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Effects of Data-Based Individualization on Reading Comprehension for High School Students with Intenisve Needs in Reading

Jacquelyn Chovanes
Lehigh University, jackiechova@me.com

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Effects of Data-Based Individualization on Reading Comprehension for High School Students

with Intensive Needs in Reading

by

Jacquelyn Chovanes

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Approved and recommended for acceptance as a dissertation in partial fulfillment of the

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Date

_____

Dissertation Chair

Minyi Shih Dennis, Ph.D.

Associate Professor of Special Education

_____

Accepted Date   Committee Members:

_____

Lee Kern, Ph.D.

Professor of Special Education

_____

Brenna Wood, Ph.D.

Associate Professor of Special Education

_____

Brook Sawyer, Ph.D.

Associate Professor of Teaching, Learning, and

Technology

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Abstract

The purpose of this study is to examine the effects of Data-Based Individualization (DBI) on the reading comprehension of high school students with intensive needs in reading; specifically, two students with specific learning disabilities in reading (RD) and one student with high functioning autism (HFA). Perceptions of social validity of DBI by a high school special education reading teacher is examined as a secondary purpose. This multiple probe across participants study provided intensive intervention in reading comprehension to three high school students with intensive needs in reading. Intervention was implemented according to the DBI framework, using ongoing progress monitoring and diagnostic assessment (using a researcher created oral reading retell rubric [RC-CBM]) to diagnose specific student skill needs, to select and apply appropriately targeted reading interventions, and to monitor and adjust instruction according to individual student performance data. The following research questions were examined: 1) What is the effect of DBI on reading comprehension of high school students with intensive needs in reading? 2) What is the teacher's perception of the social validity of using DBI in the classroom? 3) How do the student participants rate the social validity of the DBI intervention? Results showed student reading comprehension performance, as measured by the RC-CBM rubric, improved significantly for all three participants during intervention. Two students completed maintenance assessment, both retained skills two weeks after intervention. The teacher found the intervention socially valid, and students rated the intervention favorably. Discussion includes implications for research and practice and limitations.

Chapter 1

Introduction

Currently in the U.S. there is a critical need to improve academic outcomes in reading for secondary students. Sophisticated literacy skills are critical to the development of the competencies demanded by the modern workplace (Kamil et al., 2008). A recent book edited by Harold O'Neill (2015) details the specific skill competencies required by the modern global and highly technological workplace:

> For example, instead of performing simple procedural and predictable tasks, a worker becomes responsible for inferences, diagnosis, judgment, and decision-making, often under intense time pressure. Trends of increasing requirements of both knowledge and skills of workers coupled with an increase in technology in the workplace are made worse by the increased influence of international markets. In the future, one will complete worldwide, or not at all. In summary, there is a potential skill gap for the high-wage, high-skill, high-productivity jobs (p. viii).

However, recent results from the National Assessment of Educational Progress (NAEP, 2015) indicate that many American students are lacking in these important skills. Test scores from 2015 show that only 37% of 12th grade students read proficiently, indicating that 63% of all U.S. high school seniors cannot read grade level text. Furthermore, 28% of 12th grade students scored Below Basic on the NAEP reading assessment, meaning that over a quarter cannot read at the level required to complete functional activities of daily living, such as reading a bus

schedule, instructions from a doctor or pharmacist, or information on package labels. These students are not skilled at making inferences, developing interpretations, making connections between texts, relating textual information to their own personal experiences, or drawing conclusions in grade level text. Reading deficits such as these impair high school students' ability to benefit from classroom instruction across subject areas, as the demands of high school coursework include reading complex texts in core classes such as language arts, science, social studies, and math (Vaughn & Fletcher, 2012). This further impedes the ability of these students to acquire the advanced skills they will need to compete successfully in the modern economy.

Poor reading performance has significant negative consequences for students in terms of important life outcomes, including income, employment, and social status (Carnegie Council on Advancing Adolescent Literacy, 2010). Outcomes for students with identified disabilities are even more concerning. Alarmingly, data from National Longitudinal Transition Survey (NLTS-3; Wagner et al., 2005) indicated one quarter of students with disabilities left school without graduating, and 4 in 5 students with disabilities were either unemployed or working low-wage jobs after high school. Researchers have demonstrated that in spite of some success in efforts to improve reading performance for all students, the achievement gap between students with disabilities and typically achieving peers remains stable and significant (Schulte, et al., 2016).

More specifically, research shows that the reading comprehension performance of students across mild disability categories (i.e., learning disabilities [LD], high-functioning autism [HFA], other health impairment [OHI; includes students with attention deficit hyperactivity disorder], and emotional and behavioral disorders [EBD]) was remarkably similar in terms of both level and slope (Schulte, et al., 2016). Furthermore, students across mild disability categories mild disabilities experience similar cognitive, academic, and behavioral characteristics

(with the exception of significantly greater behavioral deficits in students with EBD) (Gage, Lierheimer, & Goran, 2012). Research suggests that academic interventions that have been successful with students with LD, including explicit instruction and strategy instruction, may also be effective for students with other mild disabilities (Burke, Boon, Hatton, & Bowman-Perott, 2015; Du Paul, Weyandt, & Janusis, 2011; El Zein et al., 2014). However, some students with mild disabilities fail to benefit from evidence-based reading instruction, even when the evidence-based instruction is provided as supplemental instruction in small groups. These students are considered to have intensive needs in reading (Vaughn et al., 2009).

Students with Intensive Needs in Reading

Although not all school systems utilize the response to intervention (RTI) model, it is a useful way of distinguishing student response to instruction for the purpose of determining which students may experience intensive needs in reading. According to Fuchs, Fuchs, & Compton (2010), at Tier 1, all students receive evidence-based whole-class reading instruction. For students who do not show adequate progress at Tier 1, supplemental small group instruction using evidence-based interventions often with increased instructional time, is provided at Tier 2. This supplemental instruction is effective for all but approximately 5% of the student population (Fuchs, Fuchs, & Compton, 2010). Some students who receive evidence-based reading intervention fail to respond adequately to typically effective interventions, even with the added supports of smaller group size and increased instructional time (Wanzek & Vaughn, 2009). These students are considered to have intensive needs in reading because they require intensive reading intervention, typically referred to as *tertiary prevention*, or Tier 3, which may occur within or outside of special education (Fuchs, Fuchs, & Compton, 2010).

Researchers have identified several characteristics associated with low response to reading intervention for children in early elementary grades including rapid naming ability, phonological awareness, verbal ability, and attention and behavior problems (Al Otaiba & Fuchs, 2002). A study of older students (ages 11-14) showed similar deficits, including the categories of phonological awareness, rapid naming, verbal working memory, temporal processing, and planning (Johnson & Swanson, 2011). These characteristics are related to deficits in decoding, language comprehension, and executive processing (Catts, Hogan, & Adlof, 2005; Deshler & Hock, 2007; McIntyre et al., 2017). For younger students, intervention efforts focus on preventing the development of learning disabilities and thereby decreasing the number of students identified as eligible for special education services (Wanzek & Vaughn, 2008.) For adolescents with intensive needs in reading, however, the goal of preventing reading problems is no longer achievable (Vaughn & Fletcher, 2012), and therefore the focus of intervention includes building competency in critical reading skills, such as the ability to derive meaning from written text and to acquire content area knowledge through reading expository text using evidence-based practices and frequent progress monitoring to modify instruction according to individual student needs (Lemons, Kearns, & Davidson, 2014; Vaughn & Fletcher, 2012). Much research has been conducted on early reading interventions for students in grades K-3, but much less is known about how to treat adolescents with intensive needs in reading (Vaughn & Fletcher, 2012). In order to ensure that all students leave school with the skills they need to enable them to live self-sufficient and productive lives, reading intervention for adolescents with intensive needs in reading should focus on increasing students' reading comprehension as well as minimizing the achievement gap between students with intensive needs in reading and typically achieving peers (Vaughn & Fletcher, 2012).

Effective Reading Interventions for Adolescents with Intensive Needs in Reading

Students with intensive needs in reading are distinguished from other students who struggle with reading by the intensity of intervention required to effect significant improvement in reading performance (Fuchs, Fuchs, & Vaughn, 2014). Existing evidence-based interventions may be intensified by decreasing the size of the instructional group; increasing the number of instructional sessions per week; increasing the duration of individual instructional sessions; increasing the duration of the intervention over weeks, months, or years; changing the nature of the intervention (i.e., increasing the explicitness of the instruction); adjusting the use of time during instructional sessions (e.g., focus on specific strategies or instructional routines); and increasing the level of expertise of the interventionist (e.g., from general education teacher to special education teacher) (Vaughn, Denton, & Fletcher, 2010). Research shows that students with intensive needs are likely to require the most intensive interventions possible, including very small group size (2-3 students, 1:1 instruction) (Wanzek & Vaughn, 2007); longer duration of intervention (e.g., >75 intervention sessions) (Wanzek & Vaughn, 2008); increased duration of instructional sessions (e.g., >30 min) (Pyle & Vaughn, 2012); and interventions that focus on explicit instruction of decoding and reading comprehension strategies, with many opportunities for students to engage in reading tasks and receive feedback (Pyle & Vaughn, 2012). However, most of these studies were conducted with elementary age participants; much less is known about effective intensification of interventions for adolescents (Vaughn & Fletcher, 2012).

In order to identify effective components of reading comprehension interventions for older students with reading disabilities (RD) and reading difficulty (i.e., students with low reading achievement and possibly unidentified reading disabilities), Edmonds et al. (2009) examined effects of reading comprehension interventions for students in grades 6-12. Effective

instructional components (weighted ES of 0.89 of combined comprehension outcomes of treatment vs. control students) identified included multi-component interventions, comprehension strategy instruction, fluency instruction, and word-level interventions. Results from this meta-analysis supported the need for adolescents to receive intervention targeted to their specific reading needs (i.e., including decoding instruction for students with word level reading deficits) but also emphasized that the small effects of decoding and word study intervention relative to the effects of explicit reading comprehension strategy instruction on comprehension indicate that for adolescents, reading comprehension strategy instruction is a critical component of effective interventions (Edmonds, et al., 2009). Effects related to intensification of instruction, such as instructional group size and duration, were not analyzed; however, the large effect size for overall treatment efficacy suggests that with proper intensification, these interventions may be effective for improving reading comprehension for students with intensive needs in reading.

Wanzek et al. (2013) extended the Edmonds et al. (2009) study by examining the relevant effect of features of intensified reading interventions (i.e., group size and dosage) and instructional components for older students. Wanzek et al. (2013) report effects of 19 studies conducted using participants with RD and reading difficulties in grades 4-12 with an intervention duration of at least 75 instructional sessions, however, only one study included students in 9th grade, and no studies included students in grades 10-12. Instructional components that were shown to be effective for with students with RD and reading difficulties include: multi-component interventions (e.g., vocabulary, reading comprehension), multi-sensory phonics instruction, vocabulary instruction, self-visual imagery, self-questioning, paraphrasing, and inference-making. Results from Wanzek et al. (2013) include small effects (Mean ES ranged

from 0.10-0.16) on reading comprehension, word reading, word reading fluency, reading fluency, and spelling. No differences were significant based upon instructional group size, number of hours of instruction, or grade level, indicating that simply increasing duration and decreasing instructional group size may not result in significantly improved reading performance, and suggesting that more targeted interventions may be necessary for substantial improvement for adolescents with intensive needs in reading. Additionally, some studies with shorter duration produced higher effects than studies with longer duration, suggesting that some interventions may produce initial performance boosts that are difficult to sustain over time (Wanzek et al., 2013). More research is needed to specify effective means of intensifying and individualizing reading interventions for students with intensive needs in reading, but studies of less intensive interventions shown to be successful with students with reading difficulties may illustrate which types of reading interventions are likely to be effective with students with intensive needs in reading, given appropriate intensification and individualization according to individual student needs (Vaughn, 2015).

In an attempt to identify additional moderators beyond duration, group size, and grade level that contribute to differences in effect across reading interventions, Scammacca et al., (2015) examined reading interventions for students with RD and reading difficulties in grades 4-12, including all studies examined by Wanzek et al. (2013). Moderators included intervention type (decoding, fluency, vocabulary, reading comprehension strategy, and multicomponent), type of implementer (teacher or researcher), grade level, LD status, hours of intervention provided (i.e., duration), and study design. Similar to Wanzek et al. (2013), shorter duration of intervention was associated with higher outcomes. The authors suggest that several factors may affect the higher effects associated with shorter interventions, including novelty effects, and

effects related to difficulty in generalizing strategies over time and in new contexts, as may be required in lengthy interventions (Willingham, 2007, as cited in Scammacca et al., 2015). Other significant moderating effects were found for intervention type, with reading comprehension interventions having the greatest effect on reading comprehension outcomes (Scammacca et al., 2015). The authors of this study suggest that more research is needed to clarify the relationship between intervention duration and student outcomes, and that research examining individual instructional components can allow researchers to construct the most effective multi-component interventions by targeting them to individual student needs (Scammacca et al., 2015).

Although the previously described literature addressed reading interventions for students with RD and reading difficulties, and examined elements of intervention that may be intensified, few of the reviewed studies focused specifically on students with RD or reading difficulties who also experience intensive needs in reading. One set of studies directly examining effects of reading intervention for students with intensive needs in reading was conducted by Vaughn and colleagues (Vaughn & Fletcher, 2012). These studies examined increasingly intensive interventions for one sample of participants who did not respond adequately to Tier 2 instruction (i.e., students with intensive needs in reading) by lengthening the duration of the intervention as well as by manipulating variables such as group size and by comparing effects of standardized versus individualized intervention protocols (Vaughn & Fletcher, 2012). Overall, the gains achieved by students with intensive needs in this set of studies were not sufficient to close the achievement gap with typical peers; instead, higher performance of treatment students over control students was shown to be largely due to the growing performance deficits in control group students, rather than significantly improved performance in treatment students (e.g., Vaughn, Wexler et al., 2012). Furthermore, gains made by students in studies examining the

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effects of stand-alone supplemental interventions are limited by overall poor generalization and maintenance of skills acquired during intervention (Hock, Brassuer-Hock, Hock, & Duvel, 2017). Students with intensive needs in reading require explicit instruction in the critical components of reading using instructional level texts, but they should also be provided with ample opportunities to apply their developing skills to authentic classroom instructional materials in core subjects to promote generalization and maintenance (Hock et al., 2017).

Given the limited time high school students have left in school, and the significant negative consequences to their failure to acquire adequate literacy skills, secondary students with intensive needs require an effective and timely approach to reading intervention (Fuchs, Fuchs, & Compton, 2010). Researchers (e.g., Berry-Kuchle, Zumeta Edmonds, Danielson, Peterson, & Riley-Tillman, 2015; Fuchs, Fuchs, & Compton, 2012; Fuchs, Fuchs, & Vaughn, 2014) suggest that programs for high school students with intensive needs should (1) practice immediate placement into intensive intervention; (2) provide individualized instruction, in which progress monitoring data are used to determine the efficacy of targeted interventions and to modify instruction according to individual student need; (3) use progress monitoring to measure remediation of academic deficits and to evaluate moving students to less intensive levels of intervention once sufficient progress has been made; and (4) promote inclusion of behavioral and motivational interventions for those students whose poor academic history has engendered a resistance to intervention, and for those students with co-morbid learning and behavioral disabilities. This systematic, intensive, and individualized intervention can best be delivered by trained specialists (i.e., special education teachers) with expertise in diagnosing and remediating the reading skill deficits of adolescents with intensive needs (Fuchs, Fuchs, & Compton, 2012).

Data-Based Individualization (DBI)

One promising model for providing systematic, intensive, individualized instruction is Data-Based Individualization (DBI), based upon the Data-Based Program Modification model (Deno & Mirkin, 1977; Fuchs, Deno, & Mirkin, 1984). The National Center on Intensive Intervention (NCII, 2013) describes DBI as a process guiding the use of formative assessment data from ongoing progress monitoring to individualize instruction and guide instructional modifications over time. DBI typically employs the following steps (NCII, 2013):

1. Students who demonstrate inadequate progress in an evidence-based secondary intervention delivered with fidelity are provided with intensified instruction in the same intervention, generally achieved by increasing instructional time and/or decreasing instructional group size.

2. Progress monitoring is conducted to determine intervention effect.

3. If progress in the intensified intervention is inadequate, diagnostic assessment using error analysis and/or standardized assessments is performed.

4. Specific instructional adaptations are made based upon results of the diagnostic assessment.

5. Progress monitoring is continued, and further instructional modifications are made as necessary.

Research shows that students receiving individualized instruction informed by analysis of CBM data experience improved outcomes (Stecker, Fuchs, & Fuchs, 2005). However, reading intervention at the secondary level is complicated by the fact that secondary students receive instruction in content area courses (i.e., math, social studies, science, and English) which do not use validated core reading curricula, nor are fundamental reading skills routinely taught in these classes; instead, instruction focuses on content acquisition, vocabulary and comprehension of

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literary and expository texts (Vaughn & Fletcher, 2012; Fuchs, Fuchs, & Compton, 2010).

Instruction in these courses includes independent reading of complex texts to gain content

knowledge (Duke & Pearson, 2002). Students with intensive needs in reading often lack the

specific reading skills (i.e., activating background knowledge, identifying main ideas, predicting,

self-questioning, separating relevant from irrelevant information, summarizing, and using meta-

cognitive strategies to monitor and repair understanding) necessary to meet the reading demands

of secondary content area classrooms (Fagella-Luby, Graner, Deschler, & Drew, 2012).

However, secondary students with intensive needs in reading do not all experience the same

pattern of skill deficits (Brassuer-Hock, Hock, Kieffer, Biancarosa, & Deshler, 2011; Cirino et

al. 2013; McIntyre et al., 2017). Therefore, secondary students with intensive needs in reading

need intensive, individualized instruction in reading strategies in order to benefit from content

area instruction (El Zein, et al., 2014; Vaughn & Fletcher, 2012). The DBI process can be used

by teachers to target instruction to individual student needs. Furthermore, the DBI process should

be tailored to the unique needs of high school students, who have little time left in school, and

therefore may require immediate placement into intensive intervention, skipping secondary

intervention, if they are to catch up to typically achieving peers (Fuchs, Fuchs, & Compton,

2010).

In order to meet the needs of secondary students with intensive needs in reading , DBI for

reading at the secondary level should (a) assess student reading performance to identify students

with intensive needs, (b) use diagnostic assessment (e.g., standardized measures, error analysis)

to identify specific instructional targets and to select and intensify interventions (e.g., 1)

Strength: select evidence-based interventions; 2) Dosage: increase frequency, duration,

opportunities to respond; 3) Alignment: target instruction to individual student need, avoid

teaching known skills; 4) Attention to transfer: include explicit, systematic instruction using alternate format and context to promote generalization and maintenance; 5) Comprehensiveness: employ explicit instruction in multiple skill areas; 6) Behavioral support: include self-regulation, executive function, and motivational components; 7) Individualization: use progress monitoring and diagnostic data to systematically tailor the intervention over time [Fuchs, Fuchs, & Malone, 2017]), and (c) continue to monitor progress and use data to make instructional decisions (Danielson & Rosenquist, 2014; Fuchs, Fuchs, & Compton, 2010; Lemons, Kearns, & Davidson, 2014).

Research on Data-Based Individualization for Secondary Students with Intensive Needs in Reading

Thus far, research examining the effects of reading interventions for secondary students with intensive needs in reading implemented using a DBI framework has not been conducted. In fact, only two empirical studies using the DBI framework were identified in the literature search. The first studied the effects of DBI on early writing instruction (Jung, McMaster, & delMas, 2016), in which research assistants were trained to use an 8 step DBI process: 1) Establish present level of performance, 2) Set long-term goal, 3) Implement high-quality instruction with fidelity, 4) Monitor student progress towards goal, 5) Use decision rules to evaluate student progress and instructional effectiveness, 6) Generate hypotheses to individualize instruction, 7) Make instructional changes based on hypothesis, and 8) Repeat steps 4-7) to use in implementing an early writing intervention for kindergarten through third grade students. Results showed significant improvement as measured by curriculum-based measures, but not on standardized measures of writing or spelling. The second study examined the use of technology in a self-management intervention for middle school students with behavior problems (Bruhn,

Vogelgesang, Fernando, & Lugo, 2016). Researchers trained two middle school teachers to implement a behavioral intervention that used a self-management app (*SCORE IT;* Bruhn et al., 2016) to increase academic engagement and decrease disruptive behaviors for two students. Teachers received training and supplemental coaching in the use of DBI to monitor progress, analyze data, and adapt the intervention as needed. Data were analyzed to modify reinforcement schedules, and to determine phase change criterion, rather than to adapt instruction. A functional relationship was established for both participants, who demonstrated increased engagement and decreased disruptive behavior. Both participants maintained behavior gains. Teachers and students rated the intervention favorably on social validity measures. Although both studies showed DBI as a promising instructional delivery framework for students with academic and behavioral needs, neither of these studies examined the use of DBI to individualize and intensify reading interventions for high school students with intensive needs in reading.

Purpose of Study and Research Questions

Students in today's schools will be entering a job market characterized by the demand for sophisticated critical thinking and problem-solving abilities that are dependent upon the successful acquisition of complex literacy knowledge and skills (O'Neill, 2015; Kamil et al., 2008). Individuals with intensive needs in reading will be at a distinct disadvantage when competing in the modern job market if they do not receive instruction that is appropriately targeted to their unique learning needs. Prior research has identified effective intervention components for instructing adolescents with intensive needs in reading, however, results from studies of intensive multicomponent interventions have been disappointing (Vaughn, Wexler et al., 2012). Research suggests that in order to be effective for adolescents with intensive reading needs, interventions must be intensified and individualized on an ongoing basis (Vaughn, Wexler

et al., 2012). DBI is a method of systematically intensifying and adapting interventions to increase the achievement of students with intensive needs through the use of frequent assessment using measures that are sensitive to progress and that provide diagnostic information that can be used to tailor interventions to students' specific needs (Fuchs, Fuchs, & Vaughn, 2014). As such, it is uniquely suited to address the instructional needs of adolescents with intensive needs in reading, who exhibit individual patterns of strength and weakness and who require individualized interventions that are both effective and efficient (Fuchs, Fuchs, & Compton, 2012; El Zein et al., 2014). However, more research is needed to determine how to implement DBI in high school settings for students with intensive needs (El Zein et al., 2014; Fuchs, Fuchs, & Compton, 2010; Fuchs, Fuchs, & Vaughn, 2014).

Therefore, the purpose of this study was to examine the effects of DBI on the reading performance of three high school students with intensive needs in reading. A secondary purpose was to examine teacher's perceptions of the efficacy, feasibility, and social validity of the DBI intervention framework. This study examined the following research questions:

1. What is the effect of DBI on reading comprehension of high school students with intensive needs in reading?

2. What is the teacher's perception of the efficacy, feasibility, and social validity of using DBI in the classroom?

3. How do the student participants rate the social validity of the DBI intervention?

It was hypothesized that (a) participants' reading comprehension will increase after instructional modifications are made using the DBI framework, (b) the teacher will view DBI intervention to be effective, feasible and socially valid, and (c) students will rate the social validity of the DBI intervention favorably.

Chapter 2

Literature Review

Adolescents with intensive needs in reading are a diverse group of learners with a range of academic and behavioral needs who a have history of persistent difficulty in learning to read. The extant research suggests that in order for reading interventions to significantly improve reading performance of adolescents with intensive needs in reading, they must be individualized and intensified beyond what has thus far been done in standardized interventions. One promising framework for implementing intensive, individualized intervention is known as data-based individualization (DBI), which uses progress monitoring and diagnostic data collected using curriculum-based measurement (CBM) to adjust instruction based upon individual student need. Although a substantial research base supports the use of CBM to inform instructional decision-making and improve student outcomes, more research is needed to examine the effects of the DBI framework on reading performance of adolescents with reading disabilities.

Adolescents with Intensive Needs in Reading

Students with intensive needs in reading exhibit two defining characteristics. First, they persistently score extremely low (<25th percentile) on measures of reading achievement and performance, and second, they fail to make sufficient progress in terms of level of performance and/or rate of improvement when provided with evidence-based intervention (Al Otaiba & Fuchs, 2002; Austin, Vaughn, & McClelland, 2017; Vaughn, Wanzek et al., 2009; Vaughn, Wexler et al., 2012). Prevalence estimates suggest that 2% to 7% of students experience intensive needs in reading, including 25%-50% of students with learning disabilities (LD) (Fuchs & Fuchs, 2015). Students with other mild disabilities may experience intensive needs in reading

as a result of cognitive, academic, and behavioral deficits similar to those of students with LD (McIntyre et al., 2017; Miller et al., 2013).

Students with intensive needs in reading are initially identified through low performance on academic measures prior to intervention, and their need for intensive intervention is confirmed through their failure to catch up to typically achieving peers when given standardized supplemental intervention (Vaughn, Wanzek et al., 2009; Vaughn, Wanzek et al., 2012). Studies have shown that when these students are provided with further intensification of intervention, typically involving increased dosage (e.g., smaller group size, longer instructional sessions, extended duration of intervention), and/or instructional modifications (e.g., additional decoding instruction, vocabulary and reading comprehension strategy instruction), their outcomes can be improved (Vaughn et al., 2009; Vaughn, Wanzek et al., 2012). However, even with intensified intervention, reading performance of students with intensive needs in reading tends to remain well below that of typically achieving peers, indicating persistent reading difficulties (Vaughn, Wanzek et al., 2009; Vaughn, Wanzek et al., 2012). Furthermore, when effects are disaggregated for students with lower and higher pre-intervention reading performance, results show that students with lower initial performance make smaller gains than students with higher initial performance (Vaughn, Wanzek et al., 2009; Solis, Vaughn, & Scammacca, 2015). For these reasons, researchers now suggest that for students with intensive needs in reading, it may be more efficient to identify very low performers and place them immediately into intensive intervention, monitor progress, and make instructional decisions regarding intensification of intervention based upon student response to intervention (Fuchs, Fuchs, & Compton, 2010; Vaughn & Fletcher, 2012; Vaughn & Wanzek, 2014).

Descriptive studies of students with intensive needs in reading show that students with intensive needs in reading differ from students who respond adequately to intervention in several ways. Denton et al. (2013) compared second grade adequate responders to non-responders in a Tier 3 reading intervention and found that non-responders showed significantly greater impairments in phonological awareness and listening comprehension skills. Al Otaiba and Fuchs (2002; 2006) found similar deficits in phonological and verbal skills, and also reported higher rates of problem behaviors in non-responders. Johnson & Swanson (2011) compared 11- to 14-year-old high, low, and non-responders on measures of phonological awareness, rapid naming, temporal and executive processing after three years of reading intervention. While all groups experienced low performance on measures of phonological awareness, planning, and verbal working memory relative to typically achieving peers, low and non-responders scored significantly lower on measures of phonological awareness, rapid naming, and temporal processing than high responders (Johnson & Swanson, 2011), indicating that students with intensive needs in reading have significantly greater impairments in both phonological and cognitive skills than other struggling readers. Cho et al. (2015) examined nonverbal reasoning, working memory, verbal knowledge, listening comprehension, phonological awareness, and rapid naming as well as teacher ratings of attention problems and self-reported self-efficacy for two specific types of fourth grade inadequate responders, namely students with decoding and comprehension deficits and students with comprehension deficits only, to adequate responders in a fourth-grade reading intervention. Results showed that both groups of inadequate responders scored lower on measures of verbal knowledge and listening comprehension, and the inadequate responders with both decoding and comprehension difficulties scored lower than the

comprehension-only group on measures of phonological awareness and rapid naming (Cho et al., 2015).

