

The Effects of Instruction in Reading Strategies on the Reading Comprehension
of High School Students with IEPs

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Abstract

The purpose of this study was to examine the effect of instruction in reading strategies on the reading comprehension of high school students with Individualized Education Plans (IEP). The measurement tool was “The Protocol for Accommodations in Reading” (Decoste & Wilson, 2012). This study involved the use of a pretest/posttest design. Participants were selected based on: teacher observations, the student’s Individualized Education Plan (IEP), and ability to participate. Students received ninety minutes of reading strategy instruction every other day (A/B schedule), for six weeks. Reading comprehension, as evaluated by the measurement tool administered prior to intervention and afterwards, showed significant improvement. Implications and recommendations for future research are discussed.

CHAPTER I

INTRODUCTION

Overview

The world is changing. Information is traveling at the speed of light. Processing information requires comprehension. And yet, there exists in America's high schools, students who still struggle to read... never having attained the comprehension required for them to 'read to learn'.

Reading comprehension is critical. Without it, humans cannot understand what they read, remember what they read, nor communicate with others what they read (Berkeley, Mastropieri, & Scruggs 2011). The importance of reading comprehension in academic success... and subsequently throughout life, is significant. Sadly, more and more students are not prepared to succeed because they have only partially mastered the reading capabilities needed for the academic challenges of high school (Wise, 2009).

Not all who wander are lost. Sitting in classrooms all over America are students with Learning Disabilities (LD). Their struggle to comprehend what they read is often extremely challenging. The intensity and amount of reading instruction for adolescents with LD is currently far from sufficient (King-Sears & Bowman-Kruhm, 2010). Statistics show that students entering high school who struggle with reading and reading comprehension due to LD, are likely to continue that struggle throughout their entire lives. What can be done? Do strategies and solutions exist to ameliorate this problem?

Using the right tool makes all the difference. Teachers need effective tools to help students develop critical 'reading to learn' skills (Herman & Wardrip, 2012). Low achieving readers, both with and without LD, benefit from instruction in comprehension strategies that

support the reading comprehension process (Guthrie, McRae, Coddington, Klauda, Wigfield, & Barbosa, 2009). Meta-analyses of prior research on improving reading and reading strategies of LD students have confirmed the superiority of remediation programs that combine direct reading instruction with strategy-based instruction (Lovett, Lacerenza, De Palma, & Frijters, 2012). And so, successful reading interventions theoretically exist. Are these tools effective and feasible in real life? Do reading intervention strategies actually make a positive impact on the reading comprehension of high school students with IEPs? This study attempts to answer the question.

Statement of Problem

The purpose of this study was to examine the effect of instruction in reading strategies on the reading comprehension of high school students with Individualized Education Plans (IEP). The independent variable in this study was the reading strategies- the double/triple entry chart (a graphic organizer), and annotation of text (with visualization). The dependent variable was the oral comprehension scores of the participants on “The Protocol for Accommodations in Reading” (Decoste & Wilson, 2012).

Hypothesis

The null hypothesis is that there will be no difference in the reading comprehension of high school students with IEPs after instruction in reading strategies.

Operational Definitions

Reading Comprehension: For the purpose of this study, reading comprehension was defined as the student performance on the “The Protocol for Accommodations in Reading” (Decoste & Wilson, 2012). The calculation of the score is determined by the students’ oral responses to twelve comprehension questions: main idea, fact, vocabulary, and inference. Questions assessed the oral comprehension of the informational text read.

Double/triple entry chart: A graphic organizer with two or three columns. Students are provided with a quote from a class text in the first column, and are asked to describe their understanding in the second and third columns, by either drawing or paraphrasing or both.

Annotation of text (with visualization): Students markup key elements of a text by underlining/highlighting important facts, circling and defining challenging vocabulary, and drawing simple pictures (in the space around the text) to illustrate comprehension.

