RAISING READING AND WRITING COMPREHENSION AND PERFORMANCE SCORES FOR STUDENTS WITH LEARNING DISABILTIES IN AN INCLUSIVE CLASSROOM: A SYNTHESIS OF EXISTING RESEARCH

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Introduction

Inclusion: The Beginning

In 2001, President George W. Bush passed the *No Child Left Behind Act* that transformed the world of education as we knew it. Whether this legislation was for better or worse is yet to be determined. This act requires more efforts by way of educators in supporting what are called the "neediest students." One of the major aims is to ensure that students, all of them, regardless of socioeconomic status (SES), have the ability to read by the end of the third grade. *No Child Left Behind* focuses on improving elementary and secondary schools in the United States, to guarantee that no student will be, as Bush stated, "trapped in a failing school" (2004).

With the passage of *NCLB,* teachers are now finding themselves overloaded with students who require special needs in education, a job that was formerly and exclusively the expertise of a Special Education teacher or Resource teacher. With the changes in the law, however, these students are being placed the general education classroom, or the classroom considered to have the least restrictive environment (LRE). It is rapidly becoming the general educator's job to now guarantee that each and every student has the same opportunity for an equal education, regardless of how the student learns.

The Challenge Presented to Educators

The difficulty presented by *NCLB* is being able to meet the needs of every student, with or without learning disabilities, in the inclusive classroom. This challenge is focused largely around the fact that LD students struggle with the fundamental skills necessary for reading and writing at grade level, where their average-achieving peers function. As Sáenz and Fuchs (2002) indicate, by the time students enter high school, the majority of their instructional time is focused around the reading they have done or will do in class. Similarly, writing poses an equally daunting task because of the complex nature of the assignments. LD students will not receive much in the way of *how* to compose writing pieces (the skill); instead, they will be instructed as to *what* needs to be composed (the content). It is expected that LD students will perform their writing tasks accordingly, just like students without a learning disability (Hallenbeck, 2002).

As is the nature of education, not every student learns by the same methods, eradicating the notion of "one size fits all." We need to have a loaded "bag of tricks" to incorporate into the classroom to ensure that all students learn, regardless of the pedagogy. Moreover, we have the added difficulty of ensuring that our LD students meet the minimum requirements necessary to move on to the next grade level, perform at the minimum passing level for high-stakes state tests, and ultimately, graduate from high school.

Since so much of student success is based on reading and writing, we need to implement the best practices for students with and without learning disabilities in an ever-increasing environment of inclusion to foster their success in these two areas.

Background Information

Understanding the Language

More than twenty-five years ago, the concept of mainstreaming entered the world of education. It "[was] the result of the near-unanimous passage of Public Law 94-142." Public Law 94-142 is now known as IDEA, or the Individuals with Disabilities Education Act, formerly known as the Education for All Handicapped Children Act. Historically speaking, this new law followed suit to the 1950's Supreme Court case of *Brown v. Board of Education*, where all educational facilities were to make the move towards desegregation, overturning the previous late 1890's ruling of the "separate but equal clause" in the case of *Plessy v. Ferguson* (Dodd, 1980). Mainstreaming, or placing students with physical or mental disabilities who would normally receive education in self-contained classrooms, required that these students be placed into general education classrooms, or classrooms that were considered to be of the "least restrictive environment," even if only for part of the day. The determining factor, however, was that students with special needs would have to "earn" or prove their place in the mainstreamed classroom as long as they showed that they could keep the pace with the students regarding assigned work.

Fast forward those twenty-five plus years and the paradigm has shifted a bit. Inclusion is now the latest trend in education. While the true definition of inclusion remains in flux from school to school, the basic premise of an inclusive setting is that all students, learning disabled or not, are educated in regular content area classrooms for the duration of the day. Ilda Carreiro King explains that "schools often differ in their approach to inclusion" (King, 2003). In any given school, the students with learning disabilities may be pulled out for a period of resource, but all content area classes are age and grade-level appropriate and attended with their peers (Idol, 2006). Services are brought to the student in the content area class either in a co-teaching situation or via the general educator who modifies her lessons and pedagogy. The resource period is for reinforcement of content learned in the general education setting.

The Challenge Students with Learning Disabilities Face

Identifying and understanding reading and writing disabilities is crucial for teachers who deal with diagnosed students on a daily basis. When students are classified learning disabled in reading or writing, it puts them average levels of achievement, not only academically in terms of accomplishment in a classroom setting but in social, personal, and community backdrops of life as well (Chall & Curtis,

2003). There are far-reaching effects when students struggle to read and write, especially in school. When students with these disabilities are publicly identified, they feel estranged from their peers. The social stigma that is placed on them can stay with them indefinitely.

When new and veteran teachers alike, despite the content area being taught, forge ahead at a pace aimed at satisfying the masses, students with reading and writing disabilities are bound to be left in the wake. Hence, when the content itself is unfamiliar, paired with the inability to comprehend it at the "average pace," it is easy to see how and why students with these disabilities are at such a disadvantage in all facets of everyday life. Because of this, many students with LD "have experienced failure" which, in the case of teenagers, may de-motivate students to learn (Schumaker & Deshler, 2003).