The relationship between cognitive attributes and reading performance deficits of adolescents with intensive needs in reading can be explained by the Adolescent Reading Model (ARM) proposed by Deshler and Hock (2007). The ARM is conceptualized based upon the Simple View of Reading (SVR; Hoover & Gough, 1990) and the Construction-Integration (CI) theory of Walter Kintsch (2004). SVR posits that reading comprehension is the product of two distinct processes: word level decoding (both phonemic decoding and sight word recognition) and linguistic knowledge (language comprehension), while CI adds the components of utilizing prior knowledge and using executive processes. Therefore, in the view of ARM, reading is an active process wherein the reader uses decoding and language comprehension skills to extract meaning from a text. The reader also employs executive processes to integrate new information with prior knowledge and to create new knowledge structures. According to Deshler and Hock (2007), while most adolescents have mastered basic decoding skills, students with intensive needs in reading may have difficulty decoding complex words fluently. Many adolescent struggling readers also experience deficits in elements of language comprehension, including background knowledge, vocabulary, and knowledge of syntax and text structure, and for students with intensive needs in reading, these deficits are significant (Hock et al., 2009; McIntyre et al., 2017). Furthermore, it is very likely that older students with intensive needs in reading will lack proficiency in applying and regulating their use of cognitive and metacognitive strategies when reading complex texts (Johnson & Swanson, 2011; McIntyre et al., 2017).

The aspects of reading process and reading difficulties described in ARM have been supported by several empirical studies. Hock et al. (2009) reported that 61% of all struggling

adolescent readers (i.e., students who score below proficient on state reading assessments, including students with and without disabilities) experienced deficits in reading skills at the word level, as well as in fluency, vocabulary, and comprehension. More specifically, many adolescents with the most severe difficulties in reading experience deficits in background knowledge and vocabulary that impede their ability to comprehend textual information (Brown et al., 2013; Hock et al., 2009). Students with intensive needs in reading also often have poor short-term memory function, and therefore have difficulty remembering what they have just read, which negatively impacts comprehension of complex text (O'Connor & Klein, 2004; Swanson, Zheng, & Jerman, 2009). Inadequate working memory function can further impact students' ability to make inferences and monitor their comprehension while reading (Swanson & O'Connor, 2009) because limited working memory capacity does not facilitate the simultaneous integration of newly read sentences with previously read information, and they lack the metacognitive skills to successfully monitor their thinking (Cain & Oakhill, 2006; Cain, Oakhill, & Bryant, 2004; Norbury & Nation, 2011).

Taken together, these difficulties cause adolescents with intensive needs in reading to fall behind academically due to the increasing demands of the secondary curriculum, in which much of the content is presented through complex text (Vaughn & Fletcher, 2012). Students who are unable to read complex texts proficiently miss out on opportunities to acquire and apply the critical content in core classes, and are thus at risk of school failure and associated negative life outcomes, including poor income and employment prospects, and higher rates of involvement with the criminal justice system (Wagner et al., 2005). In order to avoid these negative consequences, effective reading instruction is critical. Due to the limited amount of time adolescents have to complete their education, efficient reading interventions are necessary to

ensure adolescents with intensive needs in reading are leaving school with the skills that are necessary for success in employment and higher education.

Research on Intensive Interventions for Adolescents with Intensive Needs in Reading

Several studies providing interventions to minimal responders to previously research-based interventions have been conducted with elementary students (e.g., Denton, Fletcher, Anthony, & Francis, 2006; Denton et al., 2013; Vaughn, Wanzek et al., 2009; Vellutino, Scanlon, Small, & Fanuele, 2006; Wanzek & Vaughn, 2009). Results of these studies show that students who are inadequate responders to Tier 2 interventions can make significant progress when provided with intensified intervention; however, they often fail to close the achievement gap with more responsive peers (Austin et al., 2017; Wanzek & Vaughn, 2007). Furthermore, only two studies focusing on intensive interventions for low or non-responders have been conducted at the secondary level, as part of a series of four longitudinal studies investigating the effects of increasingly intensified intervention on reading outcomes for students with intensive needs in reading (e.g., Vaughn, Wexler et al., 2011; Vaughn, Wexler et al., 2012).

Beginning with less intensive interventions in the first two years, these studies examined a multi-year reading intervention for middle school struggling readers within an RTI framework (Vaughn, Cirino, et al., 2010; Vaughn, Wanzek et al., 2010; Vaughn, Wexler et al., 2011; Vaughn, Wexler et al., 2012). Researchers used state reading assessment scores to identify struggling readers (those students who either failed or scored within one standard error of the cutoff score) as well as added a reading fluency measure to further diagnose specific areas of need for individual students. All participants received enhanced Tier 1 instruction from classroom teachers who had been trained by the research team to use explicit instructional routines to teach vocabulary and reading comprehension. Students qualifying for Tier 2

instruction received 50 min per day of specifically designed reading intervention in addition to the enhanced Tier 1 instruction. Sixth grade students were instructed in groups of 10-15 students. Instruction included each of the critical components of the ARM (i.e., word study, fluency, vocabulary, reading comprehension) across three phases, with differing sequential emphasis (i.e., Phase I emphasized word study and fluency, Phase II emphasized vocabulary and comprehension, Phase III emphasized reading strategy application using expository text) (Vaughn, Cirino et al., 2010). However, motivational components were not emphasized, and background knowledge was not explicitly addressed. Small gains in reading comprehension, word attack, spelling, and decoding ($ES = .16$) were observed in the intervention group. Students in this study were also divided into two cohorts who received instruction in groups of differing size: small (3-5 students) and large (10-15 students). No significant differences were observed as a function of group size.

Students who failed to make adequate progress after the first year of intervention were defined as "minimal responders" (Vaughn, Wexler et al., 2011) and were assigned to either a standardized or individualized intervention group to receive year-long, 50 min per day Tier 3 reading intervention using the same instructional components and procedures as the previous year's Tier 2 intervention. Intensification for the standardized group was achieved by decreasing group size to 5 students. The individualized group also received small group instruction, but progress monitoring data were used to individualize the amount of emphasis on each component to tailor instruction to individual student need. No statistically significant differences were observed between the standardized and individualized groups, but both intervention groups outperformed controls (i.e., students who received enhanced Tier 1 instruction alone) ($ES = 0.23$).

Subsequently, students who demonstrated inadequate response to the Tier 3 intervention were provided with an additional year of even more intensified intervention in even smaller groups (2-4 students). The intervention consisted of the same components used in previous years and employed the individualized treatment model in which assessment data were used to determine which components were given greater emphasis to better address individual student need. Daily motivational components were added, including goal setting, choice of text, and positive parental communication (Vaughn, Wexler et al., 2012). Students in treatment outperformed controls in both word identification (ES = .49) and reading comprehension (ES = 1.20). This encouraging result is mitigated by the fact that control students experienced declining scores on the outcome measures, and treatment students did not score high enough to close the achievement gap relative to typically achieving peers. However, these students did show greater slopes than both control students and typically achieving readers, suggesting that gap closure may be attainable with longer treatment duration and a more comprehensive approach.

Another recent study examined the effects of the Fusion Reading program on reading comprehension of 40 sixth grade students with reading disabilities (Hock, Brasseur-Hock, Hock, & Duvel, 2017). Although participants were not selected based on inadequate response to prior intervention, this study is notable because the intervention specifically addresses both motivation and attention to transfer, two characteristics of interventions particularly important for adolescent learners and students with intensive needs in reading (Deshler & Hock, 2007; Fuchs & Fuchs, 2015). The elements of Fusion Reading were similar to the other programs described so far: intensive instruction in word and text level reading skills and reading comprehension strategy and vocabulary instruction delivered to small groups (3-8) of students in 50 min sessions, five times per week for one year. However, this intervention addressed motivation specifically by

selecting highly engaging teen literature as well as goal setting and performance tracking. In addition, checklists were used to assess students' use of strategies during partner work, and instructional adjustments were made based upon individual student performance. Pre-post tests were used to measure student progress after each instructional unit. Critically, this program also incorporated explicit transfer instruction by applying the skills and strategies to core class text material and district assessments. Students began by using specially designed reading material at their instructional level, and once they were using the strategies successfully, they transitioned to texts used in the general curriculum. Results showed an effect size of 1.66 (Hedges's *g*) on the Group Reading and Diagnostic Evaluation (GRADE; Williams, 2001) and an effect size of 1.04 on the Northwest Evaluation Association *Measures of Academic Progress* (MAP; NWEA, 2011). The authors suggest that these impressive results are partially due to the explicit transfer instruction using classroom texts.

The studies summarized here included similar evidence-based intervention components aligned with the recommendations of the ARM (e.g., instruction in word identification, language comprehension, and executive function). Specific reading comprehension strategies taught in these interventions included: identifying main ideas, summarizing, and asking and answering literal and inference questions. The studies were conducted using high quality research methodology, including experimental or quasi-experimental design and acceptable levels of treatment fidelity. Additionally, these studies implemented interventions that can be considered to be intensive in terms of explicitness of instruction, group size, and intervention frequency and duration. However, the impact these interventions had on student performance was not sufficient to close the achievement gap between low-performing readers and their typically achieving peers. A common thread running throughout the implications of these studies is the need for

more individualized interventions that are specifically aligned with individual student needs. The study with the highest student outcomes was the one in which the intervention was individualized to the greatest degree (Vaughn, Wexler et al., 2012); however, the researchers note that little empirical research exists to guide researchers and practitioners in specific methods of intensifying interventions for students with intensive needs in reading, particularly with respect to the most effective means of individualizing instruction (Fuchs & Fuchs, 2016; Solis et al., 2014; Vaughn, 2015). Additionally, Hock and colleagues (2017) suggest that specific transfer instruction using classroom materials leads to larger gains. Practice with texts used in the general curriculum may also promote generalization and maintenance. One implication based on the efficacy of transfer instruction (Hock et al., 2017) is that it might be desirable for classroom teachers to design and implement intensive interventions that are aligned with the general curriculum used in classroom instruction, which are thus likely to be of interest to students.

The collective results of these studies show that although it is possible to positively impact reading comprehension for older students with intensive needs in reading, gains are typically small, do not eliminate the achievement gap with typically achieving peers, and may not be maintained after the cessation of intervention. The research on intensive multi-component reading intervention programs reviewed here shows that adolescents with intensive needs in reading typically require multiple years in intervention in order to show progress, and even then, their reading performance remains behind that of typically achieving peers. High school students have limited time left in school, and require highly efficient reading intervention (Fuchs, Fuchs, & Compton, 2012).

In order to provide adolescent students with intensive reading needs with effective and efficient reading instruction, Vaughn and Wanzek (2014) recommend intensive, individualized

interventions implemented by highly skilled professionals (i.e., special education teachers) who are well-trained in how to diagnose specific student needs, select and administer appropriate interventions, monitor student progress, and make appropriate instructional modifications based upon analysis of progress monitoring data. These recommendations suggest that the data-based individualization (DBI) framework might be a promising approach for high school level students in that it is a systematic method of intensifying and individualizing intervention to promote student achievement that uses progress monitoring data to measure growth and to diagnose the specific skill deficits and strengths of individual students.

Research Background of Data-Based Individualization

Data-based individualization (DBI) is a systematic approach to using assessment data to intensify and individualize instruction for students with or at risk of disabilities at the tertiary level of prevention. Originally known as data-based program modification (DBPM, Deno & Mirkin, 1977) or experimental teaching (Fuchs & Fuchs, 1986; 1998), DBI uses a continuous cycle of assessment and adaptation to individualize academic and behavioral interventions for students with intensive needs over time (Danielson & Rosenquist, 2014). This iterative method of planning and modifying instruction guides teachers to assess student progress frequently, to use the resulting data to make decisions about when and how to intensify instruction, and to modify instruction to meet individual students' specific needs.

Research evidence supports the use of frequent assessment and diagnostic data analysis to improve teacher planning and outcomes for students. Teachers who used assessment data to diagnose specific student needs implemented instructional modifications more frequently, and selected more appropriate instructional interventions than teachers who did not use frequent progress monitoring and data analysis to inform instructional decision-making (Fuchs, Fuchs, &

Hamlett, 1989; Fuchs, Fuchs, & Stecker, 1989). Students of teachers who were taught to

carefully analyze assessment data to identify specific areas of need showed improved

performance over students whose teachers did not use skills analysis to target instruction, even

when frequent instructional decision-making occurred (Capizzi & Fuchs, 2005, Fuchs, Fuchs,

Hamlett, & Allinder, 1991a; 1991b; Fuchs, Fuchs, Hosp, & Hamlett, 2003; Stecker & Fuchs,

2000).

Although these early research findings suggest that using frequent progress monitoring

and data analysis to intensify instruction may be an effective way to individualize intensive

interventions, the DBI framework itself has limited research support. Nevertheless, it is

suggested that DBI should typically involve the following series of steps to intensify

interventions to make them more effective by adapting them to target specific needs of individual

students (NCII, 2013):

  a. Teachers use ongoing progress monitoring to measure student growth and to
     identify particular areas of instructional need. Evidence-based Tier 2 interventions
     are then tailored to provide specific instruction at the appropriate level of intensity
     (i.e., frequency, duration, group size).

  b. Student progress is monitored and analyzed to determine the need for additional
     intensification.

  c. Diagnostic assessment, in the form of standardized measures, error analysis, or
     functional behavioral assessment, is carried out to determine the specific types of
     instructional modification needed.

  d. The intervention is adapted based upon student need according to the following
     taxonomy: 1) strength, 2) dosage, 3) alignment, 4) attention to transfer, 5)

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comprehensiveness, 6) behavioral support, 7) individualization (Fuchs et al., 2017).

  e. Continued progress monitoring, data analysis, and adaptation are performed as needed.

  Although researchers have offered descriptive guides to using DBI for reading (Lemons, Kearns, & Davidson, 2014), math (Powell & Stecker, 2014), and behavior (Wehby & Kern, 2014) more research is needed to determine the effects of DBI on outcomes for students with intensive needs (Fuchs, Fuchs, & Compton, 2010; 2012; Fuchs, Fuchs, & Vaughn, 2014). DBI is suggested to be a promising means of addressing the needs of students with disabilities (Berry-Kuchle, Edmonds, Danielson, Peterson, and Riley-Tillman, 2015) and may be particularly so for students with intensive needs in reading who need more intensive and individualized instruction. Decades of research on reading comprehension interventions for students with RD has provided teachers and researchers with an array of specific reading comprehension strategies to be used within the framework of DBI to improve reading comprehension skills for students with intensive needs in reading, which makes intensification of interventions more likely to occur. For example, according to the taxonomy described by Fuchs et al. (2017), reading comprehension interventions can be intensified and individualized in the following ways:

  1. Strength: refers to the evidence base supporting a particular intervention or strategy for the population with which it will be used. DBI begins with the selection of evidence-based practices to ensure effective intervention. Examples of specific strategies with strong evidence of effectiveness for improving reading comprehension for students with intensive needs in reading include, but are not limited to:

a. Paragraph Shrinking (Main Idea Strategy) (Fuchs, Fuchs, & Burish, 2001). Identification of main ideas is essential for students to know what information is important and worth remembering (Williams, 1988). Reading comprehension outcomes improve for students with RD who are taught strategies to identify main ideas (Jitendra, Hoppes, & Zin, 2000).

b. Summarization Strategy (Gajria, Jitendra, Sood, & Sacks, 2007; Gajria & Salvia, 1992). Summarizing is a strategy that involves creating several main ideas in smaller chunks of text, and then combining them to generate an overall main idea for the entire passage, eliminating irrelevant or redundant details (Klingner, Vaughn, & Boardman, 2015).

c. Teaching Text Structure (Klingner, Vaughn, & Boardman, 2015). Texts follow different patterns of organization that guide readers in identifying key information. However, students with RD often do not intuitively discern text structures without explicit instruction (Gersten, Fuchs, Williams, & Baker, 2001; Meyer, Brandt, & Bluth, 1980). Explicit instruction in identifying different text structures, including descriptive, sequential, compare/contrast, cause/effect, and problem/solution, can help students with RD 1) predict what they will read about, 2) organize new information, 3) evaluate the significance of new information, 4) improve comprehension of text, and 5) enhance recall of textual information (Meyer, 2003).

d. Question Answer Relationship Strategy (Raphael, 1986). Questioning is an important means of assessing student comprehension, but it can also be an effective learning strategy when used to help students differentiate between types

of questions, and to determine how to use the text to answer different question types (Klingner, Vaughn, & Boardman, 2015). Raphael (1986) created the Question Answer Relationship strategy to teach students how to recognize four different question types and to use different strategies to answer each type.

e. BEST Multisyllabic Word Decoding Strategy (O'Connor, 2014). The Adolescent Reading Model (ARM, Deshler & Hock, 2007) specifies that for adolescents with reading disabilities, word level decoding strategy instruction may be necessary. Research on intensive reading interventions for adolescents (e.g., Lang et al., 2009; Solis et al., 2015) showed greater intervention effects for students with higher decoding skills, supporting the importance of decoding instruction for adolescents with RD. Providing 5-10 min instruction in the BEST strategy daily as part of a multicomponent reading intervention has been shown to improve adolescents' ability to decode unfamiliar multisyllabic words and improvements in reading comprehension (O'Connor et al., 2015.)

2. Dosage: is another component of the Fuchs et al. (2017) taxonomy. Defined as the number of opportunities the student has to respond and receive feedback, dosage can be intensified by increasing the number of intervention sessions (e.g., from 2x/week to 4x/week), the length of intervention sessions (e.g., from 30 min daily to 90 min daily), and the duration of the intervention (e.g., from 6 weeks to 12 weeks) with an existing evidence-based reading program. Another way to intensify the dosage of an intervention is to decrease the size of the instructional group (e.g., from 8 students to 4 students), so that individual students have increased opportunities to respond and receive feedback within instructional sessions. DBI incorporates frequent progress monitoring to measure

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student progress, which provides teachers and researchers timely information about when an intensification in dosage is needed.

3. Alignment: defined as the application of those instructional components that address skills needed by the individual, and recognition of the importance of not spending valuable instructional time teaching already known skills. Therefore, interventions may be intensified by teaching only those skills in which the individual requires additional instruction. Because a variety of evidence-based practices are available, teachers are able to select specific instructional strategies to meet the specific learning needs of individual students. DBI uses frequent assessment that provides diagnostic information teachers and researchers can use to ensure instruction is closely aligned with changing student needs.

4. Attention to transfer: the extent to which an intervention is systematically designed to provide instruction and opportunities for students to use new skills in other formats and contexts. Intensified intervention should include multiple opportunities for students to practice skills in alternative settings, using instructional materials from the general curriculum when possible. The ongoing, iterative nature of DBI allows interventionists to incorporate strategically planned transfer instruction.

5. Comprehensiveness: the number of explicit instructional components the intervention incorporates. The explicit instructional sequence includes explaining concepts using simplified language, instructor modeling of new skills, guided practice, independent practice with feedback, gradual fading of instructional support, and ongoing practice and cumulative review. The DBI process includes frequent progress monitoring to guide teachers and researchers in determining when increased instructional comprehensiveness is needed for specific skills.

6. Behavioral support: in order to support students with intensive needs in reading, who may have difficulties with attention, motivation, and executive process skills, interventions may incorporate behavioral support strategies such as 1:1 instruction to aid attention, goal setting to enhance motivation, and self-monitoring through the use of strategy checklists. Motivation to read is an important factor in improving reading intervention for students with intensive needs in reading that is included in the ARM (Deshler & Hock, 2007) and as an element in intensive reading interventions for adolescents (Vaughn, Wexler, et al., 2011). One way to improve students' self-efficacy and motivation to persist in reading tasks is goal setting and self-evaluation of progress towards specific learning goals (Schunk, 2003). Students set a specific, short term, accessible learning goal and then engage in instructional activities designed to help them achieve the goal. Periodically, students review their progress toward the goal. Commitment to goal attainment improves students' task persistence, and discrepancies between actual and desired performance can raise effort (Schunk, 2003). Several studies incorporating self-monitoring into reading comprehension strategy intervention in the form of visual support cards with strategy steps listed, along with explicit instruction teaching students to check off each strategy step as it is completed, have shown improved outcomes over strategy instruction alone (Graves, 1986; Jenkins et al., 1987; Malone & Mastropieri, 1992; Jitendra, Cole, Hoppes, & Wilson, 1998). Furthermore, individualized behavioral supports including reinforcement strategies such as positive phone calls home when specific performance goals have been met may be used to intensify behavioral supports for students with intensive needs in reading (Vaugh, Wexler et al., 2011). Additionally, an antecedent strategy for increasing student motivation is to offer students choice of instructional

materials (Kern & Clemens, 2007). The DBI process provides a framework for collecting

data that can be used to modify behavioral supports as needed.

7. Individualization: the extent to which the interventionist tailors the intervention over time

in response to progress monitoring data. The DBI process is a recursive system of

frequent collection and analysis of progress monitoring data that can be used to intensify

interventions according to the taxonomy described above, as indicated by individual

student need.

Empirical Research on Data-Based Individualization

Extant research examining the use of curriculum-based measurement (CBM) data to

modify instruction is plentiful (see Stecker, Fuchs, & Fuchs, 2005 for review). However,

empirical studies using the specific data-based individualization (DBI) framework outlined by

the National Center on Intensive Intervention (2013) are limited. One study by Jung, McMaster,

and del Mas (2016) used DBI to improve the early writing skills of students with and without

disabilities in grades K-3. Interventionists were tutors who were members of the research team.

Tutors attended three training workshops. The first workshop instructed tutors in the content and

implementation of the early writing interventions. The second workshop provided training in

curriculum-based measurement in writing (CBM-W) administration, scoring, and graphing.

During the third workshop, tutors were taught eight steps of DBI: 1) Establish present level of

performance, 2) Set long-term goal, 3) Implement high-quality instruction with fidelity, 4)

Monitor student progress towards goal, 5) Use decision rules to evaluate student progress and

instructional effectiveness, 6) Generate hypotheses to individualize instruction, 7) Make

instructional changes based on hypothesis, and 8) Repeat steps 4-7. Tutors were provided with

ongoing support in the form of weekly hour-long group meetings during which tutors presented

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students' progress monitoring graphs and discussed issues as they arose. In addition, the first author checked in weekly with each tutor to verify that they were implementing DBI with fidelity and recording instructional decisions.

Treatment participants were provided with 30 min of evidence-based writing instruction within the DBI framework in small groups of 2-4 students three times per week for 12 weeks. Control students received business as usual classroom writing instruction. Results showed significant treatment effects on CBM-W story prompt measures, but not on the standardized Woodcock-Johnson-III Spelling, Writing Fluency, and Writing Samples subtests (WJ-III, Woodcock, McGrew, & Mather, 2001), although students with disabilities showed greater improvement on WJ-III subtests than students without disabilities. This study adds to the evidence base supporting the efficacy of DBI to improve early writing skills, but more research is needed to examine the effects of DBI on reading comprehension.

Another study by Bruhn, Vogelgesang, Fernando, and Lugo (2016) employed teachers as primary interventionists in a two participant, single subject study investigating the effects of an iPad-based multi-component self-monitoring app (*SCORE IT*) used with two middle school students to increase academic engagement and decrease disruptive behavior during their reading class. The primary investigator coached two teachers in the use of DBI to monitor progress, analyze data, and adapt the intervention. Prior to intervention, the primary investigator and one research assistant conducted a group training session that included both the teacher and the student participants. Participants were trained to use the app to rate students' adherence to classroom behavioral expectations through discussion of examples and non-examples of each expectation, guided practice in using the app (students scored themselves and teachers scored students), and practice for teachers in providing feedback to students using comparison of

teacher and student scores. In addition, the primary investigator met individually with each teacher at the beginning of each intervention and maintenance phase. Support was provided to the teachers with respect to interpreting data, goal setting, setting phase change criteria, and establishing fading procedures. In this study, data were analyzed to modify reinforcement schedules, rather than instruction. A functional relationship was established for both participants, who demonstrated increased engagement and decreased disruptive behavior. Again, this study supports the use of DBI to improve behavior in adolescents, but more research is needed to determine the effects of DBI on reading comprehension in adolescents.

It is clear then, that although the DBI framework shows promise as a means of implementing intensive, individualized interventions for adolescents with intensive needs in reading, more research is necessary. Research studies should attempt to specify the most effective and efficient means of assessing and diagnosing student strengths and needs, identifying and implementing effective interventions, assessing student progress, and adapting and intensifying instruction according to progress monitoring data.

Chapter 3

Method

Participants

Participants in this study were three high school students selected according to the following criteria set by the researcher: (1) identified as having a specific learning disability in reading (RD) according to school identification criteria (2) reading at least two years below grade level as determined by students' IEP and confirmed by CBM oral reading fluency (ORF) assessment. Students were excluded if they: (1) had poor attendance, (2) had severe emotional or behavior problems, (3) were currently receiving English as a second language (ESOL) services as an English Language Learner (ELL), and (4) had reading levels below 4th grade. The exclusionary criteria were selected because the learning and behavioral needs of students with these characteristics are likely to be outside the scope of the reading comprehension intervention used in this study. Students were initially identified by the school vice principal and the special education teacher according to these criteria. However, upon subsequent review of information provided by the students' special education case manager, the researcher discovered that one of the participants had a diagnosis of autism spectrum disorder (ASD) without a co-diagnosis of RD. Due to the fact that the student was already in the intervention phase and was responding to the intervention, the student was retained in the study. Prior to assessment and data collection, parent consent, student assent, and university internal review board approval were obtained. Participant characteristics are provided in Table 1. Described below is learning history of each participant.

"Marly" received reading instruction in the special education classroom using the READ 180 program from 7th grade to the present. In grades 4-6, Marly received reading instruction

using System 44, which focuses on phonics and decoding skills. Marly had two reading goals on her IEP, one focusing on inference-making and the other on identifying main ideas. Marly spent 79% of the school day in general education classes. Marly's class schedule included the following general education classes: Choir (without special education support), Algebra 1 and Biolog (with paraprofessional support), and technical career training center, where she participated in the Painting and Decorating program, without support.

"Dylan" received Title 1 services in reading in first grade, and occupational therapy from first through fourth grades. Dylan received reading instruction in the System 44 program in 4-6th grades and participated in special education reading instruction using the READ 180 curriculum from 7th grade to the present. Dylan had two reading goals on his IEP, one focusing on increasing his lexile level and the other on improving vocabulary and reading comprehension as measured by non-specified bi-weekly assessments. Dylan spent 79% of the school day in the general education setting, attending Algebra 1 (co-taught by one general and one special education teacher), Biology (with paraprofessional support), and Gym/Health (no support). Dylan also attended the career and technical center in the afternoon, pursuing a certificate in Construction, without support.

"Harry" had initially been diagnosed with attention deficit disorder (ADD) in first grade. Harry received occupational therapy (OT) services for organizational issues in first grade and had a 504 plan to address organizational and attention issues from 1st through 4th grades. Subsequently, he was diagnosed with autism spectrum disorder (ASD) at the age of 9 years and 10 months and began receiving special education services. Harry also participated in System 44 in grades 4-6 and in READ 180 instruction from grade 7-present. Harry had two reading goals on his IEP, one focusing on improving his lexile level and the other on improving vocabulary and

reading comprehension as measured by non-specified bi-weekly assessments. Harry spent 79% of the school day in the general education setting, attending Algebra 1 (co-taught by one general and one special education teacher), Biology (with paraprofessional support), and Gym/Health (no support), and attended the career and technical center, pursuing a certificate in Electrical Occupations, without support.

All three of the participants were considered to have intensive needs in reading due to severe deficits in reading as shown by the significant gap of more than two years between their grade level and instructional reading level as well as persistent resistance to treatment. In spite of having received secondary intervention using research-based reading programs for multiple years, all three participants continued to perform several years below grade level in reading.

Setting

This study took place in a small rural high school in the mid-Atlantic region of the United States. The school served 458 students during the 2017-2018 school year: 52% male, 48% female; 96% white, 0% Black, 2% Asian, 1% Native American; 1% mixed-race; 25% eligible for free or reduced-price lunch; and 18% received special education services. The study was conducted in the special education classroom at the request of school staff. During the 16-wk duration of the study, a total of eight students attended the class, three of whom were selected for participation in the study. While the interventionist of this study provided 1:1 instruction or assessment to each participant, the remaining students in the classroom received their reading instruction, which was 90 min long and was staffed by a special education teacher working as a long-term substitute who implemented the Read 180 program. The special education teacher was certified in secondary language arts and mathematics, had a Master's degree in special education, and had eight years of teaching experience, all of which were as a long-term substitute. The Read

180 instructional routine was followed every day: 20 min of whole class instruction either introducing a new unit or focusing on writing skills related to the unit; then 1 hr during which students rotated through three stations, including computer-based instruction, small group instruction led by the teacher, or independent reading and/or project work. The Read 180 program includes an additional 10-min daily wrap-up, however, due to students needing to leave the class 10 min early to catch the bus to the career and technical center, this was omitted from the instructional routine.

