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Comprehension Strategies for Elementary Students with Reading Disabilities

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Comprehension Strategies for Elementary Students with Reading Disabilities

by

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Chapter 1: Introduction

The Minnesota Department of Education (2015) indicated that over 40% of all readers and 70% of students with learning disabilities struggle with reading. The majority of these students have deficits in the area of reading comprehension (Berkeley, Mastropieri, & Scruggs, 2011; Berkeley & Riccomini, 2011; Hawkins, Hale, Sheeley, & Ling, 2011). Not only are reading comprehension skills required for successful achievement in academic subjects, they are required for functioning successfully in home and community environments.

In order to help struggling readers become competent readers, teachers need to learn appropriate reading comprehension strategies for each student. The purpose of this starred paper was to review the literature to determine which intervention strategies improve reading comprehension skills for elementary students with reading disorders.

Historical Background: Reading Approaches

A variety of methods have been used to teach reading comprehension. Prior to 1970, two reading comprehension were typically used: (a) asking students questions about the content, or (b) assigning skill sheets as practice for reading comprehension skills such as getting the main idea, determining the sequence, following directions, noting details, and cause-and-effect relationships (Reutzel & Cooter, 2005). During the 1970s Siegfried Engelmann and his associates developed the *Direct Instruction System for Teaching Arithmetic and Reading* (DISTAR). When teachers applied for this program, they were required to follow scripted lessons in a specific order. Although teachers often considered DISTAR to be rote and inflexible, research supported the efficacy of this model and other direct instruction models (Kim & Axelrod, 2005).

During the 1990s, the whole-language instructional approach gained impetus. Bender (2008) explained that reading materials were taught with “real world materials” (p. 207). The focus of whole language instruction is on meaning and is less focused on decoding and phonics. Although this approach was effective with students who were good readers, it did not prove to be effective for students who struggle with reading (Dahl & Scharer, 2000).

Reading instructors today typically use a balanced approach to teaching literacy. Balanced instruction describes multi-faceted instruction that includes a compilation of research-based approaches to accelerating gains in decoding, fluency, and comprehension (Manset-Williamson & Nelson, 2005). Pressley, Roehrig, Bogner, Raphael, and Dolezal (2002) elaborated that “balanced instruction really means a lot of skills instruction in the context of massive holistic teaching” (p. 1).

Reading instruction cannot be a one-size-fits-all approach. Spiegel (1998) explained that teachers should be able to recognize a variety of student learning styles and be able to select appropriate strategies to a child’s individual needs of the child and to strive to find balance for every child.

The National Reading Panel

In 1997, Congress charged the U.S. Department of Education to work with the National Institute for Child Health and Human Development (NICHD) to establish a National Reading Panel (NRP). The National Reading Panel (NRP) published a report in 2000 that identified five critical reading instruction components: phonemic awareness, phonics, fluency, vocabulary, and comprehension instruction. Phonemic awareness and phonics provide the foundation, although fluency, vocabulary, and comprehension are also critical for reading success (NICHD, 2000).

Phonemic Awareness

Phonemic awareness refers to the ability to focus on and manipulate phonemes in spoken words, but it can also be thought of as skill at hearing and producing the separate sounds in words, dividing or segmenting words into their component sounds, blending separate sounds into words, and recognizing words that sound alike or different (NICHD, 2000). The NRP reported that phonemic awareness instruction is one of the most important skills for improving reading and spelling skills.

Phonics

Phonics is a set of rules that specify the relationship between the letters in the spelling of words and the sounds of spoken language (Learning Point Associates, 2004). According to the NPR research data, phonics instruction is beneficial for children who have difficulty learning to read. Systematic phonics instruction produces much better growth than non-phonics instruction in younger children's reading comprehension ability (NICHD, 2000).

Fluency

Fluency is another critical component of skilled reading. The National Institute of Child Health and Human Development (NICHD; 2000) identified that reading fluency as one of several critical factors necessary for reading comprehension. In addition, the National Assessment of Educational Progress (NAEP) found a close relationship between fluency and reading comprehension (Armbruster, Lehr, & Osborn, 2001).

Vocabulary

Vocabulary is defined as words we need to understand to communicate with other and consists of four components: listening, speaking, reading, and writing (Learning Point Associates, 2004). The NRP determined that vocabulary should be taught both directly and indirectly. Repetition and making several times exposure to vocabulary items is important.

Comprehension

Reading comprehension has come to be viewed as the essence of reading (Watson, Gable, Gear, & Hughes, 2012). The most common problem of struggling readers is that they are not able to comprehend what they read (Biancarosa & Snow, 2004). It is essential not only to academic learning, but to life-long learning (NICHD, 2000). The NRP recommended eight approaches for teaching comprehension skills: comprehension monitoring, cooperative learning, graphic and semantic organizers, story structure, question answering, question generation, summarization, and multiple-strategy teaching. These approaches are summarized briefly from the NRP research.

Comprehension monitoring. The reader learns how to be aware of their understanding during reading and learns process to deal with problems in understanding as they arise.

Cooperative learning. In the context of reading, readers work together to learn strategies.

Graphic and semantic organizers. Readers can express the meaning graphically and write relationships of the ideas in the text.

Story structure. The readers learn how to ask and answer about who, what, where, when, and why related to the plot, setting, characters, and events.

Question answering. The readers answer the question by the teacher and teacher needs to give feedback to students about correctness.

Question generation. The readers ask themselves where, when, what, why, what will happen, who, and how questions.

Summarization. The readers try to identify the main idea from the each paragraph or most important idea from the whole text using main ideas.

Multiple-strategy teaching. The readers use several of the process in interaction with the text. This strategy is effective when the process is used flexibly in the context.