Understanding Students with Reading and Writing Disabilities

When taking into account that the majority of instructional time focuses on reading during class or discussion based on reading assigned for homework, defining the kinds of reading students are doing is essential to understand. One kind of reading that students will do, more likely in an English Language Arts setting, is the reading of narrative text, or stories that are written with an entertaining objective in mind. Graesser, Golding, & Long, 1991, explain that "the most common elements found in narrative texts are character with goals and motive, event sequences, and morals and themes (Sáenz & Fuchs, 2002). However, since most students spend the majority of their time reading expository material, or information presented to help students learn something new (Weaver & Kintsch, 1991), during their high school tenure, the students who struggle with this life-skill (reading) are put at a major disadvantage in achieving academic success. Barton, 1997 and Hudson, Lignugaris-Kraft, and Miller, 1993, found that by the time high school begins, students spend the "majority of their instructional time reading expository text" (Sáenz & Fuchs, 2002). Referencing Allington (2002), Dieker & Little (2005), found that when the skill of reading itself is deficient in any way, "it will impact the student across all classes" (p. 276). Since reading and writing are becoming such integral parts of every curriculum due to the trend of "writing across the curricula," the effect of learning disabilities extends to all content areas.

Writing disabilities are equally as challenging for high school students. Many times, these students perform poorly as compared to their average-achieving peers because they struggle to create acceptable text length, to organize their pieces, and quality, mechanics, and grammar also pose challenges (Englert et al., 2007). According to Chalk et al. (2005), who reference Scardamalia and Bereiter (1986), there are five major areas that pose particular dilemmas for LD students when trying to compose an essay: generating content, creating and organizing structure for compositions, formulating goals, quick and efficient execution of the mechanics of writing, and revision of text and reformulation of goals. Because these are skills that are presumably taught in elementary school,

many times, secondary teachers will not focus on the skill of the writing but rather the content of it. Hence, LD students will continually fall behind their peers if appropriate strategies for successful writing are not taught, practiced, and reinforced. So what do we do?

Rationale for Review

Since the passage of *NCLB* in 2001, many teachers new to the profession are not ready or prepared to deal with the changes that need to take place pedagogically within the classroom. What I discovered while researching was that many LD students do not receive the optimum education while in an inclusive classroom because teachers are ill-prepared. In a 2006 study, Aleada Lee-Tarver found that teachers supported the idea of inclusion in theory, but in practice, it was much more difficult to implement. Ultimately, in the study by Cook et al. (2007), it was alleged that though the general attitudes of teachers were low (in regard to their inclusive students), perhaps due to a perceived "lack of experience, knowledge, or responsibility regarding the instruction of students with disabilities" (p. 237). When teachers do not know how to correctly teach in an inclusive class, their perceptions about LD students affect the efficacy of instruction for these kids with special needs. We cannot let this happen, so we must understand some of the theory behind how LD students acquire knowledge.

If we are going to successfully teach in an inclusive classroom, we must sincerely try to understand and then employ the best methods suitable for LD kids. There are theoretical frameworks that need to be considered when implementing best practices in an inclusive classroom so as to foster their successes in acquiring and mastering reading and writing skills. One of the biggest implications in teaching LD students effectively is ensuring that teachers understand these theories. Social constructivist theory indicates that students will come to know and understand the setting around them through interacting *in* that social setting (Hallenbeck, 2002). Within this paradigm, students are able to make new meaning by accessing prior knowledge and combining it with newly gained social knowledge. Constructivist theory dictates that students must see themselves as active sources of knowledge; that teachers are not the only vehicles for obtaining knowledge. Conversely, teachers must be able to view themselves more as mentors rather than "'imparters of knowledge'" (p. 229). When this theory is understood, there is a shift in responsibility from the teacher to the student, making the student more responsible for his learning and ultimately, gives the LD student more confidence in his abilities.

Method

Selecting Studies for Review

In order to determine the best practices to employ in the inclusive classroom for students diagnosed LD in reading and/or writing, I examined seven empirical studies. Three studies focus upon the efficacy of different strategies to use in raising writing efficiency and performance, and four studies focus on the best practices to use in raising reading comprehension, especially when considering the effects of high-stakes testing in a state like New York.

The most helpful databases were Wilson Omnifile: Full Text Mega Edition and JSTOR. Being able to use both SUNY Cortland's access and, as a guest, Syracuse University's access, obtaining relevant articles was not overwhelmingly challenging. In fact, with such vast resources from both universities, the only challenge was the availability of almost too much information. The terms best suited for locating articles for this synthesis were terms like *comprehension in reading, reading and teaching methods, writing and teaching methods, inclusive education, mainstreaming in education, cognitive strategy instruction,* and *self-regulatory instruction*. I attempted to focus largely on published articles in peer-reviewed journals, mostly finding sources from such journals like *Learning Disability Quarterly* and *Remedial and Special Education*.