The classroom was organized into separate instructional areas: a semi-circle of desks at the front of the class near a smartboard, where students sat when the teacher provided whole-class instruction and also for individual computer-based instruction or seatwork, and two groupings of four desks towards the back of the classroom, one of which was used by the classroom teacher for small group instruction. The one-on-one assessment and instruction for all participants occurred at the unused desk grouping during which time the other students were engaged in small group work with the special education teacher or were wearing headphones while completing the computer-based portion of the Read 180 instructional sequence.

Interventionist

The interventionist was the primary researcher, a doctoral candidate in special education with teaching certifications in secondary English and special education and ten years of teaching experience. All assessment and instruction were performed by the researcher.

Materials

A handheld audio-recording device was used to record all assessment and intervention sessions. Paper copies of the reading comprehension – curriculum-based measurement (RC-CBM) rubric (see appendix A), paper copies of lesson plans and strategy step cue cards for initial

strategy lessons (see appendix B), along with paper copies of the reading passages and answer keys (see appendix C) were used by the interventionist during instructional sessions. Reading passages used in initial strategy lessons were obtained from *Readworks* ([www.readworks.org)](www.readworks.org) and were edited as needed by the researcher to meet the needs of the strategy lessons (e.g., explicit signal words were added to passages to match the type of text structure targeted for instruction.) AIMSWeb (Shinn & Shinn, 2002) passages were used for assessment and for supplemental strategy practice after the initial strategy lesson was taught. Reading materials for transfer lessons were selected from the Read 180 student workbooks.

Measures

  Reading comprehension Curriculum-Based Measurement (RC-CBM). Frequent, ongoing diagnostic and progress monitoring assessment is a critical component of the DBI process (Danielson and Rosenquist, 2014). Although for secondary students, both oral reading fluency and maze measures have been determined reliable and valid for predicting student performance on state assessments and sensitive to student growth over time (Espin, Wallace, Lembke, Campbell, & Long, 2010), these measures do not provide the specific diagnostic information that is necessary for teachers to use to adjust intervention. In order to obtain specific diagnostic information about students' reading comprehension skills, oral retell procedure (Shapiro, 2011) was used in the primary dependent measure, RC-CBM, created for this study. RC-CBM was created by the researcher for this study incorporating elements from oral retell procedures described in the literature (i.e., Gersten et al., 2001; Klingner et al., 2015; Leslie & Caldwell, 2017; O'Connor & Klein, 2004; Shapiro, 2011.)

  These sources identified the following skills as essential for reading comprehension: identifying main ideas and relevant details, summarizing, identifying text structures, and

answering literal and inference questions (Leslie & Caldwell, 2017, Shapiro, 2011). These skills are also reflected in the Common Core English Language Arts Anchor Standards (Common Core State Standards Initiative [CCSSI], 2010). At grades 9 and 10, the anchor standards include students' ability to determine central ideas and summarize key supporting details (CCSS.ELA.LITERACY.CCRA.R.2), analyze the structure of texts to determine how various components relate to each other and the whole (CCSS.ELA.LITERACY.CCRA.R.5), and to use textual evidence to extract explicit information and make logical inferences (CCSS.ELA.LITERACY.CCRA.R.1) (CCSSI, 2010). Furthermore, the skills measured by the RC-CBM are matched to the reading comprehension strategies used by Vaughn, Wexler, et al. (2011), as well as to the reading skills targeted by the Read 180 program.

The RC-CBM was scored using number of items retold correctly (IRC) on the retell assessment rubric. An answer key was created to identify acceptable responses for each item on the rubric for all of the passages used for RC-CBM rubric assessment. An expert panel evaluated the validity of the rubric. The expert panel consisted of four members: two university professors with expertise in reading instruction for students with reading disabilities, and two teacher consultants who provide professional development to practicing teachers in the area of reading instruction for students with and without disabilities, both of whom have earned a PhD in special education. The panel provided feedback to support the content validity of the RC-CBM, i.e., that the rubric measures essential skills relevant to reading comprehension. One suggestion by the panel was to place the Summarization item first, followed by the Main Idea item, in order to match the order in which the skills are performed in the explicit strategy selected by the researcher for use during instruction. The panel also evaluated the rubric scoring system to certify that the 0-1-2 scoring system captures the relevant skills at three levels: absence of the

skill (0), emergent skill (1), and mastery of the skill (2). A similar rubric and scoring system was used in O'Connor & Klein (2004) which also examined a reading comprehension intervention. The RC-CBM retell rubric includes the following items:

1. Summarization: 2 points are awarded if the student relates a topic sentence (defined as including important information, without unnecessary or repeated information) for each individual paragraph in the passage, in order of presentation in the passage, with one error of omission allowed to compensate for individual differences in grouping sections of text due to irregularities in paragraph demarcation in AIMSWeb passages used for assessment; 1 point is awarded if the student identifies a topic sentence for two or more of the individual paragraphs, or relates the topic sentences out of order; the student receives 0 points if he/she identifies fewer than two topic sentences from individual paragraphs.

2. Main idea: two points are awarded if the student correctly identifies one main idea for the entire passage, including most important who or what, and the most important thing about the who or what, stated in a single sentence; 1 point is awarded when the student identifies either the most important who or what, or the most important thing about the who or what, but not both; the student receives 0 points if he/she identifies neither the most important who or what, nor the most important thing about the who or what.

3. Text structure: 2 points are awarded if the student correctly identifies text structure, providing signal words as evidence, or a clear rationale for the selection of the text structure using semantic information from the text (e.g., in identifying the problem/solution text structure, the student correctly identifies both the problem and

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the solution described in the text); 1 point is awarded if the student correctly identifies text structure, but does not provide signal words or a rationale as evidence; the student receives 0 points if he/she does not identify text structure or identifies incorrect text structure.

4. Literal and Inferential Questions (6 points total: 1 point each for identifying the question type (i.e., Right There, Think and Search, Author and Me; based upon the Question Answer Relationship [QAR] strategy [Raphael, 1986]) and one point each for correctly answering one example of each the following types of questions: 1) Right There (answer explicitly stated in one sentence in the text), 2) Think and Search (answer explicitly stated with relevant information located in two or more different sentences in the text), 3) Author and Me (answer not explicitly stated in the text, requires use of background knowledge plus textual information).

The passages used for RC-CBM in this study were AIMSWeb passages (Shinn & Shinn, 2002). AIMSWeb narrative passages were selected because they have been determined to be reliable in terms of reading difficulty level, and because the content and narrative structure of the passages minimize the effects of background knowledge on comprehension (Shinn & Shinn, 2002). Although narrative passages are not ideal for identifying text structure because they do not always have explicit signal words, elements of text structure still can be identified through semantic information (e.g., for the Cause/Effect text structure, students identified at least one specific cause, and one specific effect in order to receive full credit for the item). After the passages were selected, the researcher created a set of one literal and two inference questions for each passage (based upon the QAR strategy) and identified acceptable answers to the sections on

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the retell rubric (i.e., summary, main idea, text structure, literal and inference questions.) (See appendix C for a sample passage and answer key).

RC-CBM was administered in the same fashion during baseline and intervention phases. In each administration, the student was given a copy of an instructional level passage. Passages were administered in random order. The examiner had a copy of the same passage, a copy of the retell scoring rubric (described above; see appendix A), and an answer key. During the first 1-min of the student's oral reading of the passage, the examiner followed along, marking reading errors. The examiner calculated the student's oral reading accuracy by counting the total number of words read in 1 min, subtracting the number of oral reading errors from total words read to determine words read correctly (WRC) in 1 min, dividing WRC by the total words read, and multiplying the result by 100 to calculate oral reading accuracy. The accuracy calculation was used to ensure that the passage was at the students' instructional level. Scores of 90% accuracy and above indicated that the passage was at the students' instructional level, and assessment of the student's reading comprehension using the retell rubric proceeded. Scores below the 90% accuracy level would indicate that the chosen passage was at the student's frustration level, and thus was not suitable for use as a progress monitoring assessment. In such an instance, the examiner would select an alternate passage and retest the student's oral reading accuracy on the new passage to ensure the passage is at the student's instructional level. However, this was not necessary because no students scored below 90% accuracy on any of the passages. The student's oral reading errors were used to diagnose word level reading skill deficits to determine the need for word level reading intervention.

Once a passage was verified as at the student's instructional level, the retell portion of RC-CBM was administered according to the following steps (adapted from Shapiro, 2011):

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1. Students continued to orally read the remainder of the passage.

2. Examiner continued to mark word reading errors to diagnose word level reading deficits.

3. After finishing the passage, the student performed the retell part of the RC-CBM and the examiner scored the student's responses according to the retell rubric. The student was allowed to look back in the passage during retelling to control for the effects of memory on reading comprehension performance (i.e., to ensure the construct being measured is actually reading comprehension and not short-term memory [Leslie & Caldwell, 2017]). Because this assessment was meant to measure reading comprehension accuracy, not fluency, this step was not timed (Daly, Chafouleas, & Skinner, 2005).

4. While the student was retelling the passage, the examiner scored the retell according to the scoring rubric.

5. The examiner prompted the student to address each item on the rubric, using the specific prompts listed on the rubric. In addition, the examiner asked the student three pre-determined questions, one literal, and two inference questions, based upon the passage, and scored the student's answers. After each answer was scored, the examiner asked students to identify the question type.

6. Points earned were tallied, divided by the total number of points possible (12) and multiplied by 100 to determine percentage of comprehension items retold correctly. The percentage score was graphed.

7. The examiner provided feedback to the student, consisting of praise for effort (e.g., "You worked really hard today on your reading and retelling. Great effort!") during

baseline. During intervention, students received praise for effort and also for correct responses (e.g., "You correctly identified the main idea of the passage. Nice work!"), praise for strategy use (e.g., "I see you used the Main Idea Strategy to identify the main idea. Excellent strategy use!"), praise plus feedback for partially correct answers (e.g., "You're on the right track, the passage was about *xxx*, but the main idea is *xxx."*), reminders to use specific strategies if applicable (e.g., "You had some difficulty identifying the main idea of the passage. Remember to use the Main Idea Strategy to help you find the main idea."), and briefly review steps of the strategy (i.e., have student recite or read strategy steps; praise student for correctly stating strategy steps).

Gray Oral Reading Test-5 (GORT-5; Weiderholt & Bryant, 2012). The GORT-5 is a standardized, norm-referenced assessment that measures reading rate, accuracy, fluency, and comprehension for individuals between the ages of 6-24. The GORT-5 includes two parallel forms, each containing 16 reading passages. Students read the passage aloud, and the examiner marks reading errors. Rate is derived from the number of seconds it takes the student to read the entire passage. Accuracy is derived from the number of words read correctly. The fluency score is calculated by adding the rate and accuracy scores. Students then answer five open-ended comprehension questions. Reading comprehension is scored as the number of questions about the stories the student answers correctly. Raw scores may then be converted into scaled scores and percentile ranks. An overall estimate of general reading performance, the Oral Reading Index (ORI), is a composite score derived from the sum of the scaled fluency and comprehension scores. The ORI is based around a mean of 100, with a standard deviation of 15 (Weiderholt and Bryant, 2012). Reliability and validity scores for the GORT-5 include averaged coefficient

alphas for both A and B forms >.90 at all age intervals; average alternate forms coefficient of .93 (.87 reading comprehension subgroup), average test-retest reliability coefficient ranging from .77 to .88 (.79-.87 reading comprehension subgroup). Thus, the GORT-5 has been demonstrated to be both a reliable and valid measure of reading performance, including reading comprehension. The GORT-5 was administered to all participants prior to baseline and then again after intervention had ended for each participant.

Intervention Rating Profile (IRP-20, Witt & Elliot, 1985a) and Children's Intervention Rating Profile (Witt & Elliot, 1985b) The teacher completed the Intervention Rating Profile (IRP; Witt & Elliot, 1985a); and the students completed a version of the Children's Intervention Rating Profile (CIRP; Witt & Elliot, 1985b) that was adapted to be applicable to academic interventions. Both the IRP and the CIRP contain items using a Likert-type scale ranging from 1 (strongly disagree) to 6 (strongly agree). These measures assess constructs including the appropriateness of the intervention to the problem, the reasonableness of implementation in a classroom setting, and the risk of the intervention to the child. Sample items from the IRP include: a) This intervention is reasonable for the needs of the child, b) I would be willing to use this intervention in a classroom setting, and c) This intervention would not result in negative side effects for the child. Sample items from the CIPR include: a) Being in this intervention helped me do better in reading, b) I will use these strategies in other classes, and c) Being in this intervention caused problems with my friends. Internal consistency reliabilities for the IRP range from .88 to .98., and from .75 to .89 for the CIRP.

Session Notes. In addition to the assessments described above, observational data were collected and recorded by the researcher after each assessment and instructional session. The data were recorded using a researcher-created Excel spreadsheet. The sheet included a separate

page for each participant, with columns across denoting the type of session (i.e., assessment or instructional), scores on the rubric item or demonstrated use specific skills during instructional sessions (i.e., Summarization, Main Idea, Text Structure, Literal and Inference Questions), Word Reading Errors, Behavioral Observatons and Student Feedback (i.e., specific behaviors observed by the researcher that might be useful in planning instructional modification – e.g., off task behaviors that might suggest the need for an additional behavioral intervention), and Instructional Implications (i.e., information regarding how the students' performance might suggest the need for instructional modification). Another column included Instructional Decisions, which recorded the instructional plan for the following lesson. Finally, there was a single column for each of the elements of the Fuchs et al. (2017) taxonomy, in which the researcher recorded how the instructional session addressed each element (these columns were left blank on assessment days). The information in each column was organized into rows listed chronologically by date. (See appendix A for a template.)

The observational data recorded in the session notes were used in conjunction with the RC-CBM probe data. Baseline probe data was recorded, and the researcher used students' scores to determine which skills to target for intervention. Subsequent probes were used to determine the need for further intensification according to established decision rules. The session notes were also used to guide intensification of specific elements of the Fuchs et al., (2017) taxonomy. For example, if a student did not perform a strategy step accurately, the student might require an intensification in the taxonomy element comprehensiveness, meaning that the step would be broken into sub-steps for further explicit instruction. Finally, session notes data were used to adapt the sequence of instruction to individual student needs. The sequence of lessons for all

participants is depicted in Table 2. The specific data sources used to determine instructional

decision-making for each of the participants is shown in Table 3.

Research Design

      This study used a multiple probe design (Gast, 2010) to evaluate the effects of reading

strategy instruction administered within the data-based individualization (DBI) framework on the

reading comprehension performance of high school students with intensive needs in reading.

Procedures

      Reading level determination. Prior to baseline, students' instructional reading levels

were confirmed through oral reading fluency (ORF) assessment by administering three estimated

instructional level AIMSWeb (Shinn & Shinn, 2002) passages, based on the student's IEP.

Students read each passage for one min, while the examiner listened and marked reading errors.

The examiner calculated the number of words read correctly (WRC) by subtracting the number

of errors from the total number of words read. The median of the three scores was used to

establish students' instructional reading level according to AIMSWeb norming data.

      Baseline Procedures. During baseline, the students received business-as-usual instruction

from the special education teacher in the special education classroom, aligned with the Read 180

program. The researcher collected baseline data using the instructional level AIMSWeb passages

and the retell rubric described above. Baseline assessment was conducted in 1:1 fashion in the

special education classroom. The interventionist used a digital graphing template in Excel to

graph participants' data. Once at least five data points had been collected for each participant,

and stability was established, the first student entered intervention. Students were chosen to enter

intervention in random order. Students still in baseline were assessed during every assessment

session for the intervention student, averaging one probe per week, with some variation in

spacing due to inconsistent school schedules. When the first student showed three consecutive data points above baseline, the second student entered intervention. This process was repeated for the remaining participant. Students in the intervention phase were assessed weekly, after the introduction of each new strategy, until all strategies had been introduced. Then, students were assessed weekly as they continued to practice the strategies in transfer lessons.

Intervention Procedures. During the intervention phase, students continued to receive classroom instruction from the special education teacher following the Read 180 program. The Read 180 program follows a set instructional sequence for every class period: 20 min of whole group instruction, followed by three 20-min rotations of small group instruction, computer-based individual instruction, or independent reading. Students in this intervention were pulled from small group, individual instruction, or independent reading to work 1:1 with the interventionist at a separate location in the special education classroom 2-4 times per week for sessions that averaged 30 min.

The researcher used the following DBI steps (Jung, McMaster, & Del Mas, 2016) to provide individualized instruction to each participant: (1) assessment of student progress using RC-CBM, including recording, reading, and interpreting graphed data; (2) goal setting to establish performance criteria; (3) creating decision rules to guide instructional decision-making; (4) diagnostic assessment of specific skill strengths and weaknesses using error analysis; (5) identification of appropriately targeted evidence-based interventions (i.e., the specific strategies aligned with the skills assessed by the RC-CBM rubric); (6) implementation of the intervention protocol with fidelity (i.e., using the scripted lesson plans to introduce each strategy, following the introductory lessons with practice sessions in which guided and independent practice with feedback were provided, and then providing transfer lessons once students demonstrated accurate

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use of the strategies); (7) ongoing progress monitoring and continued diagnostic assessment to determine the need for instructional modification; (8) intensification and adaptation of interventions based on student data; repeat steps 7-8 as needed. Below is a detailed description for each DBI step.

Step 1: RC-CBM was used to monitor students' progress and data was entered into a digital graphing template.

Step 2: Goal setting to establish performance criteria: During the first intervention session for each participant, the researcher and student reviewed the student's baseline data and drew a goal line from the students' current level of performance to the desired performance level (i.e., 100% on the graph, which depicts the percentage of items correct on the retell rubric). The researcher reviewed with the student the target score for the next assessment session, as shown by the goal line, which served as a short-term goal. The researcher explained to the student that over the next several instructional sessions, the student would be learning skills that would help the student to meet the goal and encouraged the student to participate conscientiously in the instruction as a means of achieving both the short term and long term goals. The researcher reviewed student progress toward the instructional goal each week after the student completed the RC-CBM assessment, and a new goal was set for the coming week.

Step 3: Following decision rules to guide instructional decision-making: In this study, students who did not gain at least one point on the specific skill they learned that week as measured by the weekly RC-CBM probes were candidates for further intensified instruction. In addition, students who showed a drop in performance on any rubric item were provided with individualized intervention in the skill measured by that rubric item.

Step 4: Diagnostic assessment of specific skill strengths and weaknesses using error analysis: Specific and individualized intervention was provided to each student based on the analysis of RC-CBM data and following the taxonomy described by Fuchs et al. (2017). The researcher analyzed students' responses to determine areas of strength and weakness using error analysis. Specifically, the researcher examined the students' errors on the retell rubric, and used them to identify specific skill deficits. The researcher then selected evidence-based reading comprehension strategies targeted to each student's specific instructional needs. Intervention strategies were selected with two purposes in mind. First, strategies were selected that directly address the skills measured by the RC-CBM rubric. Second, only one strategy was selected to teach each identified skill because research shows that although using several strategies results in greater gains than single strategy use, teaching too many strategies at one time may overwhelm students' cognitive resources (Nokes and Dole, 2004).

Step 5: Identification of appropriately targeted evidence-based interventions: Students received instruction in a particular reading comprehension strategy if their score on the rubric item associated with the strategy was consistently less than 2, which indicates mastery level. Several evidence-based strategies and practices were identified to be used in this study to address students' skill deficits:

1. The BEST word level decoding strategy: **B**reak apart the word, **E**xamine each part, **S**ay each part, **T**ry the whole thing in context (O'Connor, 2014), would have been taught to all students who demonstrated significant errors in decoding multisyllabic word reading. (However, no students demonstrated decoding deficits; therefore this strategy was not employed.)

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2. The Paragraph Shrinking main idea strategy: The evidence-based strategy to teach students to identify main ideas was Paragraph Shrinking (Fuchs, Fuchs, & Burish, 2001). The strategy involves teaching students to identify the main who or what in a paragraph, and then to identify the most important thing about the who or what. The final step is to state the most important thing about the who or what in a single sentence, typically 10 words or less.

3. The Summarization strategy: The summarization strategy used in this study includes the following steps: 1) Delete trivial information, 2) Delete redundant information, 3) Use one word to replace a list of related items, 4) Select a topic sentence, 5) Create a topic sentence if one is not provided (Gajria & Salvia, 1992).

The Summarization/Main Idea strategy used in this study combined the summarization strategy (Gajria and Salvia, 1992) and Paragraph Shrinking (Fuchs, Fuchs, & Burnish, 2000) into the following steps: (1) Identify the most important who or what in the paragraph; (2) Tell the most important thing about the who or what using the following sub-steps to help eliminate unimportant information including deleting unimportant information, deleting repeated information, and substituting general words for lists; and (3) Tell the main idea in one sentence. Students were taught to apply these steps to each of the paragraphs of the passage in order and used the Summarization/Main Idea strategy cue card (see appendix B) to write down their answers for each paragraph. Then, students were taught to review their main ideas for each paragraph and use the summarized information to construct one overall main idea for the entire passage. Students were taught that this main idea statement must include both the most important who or what and the most important thing about the who or what, stated in one sentence.

4. Teaching text structures using signal words: Explicit instruction in identifying different text structures, including descriptive, sequential, compare/contrast, cause/effect, and problem/solution using signal words (Klingner et al., 2015) as well as semantic information from the text.

5. Literal and Inferential Questions: The Question Answer Relationship (QAR) strategy (Raphael, 1986) was taught to teach students to recognize three different question types and to use different strategies to answer each type. The first type is Right There, in which students can find the answer to the question in one sentence in the text. Think and Search questions require students to pull information from two or more sentences in the text to answer the question. Author and Me questions require the student to use textual information along with prior knowledge to infer an answer. In this intervention, students were taught to use the strategies for answering the question types in order when presented with questions to answer after reading a passage (i.e., try it as a Right There question first, by looking for the question words and seeing if you can find the answer in the same sentence; if not, try it as a Think and Search, by looking through the passage to find the answer; and if that doesn't work, you will know it is an Author and Me question, and you must think about what you already know about the topic and connect that to what you read to answer the question). Raphael (1986) includes a fourth question type. On Your Own questions may be answered solely with background knowledge and do not require students to have read the text. For this reason, On Your Own questions are used to activate students' background knowledge and during extension activities, rather than during text comprehension instruction. Therefore, On Your Own questions were not included in this intervention.

In this intervention, strategies were taught in order of their presentation on the rubric, which is based on the complexity level of the skill. One exception to the ordering of skills by complexity level is included in the last item on the rubric, Literal and Inference Questions. Literal questions are at a more foundational level than inference questions, which are higher order skills. However, the specific strategy used to teach these types of questions includes both literal and inference question types, and thus includes less complex question types along with more complex questions. It is important to teach all of the question types at one time, because the strategy includes specific instruction in distinguishing between the different question types (Raphael, 1986).

6. Self-monitoring using checklists of strategy steps (Graves, 1986; Jenkins et al., 1987; Malone & Mastropieri, 1992; Jitendra, Cole, Hoppes, & Wilson, 1998): Students were provided with strategy cue cards listing the steps for each strategy. They were instructed to check off each step of the strategy as they completed it in order to self-monitor their strategy use. This self-monitoring component was incorporated into the lesson the researcher used to teach students each strategy, so students received explicit instruction in how to self-monitor their use of strategies. All participants were taught to check off each step of the strategy as they completed it during the first initial strategy lesson. Those students who demonstrated the ability to use the steps with 90% accuracy during the independent practice portion of the lesson, as observed by the researcher, were not required to continue to self-monitor. Students who exhibited errors in using the strategy, or who were dependent on the use of the cue card to remember the order of the strategy steps, were required to self-monitor until they demonstrated accurate memorization and 90% error-free use of the strategy steps.

7. Motivational strategies: All students received general motivational supports including goal setting, progress monitoring, and specific praise (Brophy, 1981). The Adolescent Reading Model (Deshler & Hock, 2007) describes the lack of motivation to persist in reading tasks experienced by adolescents, who may have a long history of unsuccessful reading experiences. For students with intensive needs in reading, who have demonstrated persistent resistance to treatment, eliciting motivation to read may be even more challenging. In goal setting, students set a specific, short term, accessible learning goal and then engaged in instructional activities designed to help them achieve the goal. Students reviewed their progress toward the goal after weekly progress monitoring assessment. Specific praise aligned with students' use of the strategies was also used to promote student motivation. For example, if a student showed improvement of at least one point on the rubric item "Main Idea," the interventionist would say to the student, "Your hard work practicing the main idea strategy is paying off. You gained a point on the Main Idea item on the rubric. Excellent." If the student did not make progress, the interventionist said, "Although you have been practicing the Main Idea strategy, you still had some difficulty identifying the main idea of the passage today. [Point out specific area of difficulty, connect it to strategy steps; e.g., You identified Mr. Jones as the most important who or what, but really, it was Mrs. Jones. That's what caused the error.] This week, we will practice more and next week you can try again." Students were observed by the researcher during instructional sessions to determine the need for additional motivational support. During each instructional session, the researcher recorded session notes (i.e., brief written statements describing participants' academic performance, compliance, effort, and any verbal statements made by the student regarding reluctance to

participate in instructional activities). These notes were reviewed to identify whether participants needed additional motivational support if expected progress was not made.

Step 6: Implementation of the intervention with fidelity: The researcher first introduced each strategy using a researcher-created lesson plan following the prescribed strategy steps described in the research literature specific to each strategy (See appendix B). The lesson plans followed the explicit instructional sequence, beginning with development of students' background knowledge and vocabulary for the selected text as needed, providing a rationale for using the strategy, explaining the steps of the strategy, teacher modeling of the strategy steps, guided practice of the steps, independent practice of the strategy steps with feedback, ending with a review of the strategy steps and a reminder to apply the strategy to classroom reading assignments. Students were provided with a cue card with the strategy steps listed (see appendix B), and were taught to self-monitor use of the strategies by checking off each step as it is completed. The initial strategy lesson was delivered by the researcher to the student using 1:1 instruction. If the student did not demonstrate mastery in using the strategy, as measured by accurate completion of all steps in order without prompting by the researcher during independent practice with a new passage, the 1:1 individual lesson was repeated with a different passage, beginning with modeling, and providing additional guided and independent practice until the student demonstrated mastery in using the strategy by accurately completing all steps in order without prompting by the researcher with 90% accuracy during independent practice. Participants then received 2-3 additional 30-min practice sessions using AIMSWeb passages prior to administration of a probe. These practice sessions focused on both reviewing previously taught skills and practicing the most recently taught skill. Once the students were using the strategy with 90% accuracy as determined by scoring at mastery level on the RC-CBM probe,

the next strategy was introduced. This process was followed until all relevant strategies had been introduced and practiced to mastery on at least one probe.

After all strategies had been practiced to mastery on at least one probe, 1:1 transfer lessons using passages selected from the READ 180 student workbook were conducted. Students read the passages aloud, and then used each of the strategies in order to summarize the passage, identify the main idea of the passage, identify the text structure of the passage, and answer and identify the three literal and inference questions in response to instructor prompts (e.g., Tell me the main idea of the passage). The READ 180 passages were previewed by the researcher to estimate that they were at the students' instructional level. All participants showed an oral reading accuracy level of >90% in the READ 180 passages as observed by the interventionist. Although the Read 180 program includes the skills of identifying main ideas, summarizing by identifying important details, identifying signal words associated with four text structures (sequence, compare/contrast, cause/effect, and problem/solution), and answering literal and inference questions, the Read 180 program does not teach the explicit strategies used in this intervention.

A summarization of instructional sessions for each participant by probe, skills, and lesson type are shown in Table 2. The school schedule was frequently interrupted due to weather cancellations and delays, as well as by school-wide testing and other events. Therefore, students experienced differences in the timing of instructional sessions and probes. lessons were scheduled daily, except on days when probes were administered. The range of delay between lessons was 1-3 school days. Probes were scheduled to occur after each lesson had been introduced and at least two practice lessons had been implemented. The range of school days that elapsed between probes was 5-12 days.