CHAPTER II

REVIEW OF THE LITERATURE

This literature review explores various interventions used to improve the reading comprehension of high school students with learning disabilities. Section one discusses the importance of reading comprehension in academic success, as well as later in life. Section two delineates problems associated with reading comprehension in high school students with learning disabilities. Section three investigates reading interventions and reading intervention strategies used to ameliorate reading comprehension problems in high school students with learning disabilities.

Importance of Reading Comprehension

Reading Comprehension and Academic Success

Reading comprehension is the fundamental skill upon which all academic success hinges. In fact, literacy is the cornerstone of achievement for any student, in any grade (Wise, 2009). Reading at a literate level encompasses many skills including how to read text, how to understand text and how to learn from text (Herman & Wardrip, 2012). Good reading comprehension skills are necessary for students to move ahead and be successful in their secondary school curricula. Without proficiency in reading comprehension skills, higher level academic achievement is out of reach (McMaster, et al.,2014). In fact, students who lack reading competency skills are missing one of the key components of both high school and college readiness (Pyne, 2012). The increasingly difficult texts assigned to today's secondary students require sophisticated reader confidence with learning from text, in a variety of media.

The National Assessment of Educational Process Data from 2005 cites 68% of Secondary

students in the United States score below proficiency level in Reading (Faggella-Luby & Deshler, 2008). Sadly, children who struggle with reading comprehension, and receive no effective intervention, continue to have difficulties with reading well into adulthood (Rapp, van den Broek, McMaster, Kendeou, & Espin, 2007). As of 2001, 25% of adults in the United States read below the 4th grade level (Lovett, et al., 2012). If students with low literacy can't graduate high school adequately prepared for college or career... what happens next (Wise, 2009)?

Reading Comprehension Beyond High School

Does reading comprehension matter after high school? Literacy rates indicate whether youth are being educated to be productive members of society. Secondary educators look at literacy skills as an indicator of how *on track* students are for college and the workplace (Wise, 2009). Additionally, advanced literacy skills contribute to higher college enrollment numbers and better grades in postsecondary courses. In fact, between 2000 and 2010, $\frac{2}{3}$ of jobs required some postsecondary education, with highly paid jobs requiring the most education (Faggella-Luby & Deshler, 2008).

“Given that human capital is a prerequisite for success in a global economy, U.S. economic competitiveness is unsustainable with poorly prepared students feeding into the workforce” (Wise, 2009, p.372). The demand for literacy in our increasingly information-driven society has placed a premium on effective reading skills in a variety of settings (Rapp et al., 2007). Appallingly, in 2003, according to the Organization for Economic Cooperation and Development (OECD), the U.S. ranked only 15th of 29 nations in reading literacy (Wise, 2009). Because the changing 21st century job market now requires a sophisticated array of literacy skills, the falling reading literacy achievement scores ultimately mean lack of economic self-sufficiency for its

citizens and has grim consequences for communities, states, and the American society as a whole (Faggella-Luby & Deshler, 2008).

Reading comprehension, besides equipping students to succeed in school and helping them to obtain a competitive job in today's changing global marketplace, also assists in creating independent thinkers (Lapp & Fisher, 2011). When students control their own comprehension processes, they begin to generate their own perspectives, interpretations and understandings. Therefore, the ultimate fundamental and universal value in reading comprehension is to develop lifelong independent readers who can understand what they read and learn from it.

Problems Associated with Reading Comprehension in Students with Learning Disabilities

Reading comprehension is a complex skill that places significant demands on *all* students and especially on students with learning disabilities (LD) (Watson, Gable, Gear, & Hughes, 2012). Reading skill acquisition has proven particularly challenging for students diagnosed with learning disabilities because of their initial difficulty in learning to read (Faggella-Luby & Deshler, 2008). LD students labor in the area of reading comprehension due to the sheer enormity of the cognitive process. They struggle as they simultaneously attempt to construct meaning from the written text, connect meaning to words, make inferences, draw conclusions, recall and summarize information, and actively monitor their understanding (Watson et al., 2012). Frequently, classrooms in high schools use texts two or more years above the average reading level for that grade, yet many LD students read at 2.5 to 5 years below the average reading level, leaving them farther and farther behind their non-disabled peers (King-Sears & Bowman-Kruhm, 2010). Tragically, sometimes the primary reason LD students have Individualized Education Plans (IEPs) is because of low reading skills and the subsequent quest for inclusion of adolescents with LD into general education classrooms eclipses this need. Sadly,