As a direct result of the NRP's report, a group of teachers and researchers launched the *Reading First* initiative. This initiative provides recommendations for teaching these five essential reading skills to students in kindergarten through third grade (Armbruster et al., 2001). Later, the *Reading Next* initiative was established to provide recommendations for older readers. Many of the strategies described in this section were incorporated into Chapter 2 studies.

Research Question

One question guided my review of the literature: What intervention strategies are effective for improving reading comprehension outcomes for struggling elementary students?

Focus of Paper

I included literature published from 2000 to 2015 that provided quantitative data about reading comprehension strategies for elementary students with reading disorders, typically first grade through eighth grade.

The Academic Search Premier, SAGE Journals Online, EBSCO Host, and PsycINFO databases were used as a starting point for my literature review of peer-reviewed studies related to elementary students and reading disabilities. I used a number of search terms and combination of terms to locate relevant articles, including *elementary*, *struggling readers*, *learning disabilities*, *reading comprehension strategies*, *comprehension instruction*, *reading disorder*, *reading comprehension*, *reading disabilities*, *reading instruction*, *response to intervention*, and *explicit instruction*.

To locate the most current information, I also conducted a search of the table of contents of four journals for the past year: the *Journal of Learning Disabilities*, *Review of*

Educational Research, Reading Research Quarterly, and Exceptional Children. In addition to these journals, I gathered information from journals in the areas of psychology and behavioral education. Although, fluency contributes to comprehension, studies reported in Chapter 2 will address way outcomes related to comprehension.

Importance of the Topic

Over the past 30 years, the number of students identifies as having a learning disability has increased dramatically. The National Center for Learning Disabilities (2014) reported that there are 2.4 million American public school students identified with learning disabilities under the Individuals with Disabilities Education Act (IDEA). The majority of students with learning disabilities experience difficulties in the area of literacy (Martin, Martin, & Carvalho, 2008).

Reading comprehension deficits interfere with the ability to succeed in other academic subject areas and undermine opportunities to engage meaningfully in classroom activities. To build a foundation for college and career readiness, students must be able to read for comprehension. Therefore, it is critical that teachers learn about and implement evidence-based reading comprehension strategies that will enhance academic outcomes for students with learning disabilities.

Definitions of Terms

Comprehension is the process that excerpts and at the same time, creates meaning by having the student be involved with written language (Shanahan et al., 2010).

Direct instruction is a teacher-led instructional procedure that provides students with specific instructions on a task, modeling, teacher-led practice, independent practice, and frequent feedback on their performance (Bender, 2008).

Expository texts are materials written to communicate information to help readers learn something new. Examples include textbooks, newspapers magazine articles and manuals (Weaver & Kintsch, 1991).

Fluency refers to a reader's degree of speed and accuracy in reading (Manset-Williams & Nelson, 2005).

Guided practice describes a phase of instruction immediately following teacher modeling of a concept or skill where students practice the skill with teacher functioning as a scaffold for the student's newly developing skills while teacher involvement and support fade (Manset-Williamson & Nelson, 2005).

Inclusion refers to placement of special education students in the general education classroom, either on a part- or full-time basis (Schmidt, Rozendal, & Greenman, 2002).

Independent practice describes the condition when a teacher is convinced the students are able to practice a strategy on their own and are able to apply a given comprehension strategy to a new text (Kamil et al., 2008).

Intervention consists of any type of reading instruction, including word study, fluency, vocabulary, comprehension, or a combination of these (Edmonds et al., 2009).

Metacognition involves the knowledge of one's thinking. Metacognitive strategies are employed to evaluate one's own progress (LaJoie, 2008).

Narrative texts are stories written to entertain. Common elements in them include characters with goals and motives, event sequences, and morals and themes. Narrative text is the most common text type used for instruction in the early grades (Lapp, Flood, & Farnan, 1989).

Reciprocal teaching is an approach that teaches young students to apply strategies of summarizing, questioning, clarifying and predicting semantics refers to the knowledge and comprehension of words (Bender, 2008).

Repeated reading is a reading fluency intervention in which students read the same text several times (Wexler, Vaughn, & Roberts, 2010).

Response-to-Intervention (RTI) is broadly defined as providing universal screening, ongoing progress monitoring, and/or curriculum-based measurements with research-based classroom instruction (Tier 1), and increasingly layering more intensive interventions to meet students' instructional or behavioral needs (Fletcher & Vaughn, 2009; Vaughn & Fuchs, 2003).

Specific Learning Disability (SLD) is a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest in imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations (Individuals with Disabilities Education Act, 2004).

Struggling readers are likely to experience at least some difficulty comprehending the texts required of them in school. Though students who are a part of this population will have their own unique strengths and weaknesses, common characteristics among them include: (a) having difficulty decoding text, (b) having poor metacognitive skills, (c) not comprehending what they read, and (d) struggling with apply comprehension strategies appropriately (Hall, 2005).

Chapter 2: Review of the Literature

The purpose of this literature review was to determine the effectiveness of multiple intervention strategies on the reading comprehension skills for elementary students with reading disabilities. This review is presented in ascending chronological order and includes a total of 10 studies.

Reading Comprehension Studies

Jitendra, Hoppes, and Xin (2000) conducted a 15-day study to investigate the effectiveness of the main idea strategy and self-monitoring instructional procedure to improve reading comprehension. A total of 33 sixth- to eighth-grade students with reading disabilities from an urban school district in the northeastern United States participated in this study. Students were randomly assigned to experimental group ($n = 18$) and control group ($n = 15$). The experimental group participated in small-group instruction in the school cafeteria that focused on identifying the main idea, whereas the control group received reading instruction that focused on decoding and comprehension by four resource room special education teachers.