Step 7: Ongoing progress monitoring and continued diagnostic assessment to determine the need for instructional modification: Once the students successfully used the first strategy during practice lessons, as determined by interventionist observation and student self-monitoring assessment using checklists of strategy steps at the 90% accuracy level, progress monitoring was administered to determine if students' use of the strategy effected an improvement in reading comprehension as measured by the retell rubric. If the student showed improvement by scoring two points, indicating mastery on the skill aligned with the strategy that has been taught, a new strategy was introduced, and the previously taught strategy continued to be practiced with feedback during transfer lessons.

Step 8: Intensification and adaptation of interventions based on student data: Instructional modifications were made as necessary, based on growth and informed by diagnostic data. After one individual strategy lesson and 1-3 practice lessons (depending on the number of sessions required to complete the initial strategy lesson) a probe was administered. Probe data as well as observational data recorded in the session notes (i.e., brief written statements describing participants' academic performance, effort, and behavior) were used to determine the need for instructional adaptation. For example, if a student had been taught a specific strategy, and had practiced the strategy for 1-3 sessions, but did not demonstrate growth of at least one point on the oral retell rubric in the skill area addressed by the strategy as shown by the subsequent RC-CBM assessment, then instruction in that skill was intensified according to three elements of the taxonomy described by Fuchs et al. (2017): dosage, alignment, and comprehensiveness. Additionally, if the student showed a decrease from mastery level to below mastery level on a previously learned skill, the student was provided with intensified instruction in that skill. The researcher used RC-CBM scores and session notes to identify which elements of the

intensification taxonomy described by Fuchs et al. (2017) might be further intensified to support an improvement in student performance. The researcher reviewed the session notes from the instructional sessions to determine whether the student expressed (or the researcher noted) any motivational or behavioral concerns, in which case, the element that might be intensified would be motivational and behavioral support. Alternately, the researcher reviewed the session notes to determine whether the instructional sessions afforded the student a sufficient number of opportunities to practice the strategy steps (at least one during guided practice and two during independent practice), and whether the student showed accurate use of the steps. If the student was using the steps accurately, but not independently, (i.e., was dependent upon prompting from the researcher to follow the sequence of steps), then the element that could be intensified would be dosage, to provide the student with more opportunities to practice the steps and receive feedback (at least two during guided practice and three during independent practice). If the student was not using the steps accurately, or was using the right steps in the correct sequence, and was afforded sufficient practice opportunities, but was still unable to determine correct responses using the steps, the student was provided with an intensification in comprehensiveness (Fuchs et al, 2017), in which explicit instruction in additional component skills was provided.

Fidelity and Inter-scorer Agreement

Fidelity of implementation assessment for both intervention and assessment sessions was conducted using audio recordings. The researcher used a handheld audio recording device to record all assessment and intervention sessions. The fidelity raters scored 35% of the audio recordings of the assessment sessions and 35% of the recordings of the intervention sessions. Fidelity observers and test scorers were doctoral students in special education, trained to 95% accuracy criterion using sample sessions and fidelity checklists specific to each session type (See

Appendix A for fidelity rating sheets and checklists). Raters met with the researcher for a 1 hr

training session during which the researcher modeled how to score the rubric or the fidelity

checklist, and then the raters engaged in guided and independent practice until 95% accuracy

with sessions scored by the researcher was achieved.

Raters used copies of the lesson plan along with a checklist for each section of the lesson

plan to rate the fidelity of sessions in which a new strategy is introduced, scored while listening

to recorded instructional sessions. The intervention checklists for transfer lessons contained

items addressing seven items listed on the intervention protocol: (1) Develop students'

background knowledge, including vocabulary required to understand the text, (2) Discuss

importance of the strategy and how it will help students to learn and remember important

information from the text, (3) Model how to use the strategy, including think-alouds to

demonstrate how to self-regulate use of the strategy, (4) Provide mnemonics and/or cue cards to

promote student memorization of the strategy and self-regulation, as well as providing multiple

opportunities for students to practice reciting and using the strategy steps, (5) Engage students in

guided practice of the strategy in relevant contexts (i.e., classroom reading instruction) and

provide specific feedback regarding student strengths and weaknesses in using the strategy, (6)

Provide students with opportunities to use the strategies independently and provide timely

feedback on student performance, (7) Review and prompt students' use of the strategy on an

ongoing basis during continued instruction). Raters recorded "yes," "no," or "not applicable

(N/A)" for each item, and then calculated the overall percentage of fidelity by subtracting the

"N/A" items from the total number of possible items, then counting the number of items scored

"yes," dividing that number by the total number of possible items, and multiplying that figure by

100.

The assessment fidelity checklist contained 19 items that address adherence to procedures for administering the retell rubric (see steps listed above; see Appendix A). Raters listened to and scored recorded assessment sessions. Inter-rater agreement was calculated on each session using the point-by-point method in which the number of agreements between two raters was divided by the total number of items and multiplied by 100 (Cooper, Heron, & Heward, 2007). In addition, inter-scorer agreement was calculated on at least 35% of the oral retell rubrics for each participant across baseline and intervention phases. Using the recorded sessions and an examiner's copy of the passage used in the session, as well as copies of the answer key and the RC-CBM retell rubric, scorers listened to recordings of students reading and retelling, and independently scored the session. Using the point-by-point method, the number of agreements between scorers and the interventionist was divided by the total number of items and multiplied by 100 to calculate percentage of agreement (Cooper, Heron, & Heward, 2007).

Social Validity

To assess the acceptability of the goals, training, procedures, and outcomes of the DBI intervention, both the special education teacher and the student participants completed social validity rating scales after the intervention ended. The teacher completed the Intervention Rating Profile (IRP; Witt & Elliot, 1985a) to rate treatment acceptability for each of the participants individually. The students completed a version of the Children's Intervention Rating Profile (CIRP; Witt & Elliot, 1985b) that was adapted for applicability to academic interventions.

Data Analysis

The effects of this intervention were examined using visual analysis of (a) level, (b) trend, (c) variability, (d) overlap, (e) immediacy of effect, and (f) consistency of data patterns across similar phases of data points on the primary dependent variable, percentage of correct

responses on the RC-CBM oral retell rubric (Kratochwill et al., 2013). Kratochwill et al. (2013) suggested reporting one or more nonparametric estimates of effect size for single-subject design research. This study used Tau-*U* (Parker, Vannest, Davis, & Sauber, 2011). The Tau-*U* index can be interpreted with the following criteria: .65 or lower for small effect, .66-.92 for medium to high effect, and .93 or above for strong effect (Parker & Vannest, 2009).

Chapter 4

Results

Intervention Effects

Visual inspection of the graphed percentage correct RC-CBM scores (See Figure 1) was based on the (a) level, (b) trend, (c) variability, (d) overlap, (e) immediacy of effect, and (f) consistency of data patterns across similar phases (Kratochwill et al., 2013). RC-CBM percentage correct means by participant by phase and Tau-*U* statistics are displayed in Table 4.

Baseline Visual Analysis. All three participants' scores on the RC-CBM probes appeared stable and with little variability during baseline. Marly's average percent correct score during baseline was 41.2 (range=33%-50%); Dylan's was 33.8% (range 25%-41%), and Harry's was 28.9% (range 16%-33%)

Intervention Visual Analysis. The first two participants, Marly and Dylan, each completed six intervention probes. Harry competed only four intervention probes due to the school year ending. Marly's average percent correct score during intervention was 78.9% (range=58%-92%); Dylan's was 83% (range 58%-100%), and Harry's was 85% (range 66%-100%). All three participants showed an immediate increase in level upon entering intervention, with no subsequent scores overlapping with baseline. Furthermore, all three students showed an increasing trend in the first three data points in intervention, showing that students continued to demonstrate improved performance on previously taught skills as new skills were introduced. Students continued to score higher on the previously taught skills as well as the newly introduced skills, shown by the incrementally higher data points during initial strategy instruction, with one exception on the Summarization item for Marly and Dylan on Probe 3.

Marly and Dylan demonstrated similar a pattern of performance during intervention. Therefore, first their results will be discussed, and then a description of Harry's results will follow. Scores for both Marly and Dylan showed some variability on intervention probes, although neither had intervention scores that overlapped with baseline levels. Both Marly and Dylan's scores on the Summarization item dropped from 2, or mastery level, to 1, or emergent level, on Probe 3. Notes taken by the interventionist showed that both students were not implementing the steps of the Summarization/Main Idea strategy correctly. Marly, in particular, did not refer to the strategy cue card nor did she look back in the passage. Instead, she attempted to use the strategy steps from memory and to rely on memory to retell information from the passage. Dylan struggled with the sub-steps of the strategy, primarily with substituting general words for lists, and with identifying the correct most important who or what in the paragraph. Intensified instruction was provided to both students focusing on increasing dosage, alignment, and comprehensiveness to provide additional opportunities to practice using the Summarization/Main Idea strategy steps and, for Dylan the sub-steps, with fidelity.

Both Marly and Dylan experienced a drop in scores on previously mastered skills during the first probe in transfer instruction, but overall scores were still well above baseline and remained so for all subsequent probes during transfer instruction. Marly scored at mastery level on all items except QAR on Probe 4, in which she missed identifying the Think and Search question and both answering and identifying the Author and Me question. Dylan again scored a 1 on Summarization, and at mastery on all other items. On Probe 5, Marly scored at mastery on all items except for Text Structure. Dylan also scored incorrect on the Text Structure item on Probe 5 and at mastery on everything else. On Probe 6, the final intervention probe, Dylan scored at mastery level on all items. Marly scored an 11/12, missing the item that required identifying the

Author and Me question type, due to examiner error in neglecting to provide the prompt for that item. Variability occurred across different skills at different times for each of the two participants (See Table 3). In each case, when intervention was intensified by providing instruction targeted to the specific errors made by each student, both students responded by showing a return to mastery level in the target skill. Marly and Dylan were each able to complete one maintenance probe. Marly scored an 11/12, or 92% correct, at mastery level on all skills except one (Summarization), and Dylan scored 12/12, 100% correct and at mastery level on all skills, showing that both students maintained the skills they had learned to a high degree.

Harry showed a gradual increase in trend until mastery level was reached on all skills on the fourth probe. Harry did not experience a drop in score on any previously taught item; however, he did not have the opportunity to enter transfer instruction, during which the other participants showed slight score drops on previously mastered items. With regard to Harry's level of improvement from baseline to the first data point in intervention, it must be noted that due to diffusion that occurred when Harry overheard Dylan defining a Right There question, Harry learned a term that contributed to his earning one point higher on the first two intervention probes than he would have had the diffusion not occurred. Harry learned the remaining QAR definitions and strategies in the lesson preceding the third intervention data point, therefore, subsequent data points were not likely affected by the diffusion. Due to the end of the school year, there was not time for Harry to begin transfer lessons, nor to complete a maintenance probe. Scores on individual rubric items across baseline and intervention probes are shown in Table 6.

Procedures Individualized by Participant. DBI uses student data to make instructional decisions, therefore, student performance in baseline and during intervention determined

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subsequent instructional procedures in this intervention. Based on their performance on the RC-CBM rubric during baseline, all three participants received instruction in each of the skills included on the rubric. For all of the students, observational data recorded in the session notes were used to determine the need for intervention in the Summarization skill, even though students sometimes scored at mastery level on the item in baseline probes. The reason for this was that although students were identifying important information from the passages, they were not also eliminating unimportant information (this flaw in the sensitivity of this item is noted in the limitations). Explicit strategy instruction was implemented to help students refine their ability to summarize a passage.

Instruction for all participants followed the same instructional sequence, with slight variations in duration and instructional session length due to logistics (i.e., school and class schedules, student attendance). For example, when Marly received instruction in the Text Structure Strategy, the school schedule was repeatedly interrupted due to weather cancellations and delays. Session notes data indicated that she was not performing the strategy steps accurately during the second practice lesson after all of the text structure types had been introduced, and therefore an additional practice lesson was provided. The sequence of lessons for all participants is depicted in Table 2.

Additionally, instruction was individualized and intensified for each participant based on individual response to instruction, with a focus on dosage (i.e., providing more practice opportunities in target skills emphasizing accurate use of strategy steps, slightly lengthening instructional sessions due to student pace), alignment (i.e., focusing instruction on specific skills and subskills determined through error analysis), and comprehensiveness (i.e., providing additional modeling, guided practice, and independent practice in sub-skills as needed).

Individualization according to the Fuchs et al. (2017) taxonomy by participant by probe, including specific data sources used to determine individualization elements, is shown in Table 3. Dosage and alignment were the most commonly intensified elements of the taxonomy, used in most of the lessons across participants, based upon probe data indicating the need for intensified instruction in particular skills. Session notes data were used to guide instructional decision-making regarding specific elements of the Fuchs et al. (2017) taxonomy were intensified for each student. Comprehensiveness was intensified for Dylan based on error analysis of probe scores in Summarization, and for Harry in Summarization and Answering Literal and Inference Questions. Another example of the use of observational data recorded in the session notes occurred when Marly demonstrated a drop in performance on the Summarization item on Probe 3. Review of the session notes revealed that during instructional sessions prior to the probe, Marly had been exhibiting off task behaviors (e.g., trying to look at her phone during instruction, repeatedly glancing over her shoulder at the clock). This observational data was used to determine the need for an intensification of the Fuchs et al. (2017) taxonomy element behavioral support to improve Marly's motivation to remain on task. Therefore, the antecedent intervention of student choice was implemented. Marly was allowed to choose the passages used during practice sessions and she exhibited on task behavior for all remaining instructional sessions.

Nonparametric estimates of effect size. This study used Tau-U to estimate effect size (Parker, Vannest, Davis, & Sauber, 2011). Tau-U analysis showed no significant trends in baseline, indicating that students' ability to correctly answer items on the RC-CBM probes was not affected by instructional or environmental factors (Vannest, Parker, Gonen, & Adiguzel, 2016). Tau-U $r_\tau = 1$, $p < .001$ statistic indicates a strong effect on RC-CBM percentage correct. Phase contrast Tau-U effect size statistics per participant are displayed in Table 4.

Intervention fidelity and assessment fidelity. Overall intervention fidelity was 97.5%
(range = 85%-100%). Percent initial strategy lesson fidelity across participants was 96.8% (range
87.5%-100%). Percent initial strategy lesson fidelity scores per participant were: Marly 95.8%
(range =87.5%-100%), Dylan 95.8% (range =87.5%-100%), and Harry 100% (range =100%).
Percent transfer lesson fidelity scores per participant were: Marly 96.3% (range =85%-100%),
Dylan 100% (range =100%), and Harry 100% (range =100%). Procedural fidelity for all RC-
CBM assessment administrations was 98.6% (range 91.6%-100%). Assessment fidelity per
participant was 99%, 97.2%, and 100% for Marly, Dylan, and Harry respectively. Interscorer
reliability was calculated for the dependent measure at 95.7% (range 89%-100%), with reliability
scores at 94.5% (range 89%-100%), 94.5% (range 89%-100%), and 98% (range 89%-100%) for
Marly, Dylan, and Harry, respectively.

Gray Oral Reading Test-5 (GORT-5; Weiderholt & Bryant, 2012). Results of the Gray
Oral Reading Test-5 (Gort-5) pretest Oral Reading Index (ORI; the overall score measuring
general reading skill; standard error measurement=3) scaled scores and percentiles by participant
are shown in Table 5. Results show that Marly's scores from pre-test to post-test decreased in
Rate, Accuracy and Fluency, but improved in Comprehension. Dylan's scores remained
consistent across pre- and post-testing. Harry's scores increased from pre-test to post-test in
Rate, Fluency, and Comprehension. Both increases and decreases in subtest scores were
generally small, with ORI score change for Marly within the standard error of measurement
(SEM); however, Harry's ORI increase was 5 points, and thus larger than the SEM.

Social Validity. Results of the teacher's ratings using the Intervention Rating Profile
(IRP; Witt & Elliot, 1985a) for each participant showed uniformly high acceptability across all
participants. This scale includes 15 items scored on a scale of 1 (strongly disagree) to 6 (strongly

agree), with a total possible score range from 15-90. All questions are positively phrased, so the higher score on each question correlates with increased acceptability. The intervention was conducted in the classroom during regular classroom instruction. The teacher was primarily engaged in teaching the class; therefore, there were no opportunities for her to directly observe the interventionist instructing the participants. Instead, the interventionist met with the teacher after the intervention had ended. During this meeting, the interventionist described the DBI process and the explicit reading comprehension strategies that were used in the intervention. The interventionist also shared the students' graphed data and described the effect of the intervention on each of the participants. The interventionist provided copies of the IRP, which the teacher filled out independently outside of the classroom and returned to the interventionist the following day. The teacher scored the intervention very highly for all three students: 87/90 for Marly, 85/90 for Dylan, and 86/90 for Harry. In particular, the teacher rated the following items a 6 for each of the participants: Item 2: Most teachers would find this intervention appropriate for children with similar needs; Item 4: I would suggest the use of this intervention to other teachers; and Item 7: I would be willing to use this intervention in a classroom setting.

The students completed a version of the Children's Intervention Rating Profile (CIRP; Witt & Elliot, 1985b) that was adapted for applicability to academic interventions. This scale rates items from 1 (I agree) to 6 (I do not agree). For some items, the lower score indicates increased acceptability. The interventionist administered the assessment, instructing the students to be truthful and informing them that their responses would have no effect on their grades nor on any adults' attitude towards them. All participants rated the intervention 1 for being fair, 1 for "this intervention helped me do better in reading", and 1 for "this intervention could help other kids"; 6 for "the instructor was too harsh on me" and 6 for "being in this intervention caused

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problems with my friends". Marly and Hunter rated the "I liked the strategies we used" 1, and

Dylan rated it 2. Marly and Dylan rated the "I will use these strategies in other classes" 1, and

Hunter rated it 2. Marly and Hunter rated the "there were better ways to teach me reading

comprehension" item 6, and Dylan rated it 5. Overall, the students rated the intervention very

positively.

Chapter 5

Discussion

The purpose of this study was to examine the effect of data-based individualization (DBI) on reading comprehension of high school students with intensive needs in reading, as measured by the RC-CBM oral retell rubric. A secondary purpose was to assess a classroom teacher's perception of the efficacy, feasibility, and social validity of using DBI in the classroom. Additionally, social validity of the DBI intervention as rated by the participants was evaluated. Findings and implications for practice with respect to each research question are discussed, as well as limitations and suggestions for future research.

According to the graphed percentage correct RC-CBM scores and Tau-U effect size calculation, this intervention was highly effective in improving reading comprehension skills of all participants. Two students who completed maintenance probes retained the skills they had learned. The classroom teacher rated the intervention very highly in terms of social validity, and student responses on the CIRP showed high intervention acceptability. These results support the efficacy of explicit reading comprehension strategy instruction as a means of intensifying reading intervention for students with intensive needs in reading (El Zein et al., 2014; Scammacca et al., 2015). Additionally, it adds to the small literature base specific to the use of the DBI instructional framework to improve academic skills for students with intensive needs in reading (Lemons et al., 2014).

Effects of Data-Based Individualization on Student Performance

In this intervention, participants were identified as eligible for special education services and were receiving instruction using Read 180, a research-validated reading curriculum (Hasselbring et al., 2009), in the special education setting. However, all of the participants were

currently reading three years below grade level and had reading comprehension goals on their IEPs indicating below grade level performance in reading comprehension. Results of RC-CBM assessment conducted by the researcher showed that the participants were in need of further intervention and intensification of instruction. Error analysis on RC-CBM data was performed to guide instructional intensification according to the taxonomy developed by Fuchs et al., (2017): strength, dosage, alignment, attention to transfer, comprehensiveness, behavioral supports, and individualization. Instruction was aligned to the specific skill deficits exhibited by each participant using evidence-based explicit reading comprehension strategies (alignment, strength, and comprehensiveness), dosage was intensified by conducting daily 30-min instructional sessions in a 1:1 instructional format, and attention to transfer was addressed through transfer lessons using classroom materials (i.e., Read 180 passages). Goal setting was used as a motivational support for all participants as well as choice of reading passages as a behavioral support for one student. Furthermore, the intervention was individualized and intensified as needed for each participant based upon critical analysis of frequent progress monitoring data. All students showed significantly improved performance on target skills in intervention over baseline, indicating that DBI is an effective instructional framework to use in improving reading comprehension for high school students with intensive needs in reading.

Prior research investigating individualization of intervention for students with intensive needs in reading focused on manipulating dosage and alignment by allotting different amounts of time to various instructional components based on bi-weekly student progress monitoring data, but results were not as strong as expected (Vaughn, Wexler et al., 2012). The differences in performance between students in intervention and control conditions in this study were minimal and were shown to be largely due to decreased performance of participants in the control group

(Vaughn, Wexler et al., 2012). The intervention examined in these studies used explicit strategy instruction to teach summarization, main idea, and literal and inference questions, as well as motivational supports including goal setting and positive phone calls home (Vaughn, Wexler et al., 2012); however, group size was kept at 3-4 students. It is possible that that group size was not small enough to allow instructors to provide sufficiently timely and specific feedback to students regarding strategy use. It is also possible that students were not provided with the necessary level of individualization. Although dosage and alignment of instructional components were adjusted based on individual progress monitoring data, students were kept in groups for instruction, suggesting that some aggregating of results may have been applied in order to form homogenous groups. Furthermore, comprehensiveness (i.e., increase in explicit instruction of specific components, skills, and sub-skills) was not addressed. The present study used the DBI process to individualize intensification of intervention based on weekly progress monitoring data, including the elements of dosage, alignment, comprehensiveness, and behavioral support (Fuchs et al., 2017), which likely contributed additional benefit to students' improvement over the use of explicit strategy instruction alone. Future research should use a group design to compare explicit strategy instruction provided in a standardized fashion to the same explicit strategy instruction provided using the DBI framework for individualized intervention to clearly establish the additive effects of the DBI process. Furthermore, results showing a drop in performance for two participants during transfer instruction suggest that explicit strategy instruction alone may not be sufficient to support generalization of skills for students with intensive needs in reading. The use of DBI to individualize intervention for these participants effected a return to mastery level, suggesting that DBI provides an additional benefit over strategy instruction alone.

Following is a discussion of the ways in which DBI was used to individualize instruction in each of the skills addressed in the intervention. The final paragraph in this section addresses behavioral strategies individualized using DBI.

Effects of DBI on Reading Comprehension Skills as Measured by the RC-CBM rubric

The RC-CBM rubric assessed four specific reading comprehension skills that were taught using three specific strategies: Summarization and Main Ideas, taught using the Summarization/Main Idea Strategy (Fuchs, Fuchs, & Burnish, 2000; Gajria & Salvia, 1992); Text Structure, taught using the Text Structure Strategy (Klingner et al., 2015; Meyer, Brandt, & Bluth, 1980); and answering literal and inferential questions, taught using the Question Answer Relationship (QAR) Strategy. One reason the explicit strategy instruction may have been effective in improving student performance in these skills is that these strategies, taught using the DBI framework which guides systematic intensification and individualization of instruction, is more effective for students with intensive needs in reading than a standardized reading intervention like Read 180 (Hasselbring, Kinsella, & Feldman, 2009), which was the curriculum used in the participants' reading classroom. The following commentary explaining the effects of DBI on specific reading comprehension skills for all participants is not intended as a criticism of Read180, but instead to illustrate the way in which high school students with intensive needs in reading require more systematically intensified and individualized instruction than can be provided by a standardized reading intervention (Vaughn & Fletcher, 2012).

Summarization. Summarization is the concise retelling of important information in a passage (Gajria & Salvia, 1992). Student performance on this skill in baseline was high for Marly, moderate for Dylan, and low but not absent for Harry, with slight variability for all three participants. There was some variability in intervention for two students, Marly and Dylan, who

both showed a decrease in score from mastery level to emergent level on Probe 3. Since probes were administered in random order across participants, it is unlikely that passage effects caused both participants to experience the drop on the same probe. More likely some of the effect was due to the increased difficulty of implementing all three strategies (i.e., Summarization/Main Idea Strategy, Text Structure Strategy, and Question Answer Relationship Strategy) on the probe for the first time. Marly demonstrated inaccurate use of the strategy steps – skipping "Identify the most important who or what" and "Tell the most important thing about the who or what." Instead, she immediately went to the third step: "Say the main idea in one sentence or less." Dylan experienced difficulty using one of the sub-steps with accuracy; he did not use the step "substitute general words for lists" and therefore identified an incorrect 'most important who'. In both cases, however, intensification of instruction including both dosage (increased practice opportunities) and comprehensiveness (modeling, guided practice and independent practice with feedback in strategy steps and sub-steps) (Fuchs et al., 2017) were used to achieve a return to mastery level on subsequent probes. For Dylan, this improvement persisted through maintenance, but Marly's score returned to emergent level on this item during maintenance. Harry achieved mastery level on this item on the first probe after instruction in the Summarization/Main idea strategy and maintained mastery level on all subsequent probes. Individualization for Harry on this and all other skills involved an increase in dosage (10 min across instructional sessions) related to his slow pace of reading and applying the strategies. Although Read 180 teaches the skill of summarization by using a graphic organizer in the student workbook to aid students in identifying "important details," (Hasselbring et al., 2009) it does not include explicit strategy steps that can be used to discriminate unimportant details through the explicit strategy steps of deleting unimportant information, deleting repeated

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information, and substituting general word for lists, which were explicitly taught and repeatedly practiced in the intervention used in this study. Furthermore, student performance data were used to further intensify the intervention by individualizing instruction in specific reading comprehension strategies by intensifying dosage, alignment, and comprehensiveness as needed, as described above.

Main Idea. The skill of identifying one main idea for the whole passage is defined as creating a statement that includes both the most important who or what in a passage, and the most important thing about the who or what, stated in one sentence (Fuchs, Fuchs, & Burnish, 2000). This skill was absent in all students during baseline. After instruction in the Summarization/Main Idea strategy, all students achieved mastery on this item on all subsequent probes. Identifying main ideas is also taught in the Read 180 program. Students are directed to "Decide what the topic is. Find the main idea about the topic" (Hasselbring et al., 2009). However, unlike in the intensive intervention used in the current study, no explicit strategy steps were provided for students to use to construct main idea statements by identifying the most important person (who) or topic (what) and to determine the most important information about the character or topic. Results of this study indicate that students with intensive needs in reading may need more explicit strategy steps to guide them in determining topics, discriminating salient information about the topic, and stating main ideas clearly and concisely. Interestingly, no students required further individualization or intensification of instruction in the main idea skill. This may be due to the many practice opportunities students had to determine main ideas: the Summarization/Main Idea strategy used in this intervention taught students to create one main idea for each paragraph to summarize the important information in a passage, and then to combine the information to create an overall main idea for the whole passage. Passages used in

instruction contained at least four paragraphs. Therefore, students had at least five opportunities to create main idea statements (i.e., one per paragraph, and one for the passage overall) during each instructional session.

   Text Structure. Text structures are defined as the way in which an author organizes a text using signifiers, or signal words, to promote logical connections between information in a text (Meyer, Brandt, & Bluth, 1980). None of the students were able to identify text structures or signal words during baseline, despite having received instruction in four text structures during Read 180 classroom instruction: Sequence, Compare/Contrast, Cause/Effect, and Problem/Solution. An examination of the Read 180 program (Hasselbring et al., 2009) shows that students were provided with the name of the text structure type and with examples of the signal words associated with that text structure. Students were then directed to find the signal words in the accompanying passage. Each text structure type was taught using one passage during one instructional unit. Once students completed that unit, no further practice with the text structure type was provided. Results from this study indicate that for students with intensive needs in reading, more opportunities to practice identifying different text structures may be necessary for students to gain mastery of the skill. Students in this intervention were also provided with ongoing practice opportunities to identify all of the text structure types. This intensification of instruction in both comprehensiveness and dosage may have contributed to students' improved performance in this skill. Furthermore, the intervention used in this study required students to first identify the signal words and then use the signal words to determine the text structure, thus providing students with an explicit strategy to use to determine text structure when it has not been provided for them. This is likely to be useful to students when reading content area texts (Klingner et al., 2015; Meyer, Brandt, & Bluth, 1980). Both Marly and Dylan

required individualized intensification of instruction in Text Structure during transfer instruction according to probe data. Information in the session notes indicated that both Marly and Dylan first identified an incorrect text structure and then were unable to support their choices by identifying either signal words or a rationale supported by textual information. As described in the session notes, errors for both participants were the result of not using the strategy steps with fidelity (i.e., they first selected a text structure and then attempted to justify the choice by locating signal words, rather than identifying the signal words first and using them to select the correct text structure). Therefore, the next instructional sessions focused on increasing dosage and adjusting alignment to provide additional opportunities for the students to practice using the Text Structure strategy steps with guided practice and then independent practice with feedback as necessary. Results showed that on all subsequent probes, both Marly and Dylan correctly identified both text structure and signal words.