it is in these general education classrooms where the LD student is most likely to have their reading comprehension problems remain hidden because they often have age-appropriate reading *word* skills, although no actual comprehension of text (Nation & Angell, 2006). In fact, researchers who examined IEPs of high school students with reading disabilities found students in secondary grades were less likely to receive services based on significant reading deficits (King-Sears & Bowman-Kruhm, 2010). And so, as time passes, the gap between LD students and their non-disabled peers grows larger and more difficult to close (McMaster et al., 2014). In addition, secondary LD students with reading deficits have lower grades, lower test scores, lower perceptions of their own academic and intellectual abilities, more difficulty concentrating, more concern about lack of time for classwork completion, feelings of helplessness or uncertainty during examinations, and the belief that nothing can help them learn as fast as their non-disabled peers (Heiman & Precel, 2003). Projecting forward, persistent LD in adolescents (age 12-19 years) was associated with elevated risk for adverse outcomes in young adulthood including lower family socioeconomic status, lower Intelligence Quotient (IQ), and lower educational and occupational attainment (Lovett et al., 2012). Data from the Connecticut Longitudinal Study in 1994 revealed that students don't outgrow reading problems and that 74% of children defined as reading disabled in 3rd grade still met the criteria in 9th grade. And so, when students with LD need specialized reading instruction, and don't receive it, they have missed a critical opportunity to realize their capacity during their crucial formative years (King-Sears & Bowman-Kruhm, 2010).

**Reading Intervention Strategies used to Ameliorate Reading Comprehension Problems
in High School Students with Learning Disabilities.**

Low achieving readers often lack comprehension strategies and benefit from instruction which supports the reading process (Guthrie et al., 2009). Instruction in reading comprehension can help LD students better understand what they read, better remember what they read and better communicate with others what they read (Berkeley, Mastropieri, & Scruggs, 2011). A 2009 meta-analysis of prior research on improving the reading and reading comprehension skills of students with LD found that explicit instruction in comprehension strategies was associated with improved reading comprehension by middle and high school students (Lovett et al., 2012). Teachers need effective tools to help students develop critical reading-to-learn skills that literacy research identifies as essential for academic success. (Herman & Wardrip, 2012). Improving the reading comprehension of students who struggle requires interventions that are theoretically sound, empirically effective, and practically feasible. (McMaster et al., 2014). One such instructional method of teaching reading comprehension includes the Gradual Release Model (GRM). Within the GRM framework, teachers intentionally develop student competence with successful reading by gradually shifting responsibility from teacher to students by: establishing an objective for learning (communicated by teacher), modeling a skill (demonstrated by teacher), guided instruction (students attempt skill with teacher prompting), productive group work (students work in groups to consolidate learning), and independent practice (students practiced new skill independently)(Lapp & Fisher, 2011).

Another comprehension strategy which teachers can explicitly teach is the use of graphic organizers. A synthesis of research from 1963 – 1997, which encompassed separate 21 studies, illustrated that the use of graphic organizers were associated with improved reading comprehension for students with LD (Ae-Hwa Kim, Vaughn, Wanzek, & Wei, 2004). Because LD students struggle to organize and recall information, but are usually good at non-verbal tasks

and spatial or visual modes of concept visualization, it could be hypothesized that visual displays of information (i.e. graphic organizers) may help LD students circumvent their difficulties recalling and organizing verbal information and thus their enhancing reading comprehension.

A Double Entry Journal (DEJ), also called a t-chart, is a reader response log with two or more columns that provides structure for struggling students to monitor and document their understanding of a text. In using a DEJ, students fill out two columns in a structured format teaching them to actively read and reflect on what they have read. The beauty of a DEJ is it allows the teacher to focus student learning on an important idea or skill, while allowing for flexibility such as the option of allowing students to pictorially represent their ideas (Herman & Wardrip, 2012).

