you might ask your own questions as you read through the text. For additional resources to guide this instruction see Table 8.

Additional comprehension strategies. There are many different activities you can incorporate into your teaching to enhance students' comprehension of the text in addition to teaching decoding and vocabulary. One helpful strategy to include is teaching students how to identify key words in different text structures (e.g., compare/contrast, persuasive, descriptive). For example, students should learn to identify keys words that might be prevalent in a compare/contrast passage that might not be in descriptive passages (e.g., *in contrast*, *similarly*, *alike*, *different*). Learning how to pick out key words will help students better understand what they are reading. Semantic maps and graphic organizers can also help students organize information into meaningful visual representations.

When looking through your curriculum, determine what types of texts students will be asked to read and check to see if there is a graphic organizer that complements that text structure. For example, if students are reading a compare/contrast text, supplement their reading by providing them with a Venn diagram to better organize the material.

Now that you have selected or supplemented material to create a rigorous literacy curriculum, you must figure out how to structure your lessons to effectively teach your students identified with EBD. You should not be surprised if you see challenging behaviors initially increase when delivering reading instruction. Reading is hard. Your students have likely experienced years of reading failure and find it to be aversive. By following these steps, you will likely notice higher levels of engagement and greater

reading gains. These key steps will ensure that you have a smoothly running reading block that maximizes student learning.

Table 8

Helpful Resources

Resources	**Websites**
Phonemic Awareness	http://www.sightwords.com http://www.fcrr.org/curriculum/PDF/G2-3/2-3PA_3.pdf http://www.readingrockets.org
Phonics	http://www.fcrr.org http://www.readingrockets.org https://www.readinga-z.com http://www.starfall.com http://eps.schoolspecialty.com/products/literacy/readers/spire-decodable-readers/about-the-program
Vocabulary	https://www.etymonline.com http://www.wordworkskingston.com/WordWorks/Home.html
Fluency	http://www.interventioncentral.org/academic-interventions/reading-fluency/repeated-reading https://www.readinga-z.com
Comprehension	http://www.fcrr.org http://www.wordworkskingston.com/WordWorks/Home.html http://www.readingrockets.org
Self-Monitoring/Self-questioning	http://www.interventioncentral.org/academic-interventions/reading-comprehension http://teachingld.org/questions/15
Progress Monitoring	https://aimsweb.pearson.com https://dibels.uoregon.edu
Behavior Management	https://intensiveintervention.org/intervention-resources/behavior-strategies-support-intensifying-interventions https://www.edutopia.org/topic/classroom-management

Part Two: Managing Your Instruction

Step 1: Building Rapport

If you are teaching students with EBD, you are already aware that your students struggle in academic settings. Before beginning any instruction, it is essential to build rapport with your students. Learn about your students. What do they like to do in their free time? Do they have a preference for any specific types of books or topics? What are their personal goals? Show you are genuinely interested in how their day is going and any issues they may be facing. Find out about triggers and any traumatic events that may have occurred. Understanding these triggers will help with text selection and may also help you as you try to identify functions of various behaviors.

Step 2: Screening Your Learners

If your curriculum comes with a placement test, make sure to give it to your students. This will ensure that you are starting the curriculum in the right spot and not wasting valuable time on material students already know. If your curriculum does not have a placement test, start at the beginning of the program. You can adapt and modify as you move through your lessons and gauge student responses.

In order to identify areas of focus, provide an initial reading screener to determine the students' reading baseline. There are several different types of screeners that can be used to assess your students. One commonly used screener is DIBELS (http://dibels.uoregon.edu) which contains brief, timed assessments that identify decoding errors, oral reading fluency issues, and sight word challenges. The National Center on Intensive Intervention (http://intensiveintervention.org) lists many different options for

screeners you can use with your students along with the reliability and validity of the measure.

Step 3: Creating a Positive Environment

Before beginning any lesson, determine ways to structure your classroom environment to address potentially challenging behaviors. Below are examples of simple antecedent interventions you can deliver to prevent challenging behaviors.

Noncontingent reinforcement. One way to decrease challenging behavior maintained by access to teacher attention is to provide students with noncontingent attention before starting the reading lesson (Maggin, Wehby, Moore-Partin, Robertson, & Oliver, 2011). This means students will receive some form of teacher attention regardless of their behavior. Greet each student as they enter the classroom or ask an engaging question to each student individually before beginning instruction. Make sure to limit conversation to a brief time period such as two or three minutes to ensure you are able to connect with each student and so instructional time is not wasted. Addressing attention needs before they become problematic will ultimately save instructional time by preventing student outbursts or interactions aimed at getting teacher attention. By preemptively acknowledging students and forming a connection, you can reduce certain problem behaviors from occurring. Several studies have affirmed that teacher attention can reduce disruptive behavior (Rubow, Noel, & Wehby, 2019) and increase on-task behavior.

Contingent reinforcement. For students identified with EBD in particular, positive reinforcement can be especially powerful because of how infrequently they receive it in instructional settings. Students identified with EBD are more likely to

receive corrective or punitive remarks from their teachers and peers. Numerous research studies have shown these students have far fewer positive interactions with teachers and classmates than their peers without disabilities (Maggin et al., 2011). Below are a few examples of ways to provide positive reinforcement to your students. For additional positive behavior support resources, see Table 8.

Specific positive praise. Although simple in nature, incorporating specific, positive praise into your reading instruction can quickly increase students' on-task performance and overall engagement. Delivering specific positive praise requires two components: First, you must clearly identify and state the behavior you want to praise. Next, you must pair your statement with a positive remark. For example, if a student is completing a math worksheet you may say, "You added those digits correctly, nice work!" By acknowledging the student's specific behavior, you create a more authentic form of praise as opposed to a generic "good job" statement. Statements such as "great" or "excellent" do not help students identify what they are doing to earn praise. It is possible your student will not want to receive verbal praise in front of peers. In this case, you can modify your praise from oral to written form. For example, place a Post-it Note with specific praise on your student's desk to be less conspicuous. See Table 9 for examples of specific positive praise statements you can incorporate in your practice.

Table 9.

Specific Positive Praise Examples by Subject

Literacy	Reading in the Content Areas	Social/Emotional
You decoded that polysyllabic word. That was a tough one! Nice job.	Your outline on this chapter is well organized. Good work.	I see you shared your toy with your friend. Great job.
Great job defining that unknown word.	Great job looking back in the text to answer that question.	Thank you for using appropriate language.
You used your context clues to figure that word out. Excellent!	Nice job putting those events in chronological order.	I appreciate how you asked for a break when you got frustrated.
Your topic sentence is well written. Nicely done.	Excellent work defining that challenging vocabulary term.	Great job taking deep breaths instead of leaving the classroom.
Nice job following along with the text as I read.	I like how you highlighted unknown words to help you figure out the meaning.	It was very polite of you to hold the door for your classmates.

Token economy. A token economy can be used across various grade levels for whole class or individual students. Determine behaviors you would like to see while your students are in your reading block. For example, do you want them to be tracking their reading with their finger? Answering on your signal? After determining your desired behaviors and sharing these behaviors with your class, assign points to students who are demonstrating those specific behaviors. Students can use their points to trade in for incentives (e.g., class games, class parties, individual teacher attention, prizes). It is essential incentives offered are items students value and want to earn. For a more detailed

explanation of the origin of token economies or how to design one for your classroom, see Robacker, Rivera, and Warren (2016).

Self-Monitoring

Many students identified with EBD struggle with behavioral regulation and self-control, especially during academic tasks (Hayden et al., 2012). Teaching students to self-monitor their behavior can be one way to mitigate potential behavioral challenges. Structure your reading block to help students learn to follow set schedules and procedures. For example, assign each reading drill point values for students to earn upon completion. Pair each reading activity or drill with a visual schedule that students can use to follow the schedule of activities. Using this schedule keeps lessons structured and predictable, enabling students to have a clear understanding about expectations for each reading block. You can laminate this schedule and provide students with dry erase markers to follow along and monitor their reading activity and engagement. You can also provide students with a behavior checklist that lists appropriate behaviors to follow as they work. Set a timer that goes off at various intervals and teach students to check whether they are following the desired behavior at that time. This helps students to independently monitor their behavior without the need for frequent teacher reminders. You can also encourage students to track their engagement by keeping a tally of how many times they respond to reading-related questions. Figure 7 provides an example of a self-monitoring checklist that can be used with older students during classroom instruction.