Literal and Inference Questions. Literal questions (Right There) can be found directly in the text, whereas inference questions require the student to either connect information from different parts of the text (Think and Search) or to incorporate background knowledge with information from the text (Author and Me) in order to answer the question (Raphael, 1986). Participants in this intervention exhibited various baseline levels of skill in answering questions according to question type: all answered Right There questions correctly. Marly and Dylan usually answered Think and Search Questions correctly. Marly often answered Author and Me questions correctly and Dylan sometimes answered Author and Me questions correctly. Harry had more difficulty with both types of inference questions, but he also answered Think and Search and Author and Me questions correctly several times during baseline. However, none of the students appeared to use any particular strategy for determining the answer to questions,

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including looking back in the text to find the answers. Instead, students relied upon their memory, guessed, or simply stated that they did not know the answer. When provided with instruction in the QAR strategy, all three participants reached mastery level on all question types and on identifying the type of question based upon the strategy they had used to answer it. Although the Read 180 program (Hasselbring et al., 2009) provides students with daily practice opportunities to answer a variety of question types, no specific strategies are taught to aid students in finding answers by defining the question type and applying a specific strategy to answer the question. However, all three participants also benefitted from individualized intensification of instruction in QAR strategy. Harry, in particular, was unable to systematically search through the text to find answers. The element of comprehensiveness was intensified for Harry, with explicit modeling, guided and independent practice with feedback provided in how to systematically search through the passage to find the information needed to answer questions (i.e., begin with the first paragraph, look through each paragraph in order, underlining related information, then, review and combine information, or determine the need to relate prior knowledge). For Dylan and Marly, intensification focused on the elements of dosage and alignment, providing more practice opportunities in the specific QAR questions they missed on the previous probe. As with the other strategies, this individualized intensification resulted in mastery level performance on subsequent probes.

  Behavioral Strategies. As described by the Adolescent Reading Model (ARM), adolescents with intensive needs in reading may develop resistance to reading and may experience low motivation to persist in reading tasks (Deshler & Hock, 2007). The taxonomy of intervention intensification proposed by Fuchs et al. (2017) includes behavioral support as one of the elements that may be adjusted to improve student outcomes. In this study, only Marly

displayed behaviors that indicated a need for further intensification of behavioral supports: during instructional sessions immediately after the third probe, Marly demonstrated off-task behaviors (e.g., looking over her shoulder to glance at the clock several times during instruction, pulling out her phone, holding it under the desk, and attempting to look at it during instruction). The researcher applied two behavioral strategies to improve Marly's attention and motivation. First, Marly was instructed to leave her phone at her desk when working with the researcher. Second, Marly was given the opportunity to choose the passages used during instruction from among the available passages in her READ 180 workbook. These strategies were effective, as Marly demonstrated compliance and conscientious attention during all subsequent instructional sessions.

Effects of DBI on Standardized Measures

Gray Oral Reading Test-5 (GORT-5; Weiderholt & Bryant, 2012). The GORT-5 includes two alternate forms, and thus is appropriate for use as a pre-post measure over relatively short intervention durations (Weiderholt & Bryant, 2012). Although the results of the GORT-5 in this study are intended for descriptive use only and the changes in scores are small and sometimes within the margin of error, they are suggestive of a change in reading behaviors for two participants, Marly and Harry. Marly showed a decrease in reading fluency, rate, and accuracy, but an increase in comprehension. This effect may be due to the fact that during the pretest, before receiving the explicit reading comprehension strategy intervention using the DBI framework, Marly read as quickly as possible, focusing on pronouncing as many words as fast as she could, with little attention to understanding what she read. After intervention, Marly may have been putting more effort into understanding what she was reading, and therefore read more slowly, thus showing a decrease in rate and fluency, but an improvement in comprehension. Her

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decrease in accuracy may be the result of the examiner missing reading errors on the pretest due to her fast reading rate – it was difficult to tell genuine reading errors from enunciation issues. Harry improved across all subskill areas except accuracy, in which he scored in the average range at both pre- and post-test, showing improvement in both oral reading rate and fluency as well as comprehension. For Harry, the intensive, individualized intervention helped him not only to learn the explicit reading comprehension strategies, but also to organize his approach to looking back in the text to summarize, identify main ideas and text structure, and to answer literal and inference questions. Furthermore, the daily practice in oral reading during instructional sessions may have led to an overall improvement in reading skills.

The GORT-5 was selected for use in this study because of its procedural similarity to the oral retell used in the RC-CBM rubric. One difference between the procedures used in the current study and the GORT-5 procedures is that the retell procedure used in this intervention allowed students to look back in the passage to answer comprehension questions, whereas during GORT-5 assessment, they were required to rely on their memory of what they had read. It is possible that participants' scores on the GORT-5 would have been different if the intervention had required them to answer questions from memory.

The small effects shown here were achieved in an average of six weeks of instruction for each participant, suggesting that intensification of intervention using DBI may have significant effects on standardized measures of reading comprehension for students with intensive needs in reading if implemented over a longer duration. This implication is consistent with results from studies that used other standardized assessments and concluded that longer duration of intervention would be needed to show significant growth for students with intensive needs in reading (Vaughn, Wexler et al, 2012).

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Social Validity

A secondary purpose of this study was to assess a high school special education teacher's perceptions of the social validity of the DBI framework with respect to its use in the classroom for students with intensive needs in reading. The very positive ratings given to the intervention by the teacher contribute evidence that DBI is likely to be an acceptable intervention for use by practitioners, though the very small sample size of just one teacher requires more research in this area. Although using one researcher as the sole implementer of both instruction and assessment in this study limited the sample size and the duration of intervention for the participants, it was likely a factor that affected the teacher's favorable perception of the feasibility of implementation. Students also rated the intervention very highly, indicating that explicit reading comprehension strategy intervention implemented according to the DBI framework is likely to be acceptable to high school students with intensive needs in reading.

Implications for Practice

Results of this study indicate that teachers should use DBI and the Fuchs et al. (2017) taxonomy to intensify instruction for students with intensive needs in reading. Specifically, teachers should assess students to identify those with intensive needs in reading, and, for adolescents, should place them immediately into intensive intervention. In order to specifically target instruction to individual student needs, diagnostic assessment using standardized measures and/or error analysis of progress monitoring data should be conducted. Then, evidence-based reading interventions using explicit strategy instruction should be selected and taught with fidelity. Frequent, ongoing progress monitoring with continued diagnostic assessment should be conducted to determine the need for instructional adjustment and intensification according to the Fuchs et al. (2017) taxonomy.

However, recent research shows that although many teachers are adept at implementing effective Tier 2 interventions for students with reading disabilities and reading difficulties, few are skilled at intensifying and individualizing instruction to the degree required by students with intensive needs in reading (Fuchs & Fuchs, 2015). It is likely that explicit training in the DBI process and in using the elements of the Fuchs et al. (2017) taxonomy to intensify instruction will be needed for teachers at the pre-service and in-service levels, along with ongoing support for data analysis and data-based instructional decision-making. More research is needed to determine the most effective and efficient means of teacher training and support.

Limitations and Implications for Future Research

There are several important limitations to this study. First, the small, very homogenous sample used in this single case design study limits the generalizability of the results to other more diverse populations. The students who participated in this intervention were remarkably similar to one another, in terms of reading level, skill deficits, and previous instruction, as well as in demographic characteristics (see Table 1). The students' demographic similarities limit the external validity of the study with respect to more diverse individuals. Another significant issue is that all three participants demonstrated adequate decoding skills, and therefore the intervention could focus on reading comprehension strategies without also having to remediate decoding skills deficits. For students with significant decoding deficits, a decoding strategy would need to be added to the intervention. In addition to the time needed to teach the decoding strategy initially, the intervention sessions would need to incorporate decoding instruction and practice, which would likely require lengthening each session in order to continue to provide sufficient opportunities for practicing the reading comprehension strategies. Decoding difficulties could impact assessment using the RC-CBM rubric. Even if the interventionist supplied unknown

words when the students were reading orally, it is possible that decoding difficulties might impact students' ability to look back in the passages while implementing the strategies during assessment and during instructional sessions, as well.

Second, the study had a relatively short duration compared to other intensive reading interventions for high school students, which lasted for one or multiple years (Hock et al., 2017; Vaughn, Wexler et al., 2011; Vaughn, Wexler et al., 2012). The third participant, Harry, was unable to receive transfer instruction due to the end of the school year, and no students were in intervention long enough to master the strategies to the point where they no longer used strategy cue cards. It is possible the results may have differed if the intervention was longer. Additionally, all instruction occurred in 1:1 sessions with the researcher, so students did not have the opportunity to integrate their use of the strategies into typical classroom instruction, even though transfer instruction using classroom reading materials was provided. Future research should implement similar intervention, beginning early in the school year, and should specifically plan to transition from researcher directed strategy instruction and practice to student directed strategy implementation in classroom reading tasks.

Third, the intervention was conducted using a 1:1 format, making it labor intensive for a typical classroom teacher, therefore, future research should explore the efficacy of providing the intervention in a small group format of 2-3 students, to see if similar results may be achieved, allowing more efficient use of teacher time. Alternatively, teachers may elect to administer 1:1 sessions across students a few times per week, rather than small group sessions daily. Effects in this study were achieved in spite of numerous interruptions to the daily schedule; students typically received 2-3 instructional sessions plus one assessment session per week. Additionally, the presence of students still in baseline in the same classroom where the intervention was being

implemented with students in intervention resulted in one known instance of diffusion (i.e., Harry learning the term for the "Right There" question). It is possible that other instances of diffusion may have occurred.

Fourth, the use of the observational data recorded in the session notes presents two issues of concern. First, this type of data is highly dependent upon the expertise of the individual responsible for collecting, analyzing, and making instructional decisions. It is likely that significant teacher training and ongoing professional development will be necessary to support teachers in utilizing this type of data to effectively inform instructional decision-making. Second, the use of this type of data is not standardized, nor was fidelity or inter-observer reliability assessed on the data, and therefore researcher error and/or bias may have been present in the use of this data in this study.

Fifth, the RC-CBM rubric may be improved. Specifically, the first item measuring summarization was not sensitive to differences in the ways students included too many unimportant details during baseline and correctly omitted them during intervention. Subsequent studies should experiment with additional criteria to the summarization item to increase its sensitivity to differences in student performance in baseline and intervention. Furthermore, larger scale studies using the RC-CBM rubric as the dependent measure would be of great value in establishing the reliability and validity of the rubric. Additionally, although AIMSWeb passages used in all probes were effective in eliminating the effects of background knowledge and there were no discernible effects in student performance related to variability in passage difficulty, the narrative passages were not ideal for practicing text structure identification. Most texts may contain more than one text structure type, and sometimes explicit signal words may not be present, requiring students to use semantic information to identify text structure (Klingner et al.,

2015). Most of the passages included explicit signal words for either the descriptive or the sequential text structures in addition to semantic information indicating the presence of other text structure types (see Appendix C for a sample passage and answer key). While it was encouraging that students quickly identified the signal words and used them to identify the correct text structure, that led to fewer opportunities for students to identify compare/contrast, cause/effect, and problem/solution text structures. One limitation in the overall field of reading intervention for high school students is the lack of research-validated progress monitoring measures. This study used AIMSWeb passages, which include eighth grade as the highest reading level. Future research should establish alternative progress monitoring measures that encompass reading levels up to twelfth grade so that reading instruction can measure students' progress at every grade level. These measures should include both narrative and expository passages, and should ensure even distribution of text structure types to enhance assessment of text structure knowledge.

Sixth, although students in this intervention made significant progress in reading comprehension as measured by the RC-CBM rubric, students were instructed and assessed in instructional level materials. Therefore, the study was not able to show an increase in reading performance in grade level materials. Future research should incorporate procedures that include practice in grade level texts and measures to determine whether the use of explicit strategy instruction implemented according to the DBI framework may also improve students' reading comprehension performance in grade level materials.

Finally, there are several limitations regarding the use of the researcher as the sole interventionist and conductor of all assessments, including social validity rating scales. First, the fact that the researcher acted as interventionist and examiner on all measures may have resulted in bias that may have affected results. This limitation is mitigated by the high levels of fidelity

and inter-scorer reliability. Second, the teacher did not implement the intervention, but only informally observed and received information about the intervention from the interventionist. Therefore, it is possible that the teacher would have rated the intervention differently had she also been the interventionist. Third, the interventionist administered the social validity questionnaire to the student participants, which may have introduced some bias into their responses. Fourth, the interventionist in this intervention was a highly trained doctoral student in special education with many years of teaching experience. It is possible that this affected the results of the study, and that employing a less experienced implementer would have affected participants' results. Future research should be conducted using classroom teachers as interventionists and independent examiners for dependent and social validity measures.

Conclusion

The current study adds preliminary evidence that DBI may be an effective instructional framework within which to implement explicit reading comprehension strategy intervention for students with intensive needs in reading. This study is the only study, as of this writing, to examine the use of DBI for reading comprehension intervention for high school students with intensive needs in reading. The limitations and suggestions for future research discussed here may be used to enhance classroom instruction, as well as to inform future research in the area of intensive reading interventions for students with intensive needs in reading.

Tables and Figures
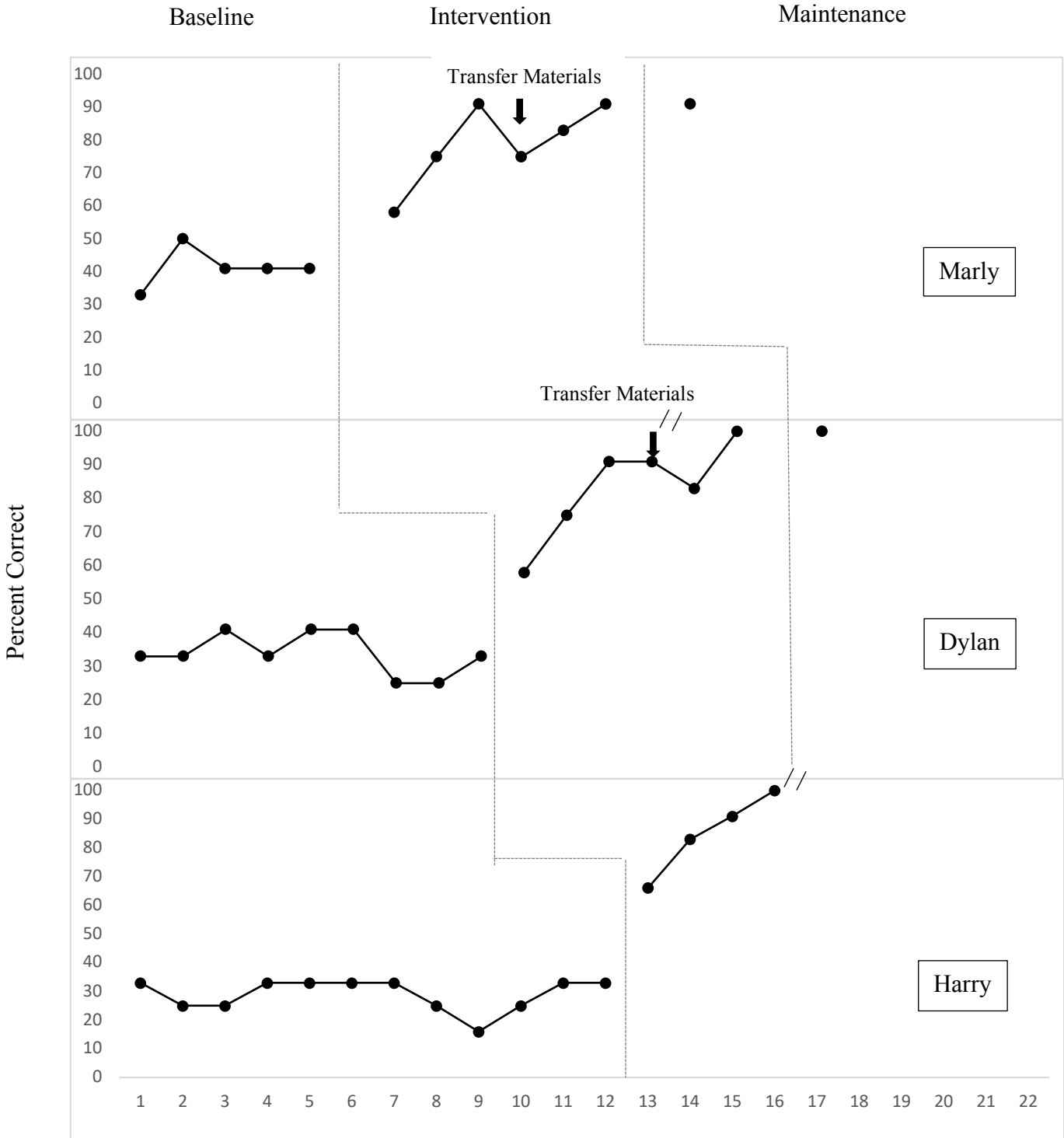
Figure 1. Percentage correct answers on RC-CBM probe.

Table 1

Participant Characteristics

Student	Age	Grade	Diagnosis	Ethnicity	Instructional Reading Level (GE)
Marly	16	10	SLD[1] Reading	White	7
Dylan	16	10	SLD Reading, Writing, Math	White	7
Harry	16	10	Autism	White	7

Note. SLD[1] = Specific Learning Disability; GE = grade equivalent.

Table 2

Instructional Sessions for Participants by Probe, Skills, and Lesson Type

Participant	Probe 1 Intro SUM/MI		Probe 2 Practice SUM/MI, Intro TS		Probe 3 Practice SUM/MI, & TS, Intro QAR		Probe 4 Practice All		Probe 5 Practice All		Probe 6 Practice All	
	ISL	PS	ISL	PS	ISL	PS	PS	T	PS	T	PS	T
Marly	2	2	3	3	1	2	n/a	2	n/a	2	n/a	1
Dylan	2	2	3	2	1	2	n/a	3	n/a	2	n/a	2
Harry	2	2	5	2	1	2	3	n/a	-	-	-	-

Note. [1]Baseline probes are not included in table. ISL= Initial Strategy Lesson, PS=Practice session using AIMSWeb passages, T=Transfer lesson using Read180 passages.

Table 3

Fuchs et al. (2017) Taxonomy Elements Individualized by Participant by Intervention[1] Probe, with Data Sources (In Parentheses)

		Individualized Instruction Prior each Intervention Probe				
	Probe 1	*Probe 2*	*Probe 3*	*Probe 4*	*Probe 5*	*Probe 6*
Marly	*I*-A=Intro SUM/MI *(BL Probe Data)* *I*-D= repeated 30 min initial strategy lesson for SUM/MI *(Session Notes, Lessons 1-4)*	*I*-A= Intro TS, Practice SUM/MI *(Probe 1 Data)* *I*-D=30 min extra (1 practice session) *(Session Notes, Lessons 5-9)*	*I*-A= Intro QAR, Practice SUM/MI &TS *(Probe 2 Data)*	*I*-D=more practice opportunities for SUM/MI strategy *(Probe 3 Data)*, *I*-A=focused on correct use of SUM/MI steps then practiced all strategies, *(Probe 3 Data)*, *I*-AT=used Read 180 passages *(Probe 1, 2, & 3 Data)*, *I*-BS=allowed student choice of passage *(Session Notes, Lessons 15-16)*	*I*-D=more practice opportunities for QAR strategy *(Probe 4 Data)*, *I*-A= focused on Author and Me questions, then practiced all strategies *(Probe 4 Data)*, *I*-AT=used Read 180 passages *(Probe 1, 2, & 3 Data)*, *I*-BS=allowed student choice of passage *(Session Notes, Lessons 17-18)*	*I*-D=more practice opportunities for TS strategy *(Probe 5 Data)*, *I*-A=focus on identifying signal words first, then practiced all strategies *(Probe 5 Data)*, *I*-AT=used Read 180 passages *(Probe 1, 2, & 3 Data)*, *I*-BS=allowed student choice of passage *(Session Notes, Lesson 19)*

Dylan	*I*-A Intro SUM/MI *(BL Probe Data)* *I*-D= repeated 30 min initial strategy lesson for SUM/MI *(Session Notes, Lessons 1-4)*	*I*-A= Intro TS, Practice SUM/MI *(Probe 1 Data)*	*I*-A= Intro QAR, Practice SUM/MI &TS *(Probe 2 Data)*	*I*-D= more practice opportunities for SUM/MI strategy *(Probe 3 Data)*, *I*-A= focused on correct use of SUM/MI steps, then practiced all strategies *(Probe 3 Data)*, *I*-C=provided modeling and guided practice in SUM/MI strategy sub-step *(Probe 3 Data and Session Notes, Lessons 15-17)* *I*-AT=used Read 180 passages *(Probe 1, 2, & 3 Data)*	*I*-D=more practice opportunities for SUM/MI strategy *(Probe 4 Data)*, *I*-A=focused on identifying correct who or what, then practiced all strategies *(Probe 4 Data)*, *I*-C=explicit instruction in identifying correct who or what *(Probe 4 Data)* *I*-AT=used Read 180 passages *(Probe 1, 2, & 3 Data)*	*I*-D=more practice opportunities for TS strategy *(Probe 5 Data)*, *I*-A=focus on identifying signal words first, then practiced all strategies *(Probe 5 Data)*, *I*-AT=used Read 180 passages *(Probe 1, 2, & 3 Data)*
Harry	*I*-A Intro SUM/MI *(BL Probe Data)* *I*-D= repeated 30 min initial strategy lesson for SUM/MI,	*I*-A= Intro TS, Practice SUM/MI *(Probe 1 Data)*, *I*-D=15 min extra per 5 instructional	*I*-A= Intro QAR, Practice SUM/MI &TS *(Probe 2 Data)*, *I*-D=15 min extra first instructional session	*I*-D=10 min extra per session, more practice opportunities for QAR strategy *(Probe*	*	*

plus 10 min extra per session *(Session Notes, Lesson 1)* *I-*C=increased explicit instruction in eliminating unimportant information *(Session Notes, Lessons 1-4)*	sessions *(Session Notes, Lessons 5-11)*	*(Session Notes, Lesson 13),* *I-*C=explicit instruction in systematically searching through the passage to find the information needed to answer inference questions *(Session Notes, Lessons 13-15)*	*3 Data, Session Notes, Lessons 16-18)* *I-*A=focused on explicit instruction in using background knowledge to answer Author and Me questions, then practiced all strategies *(Probe 3 Data)*

Note. Fuchs et al. (2017) taxonomy elements: S=strength (not individualized; all strategies used are EBP), D=dosage, A=alignment, AT=attention to transfer, C=comprehensiveness, BS=behavioral support, *I*=individualization. Note: All elements of the taxonomy were addressed by the strategy intervention; *I-* indicates the element was individualized based on student data (baseline, previous probe, or session notes) during instruction prior to the probe listed above. Following each individualized taxonomy element, the specific data source used to determine the individualization is italicized in parentheses. [1]Baseline probes are not included in table. *=no probe given.

Table 4

Mean Scores and Effect Sizes on Dependent Measure by Participant and Phase

Percentage Correct (average within condition)	Marly	Dylan	Harry
Baseline	41.2	33.8	28.9
Intervention	78.9	83	85
Maintenance[1]	91.6	100	-
Tau-*U* Index	1	1	1

Note. Percentage Correct: numerical average of all scores within each condition; Tau-*U* calculated using raw scores on RC-CBM probes. Maintenance[1] scores are not averaged; one maintenance probe was conducted for both Marly and Dylan, none for Harry.

Table 5

Pre- and Post-test Scaled Scores, ORI Index Score and Percentile Rank (In Parentheses) on

Gray Oral Reading Test-5 (GORT-5)

	Subtest Scaled Scores *(Percentile Rank)*								Oral Reading Index	
Participant	Rate		Accuracy		Fluency		Comprehension			
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Marly	8(25)	6(9)	8(25)	6(9)	8(25)	6(9)	5(5)	6(9)	81(10)	78(7)
Dylan	7(16)	6(9)	7(16)	7(16)	7(16)	7(16)	7(16)	7(16)	84(14)	84(14)
Harry	5(5)	6(9)	8(25)	8(25)	6(9)	7(16)	7(16)	8(25)	81(10)	86(18)

Note. Oral Reading Index (ORI)=overall score measuring general reading skill; standard error measurement=3.

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Table 6

Participant Scores on Individual RC-CBM Items Across Baseline and Intervention Probes

	BL1	BL2	BL3	BL4	BL5	BL6	BL7	BL8	BL9	BL 10	BL 11	BL 12	Int 1	Int 2	Int 3	Int 4	Int 5	Int 6	M
									Marly										
SUM	2	2	2	1	1	*	*	*	*	*	*	*	2	2	1	2	2	2	1
MI	1	1	0	1	1	*	*	*	*	*	*	*	2	2	2	2	2	2	2
TS	0	0	0	0	0	*	*	*	*	*	*	*	0	2	2	2	0	2	2
QAR-A	1	3	3	3	3	*	*	*	*	*	*	*	3	3	3	2	3	3	3
QAR-I	0	0	0	0	0	*	*	*	*	*	*	*	0	0	3	1	3	2	3
									Dylan										
SUM	2	1	2	1	2	2	1	1	2	*	*	*	2	2	1	1	2	2	2
MI	1	1	0	0	0	0	0	0	1	*	*	*	2	2	2	2	2	2	2
TS	0	0	0	0	0	0	0	0	0	*	*	*	0	2	2	2	0	2	2
QAR-A	1	2	3	3	3	3	2	2	1	*	*	*	3	3	3	3	3	3	3
QAR -I	0	0	0	0	0	0	0	0	0	*	*	*	0	0	3	3	3	3	3
									Harry										
SUM	2	1	2	1	2	1	1	1	1	1	2	1	2	1	2	2	*	*	*
MI	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	*	*	*
TS	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	*	*	*
QAR-A	3	2	1	3	2	3	3	2	1	2	2	2	3	3	3	3	*	*	*
QAR-I	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	*	*	*

Note. SUM=Summarization; MI=Main Idea; TS-Text Structure; QAR-A=Answering Literal and Inference Questions; QAR-I=Identifying Literal and Inference Questions. SUM, MI, TS scores range from 0-2 possible points; QAR (A) and QAR (I) range from 0-3 possible points. *=No probe given.

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Appendix A

Retell Rubric Recording Sheet	Student:		Date:		Passage:		

Initial prompt: **Tell me about the passage you read.**	Scoring Key (0, 1, 2)	Score (0, 1, 2)	Lookbacks (√)	Prompts (√)	Strategies used (name or acronym)	Instructions After the student has read the passage, use the initial prompt, then use other prompts in order.
Summarization Prompt: Tell me the main ideas of each paragraph of the passage in order.	**2**: relates all of the main ideas from individual paragraphs in order of presentation in passage, with one error of omission allowed; **1**: relates at least two main ideas from individual paragraphs in order, or all of the main ideas from individual paragraphs, but not in correct order; **0**: relates fewer than two main ideas from individual paragraphs					
Main idea Prompt: What was the main idea in the passage?	**2**: correctly identifies one main idea for the entire passage, including most important who or what, and the most important thing about the who or what, stated in a single sentence; **1**: identifies either the most important who, or the most important what, but not both; **0**: identifies neither the most important who nor the most important what in the passage.					