Summary

Reading comprehension is vitally important. It is the key to academic success both at the secondary level and beyond. In addition, reading comprehension is imperative in helping students obtain a competitive job in today's changing global marketplace. However, because reading comprehension is a complex skill, it places significant demands on students with learning disabilities. Since students don't simply outgrow reading problems, interventions must be explicitly taught. These interventions need to be theoretically sound, empirically effective, and practically feasible. Fortunately, research about the efficacy of comprehension strategies has revealed promise about ways to improve the reading of struggling students.

CHAPTER III

METHODS

This study examines the effect of instruction in reading strategies on the reading comprehension of high school students with Individualized Education Plans (IEP).

DESIGN

This study used quasi-experimental pre-test, post-test design. All eight students in the study were given pre and posttests so the researcher could compare their oral reading comprehension scores before the intervention as well as determine gains, if any, after the intervention.

SUBJECTS

The participants for this study formed a convenience sample of students from a self-contained Behavior Learning Support (BLS) classroom, which is an alternative Special Education setting within a public high school. The high school is located in a suburban Maryland County, and has a total population of 1457, of which 93% are African American, 4% are Hispanic, 2% Asian, and 1% are two or more races. There were 732 females and 725 males enrolled at this school. One hundred and seventy two students, or approximately 11.9% of the students in this high school, had IEPs.

Eight students were selected, by the researcher, from the researcher's 10th grade BLS classroom. All participants were special education students with IEPs. Participants' reading scores ranged from 2.7 Grade Equivalency (GE) to 4.5 GE. The IEPs of all eight students contained reading accommodations for 'selected verbatim' and 'verbatim' reading during testing, due to their learning disabilities. Seven of the students were African American and one was

multiracial. Four were female students and four were male, and they ranged in age from 15 to 18 years old.

INSTRUMENT

“The Protocol for Accommodations in Reading” (Decoste & Wilson, 2012), was used as the measuring instrument. The test was designed as a formative assessment tool to evaluate students’ comprehension under three reading conditions: student read aloud, adult read aloud, and text reader. (Since all research participants had the accommodation on their IEP of ‘selected verbatim’ and ‘verbatim’ reading, only the adult reader protocol was utilized.) The passages and comprehension questions were professionally developed, specifically for this instrument, and the passages were scored for readability at mid-grade level using Flesh-Kincaid (F-K Level) formulas (DuBay, 2007). The twelve comprehension questions, for each passage, were written to be less complex, in order to minimize errors due to question complexity. Four types of questions were utilized: main idea, fact, vocabulary, and inference. The main idea question was designed to determine whether the student comprehended and could identify the main theme of the passage. Fact questions were designed to determine explicit and implicit student reading comprehension. Vocabulary questions were designed to determine student understanding of words in context, and inferential questions were designed to assess the students’ ability to reason and utilize background knowledge.

During testing, the researcher tested each student individually. First, the adult reader gave the student a copy of the paper text. Next, the adult reader read their own copy of the text aloud, to the student. Without taking away the student’s paper text, the adult asked the twelve comprehension questions, and the student answered orally. Responses that were similar to the suggested printed answers were scored as correct. Half- credit was given when student

responses were vague or only partially complete. No credit was given when student response was missing or incorrect.

PROCEDURE

The study began in February 2015, when the researcher administered “The Protocol for Accommodations in Reading” orally, to eight BLS students in a self-contained 10th grade English class. Selection of participants was based the students’ IEP, low achievement, and availability to participate. Next, the researcher introduced instruction in annotation of text (with visualization) and T-charts/ triple entry charts (both with a pictorial component) as reading strategies to increase oral reading comprehension. The interventions were used two times a week for six weeks, during the students’ regularly scheduled 90 minute self-contained BLS English class.