During my search for articles, I wanted to focus mainly on what the research offered about best practices for reading and writing instruction for learning disabled students. While I came across many articles that dealt with the best practices in reading in writing instruction for English Language Learners (ELLs), or students whose native language is something other than English, I chose to focus on students with diagnosed learning disabilities in either reading or writing. Since the trends in education, due to *No Child Left Behind*, are moving toward full inclusion, the articles focusing on such students are of valuable application in current classrooms. Given that this synthesis is founded in the arena of an educational teacher preparation program, I thought it wise to review and offer best practices proven effective in an inclusive classroom setting where many of my peers will be teaching.

Ultimately, this review centers around articles that include native English speakers diagnosed LD in either reading or writing. The participants range in age from elementary students to secondary students, though the majority of participants were secondary students. While some experiments were tested in a social studies setting, the strategies implied and practiced are easily applicable to any English Language Arts classroom.

Studies and Results

As shown in Appendix A, I examined seven empirical studies that address either reading comprehension strategies or writing comprehension and performance strategies to utilize as best practice in an inclusive classroom. The seven studies are listed chronologically between two tables: one for reading and one for writing. These articles will be discussed accordingly within the delineated areas of convergence.

Purpose of the Studies

Since reading and writing are independent of each other, two purposes for the studies emerged. For reading, there are many implications for LD students' success. Reading skills, and more importantly comprehension, are imperative for LD students to not only acquire, but to also practice continually to ensure their success throughout their schooling career. Alfassi (2004) and Bryant et al. (2000) both focus on strategies to aid students with LD in the process of how to better comprehend and process material being presented in texts. While Boyle et al. (2003) also suggest a form of strategy instruction, their experiment examines it in conjunction with the use of audio texts to aid LD students in comprehension and processing. Finally, Sáenz & Fuchs (2002) examine and identify the reasons for deficits in reading comprehension and fluency, as well as how question type mediates performance on reading comprehension. They finally offer suggestions of how to instruct secondary students with learning disabilities based on these indicators.

The articles focused on writing all suggest specific strategies for LD student success. Englert et al. (2007) advocate for a scaffolded approach that incorporated the use of a web-based program to improve student writing performance. Both Chalk et al. (2005) and Hallenbeck (2002) promote strategy instruction where students assume more responsibility for their own writing process.

Reviewing the Literature on Facilitating Reading Comprehension

- *Defining the Strategies*

Combined Strategy Instruction

Alfassi's study focuses on the idea of *combined strategy instruction*, which incorporates reciprocal teaching and direct explanation of reading material. Since many students, LD or otherwise, suffer from serious deficits in the higher order cognitive skills necessary for reading comprehension, this two-fold strategy proves to be most valuable. In congruence with social constructivist theory, Alfassi tends that in order to "achieve comprehension, individuals invent a model or explanation that organizes the information selected from the text in a way that makes sense to them and fits their world knowledge" (Alfassi, p. 171).

Reciprocal teaching involves students thinking actively while reading. They practice four strategies while reading: they generate questions, summarize, attempt to clarify word meaning or confusing text, and finish off with predicting content of the following paragraph. Early on in the process, the teacher models all four strategies. After this, students are charged with working the process in groups, dialoging and practicing the four strategies on different sections of the reading material. The final step in this process is to diminish as much of the scaffolded teacher assistance and promote student control over the four principles.

As opposed to reciprocal teaching, direct explanation focuses on the teacher, who clearly explains the rationale and processes necessary for reading comprehension. Detailed explanations of the strategies are offered in a think-aloud model, offering students a clear-cut rationale for when and why the specific strategy is being employed. In combining the two strategies, teachers are enabled to offer both scaffolded mediation and guided mastery when needed (Alfassi, 2004).

SLiCK

SLiCK is a strategy that incorporates the implementation of four tasks while reading in conjunction with audio texts. The first step is to *Set it up*, or make sure that all necessary materials are in order and available for use. Of primary concern is the readiness of

equipment: the CD and the CD player when using this strategy in conjunction with an audio textbook. The second element, to *Look ahead,* focuses on student familiarization with main idea and organization of material to be read. Third is the *Comprehend* element, where students should listen, read along, and list important details that are found in the text. Finally is the *Keep it all together* component, where students were to view all of the information in a more "global" view in order to anticipate the kinds of questions that might be asked following the reading (Boyle et al., 2003).

DISSECT – for Word Identification

DISSECT is a mnemonic strategy used to help students identify unknown words. The steps include *Discovering the context, Isolating the prefix, Separating the suffix, Saying the stem*, *Examining the stem*, *Check with a peer*, and *Trying the dictionary* (Bryant et al., 2000).

Partner Reading – for Reading Fluency

A stronger and weaker reader are paired together, where the stronger reader reads a passage first, followed by the repeated reading by the weaker partner. During the second reading, the stronger reader is able to aid the weaker reader by implementing correction procedures. Upon completion, both partners ask the other comprehension questions about the passage read (Bryant et al., 2000).