Text structure Prompt: What is the text structure of this passage? What are the signal words?	**2**: correctly identifies text structure, providing signal words or rationale as evidence; **1**: correctly identifies text structure, but does not provide signal words or rationale as evidence; **0**: does not identify text structure or identifies incorrect text structure.				
Literal and Inference Questions Prompt: [Ask the one literal and two inference questions included on the examiner's copy of the passage. Ask the student to identify the question type after they answer the question.]	**6 points total**: **1** point each for identifying the question type and **1** point each for correctly answering one example of each the following types of questions:				Ask the one literal and two inference questions included on the examiner's copy of the passage. Ask the student to identify each question type. Score answers to literal and inference questions as correct or incorrect using the Answer Key provided for each passage.
	Correctly answers Right There question				
	Identifies Right There question (answer explicitly stated in one sentence in the text)				
	Correctly answers Think and Search question				
	Identifies Think and Search question (answer explicitly stated with relevant information located in two or more different sentences in the text)				
	Correctly answers Author and Me question				
	Identifies Author and Me question (answer not explicitly stated in the text, requires use of background knowledge plus textual information)				

Remember to provide feedback to student: 1) praise for correct responses; Then, only after the strategy has been taught: 2) praise plus feedback for partially correct responses; 3) praise for correct strategy use; 4) reminders to use strategies for incorrect responses and brief review of strategy steps

Final Score (FS):　　　　　**/12**　　　　**Percentage correct (FS/12 x 100):**　　　　　**%**

Assessment Procedures Fidelity Checklist	Session ID:		Observer:	
Did the teacher:	Yes	No	N/A	Comments
1. Administer the timed 1-min ORF assessment?				
2. If the students' accuracy level was below 90%, did the examiner offer an alternate passage?				
3. Provide the initial prompt to the student to retell the passage?				
4. Prompt the student to answer the summarization item?				
5. Prompt the student to answer the main idea item?				
6. Prompt the student to answer the text structure item?				
7. Prompt student to identify signal words? (Only if the student identifies the correct text structure).				
8. Ask the Right There question?				
9. Ask the student to identify the Right There question type?				

10. Ask the Think and Search question?				
11. Ask the student to identify the Think and Search question type.				
12. Ask the Author and Me question?				
13. Ask the student to identify the Author and Me question type?				
14. Provide feedback to students regarding effort, performance, and (*after baseline*) strategy use?				
15. *After baseline*: Review steps of relevant strategies, as needed based on missed items?				
16. *After baseline*: Review student progress using graphed data?				
17. *After baseline*: Provide praise for student effort and strategy use?				
18. *After baseline*: Attribute student progress to student effort and strategy use?				
19. *After baseline*: Set goal for coming week?				
Totals:				
Total possible = 19 – Total N/A				Items 15 through 19 – during baseline, mark as N/A.

Total possible –Total No = Fidelity Score				
Fidelity Score/Total possible X 100 = Fidelity Percentage				

Intervention Procedures Fidelity Checklist	Session ID:		Observer:	
Did the teacher:	Yes	No	N/A	Comments
1. Develop students' background knowledge, including vocabulary required to understand the text				
2. Discuss importance of the strategy and how it will help students to learn and remember important information from the text				Strategy used:
3. Model how to use the strategy, including think-alouds to demonstrate how to self-regulate use of the strategy				
4. Provide mnemonics and/or cue cards to promote student memorization of the strategy and self-regulation, as well as providing multiple opportunities				

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for students to practice reciting and using the strategy steps			
5. Engage students in guided practice of the strategy in relevant contexts and provide specific feedback regarding student strengths and weaknesses in using the strategy			
6. Provide students with opportunities to use the strategies independently and provide timely feedback on student performance			
7. Review and prompt students' use of the strategy on an ongoing basis during continued instruction			
Totals:			
Total possible = 7 – Total N/A Total possible –Total No = Fidelity Score			

Session Notes Template

The Session Notes Template spreadsheet showing two views:

First view (columns A–K):

Date	Session	Score	Summarization	Main Idea	Text Structure	Right There	Think and Search	Author and Me	Multisyllabic Word Errors	Behavioral observations and student feedback

Second view (columns L–T):

Instructional Implications	Instructional Decisions	Strength	Dosage	Alignment	Attention to Transfer	Comprehensiveness	Behavioral support	Individualization

Appendix B

Summarization and Main Idea Lesson Plan

1. Lesson: Summarization/Main Idea – Who or What   Subject: Reading Comp Strategy   Date_____

2. Student Name (individualized lesson) or Target Grade/Age Level (whole group instruction):

3. Pennsylvania Content Standard(s):
 CC.1.2.9–10.A
 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

4. Learning Objective(s) and Aligned Assessments:

Learning Objective(s)	Aligned Formative & Summative Assessments
Given an instructional level passage, students will correctly identify the main idea of each paragraph and the passage as a whole during guided and independent practice.	Formative: Teacher observation of student orally identifying main ideas in passages during instruction. Summative: Weekly progress monitoring assessment.

5. Materials Needed: Instructional level passage (teacher and student copies), Main Idea strategy cue cards, BEST strategy cue cards, charts with common prefixes and affixes, CLOVER chart with 6 common syllable types, pen or pencil.

6. Expectations for Behavior and Class Activities: Students are expected to attend to instruction, complete all learning activities as directed by the instructor, and ask questions and request help as needed.

7. General or Specific Accommodations for Special Needs Learners: This lesson is designed to provide explicit instruction in one-on-one or very small group (2-4 students) format to learners with reading disabilities using the gradual release of responsibility model (model, guided practice, independent practice). This instructional sequence includes elements shown by research to be effective with students with disabilities: activate background knowledge, provide a rationale for the strategy, model the strategy, provide multiple guided practice opportunities, provide

independent practice opportunities with feedback, review and preview. Individual accommodations will be made on a per student basis, as needed.

8. Description of Learning Activities

Lesson Implementation (include specific discussion questions that you will use)	Accommodations for Special Needs Learners

Description of Introductory Activity: Teacher says:
One of the most important things we can do as readers is to figure out what the author's main idea is. that gives us important information about what we are supposed to learn from what we are reading. Have you ever had your teachers ask you to tell the main idea?
It's not always easy to do, is it?
So, today We are going to learn a strategy to help you find the main idea. We'll practice finding the main idea of each paragraph in the passage, which we will use to summarize the passage, and we'll finish up by finding the main idea of the whole passage.
Here is a card you can use to help you remember the steps. [Give student the Main Ideas strategy cue card.]
The Main Idea strategy has three steps:
  1. Identify the most important who or what.
  2. Tell the most important thing about the who or what.
  3. Say the main idea in one sentence.
Here is a card with the strategy steps to help you learn them.
What are the steps of the Main Idea Strategy?
Great! Now I will show you how it works.
This passage is about a family of baseball players. Do you like baseball? Do you have a favorite team or player?
 	
Modeling/Demonstration:
First, we are going to read the first paragraph aloud together, and then I will use the Main Idea strategy to help identify the main idea. [Gives student a copy of the passage. Teacher and student chorally read first paragraph aloud.]
OK, so in order to find the main idea of this paragraph, let's go through the steps of the Main
	Student: Yes
	
	Student: No
	
	Student: Reads Main Idea strategy steps.
	
	Student: various answers.
	
	Student: Reads first paragraph aloud.

Idea strategy. First, let's review the steps by reading them aloud together:
[Teacher and student chorally read strategy steps.]
Ok, so the first thing I need to do is *identify the most important who or what* in the paragraph. I would say that the paragraph is about baseball, and it talks about most people who like baseball, but the most important who or what in the paragraph would have to be the Hairston family. I think they are the most important because the author tells us their name, and then tells more information about them.
Now, the second step, *tell the most important thing* about the Hairston family – let me look back in the passage to see what it says about them - oh, it is that they have had five family members play professional baseball – I know that is important, because it says that that is more than any other family in history.
 	
One thing that is very important when we are identifying main ideas is to make sure we don't include too many details. A main idea includes only the most important information.
 	
There are three steps we can use to make sure we don't include too many details. These steps are:
    Delete unimportant information.
    Delete repeated information.
    Substitute general words for lists.
 	
Let's say the three steps together:
    Delete unimportant information.
    Delete repeated information.
    Substitute general words for lists.
 	
In this paragraph, the most important who is the Hairston family, so we want to include details that are about them. The information that most people don't know any major league players or have family members that are on a team is not about the Hairstons, so we will not include it in our main idea statement. The next two sentences do contain important information: that
	Student: Reads strategy steps aloud.
	
	Student:
	    Delete unimportant information.
	    Delete repeated information.
	    Substitute general words for lists.

one family has more members who play professional baseball than any other family in history, and that their name is the Hairston family. We will use this information to create our main idea statement.
Now for the third step, *say the main idea in one sentence*:
"The Hairston family has had the most members play professional baseball of any family in history."
So, the main idea of this paragraph is that the Hairston family has had the most members play professional baseball of any family in history.
 	
Let's do another one, I'll read, and you can help by telling me the steps of the main idea strategy. [Reads second paragraph out loud.]
Well, that paragraph was long and had a lot of details. It will be tricky to figure out the main idea. What is the first strategy step I need to do?
 	
Right, identify the most important who or what. There was a lot of information in that paragraph – it talked about Jerry and Scott, and their parents, but it was mostly about Jerry and Scott. So, Jerry and Scott are the most important who or what, what is my next step?
 	
Right, tell the most important thing about the who or what.
Remember that when we identify the most important who or what, we use three steps to make sure we don't include too many details.
 	
Let's say the three steps together:
    Delete unimportant information.
    Delete repeated information.
    Substitute general words for lists.
 	
Ok, so when I reread this paragraph, I see that it talks about all the different teams Jerry and Scott have played on, and how now for the coming season, they would be playing on the same team. It does talk about how their parents are excited about that, but that is not an important detail – the most important point is that Jerry and
	
	Student: Identify the most important who or what.
	
	Student: Tell the most important thing about the who or what.
	
	Student: Delete unimportant information.
	    Delete repeated information.
	    Substitute general words for lists.

Scott have played on many different teams throughout their careers, but now they are on the same team. Remember our steps to make sure we do not include too many details. The third step says to use general terms for lists. In this paragraph, there are many names of the teams that Jerry and Scott have played on. If we listed all of the teams, that would be too many details. So, we will use a general term: different teams, instead of listing all of the team names. So, Jerry and Scott are the most important who or what, and the most important thing about Jerry and Scott is that they are on the same team after having played on different teams for many years. What is the third step?	
	Student: Say the main idea in one sentence.
OK: The main idea of this paragraph is: Brothers Jerry and Scott Hairston were finally on the same professional baseball team after years of playing on different teams. See how that works? Now it's your turn to read, and we will do the main idea strategy steps together. One thing that helps to know which step you're on is to make a check mark after the step when you complete it – then, when you look back at the cue card, you can easily find which step you need to do next. Let's try it while we work on this paragraph.	
Read the paragraph.	Student: reads third paragraph.
Guided Practice and Feedback: Nice reading. So, what is the first step of the Main Idea strategy?	
	Student: Identify the most important who or what.
Right – tell me the most important who or what in the paragraph. Great, check that step so you know you have completed it.	Student: Jerry Hairston, Sr., the father of Jerry and Scott.
Yes. Now, what is the second step of the Main Idea Strategy? Right – what is the most important thing about Jerry Sr.?	Student: Tell the most important thing about the who or what.

[*If the student includes too many details, use the three sub-steps to guide the student to eliminate the unimportant, repetitive details and lists*]. Excellent. Check off that step. What is the last step of the Main Idea strategy?	Student: He was also a professional player who once made a hit that ruined the opposing pitcher's chance of pitching a perfect game.
Perfect – so, tell me the main idea of this paragraph in one sentence.	Student: Say the main idea in one sentence. Student: Jerry Sr. was also a professional baseball player who once scored a hit that ruined the opposing pitcher's perfect game.
Great – the main idea of the paragraph was that Jerry and Scott's dad was also a professional baseball player who once scored a hit that ruined the opposing pitcher's perfect game.	
Error Correction: Student may misread words – remind student to use the BEST strategy to help student sound out words. *Student may have difficulty identifying most important who or what, or most important thing about who or what. If so, use the think aloud process modeled in the Modeling/Demonstration section to illustrate how you sort through the information in the paragraph to determine the most important elements.* *Student may identify partial main idea – that Jerry Sr. was also a professional baseball player – but omit the information about his scoring the hit that ruined the other pitcher's perfect game. If so, direct the student back to the passage and ask what other important information was included in the paragraph.*	
Repeat guided practice with next paragraph.	
Independent Practice/Exploring: You've done really well using the Main Idea strategy to identify the main ideas of the paragraphs in this passage, Now, we have one more paragraph for you to try on your own. Go ahead and use your cue card to identify the main idea using the strategy steps, after you read the paragraph aloud.	
OK, go ahead and do the steps. [*Error Correction: Remind student to read or recite the strategy steps before using them if*	Student: Reads paragraph aloud.

needed, and to check off each step as it is completed.]	Student: First, identify the most important who or what. In this paragraph, it's Johnny and Jerry Sr.'s father, Sam Hairston.
Great!	Student: Second, tell the most important thing about the who or what. In this paragraph, it is that Sam Hairston was the first black man to play on the Chicago White Sox.
Excellent.	Student: Third, Say the main idea in one sentence: Sam Hairston, the grandfather of the Hairston family, was the first black player on the Chicago White Sox.
Super.	
Now, one last thing to do – can you use the Main Idea Strategy steps to identify one main idea for the whole passage? You can look back or ask me for help if you need it. Think about the main ideas you came up with for each paragraph. Remember to delete unimportant or repeated information and to substitute general words for lists.	Student: The most important who or what is the Hairston family. The most important thing about them is that they had five members who played professional baseball – more than any other family ever. The main idea of the whole passage is: The Hairston family had more members who played professional baseball than any other family in history.
Formative Assessment: Teacher observation of student performing strategy steps correctly to identify main ideas in the guided and independent practice examples.	
Review and Preview: Fantastic. You used the strategy steps correctly to identify main ideas in paragraphs and the main idea of the whole passage, as well. Let's review the strategy steps together: [student and teacher chorally recite strategy steps]. Great. You will have more chances to practice using the strategy in class, and please remember to use the strategy steps to help you identify main ideas in all of your classes.	

9. Potential Areas of Difficulty with the Content and Correction Procedures:

Student may misread words – remind student to use the BEST strategy to help student sound out words, referring to the prefix-suffix charts and CLOVER syllable chart as needed. Student may have difficulty identifying most important who or what, or most important thing about who or what. If so, use the think aloud process modeled in the Modeling/Demonstration section to illustrate how you sort through the information in the paragraph to determine the most important elements. Student may identify partial main idea – ex., that Jerry Sr. was also a professional baseball player – but omit the information about his scoring the hit that ruined the other pitcher's perfect game. If so, direct the student back to the passage and ask what other important information was included in the paragraph. If the student

does not correctly recite (may use cue card) and apply the strategy steps during the guided and independent practice portion of the lesson, the teacher will note this and repeat the lesson using a different passage at the next instructional session. If the student does meet criterion, the teacher will provide opportunities for the student to practice the strategy during subsequent classroom reading assignments, beginning with a brief review, at least one guided practice example, and several independent practice examples, at least 2 days per week.

10. Formative & Summative Assessments: Provide actual assessment materials here (items, assignment sheets, rubrics, scoring criteria, answer keys). Include any modified assessment items for students with disabilities and English language learners.

Teacher observation of student during independent practice, and weekly progress monitoring probes.

11. Reflections:

12. Sources:

Fuchs, D., Fuchs, L. S., & Burnish, P. (2000). Peer-assisted learning strategies: An evidence-based practice to promote reading achievement. *Learning Disabilities Research & Practice, 15*, 85-91.

Gajria, M., & Salvia, J. (1992). The effects of summarization instruction on text comprehension of students with learning disabilities. *Exceptional Children*, *58*, 508-516.

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Main Idea Strategy
1. Identify the most important who or what.

2. Tell the most important thing about the who or what.
 	
     Delete unimportant information.
     Delete repeated information.
     Substitute general words for lists.

3. Say the main idea in one sentence.

Text Structure Lesson Plans

Text Structure Lesson Plan: Descriptive

1. Lesson: Text Structure Strategy   Subject: Text Structure: Intro and Descriptive   Date:

2. Student Name (individualized lesson) or Target Grade/Age Level (whole group instruction):

3. Pennsylvania Content Standard(s):

CC.1.2.9–10.E
Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.

4. Learning Objective(s) and Aligned Assessments:

Learning Objective(s)	Aligned Formative & Summative Assessments
Given an instructional level passage, the student will use the Text Structure Strategy to identify signal words and text structure in 2/3 observed trials during guided and independent practice.	Formative: Teacher observation during guided and independent practice. Summative: Weekly progress monitoring assessment.

5. Materials Needed: Instructional level reading passages; BEST and Text Structure Strategy cue cards; charts with common prefixes and affixes; CLOVER chart with 6 common syllable types; pen or pencil.

6. Expectations for Behavior and Class Activities: Students are expected to attend to instruction, complete all learning activities as directed by the instructor, and ask questions and request help as needed.

7. General or Specific Accommodations for Special Needs Learners: This lesson is designed to provide explicit instruction in one-on-one or very small group (2-4 students) format to learners with reading disabilities using the gradual release of responsibility model (model, guided practice, independent practice). This instructional sequence includes elements shown by research to be effective with students with disabilities: activate background knowledge, provide a rationale for the strategy, model the strategy, provide multiple guided practice opportunities, provide independent practice opportunities with feedback, review and preview. Individual accommodations will be made on a per student basis, as needed.

8. Description of Learning Activities

Lesson Implementation (include specific discussion questions that you will use)	Accommodations for Special Needs Learners
Description of Introductory Activity: Today we are going to learn about the ways authors organize their writing. It is helpful to know about this because when we can see how the author organized the text, it helps us to understand and remember what we read. There are several different ways authors organize texts, called Text Structures. Here is a cue card that tells the name and definition of each type of Text Structure [Give student the Text Structure Strategy cue card.] You can see that there are 6 different text structures: [indicate the bolded words on the left of the cue card] Descriptive, Sequence, Compare/Contrast, Cause/Effect, Problem/Solution, and Narrative. Do any of those sound familiar to you? You probably have heard some of those terms before. One thing you will learn about Text Structures is that we can look in the text for clues that will help us to figure out what the text structure is. Those clues are called 'signal words' – they are words that let us know what type of text structure the author is using. Let's read through each type – we'll read the name of the Text Structure, and then the definition, and then the signal words. [Teacher and student chorally read through the Text Structure Strategy cue card. Teacher checks for understanding after each type.] Great reading. Now, let me show you how I can use the information of the Text Structure Strategy cue card to help figure out the structure of a text. Today we are going to focus on one specific type of Text Structure: Descriptive. In the Descriptive	 Student: various answers. Student: Reads Text Structure Strategy cue card.

text structure, the author tells about a topic, using lots of details. Modeling/Demonstration/ Guided Practice and Feedback: I will show you how I use the signal words to determine the structure of a text. I'll do the first paragraph while you follow along, and then you and I can do the second paragraph together. Then, after we practice together, I'll give you some paragraphs to do on your own. [Give student copy of passage "Ronnie's Restaurant Review."] This passage is about a restaurant called "Big Bite Burgers." Since today we are focusing on the Descriptive text structure, let's re-read the definition and signal words for Descriptive text structure. [Reads description and signal words for Descriptive text structure]. So, when we read this passage, we will look for adjectives, or describing words, like colors, sizes, and other attributes or phrases that tell us how something looks, smells, tastes, sounds, feels, or behaves. OK, let's read the first paragraph together. [Teacher and student chorally read.] Great reading. I noticed a lot of words in this passage that describe things – the way the restaurant looks, and the kind of music it plays. I remember from the Text Structure Strategy cue card that the Descriptive text structure uses a lot of adjectives – words that describe things. Some of those kinds of words that I see in this paragraph are: Big, popular, fun, good, fancy, red and white, long, and old. I think this passage might use the Descriptive text structure. Let's read another paragraph to see if we are right. [Teacher and student chorally read second paragraph.]	Student: [Reads description and signal words for Descriptive text structure.] Student: [Reads first paragraph.] Student: [Chorally reads second paragraph.] Student: Various answers, but should include some of the following: wonderful, smooth, creamy, dark, rich, sweet – and even 'did not taste like real strawberries'.

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Did you notice any descriptive words in that paragraph? What were they?	Student: The milkshakes at Big Bite Burgers.
Right – so what were those words describing? Excellent – so, we have two paragraphs in a row that include words describing the restaurant, and the shakes. A text that describes a topic using lots of details has a Descriptive text structure. In this text, the topic would be the restaurant, and the details are the way the restaurant looks, the music, the shakes, etc., What type of text structure uses details to describe a topic?	Student: Descriptive text structure.
Right. Go ahead and read the next paragraph, and tell me if you find any more descriptive words. You can underline any signal words you see as you read if it helps you. It's ok if you don't get every one, and, you will have a chance to look back in the passage after you have read it once.	Student: [Reads paragraph aloud] Various answers, should include some of the following: Yes: thick, juicy, just a touch of grease, fresh, lightly melted, tasted great. Student: The burgers at Big Bite Burgers. Student: A text that describes a topic using lots of details has a Descriptive text structure.
Great – so what were those words describing? Right – so, what type of text structure does this passage have? *Error Correction: Student may fail to identify descriptive words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each descriptive word, then allow the student to independently practice on the fourth and fifth paragraphs. Student may identify descriptive words, but fail to connect them with the category Descriptive text structure. Point out the definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy.* Independent Practice/Exploring: [Provide student with the final paragraph of the passage, and observe the student using the Text Structure strategy to identify the signal words	

and text structure of the passage. Provide corrective feedback as needed.]	
Formative Assessment: Observation during guided and independent practice, give corrective feedback as necessary.	
Review and Preview: Today we learned about different types of text structures, especially the Descriptive text structure. A text that describes a topic using lots of details has a Descriptive text structure. Knowing the structure of a text helps us to understand the information in the text by giving us a way to organize the information. We can recognize text structure by looking for signal words in the text that give is clues about what type of text structure the author used. We learned about 6 types of text structures, let's review them by reading the type of text structure and the definition from your Text Structure Strategy cue card: [Teacher and student read the names and descriptions from the card.] Great. Next time we will learn about Compare/Contrast text structure. Remember to use your knowledge of text structures to help you to understand what you read. You will have opportunities to practice determining text structure in class, and don't forget to use it in all of your classes whenever you are asked to read. Remember to look for the signal words that will help you figure out the text structure, and then use your knowledge about the text structure to help you organize your thinking and writing.	

9. Potential Areas of Difficulty with the Content and Correction Procedures:

Student may misread words – remind student to use the BEST strategy to help student sound out words, referring to the prefix-suffix charts and CLOVER syllable chart as needed. Student may fail to identify signal words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each signal word, then allow the student to independently practice on the fourth and fifth paragraphs. Student may identify signal words, but fail to connect them with the correct category of text structure. Point out the correct

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definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. If the student does not correctly recite (may use cue card) the types of Text Structures and apply the strategy steps during the guided and independent practice sections of the lesson to identify Text Structures, the teacher will note this and repeat the lesson using a different passage at the next instructional session. Note that in this lesson, there may be different possible correct answers. For example, a text may be sequential *and* cause and effect. Therefore, as long as the student is not completely off the mark, consider any reasonable answers to be correct. But, redirect the student to the specific text structure type that is the object of the lesson, and ask the student to focus on that type for the remainder of the lesson. Tell the student that they will have time once they have learned each type to decide for themselves which type best fits the passage they are reading. If the student does meet criterion, the teacher will provide opportunities for the student to practice the strategy during subsequent classroom reading assignments, beginning with a brief review, at least one guided practice example, and several independent practice examples, at least 2 days per week.

10. Formative & Summative Assessments: Provide actual assessment materials here (items, assignment sheets, rubrics, scoring criteria, answer keys). Include any modified assessment items for students with disabilities and English language learners.

Teacher observation of student during independent practice, and weekly progress monitoring probes.

11. Reflections:

12. Sources:

Klingner, J., Vaughn, S. & Boardman, A. (2015) *Teaching Reading Comprehension to Students with Learning Disabilities*. New York: The Guilford Press.

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Text Structure Lesson Plan: Sequence

1. Lesson: Text Structure Strategy   Subject: Text Structure: Sequence   Date:

2. Student Name (individualized lesson) or Target Grade/Age Level (whole group instruction):

3. Pennsylvania Content Standard(s):

CC.1.2.9–10.E
Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.

4. Learning Objective(s) and Aligned Assessments:

Learning Objective(s)	Aligned Formative & Summative Assessments
Given an instructional level passage, the student will use the Text Structure Strategy to identify signal words and text structure in 2/3 observed trials during guided and independent practice.	Formative: Teacher observation during guided and independent practice. Summative: Weekly progress monitoring assessment.

5. Materials Needed: Instructional level reading passages; BEST and Text Structure Strategy cue cards; charts with common prefixes and affixes; CLOVER chart with 6 common syllable types; pen or pencil.

6. Expectations for Behavior and Class Activities: Students are expected to attend to instruction, complete all learning activities as directed by the instructor, and ask questions and request help as needed.

7. General or Specific Accommodations for Special Needs Learners: This lesson is designed to provide explicit instruction in one-on-one or very small group (2-4 students) format to learners with reading disabilities using the gradual release of responsibility model (model, guided practice, independent practice). This instructional sequence includes elements shown by research to be effective with students with disabilities: activate background knowledge, provide a rationale for the strategy, model the strategy, provide multiple guided practice opportunities, provide independent practice opportunities with feedback, review and preview. Individual accommodations will be made on a per student basis, as needed.

8. Description of Learning Activities

Lesson Implementation (include specific discussion questions that you will use)	Accommodations for Special Needs Learners
Description of Introductory Activity: Today we are going to learn about the ways authors organize their writing. It is helpful to know about this because when we can see how the author organized the text, it helps us to understand and remember what we read. There	

are several different ways authors organize texts, called Text Structures. Here is a cue card that tells the name and definition of each type of Text Structure [Give student the Text Structure Strategy cue card.] You can see that there are 6 different text structures: [indicate the bolded words on the left of the cue card] Descriptive, Sequence, Compare/Contrast, Cause/Effect, Problem/Solution, and Narrative. Do any of those sound familiar to you? We learned about Descriptive text structure last time. One thing you will remember about Text Structures is that we can look in the text for clues that will help us top figure out what the text structure is. Those clues are called 'signal words' – they are words that let us know what type of text structure the author is using. Descriptive text structure uses describing words, like colors, sizes, and other attributes or phrases that tell us how something looks, smells, tastes, sounds, feels, or behaves Let's read through each type – we'll read the name of the Text Structure, and then the definition, and then the signal words. [Teacher and student chorally read through the Text Structure Strategy cue card.] Great reading. Now, let me show you how I can use the information of the Text Structure Strategy cue card to help figure out the structure of a text. Today we are going to focus on one specific type of Text Structure: Sequence. In the Sequence text structure, the author tells about a topic by describing facts or events in order. Modeling/Demonstration/ Guided Practice and Feedback: I will show you how I use the signal words to determine the structure of a text. I'll do the first paragraph while you follow along, and then you and I can do the second paragraph together.	Student: various answers. Student: Reads Text Structure Strategy cue card.

Then, after we practice together, I'll give you some paragraphs to do on your own. [Give student copy of passage "Matthew Brady's Career."] This passage is about a man called Matthew Brady, who was a photographer during the Civil War. Since today we are focusing on the Sequence text structure, let's re-read the definition and signal words for the Sequencing text structure aloud. [Read description and signal words for Sequence text structure aloud.] OK, let's read the first paragraph together. [Teacher and student chorally read.] Great reading. I noticed a lot of words in this paragraph that describe time and order – words like during, forever, when, after, from. I remember from the Text Structure Strategy cue card that the Sequence text structure uses a lot of time and order words – words that describe things according to when they happened. I think this passage might use the Sequence text structure. Let's read another paragraph to see if we are right. [Teacher and student chorally read second paragraph.] Did you notice any time or order words in that paragraph? What were they? Right – so what were those words describing? Excellent – so, we have two paragraphs in a row that include words describing when Brady did certain things in his career. A text that describes a topic using lots of time and order words has a Sequence text structure. In this text, the topic would be Brady's photography career, and the Sequence is the order in which he did the different parts of his career. What type of text structure uses time and order words to describe a topic?	Student: [Reads description and signal words for Sequence text structure aloud.] Student: [Reads first paragraph.] Student: [Chorally reads second paragraph.] Student: Various answers, but should include some of the following: from the beginning, at first, later. Student: Various answers: should include statement about when Brady got the idea to photograph the war, when his friends discouraged him, when he formed the group of photographers, or use the word time, timing, order, sequence to generally describe Brady's career. Student: Sequence text structure.