Annotation

Annotation is a form of content analysis in which students markup key elements of a text in order to understand the author’s message, distinguish between important and irrelevant information and construct mental models (Herman & Wardrip, 2012). The lessons introducing annotation included identifying and highlighting the main idea, circling and defining challenging vocabulary, underling/highlighting important facts, and drawing simple pictures (in the space around the text) to illustrate comprehension. The researcher’s strategy lessons on annotation were designed to support a modified gradual release of responsibility from teacher to student, using the ‘model, practice, apply’ format. However, due to the low academic level of the students, they did not operate independently of the researcher during the “apply” phase of the reading strategy intervention.

T-Chart/ Triple Entry Journal

A double entry journal, also called a t-chart, is a reader-response log with two columns that provides structure for students to monitor and document their comprehension of text. A triple entry journal has three columns and allows greater flexibility for the student to articulate their understanding through different representations (Herman & Wardrip, 2012). The lessons introducing the t-chart included instruction which taught students to actively read and reflect on their reading by pictorially representing their understanding next to pieces of preselected text which the students copied onto a t-chart. Subsequent instruction introduced the triple entry chart, in which students eventually added a third column of paraphrasing of text to their pictorial representation, to further bolster their comprehension. The researcher's strategy lessons on the t-chart and the triple entry journal were designed to support a modified gradual release of responsibility from teacher to student, using the 'model, practice, apply' format. However, due to the low academic level of the students, they did not operate independently of the researcher during the "apply" phase of the reading strategy intervention.

After six weeks of the reading strategy interventions, students were administered another set of "The Protocol for Accommodations in Reading" text passages and comprehension questions. Changes in the individual scores are described in Chapter IV.

CHAPTER IV
RESULTS

This study examines the effect of instruction in reading strategies on the reading comprehension of high school students with Individualized Education Plans (IEP). The study participants were a convenience sample of students from a self-contained Behavior Learning Support (BLS) classroom, which is an alternative Special Education setting within a public high school. The students' reading scores ranged from 2.7 Grade Equivalency (GE) to 4.5 GE, which was approximately five to eight years behind grade level of their peers. A pre-posttest design was used with teacher developed materials. A paired or dependent t test was used to statistically measure the difference from pre to post test.

Originally, both tests had 12 questions and the numbers of correct questions out of 12 were changed into decimals for analysis. A significant difference was obtained showing growth from pre to posttest as displayed in Table 1.

Table 1
Statistical Analysis of the Data

		Mean	Std. Deviation	Std. Error Mean	t value	df	Level of significance
Pair 1	Posttest Decimal – Pretest Decimal	.20250	.10525	.03721	5.442	7	.001

CHAPTER V

DISCUSSION

This study examines the effect of instruction in reading strategies on the reading comprehension of high school students with Individualized Education Plans (IEP).

The null hypothesis that there will be no difference in the reading comprehension of high school students with IEPs after instruction in reading strategies was rejected. The analyzed data from eight high school students with IEPs who were taught and used reading strategies to increase their reading comprehension showed a significant growth from pretest to posttest. The scores demonstrate that there is a benefit to the reading comprehension of high school students with IEPs when they receive reading strategy instruction.

Implications of the results

The results of this research study suggest that there is a significant difference in high school students with IEPs reading comprehension when they are instructed in reading strategies. These findings validate the importance of instruction in reading strategies such as the double/triple entry chart and annotation of text with visualization. These types of strategies can help high school students with IEPs significantly increase their reading comprehension.

This study also shed light on the notion that as students added more usable tools to their repertoire of reading strategies, not only did their comprehension increase but also confidence in their ability to learn. Due to their extremely low reading scores (participants ranged from 2.5 GE to 4.5 GE) the high school students with IEPs, in this study, routinely discounted their learning potential. As they learned functional reading strategies, not only did their perceived self-confidence increase... but their reading comprehension did also. After students were taught annotation with visualization, some began using this strategy to monitor their comprehension,

using highlighting and drawing, with texts not specifically assigned as practice for this reading strategy. In addition, learning to comprehend and demonstrate their understanding of text through drawing *and* paraphrasing on the double/triple entry charts boosted their confidence and increased some of the students' participation in class activities and discussions.