Collaborative Strategic Reading (CSR) – for Reading Comprehension

Students work in cooperative learning groups to implement four strategies: prediction, vocabulary, main idea, and summarization. Students can predict content by using visual cues like the charts, pictures, illustrations, and headings in the upcoming reading. Short segments are then read. Students use context clues and other vocabulary recognition strategies to determine the meaning of unknown words or phrases. Following this, students decide "who" or "what" the passage is about to obtain the main idea, explaining the most

important information regarding the “who” or the “what.” Finally, students summarize key ideas, events, and vocabulary, along with the previous information, on a log sheet (Bryant et al., 2000).

- *Methods Used*

In the 2004 study conducted by Miriam Alfassi, of Bar-Ilan University in Israel, she posed one major question. She wanted to see if incorporating combined strategy instruction into ELA classrooms was more effective than the traditional immersion of literacy instruction. For Alfassi’s experiment, treatment and control groups were both pretested using a Gates-MacGinitie reading comprehension test based on eight expository reading passages of approximately 500 words. Students then answered ten short-answer questions. Following the pretest, students in the treatment group were offered the reading strategy intervention to incorporate into their assigned tasks of reading expository and narrative passages and writing the same kinds of pieces. Students in both groups were to read a minimum of fifty pages per week. Control group students were not offered any explicit instruction on how to employ such reading strategies. Students in the treatment group were offered direct instruction, modeling, and scaffolding. A posttest identical to the pretest was offered after twenty days of the intervention program to offer quantitative data.

In *Effects of Audio Texts on the Acquisition of Secondary-Level Content by Students with Mild Disabilities,* by Boyle et al. (2003), two treatment groups were established in six secondary Global Studies settings: one received audio texts with an organizational strategy (SLiCK), in order “to direct student attention to important pieces of the text, cue active listening, and synthesize and integrate the new information with the student’s existing knowledge” (Boyle et al., 205). The second treatment group received only audio texts. The control group received traditional teacher-based instruction. The objective of the study was to determine what effects audio text had on content acquisition in inclusive [social studies] classrooms and also to determine if a reading strategy in combination with audio text had more positive effects in content acquisition. Quantitative data were collected using pre and posttest measures assessing cumulative content knowledge prior to and following the administration of the treatment and to the control group. These pretests and posttests consisted of matching and multiple-choice. Students were offered both a written and oral reading version of the test. Short term measures were also taken quantitatively via informal quizzes, worth ten points per quiz. These were given randomly throughout the intervention and in the control groups.

Sáenz & Fuchs (2002) published a study that did not involve an intervention to aid in reading comprehension. Rather, their purpose was to study and identify the skill areas which differentiated the performance of LD students when reading narrative versus

expository and to determine if question type mediated that comprehension. Quantitative data were collected upon students reading four passages: two expository and two narrative. Reading fluency and comprehension questions were administered during the pretests and posttests, respectively. To calculate scores based on reading fluency, narrative passage scores were analyzed using the *Stanford Diagnostic Reading Test* (Karlsen & Gardner, 1985) and the scores for expository tests were measured using Interscorer agreement. When reading, students were marked off if they mispronounced words, omitted them, substituted their own, inserted their own, or hesitated in reading words longer than five seconds. "For each passage, student performance was scored as the number of words read correctly in two minutes . . . and then averaged" (Sáenz & Fuchs, p. 36). In examining the scores of the questions that were asked post reading, scores were calculated using the same models. When asked ten questions about each passage, (eight literal and two inferential), students were required to answer, even if they had not completed the reading in the required two-minute span allotted. Averages of both types of questions for both types of text were taken.

Bryant et al. (2000) wanted to determine the effects of a researcher-created three- point reading intervention focusing on word identification, reading fluency, and comprehension for LD and non-LD students. Before implementation, teachers were given professional development on how to incorporate the three strategies of DISSECT, Partnered Reading, and CSR, as aforementioned and explained. Pretests and posttests were given in January and May to ten sixth grade classes across the content areas. These tests consisted of word identification tests, using the Word Identification Strategy Verbal Practice Checklist (WISVPC), the Test of Oral Reading Fluency (TORF), and a reading Comprehension test from the *Timed Readings*, from Jamestown Publishers. All offered quantitative data. Additional quantitative data were collected in assessing student comprehension of the DISSECT strategy by having students state the name and explain the meaning of each step in the mnemonic.

- *Results*

Significant differences were found between the control and treatment groups for reading assessment and standardized reading scores in Alfassi's 2004 study. Treatment students performed higher in both assessments whereas control students performed "somewhat lower on the post testing phase than on the pretesting phase" (Alfassi, p. 176), which might postulate that students, especially those with learning disabilities, will more likely find continuous new information difficult to process and organize into their prior social and world knowledge.

While there was no notable difference between the two treatment groups concerning content achievement, major discrepancies were found in content knowledge when comparing the control and treatment groups for Boyle et al, (2003). In terms of acquisition of knowledge, students in both treatment groups score significantly higher on their posttests. The same trend was found regarding the short-term quizzes that were administered at random throughout the intervention.