Right. Go ahead and read the next paragraph, and tell me if you find any more time and order words. You can underline any signal words you see as you read if it helps you. It's ok if you don't get every one, and, you will have a chance to look back in the passage after you have read it once.	Student: [Reads paragraph aloud] Various answers, should include some of the following: After, for a time, after, then. Student: What happened to Brady after the war. Student: A text that describes a topic using time and order words has a Sequence text structure.
Great – so what were those words describing? Right – so, what type of text structure does this passage have?	
Error Correction: Student may fail to identify time and order words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each time and order word, then allow the student to independently practice on the third and fourth paragraphs. Student may identify time and order words, but fail to connect them with the category Sequence text structure. Point out the definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. The student may point out signal words used in another text structure – if so, praise the student for remembering them! Remind the student which text structure type those words indicate. If the student suggests that the current text might be using the alternate text structure type, praise the student for excellent critical thinking, and tell the student that authors often use more than one text structure in a passage, and that once the student is familiar with all the text structures, they will be allowed to decide for themselves which text structure they think best fits a particular passage. The point of learning text structure is not to arrive at any specific answer; it is to help readers find ways to organize information while reading and writing.	
Independent Practice/Exploring:	
[Provide student with the final paragraph of the passage, and observe the student using the Text	

Structure strategy to identify the signal words and text structure of the passage. Provide corrective feedback as needed.]	
Formative Assessment: Observation during guided and independent practice, give corrective feedback as necessary.	
Review and Preview: Today we learned about different types of text structures, especially the Sequence text structure. Knowing the structure of a text helps us to understand the information in the text by giving us a way to organize the information. We can recognize text structure by looking for signal words in the text that give is clues about what type of text structure the author used. We learned about 6 types of text structures, let's review them by reading the type of text structure and the definition from your Text Structure Strategy cue card: [Teacher and student read the names and descriptions from the card.]	Student: Reads from Text Structure Strategy cue card.
Great. Next time we will learn about Compare/Contrast text structure. Remember to use your knowledge of text structures to help you to understand what you read. You will have opportunities to practice determining text structure in class, and don't forget to use it in all of your classes whenever you are asked to read. Remember to look for the signal words that will help you figure out the text structure, and then use your knowledge about the text structure to help you organize your thinking and writing.	

9. Potential Areas of Difficulty with the Content and Correction Procedures:

Student may misread words – remind student to use the BEST strategy to help student sound out words, referring to the prefix-suffix charts and CLOVER syllable chart as needed. Student may fail to identify signal words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each signal word, then allow the student to independently practice on the fourth and fifth paragraphs. Student may identify signal words, but fail to connect them with the correct category of text structure. Point out the correct

definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. If the student does not correctly recite (may use cue card) the types of Text Structures and apply the strategy steps during the guided and independent practice sections of the lesson to identify Text Structures, the teacher will note this and repeat the lesson using a different passage at the next instructional session. Note that in this lesson, there may be different possible correct answers. For example, a text may be sequential *and* cause and effect. Therefore, as long as the student is not completely off the mark, consider any reasonable answers to be correct. But, redirect the student to the specific text structure type that is the object of the lesson, and ask the student to focus on that type for the remainder of the lesson. Tell the student that they will have time once they have learned each type to decide for themselves which type best fits the passage they are reading. If the student does meet criterion, the teacher will provide opportunities for the student to practice the strategy during subsequent classroom reading assignments, beginning with a brief review, at least one guided practice example, and several independent practice examples, at least 2 days per week.

10. Formative & Summative Assessments: Provide actual assessment materials here (items, assignment sheets, rubrics, scoring criteria, answer keys). Include any modified assessment items for students with disabilities and English language learners.

Teacher observation of student during independent practice, and weekly progress monitoring probes.

11. Reflections:

12. Sources:

Klingner, J., Vaughn, S. & Boardman, A. (2015) *Teaching Reading Comprehension to Students with Learning Disabilities*. New York: The Guilford Press.

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Text Structure Lesson Plan: Compare/Contrast

1. Lesson: Text Structure Strategy   Subject: Text Structure: Compare/Contrast   Date:

2. Student Name (individualized lesson) or Target Grade/Age Level (whole group instruction):

3. Pennsylvania Content Standard(s):

 CC.1.2.9–10.E

Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.

4. Learning Objective(s) and Aligned Assessments:

Learning Objective(s)	Aligned Formative & Summative Assessments
Given an instructional level passage, the student will use the Text Structure Strategy to identify signal words and text structure in 2/3 observed trials during guided and independent practice.	Formative: Teacher observation during guided and independent practice. Summative: Weekly progress monitoring assessment.

5. Materials Needed: Instructional level reading passages; BEST and Text Structure Strategy cue cards; charts with common prefixes and affixes; CLOVER chart with 6 common syllable types; pen or pencil.

6. Expectations for Behavior and Class Activities: Students are expected to attend to instruction, complete all learning activities as directed by the instructor, and ask questions and request help as needed.

7. General or Specific Accommodations for Special Needs Learners: This lesson is designed to provide explicit instruction in one-on-one or very small group (2-4 students) format to learners with reading disabilities using the gradual release of responsibility model (model, guided practice, independent practice). This instructional sequence includes elements shown by research to be effective with students with disabilities: activate background knowledge, provide a rationale for the strategy, model the strategy, provide multiple guided practice opportunities, provide independent practice opportunities with feedback, review and preview. Individual accommodations will be made on a per student basis, as needed.

8. Description of Learning Activities

Lesson Implementation (include specific discussion questions that you will use)	Accommodations for Special Needs Learners
Description of Introductory Activity: Today we are going to learn about the ways authors organize their writing. It is helpful to know about this because when we can see how the author organized the text, it helps us to understand and remember what we read. There are several different ways authors organize	

texts, called Text Structures. Here is a cue card that tells the name and definition of each type of Text Structure [Give student the Text Structure Strategy cue card.] You can see that there are 6 different text structures: [indicate the bolded words on the left of the cue card] Descriptive, Sequence, Compare/Contrast, Cause/Effect, Problem/Solution, and Narrative. Do any of those sound familiar to you? We learned about Sequence text structure last time. One thing you will remember about Text Structures is that we can look in the text for clues that will help us top figure out what the text structure is. Those clues are called 'signal words' – they are words that let us know what type of text structure the author is using. Remember that Descriptive text structure uses describing words, like colors, sizes, and other attributes or phrases that tell us how something looks, smells, tastes, sounds, feels, or behaves, and Sequence text structure uses time and order words, like first, last, in the beginning, and then. Let's read through each type – we'll read the name of the Text Structure, and then the definition, and then the signal words. [Teacher and student chorally read through the Text Structure Strategy cue card.] Great reading. Now, let me show you how I can use the information of the Text Structure Strategy cue card to help figure out the structure of a text. Today we are going to focus on one specific type of Text Structure: Compare/Contrast. In a Compare/Contrast text structure, the author writes about how two or more things are alike, and how they are different. Modeling/Demonstration/ Guided Practice and Feedback: I will show you how I use the signal words to determine the structure of a text. I'll do the first paragraph while you follow along, and then you	Student: various answers. Student: Reads Text Structure Strategy cue card.

and I can do the second paragraph together. Then, after we practice together, I'll give you some paragraphs to do on your own. [Give student copy of passage "At Nicki's House."] This passage is about two friends, Nicki and Tiana. Since today we are focusing on the Compare/Contrast text structure, let's re-read the definition and signal words for the Compare/Contrast text structure aloud. [Read description and signal words for Compare/Contrast text structure aloud.]	Student: [Reads description and signal words for Compare/Contrast text structure aloud.]
OK, let's read the first paragraph together. [Teacher and student chorally read.] Great reading. I noticed a lot of words in this passage that tell details about Nicki – she got a new Switch, her mom buys her whatever she wants, and I noticed other words that tell the same kind of thing about Tiana, but with different details – her mom said she would have to wait for her birthday to get a new game. I also notice that there is a signal word in this paragraph – the word different. I remember from the Text Structure Strategy cue card that the Compare/Contrast text structure uses a lot of comparing words – words that describe things according to how they are alike and different than something else.	Student: [Reads first paragraph.]
I think this passage might use the Compare/Contrast text structure. Let's read another paragraph to see if we are right. [Teacher and student chorally read second paragraph.] Did you notice any comparing words in that paragraph? What were they?	Student: [Chorally reads second paragraph.] Student: Various answers, but should include some of the following: as opposed to; or the student may say something about how the paragraph compares Nicki's fancy house to Tiana's cozy home.
Right – so what were those words describing? Excellent – so, we have two paragraphs in a row that include words comparing Nicki's home and Tiana's home. There is also the suggestion that	Student: Various answers: should include statement about how the paragraph compares the girls' homes, may indicate that one is richer than the other.

Nicki's family has a lot of money, and Tiana's doesn't. So this text is comparing Nicki and Tiana, and they way their lives at home are similar and different. For example, they both have parents, and they both have homes; those things are the same. But, Nicki's home is large and fancy, while Tiana's is small and cozy. A text that describes a topic using lots of comparing words has a Compare/Contrast text structure. In this text, the topic would be the girls' homes, and the Compare/Contrast is the ways in which they are the same or different.	
What type of text structure uses comparing words to tell about a topic?	Student: Compare/Contrast text structure.
Right. Go ahead and read the next paragraph, and tell me if you find any more time and order words. You can underline any signal words you see as you read if it helps you. It's ok if you don't get every one, and, you will have a chance to look back in the passage after you have read it once. Also, sometimes the signal words might not be directly stated – you have to read the sentences to notice that the author is comparing two things.	Student: [Reads paragraph aloud] Various answers, should include some of the following: Nicki's parents are not at home, she always has the house to herself; Tiana has a big family, so she has to share the living room with her siblings. Signal word: Unlike.
	Student: Various answers, should include something about how Nicki has the house to herself, while Tiana has siblings to share and play with.
Great – so what were those words describing? Right – so, what type of text structure does this passage have?	Student: A text that describes a topic using tie and order words has a Compare/Contrast text structure.
Error Correction: Student may fail to identify comparing words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each time and order word, then allow the student to independently practice on the third and fourth paragraphs. Student may identify signal words, but fail to connect them with the category Compare/Contrast text structure. Point out the definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. Student may fail to identify the details that are being compared and contrasted. Go back over the paragraphs and point out how each of the	

sentences about Nicki are then re-stated with details that apply to Tiana. Prompt the student to identify the comparisons in subsequent paragraphs. The student may point out signal words used in another text structure – if so, praise the student for remembering them! Remind the student which text structure type those words indicate. If the student suggests that the current text might be using the alternate text structure type, praise the student for excellent critical thinking, and tell the student that authors often use more than one text structure in a passage, and that once the student is familiar with all the text structures, they will be allowed to decide for themselves which text structure they think best fits a particular passage. The point of learning text structure is not to arrive at any specific answer; it is to help readers find ways to organize information while reading and writing.

Independent Practice/Exploring:

[Provide student with the final paragraphs of the passage, and observe the student using the Text Structure strategy to identify the signal words and text structure of the passage. Provide corrective feedback as needed.]

Formative Assessment: Observation during guided and independent practice, give corrective feedback as necessary.

Review and Preview: Today we learned about different types of text structures, especially the Compare/Contrast text structure. The Compare/Contrast structure tells about a topic by giving details about how two things are alike or different. Knowing the structure of a text helps us to understand the information in the text by giving us a way to organize the information. We can recognize text structure by looking for signal words in the text that give is clues about what type of text structure the author used. The Compare/Contrast text structure uses comparing

words. We learned about 6 types of text structures, let's review them by reading the type of text structure and the definition from your Text Structure Strategy cue card: [Teacher and student read the names and descriptions from the card.] Great. Next time we will learn more about Cause/Effect text structure. Remember to use your knowledge of text structures to help you to understand what you read. You will have opportunities to practice determining text structure in class, and don't forget to use it in all of your classes whenever you are asked to read. Remember to look for the signal words that will help you figure out the text structure, and then use your knowledge about the text structure to help you organize your thinking and writing.	Student: Reads from Strategy cue card.

9. Potential Areas of Difficulty with the Content and Correction Procedures:

Student may misread words – remind student to use the BEST strategy to help student sound out words, referring to the prefix-suffix charts and CLOVER syllable chart as needed. Student may fail to identify signal words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each signal word, then allow the student to independently practice on the fourth and fifth paragraphs. Student may identify signal words, but fail to connect them with the correct category of text structure. Point out the correct definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. If the student does not correctly recite (may use cue card) the types of Text Structures and apply the strategy steps during the guided and independent practice sections of the lesson to identify Text Structures, the teacher will note this and repeat the lesson using a different passage at the next instructional session. Note that in this lesson, there may be different possible correct answers. For example, a text may be sequential *and* cause and effect. Therefore, as long as the student is not completely off the mark, consider any reasonable answers to be correct. But, redirect the student to the specific text structure type that is the object of the lesson, and ask the student to focus on that type for the remainder of the lesson. Tell the student that they will have time once they have learned each type to decide for themselves which type best fits the passage they are reading. If the student does meet criterion, the teacher will provide opportunities for the student to practice the strategy during subsequent classroom reading assignments, beginning with a brief review, at least one guided practice example, and several independent practice examples, at least 2 days per week.

10. Formative & Summative Assessments: Provide actual assessment materials here (items, assignment sheets, rubrics, scoring criteria, answer keys). Include any modified assessment items for students with disabilities and English language learners.

Teacher observation of student during independent practice, and weekly progress monitoring probes.

11. Reflections:

12. Sources:

Klingner, J., Vaughn, S. & Boardman, A. (2015) *Teaching Reading Comprehension to Students with Learning Disabilities*. New York: The Guilford Press.

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Text Structure Lesson Plan: Cause/Effect

1. Lesson: Text Structure Strategy   Subject: Text Structure: Cause/Effect   Date:

2. Student Name (individualized lesson) or Target Grade/Age Level (whole group instruction):

3. Pennsylvania Content Standard(s):

CC.1.2.9–10.E
Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.

4. Learning Objective(s) and Aligned Assessments:

Learning Objective(s)	Aligned Formative & Summative Assessments
Given an instructional level passage, the student will use the Text Structure Strategy to identify signal words and text structure in 2/3 observed trials during guided and independent practice.	Formative: Teacher observation during guided and independent practice. Summative: Weekly progress monitoring assessment.

5. Materials Needed: Instructional level reading passages; BEST and Text Structure Strategy cue cards; charts with common prefixes and affixes; CLOVER chart with 6 common syllable types; pen or pencil.

6. Expectations for Behavior and Class Activities: Students are expected to attend to instruction, complete all learning activities as directed by the instructor, and ask questions and request help as needed.

7. General or Specific Accommodations for Special Needs Learners: This lesson is designed to provide explicit instruction in one-on-one or very small group (2-4 students) format to learners with reading disabilities using the gradual release of responsibility model (model, guided practice, independent practice). This instructional sequence includes elements shown by research to be effective with students with disabilities: activate background knowledge, provide a rationale for the strategy, model the strategy, provide multiple guided practice opportunities, provide independent practice opportunities with feedback, review and preview. Individual accommodations will be made on a per student basis, as needed.

8. Description of Learning Activities

Lesson Implementation (include specific discussion questions that you will use)	Accommodations for Special Needs Learners
Description of Introductory Activity: Today we are going to learn about the ways authors organize their writing. It is helpful to know about this because when we can see how the author organized the text, it helps us to understand and remember what we read. There are several different ways authors organize texts, called Text Structures. Here is a cue card that tells the name and definition of each type of Text Structure [Give student the Text Structure Strategy cue card.] You can see that there are 6 different text structures: [indicate the bolded words on the left of the cue card] Descriptive, Sequence, Compare/Contrast, Cause/Effect, Problem/Solution, and Narrative. Do any of those sound familiar to you? We learned about Compare/Contrast text structure last time. One thing you will remember about Text Structures is that we can look in the text for clues that will help us to figure out what the text	Student: various answers.

structure is. Those clues are called 'signal words' – they are words that let us know what type of text structure the author is using. Remember that Descriptive text structure uses describing words, like colors, sizes, and other attributes or phrases that tell us how something looks, smells, tastes, sounds, feels, or behaves, and Sequence text structure uses time and order words, like first, last, in the beginning, and then. Compare/Contrast text structure uses comparing words, like unlike and similar, to tell about how things are alike and different.	
Let's read through each type – we'll read the name of the Text Structure, and then the definition, and then the signal words. [Teacher and student chorally read through the Text Structure Strategy cue card.] Great reading. Now, let me show you how I can use the information of the Text Structure Strategy cue card to help figure out the structure of a text. Today we are going to focus on one specific type of Text Structure: Cause/Effect. In a Cause/Effect text structure, the author writes about an event or occurrence – something that happened – and tells the reasons it happened and the consequences – or effects - of what happened.	Student: Reads Text Structure Strategy cue card.
Modeling/Demonstration/ Guided Practice and Feedback: I will show you how I use the signal words to determine the structure of a text. I'll do the first paragraph while you follow along, and then you and I can do the second paragraph together. Then, after we practice together, I'll give you some paragraphs to do on your own. [Give student copy of passage "Deborah Sampson, Secret Soldier."] This passage is about a woman named Deborah Sampson, who fought in the Revolutionary War. Since today we are focusing on the Cause/Effect text structure, let's re-read the definition and	

signal words for the Cause/Effect text structure aloud. [Read description and signal words for Cause/Effect text structure aloud.]	Student: [Reads description and signal words for Cause/Effect text structure aloud.]
OK, let's read the first paragraph together. [Teacher and student chorally read.] Great reading. I noticed a lot of words in this passage that tell details about how people thought about women fighting in the Revolutionary War. People thought that women weren't brave or strong enough to fight. I also notice that there are some signal words in this paragraph – the words as a result, and for these reasons. I remember from the Text Structure Strategy cue card that the Cause/Effect text structure uses a lot of causation words – words that describe why things happened, or what happened because of something else. In this paragraph, people don't think women were brave or strong enough to fight in the war, and so women weren't allowed to join the army and fight. Then, the fact that women aren't allowed to join the army causes some women to disguise themselves as men so they could join and fight.	Student: [Reads first paragraph.]
I think this passage might use the Cause/Effect text structure. Let's read another paragraph to see if we are right. [Teacher and student chorally read second paragraph.] Did you notice any causation words in that paragraph? What were they?	Student: [Chorally reads second paragraph.] Student: Various answers, but should include some of the following: because, if-then, in order to.
Right – so what were those words describing? Excellent – so, we have two paragraphs in a row that include words showing why things happened, or what happened because of something else. These words show the causes and effects of events, and we can call them causation words. A text that describes a topic using lots of causation words has a Cause/Effect text structure. In this text, the topic would be	Student: Various answers: should include some statements about how Deborah wanted to fight because she wanted to help win freedom, how she dressed as a man so the other soldiers would let her fight with them, and how she cut her hair to look like a man.

women fighting in the Revolutionary War, and the Cause is the fact that people didn't think women should fight, and the Effect is the ways in which Deborah had to disguise herself in order to do so.	
What type of text structure uses causation words to tell about a topic, describing why things happen and telling what happens because of certain events?	Student: Cause/Effect text structure.
Right. Go ahead and read the next paragraph, and tell me if you find any more causation words. You can underline any signal words you see as you read if it helps you. It's ok if you don't get every one, and, you will have a chance to look back in the passage after you have read it once. Also, sometimes the signal words might not be directly stated – you have to read the sentences to notice that the author is telling about the causes and effects of things.	Student: [Reads paragraph aloud] Various answers, should include some of the following: Because, when the doctors treated her they would discover her secret, thus.
Great – so what were those words describing? Right – so, what type of text structure does this passage have?	Student: Various answers, should include something about how Deborah knew the doctors would find out she was a woman, and so she wouldn't let them treat her wounds because she didn't want to get kicked out of the army.
	Student: A text that describes a topic using causation words has a Cause/Effect text structure.
Error Correction: Student may fail to identify causation words; if so, point them out individually in the first and second paragraphs, chorally read the fourth paragraph and prompt the student to identify each causation word, then allow the student to independently practice on the subsequent paragraphs. Student may identify signal words, but fail to connect them with the category Cause/Effect text structure. Point out the definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. Student may fail to identify the details that are being used to show causes and effects. Go back over the paragraphs and point out how each of the sentences shows either a cause or an effect. Prompt the student to identify the causes and	

effects in subsequent paragraphs. The student may point out signal words used in another text structure – if so, praise the student for remembering them! Remind the student which text structure type those words indicate. If the student suggests that the current text might be using the alternate text structure type, praise the student for excellent critical thinking, and tell the student that authors often use more than one text structure in a passage, and that once the student is familiar with all the text structures, they will be allowed to decide for themselves which text structure they think best fits a particular passage. The point of learning text structure is not to arrive at any specific answer; it is to help readers find ways to organize information while reading and writing.

Independent Practice/Exploring:

[Provide student with the final paragraphs of the passage, and observe the student using the Text Structure strategy to identify the signal words and text structure of the passage. Provide corrective feedback as needed.]

Formative Assessment: Observation during guided and independent practice, give corrective feedback as necessary.

Review and Preview: Today we learned about different types of text structures, especially the Cause/Effect text structure. The Cause/Effect structure tells about a topic by giving details about how two things are alike or different. Knowing the structure of a text helps us to understand the information in the text by giving us a way to organize the information. We can recognize text structure by looking for signal words in the text that give is clues about what type of text structure the author used. The Cause/Effect text structure uses causation words. We learned about 6 types of text structures, let's review them by reading the type

of text structure and the definition from your Text Structure Strategy cue card: [Teacher and student read the names and descriptions from the card.] Great. Next time we will learn more about Problem/Solution text structure. Remember to use your knowledge of text structures to help you to understand what you read. You will have opportunities to practice determining text structure in class, and don't forget to use it in all of your classes whenever you are asked to read. Remember to look for the signal words that will help you figure out the text structure, and then use your knowledge about the text structure to help you organize your thinking and writing.	Student: Reads from Text Structure Strategy cue card.

9. Potential Areas of Difficulty with the Content and Correction Procedures:

Student may misread words – remind student to use the BEST strategy to help student sound out words, referring to the prefix-suffix charts and CLOVER syllable chart as needed. Student may fail to identify signal words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each signal word, then allow the student to independently practice on the fourth and fifth paragraphs. Student may identify signal words, but fail to connect them with the correct category of text structure. Point out the correct definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. If the student does not correctly recite (may use cue card) the types of Text Structures and apply the strategy steps during the guided and independent practice sections of the lesson to identify Text Structures, the teacher will note this and repeat the lesson using a different passage at the next instructional session. Note that in this lesson, there may be different possible correct answers. For example, a text may be sequential *and* cause and effect. Therefore, as long as the student is not completely off the mark, consider any reasonable answers to be correct. But, redirect the student to the specific text structure type that is the object of the lesson, and ask the student to focus on that type for the remainder of the lesson. Tell the student that they will have time once they have learned each type to decide for themselves which type best fits the passage they are reading. If the student does meet criterion, the teacher will provide opportunities for the student to practice the strategy during subsequent classroom reading assignments, beginning with a brief review, at least one guided practice example, and several independent practice examples, at least 2 days per week.

10. Formative & Summative Assessments: Provide actual assessment materials here (items, assignment sheets, rubrics, scoring criteria, answer keys). Include any modified assessment items for students with disabilities and English language learners.

Teacher observation of student during independent practice, and weekly progress monitoring probes.

11. Reflections:

12. Sources:

Klingner, J., Vaughn, S. & Boardman, A. (2015) *Teaching Reading Comprehension to Students with Learning Disabilities*. New York: The Guilford Press.

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Text Structure Lesson Plan: Problem/Solution

1. Lesson: Text Structure Strategy   Subject: Text Structure: Problem/Solution   Date:

2. Student Name (individualized lesson) or Target Grade/Age Level (whole group instruction):

3. Pennsylvania Content Standard(s):

CC.1.2.9–10.E
Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.

4. Learning Objective(s) and Aligned Assessments:

Learning Objective(s)	Aligned Formative & Summative Assessments
Given an instructional level passage, the student will use the Text Structure Strategy to identify signal words and text structure in 2/3 observed trials during guided and independent practice.	Formative: Teacher observation during guided and independent practice. Summative: Weekly progress monitoring assessment.

5. Materials Needed: Instructional level reading passages; BEST and Text Structure Strategy cue cards; charts with common prefixes and affixes; CLOVER chart with 6 common syllable types; pen or pencil.

6. Expectations for Behavior and Class Activities: Students are expected to attend to instruction, complete all learning activities as directed by the instructor, and ask questions and request help as needed.

7. General or Specific Accommodations for Special Needs Learners: This lesson is designed to provide explicit instruction in one-on-one or very small group (2-4 students) format to learners with reading disabilities using the gradual release of responsibility model (model, guided practice, independent practice). This instructional sequence includes elements shown by research to be effective with students with disabilities: activate background knowledge, provide a rationale for the strategy, model the strategy, provide multiple guided practice opportunities, provide independent practice opportunities with feedback, review and preview. Individual accommodations will be made on a per student basis, as needed.

8. Description of Learning Activities

Lesson Implementation (include specific discussion questions that you will use)	Accommodations for Special Needs Learners
Description of Introductory Activity: Today we are going to learn about the ways authors organize their writing. It is helpful to know about this because when we can see how the author organized the text, it helps us to understand and remember what we read. There are several different ways authors organize texts, called Text Structures. Here is a cue card that tells the name and definition of each type of Text Structure [Give student the Text Structure Strategy cue card.] You can see that there are 6 different text structures: [indicate the bolded words on the left of the cue card] Descriptive, Sequence, Compare/Contrast, Cause/Effect, Problem/Solution, and Narrative. Do any of those sound familiar to you? We learned about Cause/Effect text structure last time. One thing you will remember about Text Structures is that we can look in the text for clues that will help us to figure out what the text structure is. Those clues are called 'signal words' – they are words that let us know what type of text structure the author is using. Remember that Descriptive text structure uses describing words, like colors, sizes, and other attributes or phrases that tell us how something	Student: various answers.

looks, smells, tastes, sounds, feels, or behaves, and Sequence text structure uses time and order words, like first, last, in the beginning, and then. Compare/Contrast text structure uses comparing words, like unlike and similar, to tell about how things are alike and different. Cause/Effect text structure uses causation words, like because, therefore, due to, if-then to tell why things happened, or what happened because of something else. Let's read through each type – we'll read the name of the Text Structure, and then the definition, and then the signal words. [Teacher and student chorally read through the Text Structure Strategy cue card.] Great reading. Now, let me show you how I can use the information of the Text Structure Strategy cue card to help figure out the structure of a text. Today we are going to focus on one specific type of Text Structure: Problem/Solution. In a Problem/Solution text structure, the author identifies or describes a problem, and then suggests solutions to the problem. Modeling/Demonstration/ Guided Practice and Feedback: I will show you how I use the signal words to determine the structure of a text. I'll do the first paragraph while you follow along, and then you and I can do the second paragraph together. Then, after we practice together, I'll give you some paragraphs to do on your own. [Give student copy of passage "The Earth Heats Up."] This passage is about climate change. Since today we are focusing on the Problem/Solution text structure, let's re-read the definition and signal words for the Problem/Solution text structure aloud. [Read description and signal words for Problem/Solution text structure aloud.]	Student: Reads Text Structure Strategy cue card. Student: [Reads description and signal words for Problem/Solution text structure aloud.] Student: [Reads first paragraph.]