Threats to Validity

Throughout this study there were several threats to validity which fell into two categories, internal and external. The internal threats to validity were based primarily on research methodology or design. The first internal threat was the lack of a control group to compare the data of students who received reading strategy instruction to the data of students who did not receive the instruction. The second internal threat was the scoring of the instrumentation used to assess comprehension. It was scored by the researcher and the subjective evaluation of the oral responses may have affected the validity of the scores. Third, the increase in student comprehension could have been partially due to a natural progression of skills over time. Finally, the relatively small size of the participant group (eight high school students with IEPs)...all from two self-contained classrooms in the same high school, represented an external threat which was due primarily to sampling methodology or sample size.

Connections to Previous Studies/Existing Literature

Readers with learning disabilities (LD) have difficulty comprehending text for various reasons...but one significant challenge is the struggle to construct a coherent representation of their understanding (McMaster et al., 2014). Graphic organizers can be created and utilized in the classroom, which provide students both structure and flexibility to creatively monitor their reading comprehension of text. A synthesis of research illustrates that consistent use of graphic

organizers was associated with improved reading comprehension in students with LD (Ae-Hwa Kim et al., 2004).

The researcher's findings were similar to a previous study performed by Herman and Wardrip (2012). Their study also focused on teaching practical reading comprehension strategies, including the use of graphic organizers, in order to increase reading-to-learn competencies. Herman and Wardrip's studies differed from the researcher's in that their subjects were average high school students, not struggling high school students with IEPs. Also, the researcher's graphic organizers specifically delineated the language arts content text for which the students were required to provide analysis, whereas in the Herman and Wardrip studies, the students were given freedom to monitor and document comprehension of student-selected science text. However, the basic premise and outcome was similar in both studies; teaching reading strategies increases student comprehension of text.

Implications for Future Research

Future research regarding teaching reading strategies to increase reading comprehension in high school students with IEPs would benefit from strategy utilization across the curriculum. The researcher suggests across-the-board daily use of graphic organizers for IEP students in all academic courses, in order to increase student buy-in and encourage eventual voluntary student usage.

An assessment tool which more closely aligns with the actual curriculum would also be beneficial. This research study utilized "The Protocol for Accommodations in Reading" (Decoste & Wilson, 2012), as the measuring instrument. Although the test was designed as a formative assessment tool to evaluate students' comprehension...and while it assessed student

read- aloud achievement, perhaps an instrument that supports current Common Core curriculum would improve alignment.

In addition, a similar study could be conducted with a control group, to compare students who utilized reading strategies to students who did not.

Finally, studies which are conducted over a longer period of time, utilize a larger sample size, and include varying populations, would allow researchers to make greater generalizations about their findings.

Conclusions/Summary

This study found that instruction in reading strategies improves the reading comprehension of high school students with IEPs. Interestingly, it was observed in this study that when the participants were first introduced to the double/triple entry charts, they initially balked at the ‘paraphrase/draw your understanding of text’ requirement. However, once the students had “practiced” the technique several times with the researcher, they slowly began to be comfortable with the flexibility to represent their understanding in various modes and to eventually be more confident in their incrementally growing comprehension skills. Similarly, as the researcher modeled annotation of text with visualization, the students once again hesitated to engage with enthusiasm, resisting on the premise of their perceived inability to draw. After simple stick figures and line drawings were used as examples, the students slowly warmed to the concept. By the end of the six week study, the student participants showed significant growth in both their confident usage of the reading strategies and their reading comprehension.

Providing system-wide professional development for educators, in the instruction and implementation of effective reading strategies, could lead all students to improved reading

comprehension. Also, continued research in the area of reading comprehension and how reading strategies can support comprehension, is essential.

Good readers know how to read text and how to understand text and *how to learn from text* (Herman & Wardrip, 2012). This study demonstrated that even a relatively short instructional period of learning and implementing effective reading strategies can show a significant improvement in student reading comprehension... even with struggling readers who have documented learning disabilities. Improving reading comprehension, across the board, is a key part of creating a literate and functional society for all.

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