For Sáenz & Fuchs, outcomes and comprehension for text type were determined by question type. Literal comprehension and inferential comprehension scores were higher for narrative texts while inferential comprehension scores were lower for expository texts. Conversely, literal comprehension scores were higher for expository texts. This means that students with LD read expository texts less fluently and comprehend them just as poorly. These results indicate that since LD students do not understand expository text as well as they might a narrative text, inferential questions are not comprehended well either because they do not understand the content that the questions are referencing, hence leading to poor performance.

In the study conducted by Bryant et al. (2000), students' scores in the posttest results were highly encouraging in all three areas of study. The biggest gains were made in reading fluency, while the smallest gains were made in comprehension. Word identification scores in oral reading were improved, but none of the students reached mastery level. Results in fluency were the most encouraging. The data showed that with "intensive practice, students with reading disabilities in particular gained from the program" suggesting that "students with reading disabilities can benefit from a fluency-building strategy and that many struggling readers would profit from repeated reading fluency instruction" (Bryant et al., p. 249). Unfortunately, comprehension scores showed the least amount of gain, namely due to lack of time. Comprehension strategy takes time, and frequently, teaching comprehension skills are not the area of focus in a secondary setting. Bryant et al. (2000) also suggest that since students LD in reading lack a development of reading fluency, reading comprehension cannot take place since it is largely dependent on reading fluency.

Reviewing the Literature on Facilitating Writing Comprehension

- *Defining the Strategies*

<u>Self-Regulated Strategy Development (SRSD)</u>

There are six main components to SRSD in order to employ it effectively in an inclusive classroom. The first is to develop background knowledge by offering a mnemonic called DARE (*Develop a topic sentence*, *Add supporting detail*, *Reject outside information*, and *End with a conclusion*). Students practice this mnemonic to be able to recall it from memory. Step two involves an initial conference between student and teacher to determine each student's goal based on his baseline, or pretest data, in terms of essay length and content. Information was provided numerically and graphed on a chart for visual representation. The third step is to model the strategy using a three-step writing strategy (*Think about audience, Plan essay according to DARE, and Write to say more*). A chosen essay topic is offered to the class and the teacher models the three-step process using an overhead and think-alouds to show what students should do during the process. Self-instruction should be introduced here (*defining the problem, planning, self-evaluation, and self-reinforcement*). Memorizing the strategy is step four. Students are given time to memorize the three-step strategy and the mnemonic, and then create a visual aid for the self-instruction steps to keep on hand if necessary. Step five is to practice collaboratively. Responsibility for writing shifts from teacher to student in this step as the teacher offers guidance, but students write the essay based on what they have learned. Self-instruction is used and encouraged in this step where the teacher is there for reinforcement. Finally, independent practice is performed and assessed where students write their own essay using all of the guidelines and steps to help them. Visual prompts are made available, but students are encouraged to use them only if necessary. The role of the teacher in this step is to offer positive feedback and praise, and fade it away gradually (Chalk et al., 2005).

Cognitive Strategy Instruction in Writing (CSIW)

Three major principles drive successful CSIW. The first is to begin the writing process holistically, focusing on planning, organizing, writing, editing, and revising. The second step is to allow "apprenticeships" in writing to occur, where the teacher models the thinking and "inner talk that underlie effective writing" (229) and students see it in action. Student-student dialogues work well here too. Finally, students learn to value the social nature, in accordance with the social constructivist theory, of writing and its experience by writing and thinking collaboratively with peers for an authentic purpose (Hallenbeck, 2002).

- *Defining the Assistive Technology*

TELE-Web

TELE-Web, or Technology-Enhanced Learning Environments on the Web, is an internet-based writing program that helps to scaffold the process of writing by offering students mapping tools and scaffolded writing tools to successfully and thoroughly complete a writing project. The mapping tool – a concept map or idea organizer – can be filled out through a "dynamic interface" (p. 16) by allowing students to click on computer-prompted boxes in order to add more details. Different ideas are assigned different colors so that when the student sits to organize all details, they can be grouped accordingly. Teachers will model this process and then students will perform it on their own. Following this procedure, students utilize the scaffolded writing tools by using a template to help them construct their essay. Visual reminders of the teacher's instructions are offered at the top of the screen so students have a reference point for purpose behind the assignment. When writing, different boxes, like "topic sentence," "supporting detail," and "add a paragraph," appear if students click on a mouse to cue the next step in the process of composition. Teachers can insert their own prompt boxes for students to click on as temporary scaffolds. They can be gentle reminders about task, like, "Did I tell . . . ?" "Did I conclude with a topic sentence?" Finally, the program offers a self-employed spelling check feature and a "text-to-speech" function, where the computer reads back student-generated text to the student. A third function offered by TELE-Web is an online submittal feature, where, once a student paper is completed, it can be submitted to the teacher directly, via the internet.

- *Methods Used*

Since "Relatively little is known about the potential of web-based programs to support and scaffold the writing performance of students with disabilities," (Englert et al., 9), five academic professionals from Michigan State University conducted a study that employed the use of TELE-Web, a web-based writing process program that scaffolds the process of writing. The question they pose is whether or not students who utilize the technology will write effectively better essays as compared to those students who only use a traditional paper and pencil method of composition. Control and treatment groups were both pretested using essays, in which each group had to provide a baseline writing sample. The essays were scored based upon a primary trait writing rubric (*introduction to paper's topic, introduction to subtopics and categories, depth and breadth of content, conclusion, and overall organization*), similar to the one that New York State utilizes in scoring the 11th grade English Regents exam. The scoring was performed by two raters to ensure quality, with a third rater stepping in if major discrepancies were found. Word count also offered quantitative data for analysis.