Self-monitoring behavior	Reading	Math	Science	Social Studies
Readiness				
Pencil or Writing Utensil				
Paper/notebook/worksheet				
In desired location (chair, carpet, desk)				
Participation				
Eyes on instructor or task				
Engaging in assignment				
Responding to questions (check off box for each response)	☐☐☐☐☐ ☐☐☐☐☐	☐☐☐☐☐ ☐☐☐☐☐	☐☐☐☐☐ ☐☐☐☐☐	☐☐☐☐☐ ☐☐☐☐☐
Respect				
Using respectful language				
Appropriate noise volume				

Figure 7. *Self-Monitoring Checklist*

Step 4: Active Student Responding

Active student responding is an integral part of any reading lesson. Instead of delivering instruction *to* the students, teachers can increase student engagement by creating opportunities for students to *respond* to material. For students at risk or identified with EBD, fostering opportunities for students to positively engage with the curriculum can limit their ability to simultaneously engage in challenging behavior and increase overall engagement (Heward & Wood, 2015). Research suggests learning is improved when students are actively engaged and involved in classroom instruction (Ticani & Twyman, 2016). Below are several examples of ways to incorporate active student responding in your reading instruction.

Response cards. Response cards can be a cost-effective way to engage all learners simultaneously rather than calling on a select number of students (George, 2010). Response cards can take various forms such as dry-erase boards, prewritten response cards, or higher tech options such as online polling or clicker responses. Regardless of modality, incorporating frequent responses provides students with more opportunities to practice reading skills while enabling the teacher to informally progress monitor acquisition of material. Several studies successfully used response boards to increase overall student engagement and on-task performance (Didion, Toste, & Wehby, 2018). Table 10 provides examples of ways to use dry-erase response boards to improve student responding across all pillars of reading instruction.

Choral responding. The purpose of choral responding is to increase the number of simultaneous active student responses and the amount of time students spend engaged in instruction (Carnine, 1976). Choral responding occurs when the teacher provides a visual or verbal cue and the class responds orally to the directive in unison (Heward, 1994). Similar to response cards, choral responding is a helpful way to assess the class's understanding of material. Firm answers will produce a resounding noise whereas confused responses will often be quieter or scattered. Creating a clear answering signal is essential to ensure students are not simply waiting to hear other responses before chiming in. Choral responding can be easily implemented during whole class reading instruction by having students blend words, decode words, answer comprehension questions, etc. Intersperse individual student responses among choral responses to keep all students engaged. Make sure to ask the question before selecting a specific student in order to keep all students' attention.

Table 10.

Response Card Literacy Examples

Skill	**Direction**	**Example**
Letter Sound Identification	Say the sound of various letter/letter combinations and have students write down the letter/s that make the sound	Teacher: Say /A/. What says /A/?" Students write: a, a-e, ai, ay, eigh, ey
Spelling	The teacher has students practice writing specific spelling words	Teacher: spell /graceful/ Students write the word on their boards.
Morphology	The teacher has students build words that share the same root. The teacher has students break apart a word into their morphemes.	Teacher: The root is <rupt> how many words can you build? Students write: disrupt, disruption, erupt, interrupt Teacher: Break <eruptions> into its morphemes. Students write: E + rupt+ ion+ s
Syllabication	The teacher has students practice breaking words into syllables	Teacher: Break <rubbish> into syllables Students write: Rub/bish
Punctuation	The teacher has writes example sentences and has students determine appropriate punctuation to add to the sentences.	Teacher: How would you end this sentence? "Are we going to get a dog?" Write the appropriate punctuation make on your board.
Comprehension	The teacher asks specific questions related to the text.	Teacher: Where did Lena go after she left the party?

Structured practice opportunities. Provide students with entrance slips, exit slips, and brief worksheets they can complete to show their understanding of new concepts. These are different than typical worksheets that are handed out to students as busy work. Structured practice opportunities focus on a relevant skill and require the teacher to circulate and provide frequent feedback to learners. Students can self-check responses or provide feedback to peers.

Step 5: Using High-Interest Materials

Finding materials that are representative of the students you are teaching can play a role in student motivation (Telesman, Konrad, Cartledge, Gardner & Council, 2018). Because students at risk or identified with EBD often struggle academically, building opportunities that enhance student motivation and participation in reading instruction is imperative. Locate culturally relevant materials to supplement materials already found in your reading curriculum. Additionally, find out what topics interest each student in your classroom so you can cultivate these interests and build student rapport. There are several websites that provide high interest, low level decodable texts that you can use with lower performing students. For example, High Noon Books (www.highnoonbooks.com) can be an excellent resource with a wide variety of options for all learners. Before selecting texts that may present controversial topics, it is important to understand your students' backgrounds and history. Many students identified with EBD have experienced trauma and it is important to choose material wisely to ensure you are not retraumatizing students by picking sensitive topics unknowingly.

Ways to Structure Your Reading Block to Run Smoothly

Mrs. Riley would like to meet individually with students to assess their reading growth and target specific reading challenges. She looks around the room and cannot figure out how to make this happen without allowing chaos to unfold. She wants to structure her reading block in a way that allows her to spend time with each student alone while other students continue to work and learn.

One of the biggest challenges for teachers is to determine how to structure reading blocks to maximize instruction as well as create opportunities to evaluate and coach students individually. For teachers working with students identified with EBD, structuring the reading block in a way that limits off-task behavior is critical to preventing problem behaviors. Literacy blocks can be broken down into whole class instruction, paired student learning, and individual one-on-one coaching.

Whole class instruction. Whole class instruction can be a struggle especially when several students have behavioral challenges. It is critical to incorporate steps 1-5 from this paper into whole class instruction to ensure it runs smoothly. In addition to engaging students by providing opportunities for active responding, make sure the pace of lesson remains quick, with few opportunities for students to engage in off-task behavior. Selecting a scripted literacy program that meets high-quality reading criteria can be helpful because it allows teachers to shift their focus from lesson delivery to student behavior and engagement. Anticipating when students are struggling, disengaged, or requiring an instructional adjustment is critical to keeping the class on track. Collecting data during whole class instruction will be helpful for designing individual coaching sessions and determining where individual students are struggling. An example of a data collection sheet used to track individual errors during whole group instruction

can be found in Figure 8. Collecting data on student errors during whole class instruction is one way to determine specific learning errors that can be addressed and remediated during other portions of the literacy block.

Whole Class Tips

- Ask questions to the group before directly addressing a particular student. This way, all students are required to think of a response and do not know whether they will be called on to respond.
- Give students a brief entrance slip as they enter the class to help them transition. Ensure the entrance slip contains review material that students can easily complete individually.
- Circulate throughout the room and assign students points for following desired behavior.

Student	**Skill #1 (Blends)**	*Notes*	**Skill #2 (Identifying prefixes)**	*Notes*	**Skill #3 (Identifying suffixes)**	*Notes*	**Skill #4 (Spelling)**	*Notes*
Johnny	✓		✓		×	ness	✓	
Abi	✓		✓		×	ness	✓	
Darren	× ×	De com pose Lit i gate	×	sub	✓		×	Disgusting (discusting)
Jessa	×	Lit i gate	×	dis	✓		×	Unhelpful (unhelpfole)
Zadayah	✓		✓		✓		✓	
Tyson	✓		✓		×	less	✓	
Essence	×	Lit i gate	× ×	Sub Mis	✓		×	Disturbing (disterbing)

Figure 8. Whole Group Instruction Knowledge Check

Small-group or paired reading. After providing instruction to the whole class, it is beneficial to split students into smaller groups or student pairings to practice specific skills with feedback. For students with behavioral challenges, it is critical to spend time teaching expectations for groupwork before releasing teacher control. Explain to students how they can respectfully correct a group member or partner's error. Teach students the proper protocol for how to respond when they are corrected by a peer. To practice these procedures, have students role-play different scenarios with various partners to ensure partner dynamics do not interfere with student learning.