Instructional sessions lasted about 30 to 40 min and were carried out during the students' scheduled time for reading instruction or during a study skills period. Instruction was structured so that each lesson began with modeling a main idea comprehension strategy, followed by guided and independent practice. During independent practice, students were to use a 4-step monitoring procedure and to place a check mark on the card as they read the paragraph. They used the prompt card, applied the strategy, and selected the main idea.

Study outcomes were measured using ANOVAs with repeated measures on time of testing. Each test included 36 main idea comprehension questions based upon narrative and expository passages.

As hypothesized, the posttest results revealed a significant difference between the experimental groups and control groups on the near and far measures. Significant main effects were found for group ($F_{(1,31)} = 16.57, p < .001$) and time of testing ($F_{(2,62)} = 7.49, p < .01$). The experimental group's scores increased significantly from pretest ($M = 10.06; SD = 5.23$) to posttest ($M = 16.94; SD = 5.15$) to delayed posttest ($M = 14.28; SD = 5.56$).

The results of study showed that the main idea comprehension performance of students in the experimental group was significantly greater than students in the control group. In other words, the main idea strategy and self-monitoring instructional procedure improved reading comprehension. Jitendra et al. (2000) recommended that future research examine a comparison of the strategy not only students with disabilities but also with students without disabilities.

Mastropieri, Scruggs, and Mushinski Fulk (2001) investigated the effectiveness of the keyword strategy. A total of 25 sixth- to eighth-graders with learning disabilities (LD) from a small town in the midwest participated in the study. Students had average to low-average scores on intelligence and achievement measures.

The researchers prepared eight concrete words (e.g., *oxalis*, *carnelian*, *soutache*) and eight abstract (e.g., *vituperation*, *octroi*, *nescience*) words. Researchers presented two conditions: the Keyword Condition and the Rehearsal Condition. The students were randomly assigned to either a keyword condition or rehearsal condition. The Keyword Condition included writing each word on the top of an index card with the keyword in parentheses and definition. During the Rehearsal Condition, the practice cards were presented while students recited and repeated the definition. Regardless of condition, all students spent the same amount of time with two examiners. All students completed a 2-min

Quick Test followed by 13 min of instruction on the target information and then a 1-min filler interval prior to the recall and comprehension tests.

ANOVAs were used to determine the effect of the keyword strategy. The students in the keyword condition exceeded the rehearsal condition students on both the production test ($F_{(1,23)} = 47.69, p = .000$) and the comprehension test ($F_{(1,23)} = 5.66, p = .26$). This means that the keyword mnemonic condition was effective in aiding students' comprehension.

The results of this study confirmed the authors' hypothesis that keyword instruction increases students' comprehension and allows students to use the vocabulary in other settings. In addition, it may increase students' ability to understand abstract vocabulary while using visual imagery successfully.

Abrahamsen and Shelton (2001) examined the effects of semantic and syntactic complexity on the reading comprehension. Participants included 92 seventh- to ninth-graders with LD from a junior high school in Chesapeake, Virginia. Students were randomly assigned to one of four groups: three treatment groups or one control group.

Students were exposed to four different versions of content area material from the district's history textbook during four periods of a day. The textbook consisted of three paragraphs of four to five sentences each at the seventh-grade readability level. The control group read original paragraphs with no changes. The second group used a version of syntactic modification that consisted of changing passive voice to active voice, changing past perfect tense to simple past, eliminating relative clause sentences, and substituting a noun for an indefinite pronoun. The third group used a modified version that included semantic modification such as reducing the number of multi-meaning words and changing double negative forms. The final group read a modified version with both semantic and syntactic

changes. Ten questions were used to assess reading comprehension that consisted of one inference question, eight fact questions, and one vocabulary question.

One-way ANOVA results indicated significant differences among groups subsequent to treatment ($F_{(3,88)} = 31.76, p < .01$). Students who received both the syntactic and semantic changes scored significantly higher points than any other group. A major finding of this study was that both the semantic-syntactic change earned the highest correct response scores ($M = 7.56; SD = 2.46$). However, no significant difference was found between the group reading the passage with semantic changes only and group reading the passage with both semantic and syntactic modification.

Results indicated syntactic and semantic modification was effective for improving reading comprehension. The authors noted the implications for students with LD. They recommended that teachers recognize the language deficits of students with LD in order to maximize their comprehension ability.

Schorzman and Cheek (2004) investigated the effectiveness of the *Directed Reading Thinking Activity*, the Pre-reading Plan, and graphic organizer. Participants included 103 sixth-grade students located in six different classrooms from two middle schools in a southern suburban school district. The students in middle school A received the strategy instruction during their regular reading periods. The students in middle school B served as a control group and received the district curriculum.

For this study, three teachers were selected from two middle schools. The students in School A received the strategy intervention delivered 4 days per week within the 45-min reading class. On average, 30% of instructional time was spent on the graphic organizer, 10% on the Pre-Reading Plan, and 60% on *Directed Reading Thinking Activity*. Each lesson included various activities such as silent reading, group vocabulary activity, and group and

individual comprehension checks. The School B teachers taught district curriculum and worksheets that introduced various skills. The teachers in both groups used the *Accelerate Reader* program and vocabulary workbook. The *Gates-MacGinitie Reading Test* (Gates & MacGinitie, 1989) and an informal cloze test were used to assess students' comprehension abilities.

A *t*-test determined differences between experimental group and control group test scores. The mean scores for the experimental group were higher than the control group on the cloze informal test ($p < .05$), and differences between the groups were significant ($p < .05$). However, no significant difference was reported between groups on the formal *Gates-MacGinitie Reading Test* scores.