Following the implementation of the web program, students were tested again. Quantitative data were collected based on rater scores of student-generated essays from both the control and treatment groups. Word count was also assessed quantitatively.

Chalk et al. (2005) wanted to assess whether or not SRSD (Self-Regulated Strategy Development) for writing (for fifteen high-school sophomores classified as learning disabled) proved to be a viable means to increase writing competency. Pretests were offered as essays, generated by content teachers. Students were given direct instructions and asked to write on the topic offered by the teacher. The only cue provided was to "write an essay," (Chalk, p. 79) based on the topic. No assistance in content generation, mechanics, etc. was offered. Writing samples were scored quantitatively based on length (number of words written) and quality (focus and development, organization, fluency, and conventions), rated similarly to the rubric utilized by Englert. Following the establishment of baseline data, the SRSD intervention was employed using a repeated-measures design for a total of eight runs. Posttest essays were administered two weeks following the completion of the intervention, where data were collected in the manner identical to pretest data collection.

Finally, Hallenbeck (2002), wanted to determine the efficacy of CSIW (Cognitive Strategy Instruction in Writing) for four LD seventh-grade students in his article, *Taking Charge: Adolescents with Learning Disabilities Assume Responsibility for Their Own Writing*. He explains that expository writing is one of the most challenging tasks for students living with a learning disability, so, basing his experiment around the foundations of the social constructivist theory with an emphasis on the behavioral approach, Hallenbeck designed his experiment around the CSIW method. Pretest papers were written in September and posttest papers were written in May so as to gauge writing progress. In between, the intervention of the CSIW program was administered to four seventh-grade students. They were able to write collaboratively through the duration of the intervention. The posttest however, did not reflect collaborative writing. The quantitative data came from ratings of student essays based on a holistic rating of the essay, the primary trait score (*introduction, definition and depth of categories, use of key words, and organization*), number of words, and reader sensitivity (for drawing interest from the reader). Qualitative data were collected by recording, transcribing, coding, tabulating, and analyzing class conversations about writing.

- *Results*

Papers were superior in the posttest treatment group based on more internal support offered in Englert's experiment. TELE-Web prompted generation of topic introductions and supporting details. This data suggests that students without the prompting are less likely to include such information, hence, lowering their scores on the rubrics assessing primary traits in writing. The control group benefited from graphic organizers, but overall, TELE-Web users scored better. All of this suggests that any strategy offered in conjunction with an assigned writing piece will heighten scores and performance of students with LD, but that having an interactive

technology-based writing program that scaffolds steps is most effective. Results suggest that these strategies, over time, become part of the cognitive process in creating writing pieces.

For the study on Self-Regulated Strategy Development, results showed that the majority of growth was found in word production. Data also shows that LD students' writing benefited from incorporating strategies for the writing process into daily instruction as a reinforcement of cognitive skills and their acquisition process. Since social constructivist theory is also relevant, another reason for success may be based on the element of collaboration, making students feel more a part of the process of generating knowledge from prior knowledge. However, quality of scores earned was not as distinct according to the data, based on student-generated essays in the post testing phase. This could be due to the fact that in testing situations, students were unable to write collaboratively.

The last of the experiments on writing showed that three of the four students showed remarkable growth in all four areas of their essays in Hallenbeck's study on Cognitive Strategy Instruction in Writing. The transcriptions supported that students had "internalized the thinking processes modeled by the teacher and were able to incorporate these processes not only in their own writing, but also in scaffolding the writing of their partners" (Hallenbeck, p. 232). Hallenbeck's consideration of the social constructivist theory makes CSIW a surefire way to raise student scores and performance in writing texts. Since so much of the process is dialogue-oriented, the social environment creates a comfortable setting in which students with LD are able to build confidence in their role as contributors and authentic generators of knowledge.

There was one student who did not exhibit numerical growth, but based on classroom conversation transcripts, he successfully internalized the process of CSIW. This was assumed because the student had simply "run out of gas," (Hallenbeck, p. 232). His behavior was marked by distractibility and impulsivity, so by the end of the year, he was excessively unfocused. However, it should be noted that "his comments throughout the process indicated considerable growth in his understanding and construction of effective prose" (Hallenbeck, p. 232).

Discussion: Critique and Evaluation, Efficacy and Recommendations for Future Research

In all of the articles reviewed and discussed, strategies are provided or suggestions are offered about how to best handle the rising problem of low student performance or deficiency in skills in the areas of reading and writing when students are diagnosed LD.