To structure student pairings or small groups, use data from whole class instruction to select skills students need to practice. For example, if students are struggling with letter sounds, create flashcards for them to practice with another student. Give students timers and have them count the number of flashcards they can complete within a one-minute timing. Teach students to log their partner's responses and praise them for their effort. Students can also use this time for paired repeated reading. Assign an independent level passage or text for students to practice reading aloud to a partner in order to improve reading fluency. For more information about paired repeated reading see (Rasinski, Reutzel, Chard, & Linan-Thompson, 2011).

Small Group Reading Tips

- Set a classroom timer and write out reading tasks clearly so students know how long the activity will last and exactly what they should be doing during that time.
- Ensure that the time block is not too long, and students have enough work to keep them on-task during breakout sessions.

- Continue to circulate throughout the room during paired work to listen to timings and ensure students are not practicing errors.
- Provide specific positive praise to groups or pairings of students who are on-task and following directions.

One-on-one coaching. Finding time to work with students individually is important in order to assess each student's reading progress and specific literacy related IEP goals. Although students can practice these skills with a partner, listening to students read firsthand can help to determine error patterns. By assessing each student individually, it is more likely that intervention can be provided before students practice errors. It may be helpful to incorporate technology during this final segment of the literacy block so students can work independently while the teacher provides one-on-one coaching. When selecting supplemental technology, it is important to evaluate whether the websites are research-based, rigorous, and align with instructional needs. Time spent on the computer or with technology should be purposeful, and not simply a means to keep students busy. When meeting with students, focus on reviewing skills they have repeatedly struggled to master as noted in whole group instruction and paired partner reading. For example, if students are struggling to decode polysyllabic words, you might consider adding in a booster lesson to help them highlight specific prefixes and suffixes within complex words. Another great use of this individual time is to provide periodic progress monitoring to assess and track growth for each learner.

One-on-One Coaching Tips

- Provide work students can complete independently without teacher support.

- Teach students that one-on-one coaching time is not a time to ask the teacher questions. Display a visual cue for students that signals appropriate and inappropriate times to seek out teacher assistance.
- Teach students what they can do if they are stuck on an assignment while you are working with another student.
- Set a periodic timer as a prompt to deliver praise to students who are working independently during this literacy segment.
- Keep progress logs and individual student binders that list specific skills targeted during one-on-one coaching. Use this binder to record data on specific targeted skills.

Putting It All Together

Ms. Riley has ninety minutes to fill for her literacy block. She has identified key components of effective reading instruction and figured out how she will supplement key skills for her students. She previously reviewed her classroom expectations with her students, had students role-play appropriate behavior, and posted expectations on the board in front of the classroom. During whole class instruction, Ms. Riley plans to deliver the REWARDS (*Reading Excellence: Word Attack and Rate Development Strategies*; Archer, Gleason, & Vachon, 2000) *curriculum to her class by incorporating choral responding and white boards to actively engage her students. For paired reading, she will have students practice their oral reading fluency using passages taken from REWARDS. Finally, during one-on-one coaching she plans to meet with students to go over their essay outlines for their persuasive paper. While working with students*

individually, the rest of the class will be independently using a word matrix to build polysyllabic words from the REWARDS lesson that day and determine their meaning. When students are finished with their matrices, they can select a review deck containing previous vocabulary words from the maintenance bin to practice for the remainder of the class. Ms. Riley has worked hard to build a structured environment that sets her students up for success.

The strategies provided above can help to change your classroom environment and improve your learners' reading outcomes. Our students deserve the highest-quality instruction available and by incorporating these elements, you can help to positively change their academic experience and allow them to finally experience success.

Chapter 5. Discussion

My experiences working as an Intervention Specialist have inspired me to address the vast achievement gaps that exist in our schools today. Throughout my career, I have focused on finding ways to improve literacy outcomes for underserved student populations. My research has manifested into a focused line of work that addresses literacy interventions for culturally and linguistically diverse students, specifically those with emotional and behavioral challenges. In Chapter 1, I suggested that Direct Instruction reading interventions may be one possible avenue to provide students with effective literacy instruction. Next, Chapter 2 presented a literature review focused on determining whether DI reading interventions implemented with the ED population could garner an evidence-based practice classification. Findings from this literature review inspired the study taking place in Chapter 3. In this study, I delivered a DI reading intervention to high school students identified with emotional disturbances and behavioral challenges. Results from this study supported previous findings that DI may be an effective way to remediate reading challenges for struggling readers. While delivering intervention in this alternative high school setting, I noticed that classroom teachers were struggling to deliver reading interventions to students in their classrooms. Students were missing key instructional opportunities due to lack of effective classroom management strategies coupled with poor reading instruction. This led to the inception of my practitioner paper presented in Chapter 4, which specifically focuses on ways

teachers can deliver literacy and behavioral interventions to students identified with ED in their classroom. Finally, this last chapter will conclude my dissertation by presenting my career goals, outlining the development of my dissertation, and sharing future research aims.

Career Goals

Before pursuing my doctorate, I worked as an Intervention Specialist in Chicago Public Schools. During my first year of teaching, I taught at a Therapeutic Day School for students who were removed from public school settings due to behavioral challenges. Working in a Therapeutic setting was an eye-opening experience. First, the word "therapeutic" is misleading—most classrooms were the antithesis of therapeutic. I was surprised to see the lack of academic rigor that took place in these settings and the punishment-based contingencies teachers followed when it came to managing student behavior. When looking at the time spent in school, very little was focused on academic instruction and of that duration, none of the practices were evidence-based. I was particularly shocked by the limited amount of reading instruction provided to struggling readers. After my year at the Therapeutic setting, I transitioned to a low-income public school on the West side of Chicago. Yet again, I noticed students with academic and behavioral challenges received subpar instruction. Moreover, all students were reading well-below standard proficiency levels compared to public schools with more resources. I returned to pursue my doctorate so I could influence education at the teacher-training level. I know preservice teachers need appropriate training to learn how to implement evidence-based practices in academic and behavioral capacities. Going forward, I plan to

make my impact at the college level by training preservice teachers. I would like to specifically focus on teaching effective reading practices while simultaneously teaching effective classroom management strategies.

In order to contribute to the field of Special Education I hope to continue to disseminate research pertaining to this underserved population of students (i.e., students with academic and behavioral challenges). I hope my work helps practitioners to effectively implement practices in their own classrooms. Moreover, I would like to lead workshops and professional development opportunities so teachers who are not apt to consuming research will have access to important information. I look forward to doing my part to contribute to student growth.

Development of this Dissertation

This dissertation has been a work in progress for several years. Before I considered working with secondary learners, I started out conducting early-intervention reading research in urban schools. Delivering effective reading instruction early in students' schools careers had important implications for their future success. First and second grade students who were considered to be at risk for reading failure met benchmark aims when they were provided with consistent, systematic reading instruction. Seeing these impressive results made me think about struggling secondary learners who are also experiencing reading challenges. Much of the literature pointed to less robust gains for older, struggling readers.

When developing my pilot study for this dissertation, I wanted to use a program that had some research supporting its effectiveness. I also wanted a program that was cost-effective and could be easily implemented by teachers without additional time

commitments or extensive training. While researching programs, I came across REWARDS, which seemed perfect for older readers who were struggling with decoding. My pilot study specifically looking at decoding and oral reading fluency measures for sophomore students in an alternative high school setting. After seeing such positive gains from my pilot study, I knew that I wanted to replicate this intervention to see if results were reliable. I added two components into this dissertation. First, I decided to add grade-level passages from CommonLit. Passages selected from this database were nonfiction, Social Studies or Science excerpts. I chose to add nonfiction passages because they are more representative of reading material students will experience in their classrooms. In my pilot study, I used Aimsweb passages as my only measure of reading fluency because they are standardized and benchmarked appropriately. However, stories in Aimsweb are often fictional and not entirely representative of high school classroom readings. In order to add to the social validity of this study, I wanted to incorporate a measure that directly related to content from the typical classroom.

The second component added was a social validity measure taken directly from the school principal/classroom teacher. In my pilot study I only provided this measure to students in order to understand their perceptions of the REWARDS program. This time, I wanted to see how an administrator and teacher would view the program. I felt this piece was critical to determine whether REWARDS could continue to be implemented within the school.