OK, let's read the first paragraph together. [Teacher and student chorally read.] Great reading. I noticed a lot of words in this paragraph that tell details about how penguins in Antarctica are losing their homes because of climate change. I also notice that there are some signal words in this paragraph – the words alarmingly, and the problem is. I remember from the Text Structure Strategy cue card that the Problem/Solution text structure uses a lot of problem-solution words – words that describe things that might be a problem, and how to correct or solve the problem. In this paragraph, the penguins are losing their homes, and that will be bad for the penguins, but also it indicates that something larger is going on that might affect people, too.	
I think this passage might use the Problem/Solution text structure. Let's read another paragraph to see if we are right. [Teacher and student chorally read second paragraph.] Did you notice any problem/solution words in that paragraph? What were they?	Student: [Chorally reads second paragraph.] Student: Various answers, but should include some of the following: problems, difficulty, challenges
Right – so what were those words describing? Excellent – so, we have two paragraphs in a row that include words showing why things happened, or what happened because of something else. These words show the problems associated with climate change. A text that describes a topic using problem words has a Problem/Solution text structure. In this text, the topic would be climate change, and the problem is the fact that people and animals can lose their homes or face starvation. We will have to read further to find the solution. What type of text structure uses problem/solution words to tell about a topic, that describe things that might be a problem, and how to correct or solve the problem?	Student: Various answers: should include some statements about how global warming causes ice melt and sea level rise, leading to flooding, and heat waves and droughts, which lead to famine, so people have to move or face the loss of their homes and lack of food. Student: Problem/Solution text structure.

Right. Go ahead and read the next paragraph, and tell me if you find any more problem/solution words. You can underline any signal words you see as you read if it helps you. It's ok if you don't get every one, and, you will have a chance to look back in the passage after you have read it once. Also, sometimes the signal words might not be directly stated – you have to read the sentences to notice that the author is telling about the causes and effects of things. Great – so what were those words describing? Right – so, what type of text structure does this passage have? *Error Correction: Student may fail to identify problem/solution words; if so, point them out individually in the first and second paragraphs, chorally read paragraphs three and four and prompt the student to identify each problem/solution word, then allow the student to independently practice on the subsequent paragraphs. Student may identify signal words, but fail to connect them with the category Problem/Solution text structure. Point out the definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. Student may fail to identify the details that are being used to show problems and solutions. Go back over the paragraphs and point out how each of the sentences shows either a problem or solution. Prompt the student to identify the problems and solutions in subsequent paragraphs. The student may point out signal words used in another text structure – if so, praise the student for remembering them! Remind the student which text structure type those words indicate. If the student suggests that the current text might be using the alternate text structure type, praise the student for excellent critical thinking, and tell the student that authors*	Student: [Reads paragraph aloud] Various answers, should include some of the following: serious problem, cause for concern. Student: Various answers, should include something about how although some warming is natural and even helpful, too much is not good, and that is what is happening with global warming. Student: A text that describes a topic using problem/solution words has a Problem/Solution text structure.

often use more than one text structure in a passage, and that once the student is familiar with all the text structures, they will be allowed to decide for themselves which text structure they think best fits a particular passage. The point of learning text structure is not to arrive at any specific answer; it is to help readers find ways to organize information while reading and writing. Independent Practice/Exploring: [Provide student with the final paragraphs of the passage, and observe the student using the Text Structure strategy to identify the signal words and text structure of the passage. Provide corrective feedback as needed.] Formative Assessment: Observation during guided and independent practice, give corrective feedback as necessary. Review and Preview: Today we learned about different types of text structures, especially the Problem/Solution text structure. The Problem/Solution structure tells about a topic by giving details about things that might be a problem, and how to correct or solve the problem. Knowing the structure of a text helps us to understand the information in the text by giving us a way to organize the information. We can recognize text structure by looking for signal words in the text that give is clues about what type of text structure the author used. The Problem/Solution text structure uses problem/solution words. We learned about 5 types of text structures, let's review them by reading the type of text structure and the definition from your Text Structure Strategy cue card: [Teacher and student read the names and descriptions from the card.] Great. Now we have learned about all of the different text structure types! Remember to use your knowledge of text structures to help you to understand what you read. You will have	 Student: Reads from Text Structure Strategy cue card.

opportunities to practice determining text structure in class, and don't forget to use it in all of your classes whenever you are asked to read. Remember to look for the signal words that will help you figure out the text structure, and then use your knowledge about the text structure to help you organize your thinking and writing.	

9. Potential Areas of Difficulty with the Content and Correction Procedures:

Student may misread words – remind student to use the BEST strategy to help student sound out words, referring to the prefix-suffix charts and CLOVER syllable chart as needed. Student may fail to identify signal words; if so, point them out individually in the first and second paragraphs, chorally read the third paragraph and prompt the student to identify each signal word, then allow the student to independently practice on the fourth and fifth paragraphs. Student may identify signal words, but fail to connect them with the correct category of text structure. Point out the correct definition and signal words on the Text Structure strategy cue card, and have the student state the text strategy. If the student does not correctly recite (may use cue card) the types of Text Structures and apply the strategy steps during the guided and independent practice sections of the lesson to identify Text Structures, the teacher will note this and repeat the lesson using a different passage at the next instructional session. Note that in this lesson, there may be different possible correct answers. For example, a text may be sequential *and* cause and effect. Therefore, as long as the student is not completely off the mark, consider any reasonable answers to be correct. But, redirect the student to the specific text structure type that is the object of the lesson, and ask the student to focus on that type for the remainder of the lesson. Tell the student that they will have time once they have learned each type to decide for themselves which type best fits the passage they are reading. If the student does meet criterion, the teacher will provide opportunities for the student to practice the strategy during subsequent classroom reading assignments, beginning with a brief review, at least one guided practice example, and several independent practice examples, at least 2 days per week.

10. Formative & Summative Assessments: Provide actual assessment materials here (items, assignment sheets, rubrics, scoring criteria, answer keys). Include any modified assessment items for students with disabilities and English language learners.

Teacher observation of student during independent practice, and weekly progress monitoring probes.

11. Reflections:

12. Sources:

Klingner, J., Vaughn, S. & Boardman, A. (2015) *Teaching Reading Comprehension to Students with Learning Disabilities*. New York: The Guilford Press.

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Text Structure Strategy		
Use the signal words to help you determine the text structure.		
Text structure	Definition	Signal Words
Descriptive	Explains and describes a topic, usually with one or more main ideas supported by details	Descriptive words detailing attributes like color, number, size, and adjectives such as pretty, harsh, luxurious, desolate; also phrases such as: for example, in particular, for instance, to illustrate, such as, most important, another
Sequence	Tells events or facts in a specific order, usually related to time	first, next, last, another, then, finally, before, preceding, following, additionally
Compare/ Contrast	Describes similarities and differences between objects, people, places, events, or ideas	like, similar to, unlike, in contrast, whereas, while, although, different from, as opposed to, instead of, however, as well as, either/or
Cause/ Effect	Describes an event or condition, and explains the reasons it occurred, and/or the consequences it created	so that, therefore, as a result, lead(s) to, because of, in order to, for these reasons, thus, if-then, may be due to, caused by, consequently, effects of, so that, when-then
Problem/ Solution	Identifies and describes a problem and lists or suggests solution(s)	the problem is, the difficulty is, unfortunately, alarmingly, cause for concern, fortunately, it is possible to, if-then, one challenge is, therefore, remedy, solution, solve, prevent, help

Question Answer Relationship Strategy Lesson Plan

1. Lesson: Question and Answer Relationship Strategy   Subject: Questioning Strategies   Date:

2. Student Name (individualized lesson) or Target Grade/Age Level (whole group instruction):

3. Pennsylvania Content Standard(s):

CC.1.2.9–10.C
Apply appropriate strategies to analyze, interpret, and evaluate how an author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

4. Learning Objective(s) and Aligned Assessments:

Learning Objective(s)	Aligned Formative & Summative Assessments
Given an instructional level passage, the student will use the Question and Answer Relationship (QAR) Strategy to answer literal and inferential questions in 2/3 observed trials during guided and independent practice.	Formative: Teacher observation during guided and independent practice. Summative: Weekly progress monitoring assessment.

5. Materials Needed: Instructional level reading passages; BEST and QAR Strategy cue cards; charts with common prefixes and affixes; CLOVER chart with 6 common syllable types; pen or pencil.

6. Expectations for Behavior and Class Activities: Students are expected to attend to instruction, complete all learning activities as directed by the instructor, and ask questions and request help as needed.

7. General or Specific Accommodations for Special Needs Learners: This lesson is designed to provide explicit instruction in one-on-one or very small group (2-4 students) format to learners with reading disabilities using the gradual release of responsibility model (model, guided practice, independent practice). This instructional sequence includes elements shown by research to be effective with students with disabilities: activate background knowledge, provide a rationale for the strategy, model the strategy, provide multiple guided practice opportunities, provide independent practice opportunities with feedback, review and preview. Individual accommodations will be made on a per student basis, as needed.

8. Description of Learning Activities

Lesson Implementation (include specific discussion questions that you will use)	Accommodations for Special Needs Learners
Description of Introductory Activity: One strategy that good readers use to understand what they read is to ask and answer questions about the text. There are different kinds of questions, and today we will learn about three specific types of questions. The first type of question is called: Right There. Right There questions are questions that have words from both the question and answer included in one sentence. To answer Right There questions, you just have to find the sentence that has the information you are looking for, and you will see the answer right there. The second type of question is called: Think and Search. This type of question has words from both the answer and the question somewhere in the text, but not necessarily in the same sentence. To answer Think and Search questions, you have to look through the passage to find the answer. The third type of question is called: Author and Me. Author and Me questions do not have the exact words for the question or the answer in the text. To answer Author and Me questions, you have to review what you read and use what you already know to answer the question. Let's take a look at how these types of questions can help us understand what we read. First, we will read a passage, then I will show you how I can answer each of the three types of questions. Then, we will read another passage, and I will help you answer each type of question. Then, you will have a chance to practice answering the different types of questions yourself. Here is a cue card that will help you to remember the different types of questions, and how to use the text to help you answer them. [Give student QAR Strategy cue card.]	

Let's read through the QAR Strategy cue card together.	Student: [Chorally reads cue card.]
[Teacher and student chorally read cue card aloud.]	
Great. Now I will show you how I can use the strategy to help answer the three types of questions.	
Modeling/Demonstration and Guided Practice [Integrated for each of the three question types]: This passage is about Koala bears.	Student: [Chorally reads.]
Let's read the passage aloud together.	
[Teacher and student chorally read first section of passage aloud.]	
Great reading. The first type of question I will answer is a Right There Question.	
First, I will check my QAR Strategy cue card to help me remember how to answer a Right There question.	
Right There questions are questions that have words from both question and answer included in one sentence. The way we find the answer to a Right There question is to look in the text for a sentence that contains the words in the question. For example, consider this sentence from the passage, "A marsupial is a mammal that typically carries its young in a pouch."	
A Right There question might ask, "What is a marsupial?"	
To answer the question, I would have to find the sentence that talks about what marsupials are, and then I would use the information in the sentence to answer the question.	
First, I look to find the sentence that has words from the question like 'marsupials are'. Ok, I found it. [Indicate the sentence.] Then I read the sentence to find the answer. The sentence says, "A marsupial is a mammal that typically carries its young in a pouch."	
There is my answer.	
OK, your turn. I will ask you a Right There question, and I will help you to use the QAR Strategy to answer it.	
Here's the question:	
Why did the koala population drop?	
First, check your QAR Strategy cue card to remind yourself of the definition of a Right There	

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question, and how to use the text to help you find the answer.
What is a Right There question?

Right. How can you use the text to help you answer a Right There question?

Excellent. Go ahead and find the sentence in the passage. Read the sentence aloud when you find it.

Great. So, what is the answer to the Right There question: "Why did the koala population drop?"

Right. Let's try another one. The Right There question is: What is an ecologist?
What is a Right There question?

Right. How can you use the text to help you answer a Right There question?

Excellent. Go ahead and find the sentence in the passage. Read the sentence aloud when you find it.

Great. So, what is the answer to the Right There question: "What is an ecologist?"

Right.
Error Correction: The student may have trouble reading certain words in the sentence. Instruct and assist the student to use the BEST Strategy to figure out the words. The student may have trouble finding the right sentence. Prompt the student to look for specific words in the sentence; prompt the student by pointing to the applicable words in the relevant sentence.

Great. Now I will show you how to use the text to help me answer the second type of question, the Think and Search question.
First, I will check my QAR Strategy cue card to help me remember how to answer a Think and Search question.

Student: A Right There question has words from the question and the answer in the same sentence.
Student: I can look back in the text to find the sentence that has the question words, and read the sentence to find the answer.
Student: Found it. The sentence says: The koala population dropped after farmers cut down many of the forests where koalas lived and hunters killed the animals for their fur.

Student: The koala population dropped because farmers cut down the trees where they lived and hunters killed them for their fur.

Student: A Right There question has words from the question and the answer in the same sentence.
Student: I can look back in the text to find the sentence that has the question words, and read the sentence to find the answer.
Student: Found it. The sentence says: An ecologist is a scientist who studies the relationships among living things and their environments.

Student: An ecologist is a scientist who studies the relationships among living things and their environments.

Think and Search questions are questions that have words from both question and answer included in different sentences. The way we find the answer to a Think and Search question is to look in the text for more than one sentence that contains the words in the question.	
Let's try it. First, we will read the second section of the passage aloud together.	Student: [Reads passage aloud.]
[Chorally read second section of passage with student.]	
Great reading.	
For example:	
A Think and Search question for this section of the passage might ask, "Why were the volunteers looking for koalas in blue gum trees?" To answer the question, I would have to find the sentence that talks about the volunteers looking for koalas, and then I would look for another sentence about koalas spending time in blue gum trees. Then I would use the information in the sentences to answer the question.	
First, I look to find the sentence that has words from the question like 'volunteers' and 'blue gum trees'. Ok, I found it. [Indicate the sentence.] Then I read the sentence to find the answer. The sentence says, "The volunteers combed the island for koalas in the blue gum trees." I know that 'combed the island' is another way or saying 'looked for,' so this is the right sentence to help me answer the question. But, this sentence doesn't tell me everything I need to know to answer the question "Why were the volunteers looking for koalas in blue gum trees?"	
Now I need to find another sentence about koalas in blue gum trees so I will learn the rest of the information I need to answer the question "Why were the volunteers looking for koalas in blue gum trees?" Here it is: "Blue gum is a species of eucalyptus tree in which the furry leaf eaters spend most of their time." [Indicate the sentence.] Furry leaf eaters means the koalas, so this is another right sentence to help me answer the question.	
I think about these two facts: volunteers looked for koalas in blue gum trees, and blue gum trees are where koalas spend most of their time, and I	

make an *inference* – a thought that I can tell from the information in the text, even though it is not explicitly stated in the text: I think that volunteers looked for koalas in blue gum trees because the volunteers know that's where koalas spend most of their time. So, my answer to the Think and Search question is: Volunteers looked for koalas in blue gum trees because that's where they would be most likely to find them. OK, your turn. I will ask you a Think and Search question, and I will help you to use the QAR Strategy to answer it. Here's the question: Why do koalas spend most of their time in blue gum trees? First, check your QAR Strategy cue card to remind yourself of the definition of a Think and Search question, and how to use the text to help you find the answer. What is a Think and Search question? Right. How can you use the text to help you answer a Think and Search question? Excellent. Go ahead and find the first sentence that might help you answer the question in the passage. Read the sentence aloud when you find it. Great – does that sentence tell you enough information to answer the question? Right. Go ahead and find the next sentence in the passage that can help you answer the question. Read the sentence aloud when you find it. Excellent. So, think about those two facts: The blue gum tree is a kind of eucalyptus tree, and eucalyptus leaves are the main food of koalas. Make an inference about the information that will answer the question. Great. So, what is the answer to the Think and Search question: "Why do koalas spend most of their time in blue gum trees?"	Student: Think and Search questions are questions that have words from both question and answer included in different sentences. Student: The way we find the answer to a Think and Search question is to look in the text for more than one sentence that contains the words in the question. Then we think about the information I read in the sentences, and I make an inference to answer the question. Student: Blue gum is a species of eucalyptus tree in which the furry leaf eaters spend most of their time. Student: No Student: Eucalyptus trees are native to Australia, and their leaves are the main food source for koalas. Student: The leaves of the blue gum tree are a type of eucalyptus leaf, and koalas eat eucalyptus leaves as their main food. Student: Various answers, should include something like: Because the leaves of the blue gum tree are the koalas' main food, so they spend time in the trees to eat the leaves.

Error Correction: The student may have trouble reading certain words in the sentence. Instruct and assist the student to use the BEST Strategy to figure out the words. Provide definitions as necessary – for example, "native" means a plant naturally belongs in that place. The student may have trouble finding the right sentences. Prompt the student to look for specific words in the sentences; prompt the student by pointing to the applicable words in the relevant sentences.	
	Student: [Reads aloud.]
Right. Let's try another one. First, let's read the next part of the passage aloud together. [Teacher and student chorally read.] Great reading. The Think and Search question is: Why is Ellis worried about the goats on St. Bees island eating the small blue gum trees?	
	Student: Think and Search questions are questions that have words from both question and answer included in different sentences.
What is a Think and Search question?	Student: The way we find the answer to a Think and Search question is to look in the text for more than one sentence that contains the words in the question. Then we think about the information I read in the sentences, and I make an inference to answer the question.
Right. How can you use the text to help you answer a Think and Search question?	
	Student: The island is overrun with wild goats, and Ellis thinks the goats are eating the small blue gum trees.
Excellent. Go ahead and find the first sentence that might help you answer the question in the passage. Read the sentence aloud when you find it.	
Great – does that sentence tell you enough information to answer the question?	Student: No
Right. Go ahead and find the next sentence in the passage that can help you answer the question. Read the sentence aloud when you find it.	Student: Without those trees, the koalas will run out of food in the future.
Excellent. So, think about those two facts: The goats on the island are eating the small blue gum trees. Without the trees, the koalas will run out of food. Make an inference about the information that will answer the question.	

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Great. So, what is the answer to the Think and Search question: "Why is Ellis worried about goats eating the small blue gum trees?"	Student: Various answers, should include something like: Ellis is worried about the goats eating the small blue gum trees, because if they eat the small trees, when the big trees die, there won't be any to replace them, and the koalas won't have any food.
Right. *Error Correction: The student may have trouble reading certain words in the sentence. Instruct and assist the student to use the BEST Strategy to figure out the words. Provide definitions as necessary – for example, "overrun" means that there are too many of something in an area. The student may have trouble finding the right sentences. Prompt the student to look for specific words in the sentences; prompt the student by pointing to the applicable words in the relevant sentences.* OK, you have learned two types of questions so far, now one more to go. The third type of question is Author and Me. First, I will check the QAR Strategy cue card to remember how to answer an Author and Me question. In an Author and Me question, exact words for the question and answer may not be in the text, so we will need to think about what we read, and use what we already know about the topic to find the answer. The way we find the answer to an Author and Me question is to review what we read and connect it to what we already know to answer the question. Let's try it. For example: An Author and Me question for this passage might ask, "What is one thing the volunteers can do to help the koalas survive?" To answer the question, I would have to review what I read in the passage. I can look back in the passage, or I can just use what I remember. First, I remember that the koalas eat eucalyptus leaves and mostly stay in the trees. Then, I think	

about how the goats might be eating the small trees. I know that is a problem, because if there are no more eucalyptus trees, then the koalas won't have any food and they will die out. So, I think about what I already know. In my neighborhood, there is a man with a garden. Sometimes deer get into his garden, and eat his plants. He built a fence to keep the deer out. Hmm. Maybe the volunteers can build a fence to keep the goats away from the eucalyptus trees? So, my answer to the Author and Me question "What is one thing the volunteers can do to help the koalas survive?" is: Volunteers can build a fence to keep the goats away from the small eucalyptus trees.

OK, your turn. I will ask you an Author and Me question, and I will help you to use the QAR Strategy to answer it.
Here's the question:
What information would the ecologist and the volunteers need to gather to tell if the goats were eating the small blue gum trees?
First, check your QAR Strategy cue card to remind yourself of the definition of an Author and Me question, and how to use the text to help you find the answer.
What is an Author and Me question?

Right. How can you use the text to help you answer an Author and Me question?

Excellent. Go ahead and tell me what you remember from the passage about how the volunteers studies the trees. It is fine to look back in the passage if you want to.

Great – does that sentence tell you enough information to answer the question?

Right. So connect that fact to what you already know – what kind of information about the trees

Student: Words for question and answer may not be in the text, requires inferencing and use of prior knowledge.
Student: Review what you read and connect it to what you already know to answer the question.

Student: Various answers, should include something like: I remember that when they found a koala, they would gather information about the trees. And, I remember that the goats were only eating the smaller trees.

Student: Various answers, should include something like: They could look to see if there were bite marks

would they need to tell if the goats were eating the trees?	on the trees, or if there were fewer smaller trees around, because the goats had eaten them.
Excellent. You took what you remembered from the passage, and connected it to what you already know, and you made an inference to find the answer to the question.	
Great. So, what is the answer to the Author and Me question: "What information would the ecologist and the volunteers need to gather to tell if the goats were eating the small blue gum trees?"	Student: Various answers; should include something like: They could examine the trees for bite marks, and they could count the smaller trees to see if the goats were eating them.
Excellent.	
Error Correction: The student may have trouble reading certain words in the sentence. Instruct and assist the student to use the BEST Strategy to figure out the words. Provide definitions as necessary – for example, "native" means a plant naturally belongs in that place. The student may have trouble remembering or finding the relevant information. Prompt the student to look back in the passage. Prompt the student to look for specific words in the sentences; prompt the student by pointing to the applicable words in the relevant sentences. Ask the student questions about the topic to activate prior knowledge that is relevant to the question.	
Guided Practice and Feedback: [Integrated in the modeling and demo – each question type is modeled and the student engages in guided practice for that question before being introduced to the next.]	
Independent Practice/Exploring: Provide the student with additional passages (Included in the passage set for this lesson), observe the student using the QAR strategy, provide corrective feedback as necessary for at least one trial; more if needed to reach criterion.	

(Formative Assessment could go here) Review and Preview: One strategy that good readers use to understand what they read is to ask and answer questions about the text. There are different kinds of questions, and today we learned about three specific types of questions: Right There, Think and Search, and Author and Me. We also learned some strategies to help us find the answers to these types of questions. Let's read through the QAR Strategy cue card to review: [Teacher and student chorally read cue card.] The QAR strategy is a good one to use when you have to answer questions about a passage that you read. First, read the question, and then look back in the passage, if you see the questions and answer words in the same sentence, then you know it's a Right There question, and you can answer it just by using the information in that sentence. If you see the words for the question in a sentence, but not the words for the answer, then you know it is a Think and Search question, and you need to look in other places the passage to find the answer. If you see some of the question words, but not all the words you need to answer the question in the passage, then you know it is an Author and Me question, and you need to think about what else you know about the topic to answer the question. Using the QAR strategy will help you to come up with the correct answers when you have to answer questions about a passage that you read. You can use the QAR strategy in all of your classes where you read and answer questions.	Student: [Reads cue card aloud.]

9. Potential Areas of Difficulty with the Content and Correction Procedures:

Student may misread words – remind student to use the BEST strategy to help student sound out words, referring to the prefix-suffix charts and CLOVER syllable chart as needed. Student may have difficulty implementing the steps of the QAR Strategy: identifying relevant sentences, making inferences. If so, use the think aloud process modeled in

the Modeling/Demonstration section of the QAR Strategy lesson to illustrate how you look back in the passage to find the relevant sentences and think through the information in the paragraph to determine the most likely inferences. If the student does not correctly recite (may use cue card) and apply the strategy steps during the guided and independent practice sections of the lesson, the teacher will note this and repeat the lesson using a different passage at the next instructional session. If the student does meet criterion, the teacher will provide opportunities for the student to practice the strategy during subsequent classroom reading assignments, beginning with a brief review, at least one guided practice example, and several independent practice examples, at least 2 days per week.

10. Formative & Summative Assessments: Provide actual assessment materials here (items, assignment sheets, rubrics, scoring criteria, answer keys). Include any modified assessment items for students with disabilities and English language learners.

Teacher observation of student during independent practice, and weekly progress monitoring probes.

11. Reflections:

12. Sources: Klingner, J., Vaughn, S., & Boardman (2015). *Teaching Reading Comprehension to Students with Learning Disabilities*. New York: The Guilford Press.

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QAR Strategy Cue Card

Question Type	Definition	How to use the text to help answer the question
Right There	Words from both question and answer are included in one sentence.	Find the sentence that has the information you are looking for, and you will see the answer right there.
Think and Search	Words for both question and answer are in different sentences in the text.	Look through the passage to find information, think about the facts and make an inference.
Author and Me	Words for question and answer may not be in the text, requires inferencing and use of prior knowledge.	Review what you read and connect it to what you already know to answer the question.

AIMSWeb Passage 7-29 and Answer Key

    The King commanded that all young men report to his castle. He needed to build an army of men and train them to fight. A new challenge to the kingdom threatened from across the sea, and the King wanted to be prepared. The command from the King was carried throughout the land to every corner of his kingdom.

    Young Abraham was a healthy boy, very big for his age, and very strong. He worked beside his father in the fields where he was able to lift two bales of hay at one time. He could cut down a small tree with one swing. He had a reputation in his village as being honest, strong, and quiet. When Abraham received the command from the King, he responded immediately. He packed food, a blanket, and warm clothing in an old bag and swung it over his shoulder. He bid his father farewell and journeyed off down the road towards the King's castle.

    Abraham arrived days later with many other men. He received new clothes and a sword. The King's men trained Abraham to compete in battle. They showed him how to use his sword and demonstrated fighting techniques. The King's men later fed the soldiers and let them go to bed, whereupon they fell, exhausted, into a deep sleep on the soft hay of the barns.

    In the morning, the soldiers awakened to the blast of trumpets. Invaders landed the night before and were headed to the castle to take over the country. The King commanded his new army to defend the country. The men lined up, tired and scared, unsure of how to fight the invading band of men.

    Abraham led the men into battle. He swung his sword like he swung his ax, and the invaders fell like trees. He lifted men over his head and threw them the way he threw bales of hay. The invading forces were scared off by Abraham's mighty feats. They quit fighting and retreated to their boats. They never tried to invade the kingdom again. Abraham's bravery saved his country. Abraham was awarded the medal of bravery and was named a knight of the kingdom.

Procedures:

1. Give student copy of passage
2. Instruct student to read passage aloud
3. Score first 1-min for oral reading accuracy
4. If score is <90%, provide alternate passage; begin assessment again
5. Prompt the student to retell: Tell me about what you read.
6. Note lookbacks.
7. Provide prompts as listed on retell rubric scoring sheet, as needed.

Answers: [Note: if an answer contains multiple numbered [e.g. (1), (2), (3)] sections or options, score the answer 'correct' if at least one of the numbered sections is included in the student's answer.] [Note 2: In the parentheses after the numbers in the text structure section are words from the text that indicate a particular text structure.]

Summarization	The king commanded men to come the castle so he could build an army to defend the kingdom. Abraham was strong, quiet, and honest. The king's men trained Abraham. The king commanded the army to fight the invaders. Abraham led the men into battle and defeated the invaders, saving the country.
Main Idea	Abraham [who] was a strong boy/fighter who saved his country from invaders [important thing].
Text Structure	Sequential (1: immediately; days later; later; in the morning; the night before); Problem/Solution (1: new challenge threatened – king built an army; Invaders attacked – Abraham defeated them).
Literal Question: Right There	What did Abraham pack for his trip to the castle? A: food, a blanket, and warm clothing.
Inference Question: Think and Search	How did Abraham's farm work help him in battle? A: He swung his sword like an ax, and threw men like bales of hay.
Inference Question: Author and Me	Why were the men unsure how to fight the invaders? A: They had only been training for one day (1); they were new to fighting (2); the had never fought before (3).
Notes:	

Vita

The author earned a B. A. in English Literature and a M. Ed. in Special Education, both from the University of Pittsburgh, prior to spending ten years teaching students with disabilities in public schools in Alaska, Michigan, and Pennsylvania. The author has taught several special education methods courses at the university level as both a teaching assistant and as an adjunct professor during her doctoral program at Lehigh. The author has contributed to several scholarly publications in the areas of academic interventions for students with learning disabilities, as well as social communication interventions for students with autism spectrum disorder.