The authors speculated that the different results on informal and formal tests among groups might be due to test instruments. The control students were taught using lessons that included test-taking strategies that the participants practiced on a daily basis. On the other hand, the experimental group students were not taught test-taking strategies (closure).

Manset-Williamson and Nelson (2005) compared the use of two supplemental balanced and strategic reading interventions with 21 students with reading disabilities in grades 4 through grade 8. Both interventions included direct, strategic instruction in decoding and fluency, but they differed with regard to explicitness for each strategy.

The study was conducted over a period of 6 weeks in a community-based reading clinic located at both an independent school for students with RD and public elementary school for students who qualified for Title 1 funding. Participants were randomly assigned to one of two treatment groups, and 11 tutors conducted the groups. One treatment group received comprehension instruction using guided reading techniques (PDF/GR), which were based upon the assumption that students would naturally pick up on the purpose of teacher-

modeled strategies and begin to use them independently. The other treatment group received comprehension instruction with explicit comprehension (PDF/EC). The PDF/EC instruction was based upon the assumption that students with reading difficulties would benefit from explicit instruction in reading comprehension and self-regulatory strategies. A SUPER-G mnemonic was used: Set goal, Use prior knowledge, Predict what you think will be in the text, Explain the main idea in your own words, Retell the most important parts of the text, and Give yourself feedback. Unlike the first group, explicit comprehension strategies consisted of direct instruction of each strategy and were introduced sequentially. If students mastered a strategy, tutors instructed them on the new strategy so they could practice it in connect with previous one. No more than one new strategy was used per session.

To examine decoding, the researchers used the Word Attack subtest and Letter-Word identification subtest of the *Woodcock Johnson III* (WJ-III; Woodcock, McGrew, & Mather, 2001). During this session, students were required to read nonsense words. At the start of the instruction, the tutors administered a daily curriculum-based measurement (CBM) probe to determine words read correctly per min. Reading comprehension was measured by using WJ-III and having students reading expository texts informally, retell the main ideas, and then answer the multiple-choice questions.

To determine differences between pre- and posttest scores, the researchers used paired sample *t*-tests, least-squares analysis, and ANCOVAs and determined effect sizes. Results indicated both treatment groups made significant gains on both tests of training measures and oral retell quality. The participants demonstrated meaningful progress in reading decoding and fluency, given the short instructional time of the intervention. Students in the PDF/GR intervention did not make significant gains on the tests of near transfer. Comprehension results indicated participants in the PDF/ED intervention significantly outperformed those in

the PDF/GR intervention on oral retell quality ($F_{(1, 17)} = 4.792, p < .05$), and main-idea identification ($F_{(1, 17)} = 5.763, p < .05$).

The researchers concluded the more explicit the comprehension and self-regulatory strategy, the higher the likelihood older students with RD would make considerable improvements. Results emphasized the value of intensive reading instruction as an essential element of literacy programming for upper-elementary students. Manset-Williamson and Nelson (2005) maintained that a balanced approach to literacy instruction involving direct instruction and constructive approaches is important to all literacy instructional practice.

One limitation of the research is that there was no control group, which made it impossible to determine whether gains were due to student maturation or practice measures. Another limitation is the potential for bias in the sample of participants in that only participants who qualified, volunteered, and attended regularly were included in the study. Despite these limitations, the study's authors were confident that explicitness in strategy instruction is important in maximizing reading instruction for upper elementary and middle school students with reading disabilities.

Faggella-Luby, Schumaker, and Deshler (2007) conducted a study to determine the effectiveness of using Embedded Story Structure (ESS) routine in inclusive literature class to enhance reading comprehension. A total of 79 ninth-grade students attending a summer school program for struggling learners in a southeastern state participated in this study. Students were randomly assigned to two groups: 39 students were assigned to the ESS group and 40 students were assigned to the comprehension skill instruction (CSI) group.

Instruction was provided in a typical classroom. Eight short stories and a folktale were selected as instruction passages for this study. The same trained instructor taught both groups. The ESS group focused on three strategies: (a) self-questioning, (b) story-structure

analysis, and (c) summary writing. The CSI group used three research-based strategies for instruction: (a) the LINC'S Vocabulary Strategy, (b) Question-Answer Relationship (QAR), and (c) semantic summary mapping. Table 1 provides a brief description of these strategies.

Table 1

Strategy Description

ESS STRATEGIES	
STRATEGY	DESCRIPTION
Self-Questioning	The self-questioning strategy included seven questions: <i>who, what, when, where, which, how, and why</i> . Students answered each self-question on the ESS graphic organizer.
Story-Structure Analysis	Story-structure analysis used as a second strategy to help students remember each critical element of the story. Students drew story structure diagram using significant story.
Summary Writing	In summary writing, students generate a written summary based on their self-questioning answers and key information of the story structure.
CSI STRATEGIES	
STRATEGY	DESCRIPTION
LINC'S	LINC'S is a vocabulary strategy that requires the use of a set of mnemonic strategies for remember new vocabulary words
QAR	The QAR strategy is used for developing story understanding: (a) right-there questions, students could find out the answer from the text, and (b) think and search questions, which require students to find answers more than a single passage in the text.
Semantic Summary Mapping	For identifying and listing critical components of the story, a semantic summary mapping strategy was used. The semantic summary mapping strategy involves identifying and listing critical components of the story before organizing them into a connective concept map of related ideas on the back of the CSI organizer.