Future Research Aims

I would like to continue to increase the usage of DI programs for struggling, adolescent readers. To address this goal, my research will focus on three specific aims:

First, I am interested to see how teachers perceive DI interventions and what barriers exist that inhibit them from using these curricula. Teacher "buy-in" is critical for DI programs to be sustainable in schools. Over the past ten years, there has been a significant decrease in the research conducted for DI programs. This may be due in part to teacher hesitation, so addressing these challenges will be essential.

Second, I would like to investigate how to effectively and efficiently train teachers to deliver evidence-based reading interventions. Although my study did not require teacher training, many of the researchers already had strong literacy backgrounds which helped when correcting student errors. I would be curious to see how effective DI reading programs are for teachers with little literacy background. Are there differences in student progress? What are the best ways to train teachers without requiring an extensive amount of time and commitment?

Third, I am interested in determining how different student groupings could be arranged when delivering Direct Instruction reading intervention. Many students identified with ED are placed in alternative school settings with smaller class sizes. Could a teacher deliver instruction to the entire group effectively? Would providing group instruction affect student outcomes?

I plan to pursue these research aims in various ways. First, I will continue replicate previous studies that use DI reading programs to target adolescent students with behavioral challenges. In order for DI programs to be taken seriously, it is imperative that they become classified as evidence-based practices. To meet this rigorous classification criteria, additional methodologically sound studies must be added to the literature. Next, I would like to change the setting in which intervention is delivered. My systematic

literature review revealed most DI programs are implemented individually or in student pairings with students being pulled from their classrooms. This is unsurprising as students with behavioral challenges are frequently removed from their classrooms and as a result, often receive subpar instruction. I would be interested to integrate DI programs into general classroom instruction, particularly in low-income schools where often the majority of students are reading below grade level. I would be interested to see whether delivering a research-based intervention to the whole class would reduce the number of student removals from the classroom.

Conclusion

High-quality instruction remains one of the most essential components of teaching. Throughout my career, I will continue to conduct research to determine the most effective practices for struggling learners. I will use this knowledge to effectively teach preservice teachers the most effective ways to deliver these interventions. I firmly believe that all students are capable of making progress and learning challenging material. It is up to teachers to design learning environments and instruction to foster student growth. I am looking forward to doing my part to change the trajectory for these underserved students.

References

Adams, M. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.

Adams, M. M., Bereiter, C., Brown, A., Campione, J., Carruthers, I., Case, R., ... & Scardamalia, M. (2000). SRA Open Court Reading: Look who is reading, Level I, Book A. *Ohio: McGraw Hill*.

Adams, G. L., & Engelmann, S. (1996). *Research on direct instruction: 25 years beyond DISTAR*. Educational Achievement Systems, 319 Nickerson Street, Suite 112, Seattle, WA 98109.

Adamson, R. M., & Lewis, T. J. (2017). A comparison of three opportunity-to-respond strategies on the academic engaged time among high school students who present challenging behavior. *Behavioral Disorders*, *42*(2), 41–51.

Afacan, K., & Wilkerson, K. L. (2019). The Effectiveness of behavior-focused alternative middle schools for students with disabilities. *Behavioral Disorders*, 0198742919846619.

*Allen-DeBoer, R. A., Malmgren, K. W., & Glass, M. E. (2006). Reading instruction for youth with emotional and behavioral disorders in a juvenile correctional facility. *Behavioral Disorders*, *32*(1), 18–28.

Archer, A. L., Gleason, M. M., & Vachon, V. (2000). *REWARDS: Reading excellence: Word attack and rate development strategies*. Longmont, CO: Sopris West.

*Barton-Arwood, S. M., Wehby, J. H., & Falk, K. B. (2005). Reading instruction for elementary-age students with emotional and behavioral disorders: Academic and behavioral outcomes. *Exceptional Children*, *72*(1), 7–27.

Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to life: Robust vocabulary instruction*. Guilford Press.

Becker, W. C., & Gersten, R. (1982). A follow-up of Follow Through: The later effects of the Direct Instruction Model on children in fifth and sixth grades. *American Educational Research Journal*, *19*(1), 75–92.

Beken, J. A., Williams, J., Combs, J. P., & Slate, J. R. (2009). At-Risk Students at Traditional and Academic Alternative School Settings: Differences in Math and English Performance Indicators. *Florida Journal of Educational Administration & Policy*, *3*(1), 49–61.

*Benner, G. J. (2007). The relative impact of remedial reading instruction on the basic reading skills of students with emotional disturbance and learning disabilities. *Journal of Direct Instruction*, *7*(1), 1–15.

Biancarosa, G., & Snow, C. (2004). Report to the Carnegie Corporation of New York: Reading Next—A vision for action and research in middle and high school literacy.

Binks-Cantrell, E., Joshi, R. M., & Washburn, E. K. (2012). Validation of an instrument for assessing teacher knowledge of basic language constructs of literacy. *Annals of dyslexia*, *62*(3), 153–171.

Blachman, B. A., Schatschneider, C., Fletcher, J. M., Murray, M. S., Munger, K. A., & Vaughn, M. G. (2014). Intensive reading remediation in grade 2 or 3: Are there effects a decade later? *Journal of educational psychology*, *106*(1), 46.

Boe, V. R. (2013). Hearts of hope: Experiences of EBD teachers and factors contributing to career longevity (2013). *Education Doctoral Dissertations in Leadership, 33*.

Burke, M. D., Boon, R. T., Hatton, H., & Bowman-Perrott, L. (2015). Reading interventions for middle and secondary students with emotional and behavioral disorders: A quantitative review of single-case studies. *Behavior Modification*, *39*(1), 43–68.

Carnine, D. W. (1976). Effects of two teacher-presentation rates on off-task behavior, answering correctly, and participation. *Journal of Applied Behavior Analysis, 9*, 199–206.

Carnine, D. W., Silbert, J., Kame'enui, E. J., & Tarver, S. G. (2004). *Direct reading instruction*. Merrill Prentice Hall, New Jersey.

Chard, D. J., Ketterlin-Geller, L. R., Baker, S. K., Doabler, C., & Apichatabutra, C. (2009). Repeated reading interventions for students with learning disabilities: Status of the evidence. *Exceptional Children*, *75*(3), 263–281.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). Applied behavior analysis.

Council for Exceptional Children. (2014). *Standards for evidence-based practices in special education*. Arlington, VA: Author.

Crabtree, T., Alber-Morgan, S. R., & Konrad, M. (2010). The effects of self-monitoring of story elements on the reading comprehension of high school seniors with learning disabilities. *Education and Treatment of Children*, 187–203.

Daly III, E. J., Persampieri, M., McCurdy, M., & Gortmaker, V. (2005). Generating reading interventions through experimental analysis of academic skills: Demonstration and empirical evaluation. *School Psychology Review*, *34*(3), 395.

Didion, L. A., Toste, J. R., & Wehby, J. H. (2018). Response cards to increase engagement and active participation of middle school students with EBD. *Remedial and Special Education*, 0741932518800807.

*Drakeford, W. (2002). The impact of an intensive program to increase the literacy skills of youth confined to juvenile corrections. *Journal of Correctional Education*, 53(4), 139–144.

Education Week Research Center Analysis of IDEA data, 2018; 39th Annual Report to Congress on the Implementation of the Individuals with Disabilities

Eisenbach, B. B. (2012). Teacher belief and practice in a scripted curriculum. *Clearinghouse: A Journal of Educational Strategies, Issues and Ideas, 85*, 153–156.

Engelmann, S. (2014). *Successful and confident students with Direct Instruction*. Eugene, OR: NIFDI Press.

Engelmann, S., Engelmann, O., & Davis, K. L. S. (1997). *Horizons*. Columbus, OH: SRA/McGraw Hill.

Engelmann, S., Haddox, P., & Bruner, E. (1986). *Teach your child to read in 100 easy lessons*. NY: Simon and Schuster.

Engelmann, S., Hanner, S., & Johnson, G. (2002). *Corrective Reading*. Columbus, OH: SRA/McGraw Hill.

Foley, R.M. (2001) Academic characteristics of incarcerated youth and educational programs: A literature review. *Journal of Emotional and Behavioral Disorders, 9*, 248–259.