Alfassi's combined strategy instruction offers a successful method by which to raise reading comprehension scores when students are taught in a blending of pedagogical methods. While her methods seem to be somewhat useful and successful, some of the results are unduly vague. She mentions that students in the control group performed higher on the pretest than on the posttest, but that left me only to make my own hypotheses. She never explained why that could be a possibility. Was it due to a flaw in the experiment? Was there a variable that was never mentioned? These are possible areas to be discussed. The article itself is readable and the strategies provided are practicable, however, there are areas of a nebulous nature.

Unfortunately, one of the major and common flaws in the articles researched is that there is a lack of time. For some of the articles, interventions were only run for a short period. The true measure of the effects may have turned out differently if the interventions were run for more than a five-week period. The attached drawback is that, by the time these LD students get to high school, content seems to rise in priority over skill building, which by many teachers, is assumed to have already been at or near mastery level. In many cases, there is not enough time to devote to train students in many of these strategy development practices or continually practice them over and over for full acquisition.

As Boyle et al. offer in their article, the use of audio texts is a valuable tool to raise LD student reading comprehension scores. Paired with a reading strategy like SLiCK, this practice serves as a nice break from traditional acquisition of content information; however, the one drawback to this research is that at times, the implementation of the strategy in conjunction with the audio text seemed to be overwhelming, though the SLiCK strategy did result in appropriate note-taking skills.

Another challenge SLiCK paired with audio text is possible lack of resources. Not all classes will be equipped with the tools necessary to utilize such a technology-based practice. The other challenge that is presented in this article focuses more on the fact that it was conducted in a content-rich history class. While the ideas behind the practice are easily transferable to an English Language Arts classroom, some of the results may be a little harder to achieve without modifying the form of assessment, wherein the experiment short term quizzes and solely content essays were generated.

Sáenz & Fuchs (2002) presented one of the more easily read pieces of literature on reading comprehension. However, they did not test a particular strategy for cognitive learning. Instead, and easily implemented, they offered specific suggestions about running an inclusive class where LD students need to be aided in reading comprehension. They offer that instruction is necessary in reading

comprehension of expository pieces, inferential skills, and vocabulary and reading fluency. (With this in mind, we might look back to what Bryant et al. (2000) have to offer by way of a multicomponent reading instruction). Though the implications for practice are not expounded in great detail, a number of strategies for increasing comprehension are offered ranging from using graphic organizers to teaching text-processing skills; and these are all supported strategies based on their prior research.

Bryant et al. (2000) offered successful strategies that have proven effective in raising reading comprehension of students diagnosed as learning disabled. Identifying words through the use of the DISSECT mnemonic would appear to be of most help, especially when students are sitting in some form of high-stakes testing situation, since it can be utilized and called on individually. However, considering that the remaining strategies are based largely on collaborative work, the research poses the problem of how students are to perform individually when they find themselves in these high-stakes testing situations.

This is also the case for the collaborative instructional methods in the articles that review writing instruction. Unfortunately, students will not be able to converse with their peers when the are sitting to write for a high-stakes testing situation, which makes Chalk et al.'s Self-Regulated Strategy Development intervention one of the most effective and sensible methods to use in a classroom with LD students. Since the students must learn to employ these strategies on their own, and since the process is scaffolded, when it comes time to use this method for assessing performance and growth, SRSD seems to be the wisest choice. Students can truly exhibit their acquisition of knowledge and skill.

CSIW and scaffolding the writing process using a technology-based scaffolding process program are practices that are probably best used in a classroom setting when working on long-term writing assignments. They will offer effective organization and clarification practices to ensure that students are performing at the desired levels of achievement.

Weaknesses found in the articles reviewed about writing center around the fact that none of these strategies seemed to be tested in settings where students were isolated; since the foundations of the research are based on raising scores in reading and writing, it is important to take into account that many of these assessments are not going to allow for collaboration in discussion, writing, or reading.

Recommendations for Future Research

Since so much of the research is focused on collaboration and cognitive skill building through collaboration, it would be of great benefit to research how students with learning disabilities perform in high-stakes testing situations after the treatment of these experiments in a setting where collaboration would not be permitted. Both quantitative and qualitative data would serve to enhance the present body of research so that current teachers can obtain new and successful methods to utilize in the inclusive classroom. Many teachers will have students with learning disabilities in an inclusive classroom where those students will be held accountable for performing and passing the same high-stakes tests as their average-achieving peers. To see whether or not the strategies discussed within this literature review are effective in raising comprehension scores in such a setting would be highly beneficial and offer reassurance to teachers of LD students.

Conclusion

In looking at the research available and reviewed in this synthesis, it is apparent that students who are learning disabled benefit most from integrated strategy instructional practices for raising reading and writing comprehension scores. When given enough time to learn these strategies as educators, we are only ensuring a better rate of success for our students with LD.

The seven empirical studies reviewed are not the only sources for information on helping students with learning disabilities in reading and writing, however. Appendix B offers numerous other successful strategies and practices to employ in an inclusive classroom. One such article, by Baker et al. (2003), *Teaching Expressive Writing to Students with Learning Disabilities: Research-Based Applications and Examples*, is an article full of writing interventions that will help students with learning disabilities to construct final written products that were more coherent and organized following different writing interventions. One of the foci is on the instruction of genre conventions, where students must be exposed to a number of unambiguous models, followed by examples, and reinforced with prompts. The authors maintain that good writing is based on repetitive process, especially for students diagnosed with LD.