To determine the effectiveness of ESS instruction, the authors used ANOVAs and *t*-tests to analyze data from four pre-posttests: a Strategy-Use test, Knowledge Test, Unit Reading Comprehension Test, and Reading Satisfaction Survey. These results indicated no statistically significant differences between the ESS and CSI group in the Strategy-Use Test. However, results were significant for the difference between groups on the Knowledge posttest ($t_{(77)} = -4.11, p < .05, d = .208$) and Unit Reading Comprehension Test results

($F_{(1, 75)} = 7.61, p < .05$). The ESS subjects revealed equivalent gains for students with or without disability, as represented by a large effect size. The results of the satisfaction survey showed higher posttest means for both the ESS and CSI groups at the end of the study, and students expressed their satisfaction with their improved reading abilities.

This research supports the use of ESS Routine as an effective instruction to enhancing students' reading comprehension regardless of whether or not students with disabilities were in the inclusive classroom setting. Faggella-Luby et al. (2007) recommended that future research include studies that involve a teacher conducting the ESS routine—not a researcher—in multiple classrooms and over a long period of a time within a regular semester.

McKeown, Beck, and Blake (2009) conducted a 2-year study in which they investigated whether content instruction, strategy instruction, and basal control instruction was more effective for improving the reading comprehension of 119 fifth-graders. All students attended the same school in a small urban district in southwestern Pennsylvania. The majority of participants were African American (58%), and nearly half of the students qualified for free or reduced-price lunch. All six, fifth-grade classroom teachers and three paraprofessional teachers also participated in the study and attended one initial half-day training and three after-school meeting. They were allocated time for lesson preparation, e-mail correspondence with research staff, and exit interviews for the second year of the study.

Prior to intervention, the researchers determined the achievement levels of the six classrooms were comparable. For the intervention phase, each of the three approaches was randomly assigned to two classrooms per week. The basal approach used questions provided by the teacher's edition scripts. The content approach focused the students' attention on the

meaning of the text through general, meaning-based questions. In the strategies approach, students were directly taught to use detailed procedures to guide their access to text while reading.

The part of 5-day lesson plan was developed from the texts and scripted teacher questions already being used within the classrooms. During the first year, the authors used five narrative selections. During the second year, the authors used the same five selections as well as added three expository text lessons. Each lesson occupied a total of 45 to 75 min per week within one of the daily 90-min reading blocks.

To compare the outcomes of the three approaches, the researchers assessed lesson-text comprehension and beyond-lesson-text comprehension. The lesson-text comprehension was composed of sentence verification technique (SVT) and oral recall for two of the lesson texts and lesson discourse. The beyond-lesson assessments included a comprehension monitoring task, strategies task, and transfer task, exit interviews for second year.

Year 1. The first year's results showed that the students receiving the content and basal comprehension lessons outperformed those receiving the strategy instructions in length of responses. The content students also outperformed the strategy student group in overall quality of responses.

Table 2

Year 1 Results of Length and Quality of Recall Score for Narrative Texts

	CONTENT	STRATEGIES	BASAL COMPREHENSION		
Score type	M(SD)	M(SD)	M(SD)	<i>F</i>	<i>p</i>
Length	16.20(8.96)	10.33(4.55)	14.13(6.14)	7.29	.001
Quality	33.40(16.14)	22.97(9.61)	29.20(10.27)	6.91	.001

All three groups scored an average of 81.2% correct at the end of Year 1, although no significant difference was observed between the groups in SVT comprehension assessment.

However, post-hoc oral recall test results indicated the content group's oral recalls ($M = 16.2$) were significantly longer than those of the strategy group ($M = 10.33, p = .001$). Content students ($M = 33.40$) produced higher quality recalls than the strategy students ($M = 22.97, p = .001$), and the basal comprehension group recalls were significantly higher than the strategies group ($M = 14.13, p = .05$). The quality score of the basal-comprehension students ($M = 29.20$) were not significantly different from the average scores of the content group or the strategies group. Comprehension monitoring data were analyzed with a two-way, repeated measures ANOVA, there was a significant main effect of time, ($F_{(2, 115)} = 0.169, p = .003$). This result indicated that there was a significant score increase from pretest ($M = 5.01$) to posttest ($M = 5.87$).

Comprehension assessment results indicated that all three approaches produced positive outcomes. According to the researchers, the lack of differences on the SVT may indicate that all three instructions achieved adequate text comprehension of the texts.

Year 2. Year 2 was similar to Year 1. The ultimate goal of Year 2 was to assess transfer effects during the sequence of the five lessons that allowed for gradual release of responsibility to students. The final lesson was used to assess transfer through student oral recall after they had read it silently. The transfer lessons were presented over a 2-week period at the end of the study. Another change from Year 1 was that the authors administered the strategies task in a pre- and posttest design. Teachers were interviewed to determine their overall satisfaction with their assigned instructional approach.

Table 3**Year 2 Results of Length and Quality of Recall Score for Narrative Texts and Expository Texts**

NARRATIVE TEXTS	CONTENT	STRATEGIES	BASAL COMPREHENSION		
Score type	M(SD)	M(SD)	M(SD)	<i>F</i>	<i>p</i>
Recall Length	17.32(10.12)	11.77(5.71)	15.63(5.98))	5.41	.01
Quality	33.76(16.85)	24.79(11.35)	31.15(10.06)	4.75	.01
EXPOSITORY TEXTS	CONTENT	STRATEGIES	BASAL COMPREHENSION		
Recall Length	15.65(8.60)	12.19(5.80)	14.22(5.33)	2.56	.08
Quality	29.19(14.16)	23.98(10.34)	27.31(8.95)	2.08	.13
Probes	4.27(1.86)	3.15(1.98)	4.30(1.53)	5.028	.008

The ANOVAs revealed that content lessons had a significantly higher average percent in terms of text-based students' comments (97%) than the strategy lessons (66%) and the basal-comprehension lessons (84%). As in Year 1, analysis of the data for length and quality scores for students in the content approach was significantly higher than was the strategies approach. Students also averaged more words per response in the content lessons ($M = 9.50$) or basal-comprehension lessons ($M = 13.84, p < .0005$). The content group achieved higher scores on the transfer tasks than the strategies group. On the exit interviews, the teachers' reactions varied among approaches, but were fairly consistent among the approaches they were assigned.