Foley, R. M., & Pang, L. S. (2006). Alternative education pro- grams: Program and student characteristics. *The High School Journal, 89*, 10–21. doi:10.1353/hsj.2006.0003

Fuchs, D., Fuchs, L. S., Thompson, A., Svenson, E., Yen, L., Otaiba, S. A., et al. (2001). Peer-assisted learning strategies in reading: Extensions for kindergarten, first grade, and high school. *Remedial and Special Education, 22*, 15–21.

Gage, N. A., Adamson, R., MacSuga-Gage, A. S., & Lewis, T. J. (2017). The relation between the academic achievement of students with emotional and behavioral disorders and teacher characteristics. *Behavioral Disorders*, *43*(1), 213–222.

Gagnon, J. C., & Brian R. Barber (2015). Identifying and implementing evidence-based practices in alternative educational settings. In B. G. Cook, M. Tankersley, & T. J. Landrum (Eds.), *Advances in Learning and Behavioral Disabilities* (Vol. 28, pp. 225-271). Bingley, United Kingdom.

Gagnon, J. C., Gurel, S., & Barber, B. R. (2017). State-level analysis of school punitive discipline practices in Florida. *Behavioral disorders*, *42*(2), 65–80.

Gajria, M., Jitendra, A. K., Sood, S., & Sacks, G. (2007). Improving comprehension of expository text in students with LD: A research synthesis. *Journal of learning disabilities*, *40*(3), 210–225.

Garwood, J. D., Brunsting, N. C., & Fox, L. C. (2014). Improving reading comprehension and fluency outcomes for adolescents with emotional-behavioral

disorders: Recent research synthesized. *Remedial and Special Education*, *35*(3), 181–94.

Garwood, J. D. (2018). Literacy interventions for secondary students formally identified with emotional and behavioral disorders: Trends and gaps in the research. *Journal of Behavioral Education*, *27*(1), 23–52.

Garwood, J. D., Varghese, C., & Vernon-Feagans, L. (2017). Internalizing behaviors and hyperactivity/inattention: Consequences for young struggling readers, and especially boys. *Journal of Early Intervention*, *39*(3), 218–235.

George, C. L. (2010). Effects of response cards on performance and participation in social studies for middle school students with emotional and behavioral disorders. *Behavioral Disorders, 35,* 200–213.

Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children*, *71*(2), 149–164.

Goldhaber, D., Lavery, L., & Theobald, R. (2014). *Uneven playing field? Assessing the inequity of teacher characteristics and measured performance across students*. Gainesville: The Center for Education Data and Research, University of Florida. Retrieved from http://www.cedr.us/papers/working/ CEDR%20WP%202014-4.pdf

Good III, R. H., Baker, S. K., & Peyton, J. A. (2008). Making sense of nonsense word fluency: Determining adequate progress in early first–grade reading. *Reading & Writing Quarterly*, *25*(1), 33–56.

Good, R.H., & Kaminski, R. A. (Eds.) (2002). *Dynamic Indicators of Basic Early Literacy Skills* (6th ed.). Eugene, OR: Institute for the Development of Educational Achievement. Available: http://dibels.uoregon.edu/

Gough, P., & Tunmer, W. (1986). Decoding, reading and reading disability. *Remedial and Special Education*, 7, 6–10

Griffith, A. K., Trout, A. L., Hagaman, J. L., & Harper, J. (2008). Interventions to improve the literacy functioning of adolescents with emotional and/or behavior disorders: A review of the literature between 1965 and 2005. *Behavioral Disorders*, *33*(3), 124–140.

Hayden, T., Hawkins, R., Denune, H., Kimener, L., & McCoy, D. (2012). A comparison of iPads and worksheets on math skills of high school students with emotional disturbance. *Behavioral Disorders*, *37*(4), 232–243.

Hedges, L. V., Pustejovsky, J. E., & Shadish, W. R. (2013). A standardized mean difference effect size for multiple baseline designs across individuals. *Research Synthesis Methods*, *4*(4), 324–341.

Heward, W. L. (1994). Three "low-tech" strategies for increasing the frequency of active student response during group instruction. In R. Gardner III, D. M. Sainato, J. O. Cooper, & T. E. Heron (Eds.), *Behavior analysis in education: Focus on measurably superior instruction* (pp. 283–320). Monterey, CA: Brooks/Cole.

Heward, W. L., & Wood, C. L. (2015). *Improving educational outcomes in America: Can a low-tech generic teaching practice make a difference?* Oakland, CA: Wing Institute for Evidence Based Practice.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, *71*(2), 165–179.

Houchins, D. E., Puckett-Patterson, D., Crosby, S., Shippen, M., & Jolivette, K. (2009). Barriers and facilitators to providing incarcerated youth with a quality education. *Preventing School Failure, 53*, 159–166

Individuals with Disabilities Education Improvement Act of 2004, 20 U.S.C. 1400 et seq. (2004).

Joseph, L. M., & Schisler, R. (2009). Should adolescents go back to the basics? A review of teaching word reading skills to middle and high school students. *Remedial and Special Education*, *30*(3), 131–147.

Kauffman, J. K. (2005). *Characteristics of emotional and behavioral disorders of children and youth (*8th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Kauffman, J. M. (2010). Commentary: Current status of the field and future directions. *Behavioral Disorders*, *35*(2), 180–184.

Kauffman, J. M., & Landrum, T. J. (2012). *Characteristics of emotional and behavioral disorders of children and youth* (10th ed.). Upper Saddle River, NJ: Pearson.

Kearns, D. M. (2015). How elementary-age children read polysyllabic polymorphemic words. *Journal of Educational Psychology, 107*(2), 364–390.

Kramarczuk Voulgarides, C., Fergus, E., & King Thorius, K. A. (2017). Pursuing equity: Disproportionality in special education and the reframing of technical solutions to address systemic inequities. *Review of Research in Education*, *41*(1), 61–87.

Kratochwill, T. R., Hitchcock, J. H., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2013). Single-case intervention research design standards. *Remedial and Special Education*, *34*(1), 26–38.

*Lingo, A. S., Slaton, D. B., & Jolivette, K. (2006). Effects of corrective reading on the reading abilities and classroom behaviors of middle school students with reading deficits and challenging behavior. *Behavioral Disorders*, *31*(3), 265–283.

Lipsey, M. W., & Aiken, L. S. (1990). *Design sensitivity: Statistical power for experimental research* (Vol. 19). Sage.

Logan, S., Medford, E., & Hughes, N. (2011). The importance of intrinsic motivation for high and low ability readers' reading comprehension performance. *Learning and Individual Differences*, *21*(1), 124–128.

Maag, J. W. (2006). Social skills for students with emotional and behavioral disorders: A review of reviews. *Behavioral Disorders, 32*, 5–17.

Maggin, D. M., Wehby, J. H., Partin, T. C. M., Robertson, R., & Oliver, R. M. (2011). A comparison of the instructional context for students with behavioral issues enrolled in self-contained and general education classrooms. *Behavioral Disorders*, *36*(2), 84–99.

Marchand-Martella, N., Kinder, D., & Kubina, R. (2005). Special education and direct instruction: An effective combination. *Journal of Direct Instruction*, *5*(1), 1–36.

Marchand-Martella, N. E., Martella, R. C., Nelson, J. R., Waterbury, L., Shelley, S. A., Cleanthous, C., & Hatfield, D. (2002). Implementation of the sound partners reading program. *Journal of Behavioral Education*, *11*(2), 117–130.

Mason-Williams, L. (2015). Unequal opportunities: A profile of the distribution of special education teachers. *Exceptional Children*, *81*(2), 247–262.

McCutchen, D., Green, L., Abbott, R. D., & Sanders, E. A. (2009). Further evidence for teacher knowledge: Supporting struggling readers in grades three through five. *Reading and Writing*, *22*(4), 401–423.

McDaniel, S. C., Houchins, D. E., & Terry, N. P. (2013). Corrective Reading as a Supplementary Curriculum for Students with Emotional and Behavioral Disorders. Journal of Emotional and Behavioral Disorders, 21(4), 240–249.

Mercer, C. D., & Campbell, K. U. (1998). *Great leaps reading program.* Gainsville, FL: Diarmuid Inc.

Metsala, J. L., David, M. D., & Brown, S. (2017). An Examination of Reading Skills and Reading Outcomes for Youth Involved in a Crime Prevention Program. *Reading & Writing Quarterly*, *33*(6), 549–562.

Moats, L. C. (2005). How spelling supports reading. *American Educator*, *6*(12–22), 42.

National Reading Panel (2000). *Report of the National reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups.* Rockville, MD: NICHD Clearinghouse.

Nelson, J. R., Benner, G. J., & Gonzalez, J. (2003). Learner characteristics that influence the treatment effectiveness of early literacy interventions: A meta-analytic review. *Learning Disabilities Research & Practice, 18*, 255–267.

Nelson, J. R., Benner, G. J., Lane, K., & Smith, B. W. (2004). Academic achievement of K-12 students with emotional and behavioral disorders. *Exceptional Children*, *71*(1), 59–73.

Nelson, J. R., Stage, S. A., Epstein, M. H., & Pierce, C. D. (2005). Effects of a prereading intervention on the literacy and social skills of children. *Exceptional Children*, *72*(1), 29–45.

Ouellette, G., & Beers, A. (2010). A not-so-simple view of reading: How oral vocabulary and visual-word recognition complicate the story. *Reading and Writing*, *23*(2), 189–208.

Perzigian, A. B., Afacan, K., Justin, W., & Wilkerson, K. L. (2017). Characteristics of students in traditional versus alternative high schools: A cross-sectional analysis of enrollment in one urban district. *Education and Urban Society*, 49, 676– 700. doi:10.1177/0013124516658520

Prather-Jones, B. (2011). "Some people aren't cut out for it": The role of personality factors in the careers of teachers of students with EBD. *Remedial and Special Education*, *32*(3), 179–191.

Rasinski, T. V., Reutzel, R., Chard, & Linan-Thompson, S. (2011). Reading Fluency. In M. L. Kamil P. D. Pearson, B. Moje, & P. Afflerbach E (Eds.), Handbook of Reading Research, Volume IV (pp. 286–319). New York: Routledge.

Reichow, B., & Volkmar, F. R. (2010). Social skills interventions for individuals with autism: Evaluation for evidence-based practices within a best evidence synthesis framework. *Journal of Autism and Developmental Disorders, 40*, 149–166.

Rivera, M. O., Al-Otaiba, S., & Koorland, M. A. (2006). Reading instruction for students with emotional and behavioral disorders and at risk of antisocial behaviors in primary grades: Review of literature. *Behavioral Disorders*, *31*(3), 323–339.

Robacker, C. M., Rivera, C. J., & Warren, S. H. (2016). A token economy made easy through ClassDojo. *Intervention in School and Clinic*, *52*(1), 39–43.

Rock, E. E., Fessler, M. A., & Church, R. P. (1997). The concomitance of learning disabilities and emotional/behavioral disorders: A conceptual model. *Journal of Learning Disabilities*, *30*(3), 245–263.

Rosenshine, B. (1983). Teaching functions in instructional programs. *The elementary school Journal*, *83*(4), 335–351.

Rouse, C. A., Alber-Morgan, S. R., Cullen, J. M., & Sawyer, M. (2014). Using prompt fading to teach self-questioning to fifth graders with LD: Effects on reading comprehension. *Learning Disabilities Research & Practice*, *29*(3), 117–125.

Rubow, C. C., Noel, C. R., & Wehby, J. H. (2019). Effects of noncontingent attention on the behavior of students with emotional/behavioral disorders and staff in alternative settings. *Education and Treatment of Children*, *42*(2), 201–223.

Sanford, C., Newman, L., Wagner, M., Cameto, R., Knokey, A. M., Shaver, D., et al. (2011). The post- high school outcomes of young adults with disabilities up to 6 years after high school: Key findings from the National Longitudinal Transition Study-2 (NLTS2) (NCSER 2011-3004, National Center for Special Education Research). Washington, DC: Institute of Education Sciences, U.S. Department

*Scarlato, M. C., & Ashara, E. (2004). Effects of corrective reading in a residential treatment facility for adjudicated youth. *Journal of Direct Instruction, 4* (2), 211–217.

Schrank, F. A., McGrew, K. S., Mather, N., Wendling, B. J., & LaForte, E. M. (2014). *Woodcock-Johnson IV Tests of Achievement: Form C*. Riverside Publishing Company.

*Scott, T. M., & Shearer-Lingo, A. (2002). The effects of reading fluency instruction on the academic and behavioral success of middle school students in a self-contained EBD classroom. *Preventing School Failure: Alternative Education for Children and Youth*, *46*(4), 167–173.

Stockard, J., Wood, T. W., Coughlin, C., & Rasplica Khoury, C. (2018). The effectiveness of direct instruction curricula: A meta-analysis of a half century of research. *Review of Educational Research*, *88*(4), 479–507.

*Strong, A. C., Wehby, J. H., Falk, K. B., & Lane, K. L. (2004). The impact of a structured reading curriculum and repeated reading on the performance of junior high students with emotional and behavioral disorders. *School Psychology Review*, *33*(4), 561.

Sutherland, K. S., Lewis-Palmer, T., Stichter, J., & Morgan, P. L. (2008). Examining the influence of teacher behavior and classroom context on the behavioral and academic outcomes for students with emotional or behavioral disorders. *The Journal of Special Education*, *41*(4), 223–233.

Sutherland, K. S., & Wehby, J. H. (2001). Exploring the relationship between increased opportunities to respond to academic requests and the academic and behavioral

outcomes of students with EBD: A review. *Remedial and Special Education*, *22*(2), 113–121.

Telesman, A. O., Konrad, M., Cartledge, G., Gardner III, R., & Council III, M. (2018). Preventing reading failure for first-grade students in an urban school. *The Journal of Special Education*. *53,* 2, 85–95.

Ticani, M., & Twyman, J. S. (2016). *Enhancing engagement through active student response*. Philadelphia, PA. Center on Innovations in Learning, Temple University.

Torgesen, Joseph, Allen Schirm, Laura Castner, Sonya Vartivarian, Wendy Mansfield, David Myers, Fran Stancavage, Donna Durno, Rosanne Javorsky, and Cinthia Haan. "National Assessment of Title I. Final Report. Volume II: Closing the Reading Gap--Findings from a Randomized Trial of Four Reading Interventions for Striving Readers. NCEE 2008-4013." *National Center for Education Evaluation and Regional Assistance* (2007).

*Trout, A. L., Nordness, P. D., Pierce, C. D., & Epstein, M. H. (2003). Research on the academic status of children with emotional and behavioral disorders: A review of the literature from 1961 to 2000. *Journal of Emotional and Behavioral Disorders*, *11*(4), 198–210.

U.S. Department of Education. (2015). EDFacts Data Warehouse (EDW): IDEA Part B Child Count and Educational Environments Collection, 2014-2015.Washington, DC: Author.

U.S. Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs. (2016). 38th annual report to congress on

the implementation of the individuals with disabilities education act. Washington, DC. Retrieved from https://www2.ed.gov/about/reports/annual/ osep/2016/parts-b-c/38th-arc-for-idea.pdf

Vaughn, S., Cirino, P. T., Wanzek, J., Wexler, J., Fletcher, J. M., Denton, C. D., ... & Francis, D. J. (2010). Response to intervention for middle school students with reading difficulties: Effects of a primary and secondary intervention. *School Psychology Review*, *39*(1), 3–21.

Vaughn, S., Levy, S., Coleman, M., & Bos, C. S. (2002). Reading instruction for students with LD and EBD: A synthesis of observation studies. *The Journal of Special Education*, *36*(1), 2–13.

Vaughn, S., Wexler, J., Roberts, G., Barth, A. A., Cirino, P. T., Romain, M. A., ... & Denton, C. A. (2011). Effects of individualized and standardized interventions on middle school students with reading disabilities. *Exceptional children*, *77*(4), 391–407.

Wagner, M., & Davis, M. (2006). How are we preparing students with emotional disturbances for the transition to young adulthood? Findings from the National Longitudinal Transition Study—2. *Journal of Emotional and behavioral disorders*, *14*(2), 86–98.