The authors' ultimate goal was to compare student outcomes using the comprehension instructional approach, the strategies comprehension approach, and the basal comprehension approach. The results were quite consistent between the 2 years in that the content approach presented an advantage over the strategies approach when assessing recall length and quality.

McKeown et al. (2009) acknowledged that participants' cognitive ability might have affected the results, and they recommended that future studies address this variable. Despite

this limitation, the authors found that for narrative recall and expository learning probes, content students outperformed the strategy students and control students. This result indicated that teachers' content approach strategies (e.g., teacher posing a question, a student summarizing the text segment, and key idea) positively impact on students' recall and comprehension ability. The authors recommend that future researchers could provide student cognitive ability by developing studies that are designed to consider treatment by ability interaction.

Vaughn et al. (2010) evaluated the effect of a yearlong (September to May) intervention focusing on vocabulary, word recognition, fluency, and comprehension. Participants included 327 sixth-graders with reading difficulties from seven middle schools in two urban areas in southwestern United States. Students attended one of three schools from a large urban district in one city or one of four schools from two medium districts in a smaller city. Students were identified as Tier 1 comparison students who did not participate in an intervention and were considered typical readers ($n = 115$), or Tier 2 students who participated in the intervention ($n = 212$). A sample of 278 students was selected to serve as the typical group. Fifty-two percent were female and 79% qualified for free or reduced-cost lunch. Forty-six percent were African American, 40% were Hispanic, 12% were Caucasian, and 1% Asian. A total of nine trained interventionists (six female and three male) taught 212 students during daily 50-min instructional periods from September to May.

Tier 1 students participated in the regular classroom instruction that incorporated evidence-based practices to teach vocabulary and comprehension. Tier 2 students were placed in homogeneous groups of 10-15 students to receive three phases of Tier 2 intervention. Phase 1 included approximately 25 lessons and was taught over 7-8 weeks focusing on word study using *REWARDS Intermediate* (Archer, Gleason, & Vachon, 2005)

and fluency using oral reading fluency data. Vocabulary and comprehension were also taught each day. Phase 2 occurred over a span of 17-18 weeks and emphasized vocabulary and comprehension, with additional instruction and practice on the Phase 1 skills. Fluency and comprehension were addressed 3 days per week. Students were also introduced to word relatives and parts of speech and applied word study to spelling words. REWARDS Plus Social Studies was used 3 days per week and novels were used the other 2 days. Students read each text at least twice for fluency. After reading, the students were then provided with instruction on generating questions with various levels of difficulty, identifying the main idea, summarizing, and using strategies for multiple-choice, short-answer, and essay questions. Phase 3 focused on vocabulary and comprehension over approximately 8-10 weeks. The word study and vocabulary were identical to that of Phase 2, and interventionists also addressed fluency and comprehension through application of strategies for reading and understanding text. Again, students read the text twice for fluency, produced questions while reading, and addressed comprehension questions related to all the aforementioned skills.

An ANOVA was conducted to determine the effectiveness of yearlong Tier 2 intervention with a group of sixth-graders. The authors conducted multiple ways to consider site as well as covariates (e.g., age, additional instruction, intervention time, fidelity, group sizes) and their interaction and most analyses compared the Tier 2 and comparison typical groups.

Overall, the results from this research showed that students who participated in the Tier 2 interventions scored significantly higher in the areas of word attack, spelling, comprehension, and phonemic decoding efficiency than students who received the Tier 1 interventions. ANOVAs revealed significant main effects for the treatment group ($F_{(1,298)} = 4.67, p = .0314$).

As expected, students who received Tier 2 intervention outperformed than comparison group. However, the authors offered several important considerations and cautions when drawing conclusions regarding the relationship between intervention effects and large sample size for Tier 2 treatment group. They noted that larger sample size group and time in intervention may significantly affect the results. The authors recommended that the individualized intervention in small groups of three to five students be conducted in future studies to verify findings.

Berkeley and Riccomini (2011) examined the effectiveness of a comprehension monitoring strategy (QRAC-the-Code) for improving the reading comprehension of sixth- and seventh-grade students with and without disabilities in inclusive whole-class settings social studies classes. A total of 327 students participated in this study and included 27 students with LD and four with other health disabilities. The study was conducted at midsize, rural, southeastern middle school in its first year of operation. Participants composed mostly of Caucasian students (92.6%) with minority populations of less than 10%.

Students were randomly assigned to either an experimental comprehension monitoring group or a control group. A total of five instructors (two classroom teachers and three researchers) taught 24 total instructional groups of general and special education students for 20-min instructional sessions over 3 days.

Prior to instruction, students completed a pretest measure using a social studies content test and a strategy survey. Students in the experimental group were taught to use steps of the QRAC-the-Code strategy: (a) Question (turn headings into questions), (b) Read (read the section and STOP, (c) Answer (Ask yourself: Can I answer my question?), and d) Check (Check to be sure your answer was correct or summarize the section). Students were provided with a strategy sheet with the steps and additional prompts. Students in the

control group independently read a chapter in the textbook and took notes on three important concepts. Following instruction, identical measures were administered as posttests.