Wanzek, J., Vaughn, S., Scammacca, N. K., Metz, K., Murray, C. S., Roberts, G., & Danielson, L. (2013). Extensive reading interventions for students with reading difficulties after grade 3. *Review of Educational Research*, *83*(2), 163–195.

Wehby, J. H., Falk, K. B., Barton-Arwood, S., Lane, K. L., & Cooley, C. (2003). The impact of comprehensive reading instruction on the academic and social behavior

of students with emotional and behavioral disorders. *Journal of Emotional and Behavioral Disorders*, *11*(4), 225–238.

Wehby, J. H., Lane, K. L., & Falk, K. B. (2005). An inclusive approach to improving early literacy skills of students with emotional and behavioral disorders. *Behavioral Disorders*, *30*(2), 155–169.

Wei, X., Blackorby, J., & Schiller, E. (2011). Growth in reading achievement of students with disabilities, ages 7 to 17. *Exceptional Children*, *78*(1), 89–106.

What Works Clearinghouse, Institute of Education Sciences, U.S. Department of Education. (2017, October). *What Works Clearinghouse: Procedures Handbook (Version 4.0)*. Retrieved from **http://whatworks.ed.gov**

Wilkerson, K., Afacan, K., Perzigian, A., Justin, W., & Lequia, J. (2016). Behavior-focused alternative schools: Impact on student outcomes. *Behavioral Disorders*, *41*(2), 81–94.

Wilkerson, K. L., Gagnon, J. C., Melekoglu, M. A., & Cakiroglu, O. (2012). Reading instruction in secondary day treatment and residential schools for youth with emotional or behavioral disorders. *Remedial and Special Education*, *33*(2), 78–88.

Yakimowski, M. E., Faggella-Luby, M., Kim, Y., & Wei, Y. (2016). Reading achievement in the middle school years: A study investigating growth patterns by high incidence disability. *Journal of Education for Students Placed at Risk, 21*, 118–128.

*Yawn, C. D. (2008). *Effects of peer-mediated direct instruction and repeated reading on the reading skills of incarcerated juveniles with disabilities* (Doctoral dissertation, The Ohio State University).

Appendix A. Researcher and Student Example Real Word List

Student Name: Date: Probe #____BL IV MT		Researcher:_____ Observer: _____		Total Points_____ Correct Words___ Total Errors _____	
	Word	Syllables	Points	Word Read Correctly (0 or 1	IOA
1	avoiding	a void ing	_____/3		
2	mismanaged	mis man aged	_____/3		
3	Completeness	Com plete ness	_____/3		
4	containers	Con tain ers	_____/3		
5	unfeasible	un feas I ble	_____/4		
6	reclaiming	re claim ing	_____/3		
7	excessive	Ex cess ive	_____/3		
8	extinction	Ex tinc tion	_____/3		
9	simplification	Sim pli fi ca tion	_____/5		
10	replacements	re place ments	_____/3		
11	dejectedness	de ject ed ness	_____/4		
12	destination	Des tin a tion	_____/4		
13	repulsion	re pul sion	_____/3		
14	protection	Pro tec tion	_____/3		
15	destroyer	de story er	_____/3		
16	retirement	re tire ment	_____/3		
17	discussion	Dis cus sion	_____/3		
18	constructive	con struct ive	_____/3		
19	prediction	Pre dic tion	_____/3		
20	previewing	pre view ing	_____/3		
21	consolidate	con sol I date	_____/4		
22	predestined	pre dest ined	_____/3		
23	inventions	In ven tions	_____/3		
24	unconventional	Un con ven tion al	_____/5		
25	professes	pro fess es	_____/3		
26	imperfect	Im per fect	_____/3		
27	reheated	re heat ed	_____/3		
28	unbroken	un broke en	_____/3		

Student Copy

avoiding

mismanaged

Completeness

containers

unfeasible

reclaiming

excessive

extinction

simplification

replacements

dejectedness

destination

repulsion

protection

destroyer

retirement

discussion

constructive

prediction

previewing

consolidate

predestined

inventions

unconventional

professes

imperfect

reheated

unbroken

instructive

redundant

disjointed

distractedly

impoverish

B

Appendix B. Example of Researcher and Student Nonsense Words

Student Name: Date: Probe #____BL IV MT		Researcher:_____ Observer: _____		Total Points_____ Correct Words___ Total Errors _____	
	Word	Syllable Breakdown	Points	Word Read Correctly (0 or 1	IOA
1	deauthentic	de au then tic	_____/4		
2	Compredention	Com pre den tion	_____/4		
3	controiling	con troil ing	_____/3		
4	unaroidable	Un a roid a be	_____/5		
5	distopement	dis tope ment	_____/3		
6	premedifated	pre med i fate ed	_____/5		
7	mispleakment	mis pleak ment	_____/3		
8	discrately	dis crate ly	_____/3		
9	conpensitive	con pen si tive	_____/4		
10	disflantable	dis flant a ble	_____/4		
11	Comprohensible	Com pro hen si ble	_____/5		
12	displounted	dis plount ed	_____/3		
13	Compinuation	Com pun u a tion	_____/5		
14	Compraining	Com prain ing	_____/3		
15	Dispouragement	Dis pour age ment	_____/4		
16	unpruthful	Un pruth ful	_____/3		
17	subtinent	Sub tin ent	_____/3		
18	unimpentional	Un im pen tion al	_____/5		
19	abandishingly	a ban dish ing ly	_____/5		
20	remundant	Re mun dant	_____/3		
21	Entagements	En tage ments	_____/3		
22	misintarping	mis in tarp ing	_____/4		
23	profloaming	pro floam ing	_____/3		
24	subfranted	sub frant ed	_____/3		
25	Disadvantive	Dis ad van tive	_____/4		
26	Degression	De gres sion	_____/3		
27	disentharping	dis en tharp ing	_____/3		
28	Compectionary	Com pec tion ary	_____/4		
29	comperting	com per ting	_____/3		

1

Student Copy	Compraining
deauthentic	Dispouragement
Compredention	unpruthful
controiling	subtinent
unaroidable	unimpentional
distopement	abandishingly
premedifated	remundant
mispleakment	Entagements
discrately	misintarping
conpensitive	profloaming
disflantable	subfranted
Comprohensible	Disadvantive
displounted	Degression
Compinuation	disentharping

3

Appendix C. Example of Aimsweb Passage

After moving to a new town, nine-year-old Samantha and her twelve-year-old brother Robert had heard of an old toboggan slide from some of the other neighborhood children. They decided they needed to check it out. Supposedly, it was on the northern side of the peninsula in the middle of the lake behind their new home.

Paddling lazily, they headed across the lake in their canoe. Just as they had been told, there was the decrepit, wooden-framed toboggan slide. The slide itself was barely wide enough to fit a toboggan. It left only a couple of inches to spare on either side before adjoining a short, wooden sidewall about six inches in height that kept the toboggans from falling off. Hundreds of steep steps climbed the shoreline to the top of the slide. Looking down from the top, it was evident that the slide abruptly ended approximately six feet above the water.

Since they didn't have a toboggan, they improvised with a piece of cardboard. Robert went first and flew down the slide. He used his feet against the side rails to stop the contraption before catapulting himself into the muddy water below. Samantha went next but her momentum was too great and she shot off the edge into the water. Samantha's immediate thought after bobbing to the surface was "Blood-suckers!" Her second thought was, "This is all Robert's fault!" She frantically climbed out of the water and ripped off her socks and shoes to look for blood-sucking worms. After finding none, but fearing they were still lurking in her shoes, she refused to put them back on.

"Put your shoes on," Robert insisted. "Put your shoes on or you'll never be able to walk back to the canoe." Samantha refused. Finally, either from a desire to be gallant or from fear of repercussions from their parents, Robert picked up Samantha. He carried her to the canoe and quickly paddled home. After a steamy bath and the reassurance that there weren't any blood-sucking worms hidden anywhere, Samantha told the story to their parents with a great deal of enthusiasm. She forgot entirely that she had originally blamed Robert for everything and made him the hero of her story.

Appendix D. Example of CommonLit Reading Passage

Name: _____ Class: _____

From Slaves to Sharecroppers

By Leigh Dekle
2017

After the abolition of slavery, former slaves had to integrate into society as free men and women. One of the common jobs that former slaves took up was sharecropping, in which a farmer would get a portion of the crops they harvested for a landowner. In this informational text, the author explores the difficulties for blacks and whites to adjust to the time period following the Civil War. As you read, take notes on how sharecroppers were treated by landowners.

[1] When slavery ended in 1865, 4 million enslaved people were given their freedom. People who were born into slavery, like Houston Hartsfield Holloway, found that this important change also created a challenge. In his autobiography, Holloway wrote that he and other former slaves "did not know how to be free" and that "white people did not know how to have a free colored person about them." His words reflect the difficulties of Reconstruction, a time period that came after the Civil War.

"An illustrated depiction of black people picking cotton, 1913" by Jerome H. Farbar is in the public domain.

Legal Freedom

Abraham Lincoln issued the Emancipation Proclamation on January 1, 1863. It declared that all people who were "held as slaves" in the states that had left the union were free. It was an important moment in American history, but it did not fully end slavery. Slavery was finally ended in 1865 after the Civil War was over. In that year, a new amendment[1] was added to the Constitution. This amendment, the 13th, stated that "Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction."

Former slaves were known as freedmen. The government of the United States tried to help freedmen find success in their new lives and set up new programs to achieve this goal.

Creating New Lives

The Freedmen's Bureau worked to set up schools and help former slaves find lost family members. The Bureau also tried to help freedmen get jobs. Because many freedmen had not had the opportunity to learn or develop many skills when they were slaves, they were often only able to get jobs working on

Appendix E. Student Preference Assessment

Directions: Rank these items in order of what you most prefer to least prefer out of 1-8.

____Candy
What kind? _____

____Chips
What Kind? _____

____School Supplies
What Kind? _____

____ Game Breaks
What Kind? _____

____ Ice cream social

____Pizza party

____Teacher activity
What Kind? _____

Other ideas:_____

Appendix F. Points Log

_____’s Point Log

Date	Points Earned Today	Total Points	Reward Earned

Appendix G. Student Social Validity

1.	The REWARDS training was fair.	1 - 2 - 3 - 4 **I disagree** **I agree**
2.	The training was challenging but not too difficult.	1 - 2 - 3 - 4 **I disagree** **I agree**
3.	This was a good way for me to learn how to read challenging words.	1 - 2 - 3 - 4 **I disagree** **I agree**
4.	This was a good way for me to learn how to read paragraphs.	1 - 2 - 3 - 4 **I disagree** **I agree**
5.	I like the training I received for reading challenging words.	**I disagree** **I agree** **1 - 2 - 3 - 4**
6.	I will use this strategy if I get stuck reading a challenging word.	1 - 2 - 3 - 4 **I disagree** **I agree**
7.	I think learning how to read harder words will help me do better in school.	1 - 2 - 3 - 4 **I disagree** **I agree**
8.	The training I received would be good for other students who have a hard time reading.	1 - 2 - 3 - 4 **I disagree** **I agree**

Things I liked about the REWARDS program.

Things I would change about the REWARDS program.

Appendix H. Procedural Integrity Checklists

Observer Name: _____
Researcher Name: _____ Date: _____

Error Correction Protocol	
Type of Error	**Recommended Correction**
The student mispronounces a vowel combination. (e.g. ai**)**	The teacher says the sound. **"The sound if /a/."** Then, the teacher has the group repeat the sound. **"Everyone, what sound?"**
The student mispronounces a prefix or suffix **(e.g.,** dis**).**	The teacher says the affix. **"The prefix is dis."** Then, the teacher has the group repeat the affix. "**Everybody, what prefix?"**
When reading a long word, the student says a close approximation to the word but not the accurate pronunciation. (e.g., The student says *redooction* for reduction.)	First, the teacher directs the student to correct the word. **"Can you make it a real word?"** If the student cannot correct the pronunciation of the word, the teacher tells the student the word and has the group repeat the word. **"The word is reduction. Everybody, what word?"**
In lessons 13-20, a student can't pronounce a long word. (e.g., The student says "I don't know the word" or mispronounces the word.)	The teacher directs the student to use the REWARDS strategy for figuring out the word. **"Use what you have learned to figure out this word.** If the student cannot figure out the word in four seconds, the teacher tells the

	student the word and has the student or group repeat the word. **"The word is reduction. Everyone, what word?"** If the word is a sentence, the teacher may wish to have the student reread the sentence. **"Go back to the beginning of the sentence."**

Lesson Protocol	
Set Up	✓ **X** **n/a**
Materials were set up prior to student entering the work space.	
Lesson Implementation	
Teacher follows procedures for Activity A: Oral Activity – Blending Word Parts into Words ***Activity Procedure:*** *Say each word, pausing between the word parts, then have the students blend the word parts together and say the whole word. (specific words will vary with each lesson)*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity B: Vowel Combinations ***Activity Procedure****: Have students point to each new letter combination, tell them the sound as it is pronounced in the key word, and have students say the new wounds and the sounds from the previous lessons.*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity C: Vowel Conversions ***Activity Procedures:*** *First tell students the sound and have them repeat it. Then, tell students the name and have students repeat it. Have students practice saying the sound, then the name for each letter.*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity D: Reading Parts of Real Words	

Activity Procedures: *Have students say each word part to themselves, then aloud. Remind them to say the name when they see the asterisk.*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity E: Underlining Vowels in Words. ***Activity Procedures:*** *Have students underline the vowels and say the sounds. Next, have them say the word parts and the whole word.*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity F: Oral Activity – Correcting Close Approximations Using Context ***Activity Procedures:*** *Pronounce the word incorrectly as shown. When saying the sentence, continue to mispronounce the word. Then, ask students to make the word into a real word.*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity G: Prefixes and Suffixes ***Activity Procedures:*** *Tell students the words, then the circles prefixes. Have student repeat the words and prefixes. Then, have students practice saying the new and previously learned prefixes.*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity H: Circling Prefixes and Suffixes ***Activity Procedures:*** *Have students find prefixes and circle them. Then, assist students in checking their worksheets and reading the words, first part by part, then the whole word.*	
If student makes error, error correction protocol is followed.	
Teacher follows procedures for Activity J: Spelling Dictation ***Activity Procedures:*** *For each word, tell students the word, then have students say the parts of the word to themselves as they write the word. Then have students compare their words with your word and cross out and rewrite any misspelled words.*	
Teacher instructs student to clean up lesson materials, and escorts student back to class.	
% Correct	

Notes:

	Baseline Procedural Integrity		
Steps	**Baseline Script for Oral Reading Fluency**	Yes	No
1	Teacher tells students they have 1 minute to read the passage. They should do their best and if they get stuck on a word try to sound it out.		
2	Teacher sets timer for 1 minute		
3	Teacher provides word after 3 second pause by student		
4	Teacher tells student to stop after 1- minute		
Total		___/	__ _/
Percentage			

		Real		Nonsense	
Steps	**Baseline Real and Nonsense word probes**	Y	N	Y	N
1	Teacher tells students they have 30 seconds to complete the probe. They should do their best and if they get stuck on a word try to sound it out. If they still don't know the word, skip it and go to the next word.				
2	Teacher sets timer for 30 seconds.				
3	Teacher tells student to stop after reading				
4	Teacher starts clock for 30 seconds.				
5	Teacher does not provide any error correction				
6	Teacher says stop after 30 seconds				
Total		___/		___/	
Percentage					

Researcher:_____ Observer:_____ Date:_____			
Behavior	Treatment Integrity		
Steps		Yes	No
1	Teacher asks students what they are working for today		
2	Teacher goes through the expectations with the students for the lesson.		
3	Teacher assigns points for Activity A		
4	Teacher assigns points for Activity B		
5	Teacher assigns points for Activity C		
6	Teacher assigns points for Activity D		
7	Teacher assigns points for Activity E		
8	Teacher assigns points for Activity F		
9	Teacher assigns points for Activity G		
10	Teacher assigns points for Activity H		
11	Teacher assigns points for Activity J		
12	Teacher assigns points for probe read		
13	Teacher reviews points earned by student and allows trade in if the student has enough points		
Total		___/	___/
Percentage			