Results showed that students in the comprehension monitoring group outperformed students in the monitored independent reading condition, with mean gain scores of 2.81 versus 1.37 on the content test. The effect sizes were modest ($ES = 0.48$). ANOVAs revealed significant effects for the treatment condition, ($F_{(1,293)} = 7.81, p = .006$). When asked which strategies helped them remember what they had read, 115 of 177 (64.25%) students who learned the QRAC-the-Code comprehension monitoring strategy indicated it was a strategy that helped them recall what they had read. Conversely, 17 of the 142 students in the comparison group who read text independently indicated that taking notes helped them remember what they had read. Students in the comprehension monitoring group demonstrated statistically higher posttest gains in strategy knowledge than students in the monitored independent reading condition ($t_{(317)} = 7.44, p < .00$).

Students who were taught a QRAC-the-Code strategy improved their reading comprehension of social studies compared to students who were instructed to read independently and took notes on three important concepts. The authors concluded the QRAC-the-Code strategy helped them remember what they read. Unfortunately, this study did not examine maintenance of learned skills over time. The authors recommended that future research include other content area such as mathematics, science, and general lengths.

Rouse, Alber-Morgan, Cullen, and Sawyer (2014) investigated the effects of a self-questioning intervention with a prompt fading procedure on the reading comprehension of fifth-graders with LD resulted in increased participants' reading comprehension skills. The two 11-year-old fifth-graders selected for the study were from a receiving special education services in a suburban elementary school district in midwest. Participants made up of one

African-American girl and one Hispanic boy. Both participants showed significant reading comprehension deficits, and their reading level was second grade.

A multiple baseline across individuals design was used to determine the effectiveness of systematic stimulus fading of embedded questions to self-questions. The interventions consisted of seven phases: baseline, embedded questions training, embedded questions, self-questioning training, self-questioning, self-questioning fading, and maintenance/generalization. The study was conducted in the special education resource room 2 or 3 days of week for 30 minutes of one-to-one instruction. Students engaged in reading with second-grade level passages from Readworks.org. Participants were randomly assigned to experimental intervention, where they were trained by doctoral students to use embedded questions, prompts to write a question, and prompts to present a question. An 8-item multiple choice quiz was administered after each phase.

Overall, the students demonstrated meaningful progress in reading comprehension given the instructional time of the intervention. According to the comprehension quiz scores in each phase, the baseline results for the two participants were 2.5 (31%) and 2.1 (26%). During the self-questioning training phase, both students increased to 7.2 (90%) and 6.8 (85%). Maintenance and generalization data 3 to 6 weeks after the self-questioning phase revealed that both students scored 8.0 (100%) and 7.7 (88%).

The results of this study revealed that the systematic stimulus prompt fading phases for teaching self-questioning were effective for improving the reading comprehension ability of two fifth-graders with LD. However, the authors indicated several limitations of the study. The sample of only two culturally and linguistically diverse students makes it difficult to extend this finding to other groups of students. Another limitation was how reading comprehension was assessed. More in-depth methods should have been used such as

answering open-ended questions, retelling, or writing a summary. Despite the limitations, the results of this study indicated that teachers could use self-questioning intervention for individual learners with disabilities at different ages and grade levels and in other content areas.

Summary

In this chapter, I reviewed 10 studies that evaluated the effectiveness of reading comprehension interventions for elementary students with reading disabilities. Table 4 summarizes the findings of these studies, which are discussed in Chapter 3.

Table 4

Summary of Chapter 2 Studies

AUTHOR (DATE)	PARTICIPANTS/ SETTING	PROCEDURE	RESULTS
Jitendra, Hoppes, & Xin (2000)	33 middle school students with reading disabilities	Main idea strategy and self-monitoring instructional procedure	The experimental group outscored the control group on posttest training items, students responded positively to instruction.
Abrahamasen & Shelton (2001)	92 students seventh- grade through ninth-grade	Syntactic and semantic interventions	Treatment group receiving both modifications comprehended the information significantly better.
Mastropieri, Scruggs, & Mushinski Fulk (2001)	25 student sixth grade through eighth-grade	Keyword strategy	Condition was effective in aiding students' understanding of the vocabulary and comprehension.
Schorzman & Cheek (2004)	103 sixth-grade students	Directed reading-thinking activity; pre-reading plan; graphic organizers	Students in the experimental group had higher average scores than the control group on the cloze procedure.
Nelson & Manset-Williamson (2006)	20 students with reading disabilities in fourth grade to eighth-grade	Explicit strategy instruction to a less explicit strategy instruction	Students receiving an Explicit Comprehension Strategy Instruction showed more growth than students receiving the less explicit Guided Reading Strategy Instruction.
Fagella-Luby, Schumaker, & Deshler (2007)	79 ninth-grade students, among those 14 students with learning disabilities	Embedded Story Structure (ESS) Routine compared to a Comprehension Skills Instructional Approach (CSI)	Grater gains in comprehension for students receiving the ESS instructional method versus the CSI method.
McKeown, Beck, & Blake (2009)	119 fifth-grade students	Content instruction, strategy instruction, and basal instruction	Students in the content strategies instruction made the most gains.

Table 4 (continued)

AUTHOR (DATE)	PARTICIPANTS/ SETTING	PROCEDURE	RESULTS
Vaughn et al. (2010)	327 sixth-grade students	Word recognition, vocabulary, fluency, and comprehension intervention	Intervention increased student achievement in decoding, fluency, and comprehension.
Berkeley & Riccomini (2011)	323 sixth-grade to seventh-grade students	Treatment condition group learned a comprehension monitoring strategy, and the comparison condition engaged in monitored	Both general education students and students with learning disabilities who were taught a simple comprehension monitoring strategy (QRAC-the Code) improved comprehension of textbook content and used more reading strategies after the intervention.
Rouse et al. (2014)	2 fifth-grade students with learning disabilities	Self-questioning using a prompt fading procedure	Systematic stimulus prompt fading package for teaching self-questioning was effective for improving reading comprehension for two students with learning disabilities.

Chapter 3: Conclusions and Recommendations

The majority of students with reading disabilities have deficits in the area of reading comprehension (Berkeley et al., 2011; Berkeley & Riccomini, 2011; Hawkins et al., 2011). The purpose of this paper was to examine which instructional interventions result in positive reading comprehension outcomes for elementary students with reading disabilities. In the first chapter, I reviewed important historical teaching methods that focused on effective reading comprehension instruction and interventions for elementary students. Chapter 2 includes a critical review of research that investigated the impact of various upper-elementary reading interventions. In this final chapter of the paper, I discuss the conclusions of the research and offer recommendations for future research and practice to support the reading comprehension development of struggling elementary readers.

Conclusions

All of the 10 studies reviewed in this paper employed quantitative research designs to measure the effectiveness of interventions on reading comprehension. A variety of reading strategies were implemented in the studies, and procedures also varied with regard to the number of treatment sessions and duration of the study. Overall, all of the studies reported significant positive change in students' reading comprehension skills.

Four of the 10 studies used a single explicit reading comprehension strategy instruction component that improved reading comprehension performance (Berkeley & Rocomini, 2011; Jitendra et al., 2000; Manset-Williamson & Nelson, 2005; Rouse et al., 2014). Six of the 10 reading comprehension strategy studies were multicomponent, meaning the intervention included at least one additional instructional component (e.g., decoding, fluency, vocabulary, recall). Three of these included instructional attention in fluency or text structure, vocabulary, decoding, word recognition, and comprehension strategy instruction

(Manset-Williamson & Nelson, 2005; Mastropieri et al., 2001; Vaughn et al., 2010). Two studies used graphic organizers (Fagella-Luby et al., 2007; Schorzman & Cheek, 2004). Abrahamsen and Shelton (2001) modified an existing curriculum and used syntactic and semantic interventions to deliver instruction more effectively. McKeown et al. (2009) included content instruction and strategy instruction to enhance reading comprehension skills. In all of the multicomponent studies reviewed, participants showed gains in reading comprehension when intervention strategy was explicit.

Two of the studies various settings in which reading instruction were delivered. Vaughn et al. (2011) was successful delivering instruction within the context of a Response to Intervention model. The Manset-Williamson and Nelson (2005) study embedded instruction within two competing instructional settings: guided reading and explicit reading instruction. This study produced positive outcomes for students in the explicit instructional group.

The duration of each study was different. The length of the studies ranged from 9 days (Fagella-Luby et al., 2007) to 2 years (McKeown et al., 2009). The majority of the studies took place during the regular school calendar, whereas one intervention was implemented during a summer program (Manset-Williamson & Nelson, 2005). Each study also varied in participants' group as some strategies were provided in a one-to-one format, whereas others had larger groups of students.

Regardless of the variation in the studies, outcomes were positive. After reading these studies and examining their research design and results, I have several recommendations for future research.

Recommendations for Future Research

The authors demonstrated the needs to generalize outcomes through further study. Few studies have been conducted specifically targeting the literacy needs of upper-elementary students with identified learning disabilities. The vast majority of studies published to date address the literacy needs of struggling elementary readers. Much more research is needed in this area.

Most of the authors recommended that future research include larger sample sizes and that studies be conducted over a longer period.

Researchers need to examine the degree to which literacy strategies that have been mastered are maintained over time and the degree to which participants generalize applying to other instructional settings. Thus, the authors recommend that future research is needed to close the gap between students with reading disabilities and the general population on the success of comprehension strategies and their effectiveness.

Researchers also need to investigate whether reading interventions would best be delivered using independent-level or instructional-level text. All interventions must provide effective assessment measures of reading comprehension.

Implications for Current Practice

The findings from the studies have implications for both special education and general education teachers who teach reading. When I was a fifth-grade teacher, I often witnessed the manner in which students in language art and social studies classes struggled to comprehend the text what they read. At the end of the school year, the learning gap between the struggling readers and their peers were bigger than they started the year. However, I did not know what types of interventions I need to use in order to develop their reading skills. As

a result of reviewing this literature, I expect to implement more of these interventions in my future classroom as a general classroom teacher working with struggling elementary readers.

It is in the best interest of my students that all of their teachers know what and how to employ appropriate strategies, which enhance reading comprehension. One specific intervention stood up in my mind, is the QRAC-the-Code strategy, and I will share this strategy with my colleagues in other academic subjects. It is a quick, effective reading comprehension strategy, and both qualities are important to general as well as special education teachers (Berkeley & Riccomini, 2011). I believe that when students find that using reading strategies can help them to learn, they are more likely to be motivated and involved in classroom.

As a result of this review of the literature, I have found reading comprehension strategies and interventions that can enhance students' literacy skills. I feel confident in using these strategies to teach my students and plan to expand my instruction strategy list.

Summary

Strong literacy skills are connected with all subjects. They are needed not only for school success, but also for post-school employment and life-long learning. For elementary students who struggle with reading comprehension, it is of the utmost importance that teachers choose and implement appropriate comprehension interventions that will result in advantages at all stage of students' lives.

In general, the researchers suggested it is essential to provide more intensive intervention by applying interventions correctly and consistently for a longer period of time and to smaller groups. When comprehension strategies are implemented appropriately, students are able to function more successfully in a mainstream classroom.

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