While there is a surplus of information on how to raise achievement scores in reading and writing comprehension for students with and without disabilities, it is important to understand that we must face the challenge of staying current with the trends and practices that will best aid all of these students. With *No Child Left Behind* moving toward reauthorization in 2007, we need to be equipped with the practices and strategies that will meet Bush's goal of guaranteeing that all students, no matter how they learn or in what context, receive the best possible education we can offer.

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Appendix B

Table 3. Secondary Sources – Reading and Writing

Title	Author	Source & Date	Strategy	Conclusion & Findings
"Peers Helping Peers"	Mastropieri, Scruggs, & Berkeley	*Educational Leadership* February 2007	PALS (Peer Assisted Learning Strategy) where a stronger reader reads a passage first, followed by the weaker reader's read a second time through, and the stronger reader offers corrections as needed. Upon completion of the passage, a two minute retell is initiated where the question "What did you learn first?" is followed by the question "What did you learn next?" Each partner then names the "who" or the "what" each passage is about followed by the statement of what is most important about the "who" or "what." Next, each partner explains the main idea of the passage in ten or fewer words. Finally, each partner predicts what will happen next.	The program can be a successful strategy to use in accommodating students with diverse learning abilities, which is perfect for an inclusive setting strewn with LD readers. This strategy has also been found useful across different content areas like math and social studies, both in the high school setting.
"Secondary Reading: Not Just for Reading Teachers Anymore"	Dieker & Little	*Intervention in School and Clinic* May 2005	Using literature circles means assigning particular active reading roles to every individual student, but smaller groups are created. Students might assume the role of: Questioner (asks content related questions), Clarifier (clarifies words/concepts presenting pronunciation difficulty/understanding), Summarizer (verbally summarize the story in 10 words or less), Predictor (predicts next content), or Artist (doodles a graphic representation while text is being read).	Students can again, participate in smaller groups and feel that they are contributing to the whole. This exemplifies what teachers need to understand about students needing to view themselves as authentic generators of knowledge. Similar to Stringer & Mollineaux, learning becomes part of a social environment where every member of the group has something of value to add to discussion and comprehension of the text.
"Help for High School Students Who Still Can't Read"	Howerton & Thomas	*The English Journal* May 2004	Incorporate the use of a semantic mapping program to help students visually organize what they have read and what they might eventually write about. "Inspiration" (http://www.inspiration.com) is a popular	The world in which our students live is technology rich. Offering those opportunities to actively participate via use of technology brings students a sense of mastery, as usually they will master the technology before

			software program that easily translates semantic maps into outlines for student use.	teachers, and this will encourage them to keep reading.
"Teaching Expressive Writing to Students with Learning Disabilities: Research-Based Applications and Examples"	Baker, Gersten & Graham	*Journal of Learning Disabilities* March/April 2003	POWER (Plan, Organize, Write, Edit, and Revise). This is presented as a series of "think-sheets" that the teacher models exclusively. Students work through the process of writing papers using the strategy, and ultimately, teacher reinforcement and support are minimized so that students are able to write independently.	It was important to avoid using the think sheets as just worksheets to be filled out, so they were deemed as a note-taking strategy that helped in the dialogue that creates successful writing. Modifications were not made to the think sheets but rather in the guided practice and one-on-one feedback. The effects of the program are positive, as LD and average achieving students writing performance scores were raised.

Table 3. Secondary Sources – Reading and Writing (Cont'd)

Title	Author	Source & Date	Strategy	Conclusion & Findings
"Can Students with LD Become Competent Writers?"	Schumaker & Deshler	*Learning Disability Quarterly* Spring 2003	The sentence writing strategy is a two-step process where students first learn how to write four basic kinds of sentences (simple, compound, complex, and compound-complex). The students must choose a grammatical structure for each sentence to be written. Once they master the simple sentences, ten variations of the simple sentences are offered, extending their knowledge to fourteen sentences.	Since the strategy is scaffolded, the proper time is allotted for mastery. If students face problems mastering certain sentence types, the scaffolding allows for material to be reviewed and reinforced. Since the students can acquire up to fourteen versions of sentence-variety, their writing "bank" grows, allowing them to write at the required levels for secondary instruction.
			The paragraph writing strategy allows for students to learn how to construct cohesive paragraphs by using a graphic organizer that allows students to organize all information that will be included in the paragraph (topic, details, point of view, verb tense, order, and appropriate transition words).	Learning steps and applying them continually will help to reinforce successful paragraph construction. Since many students are more visually inclined, the use of a graphic organizer is a great practice to implement in the classroom. The organizers can be scaffolded in a way, reducing the number of prompts or reminders throughout the year so as to continually lessen student reliance on the organizers. If successful, students may not even need to organizers by the end of the year.

"Removing the Word 'Reluctant' from 'Reluctant Reader"	Stringer & Mollineaux	*The English Journal* March 2003	Writing notes on the board of where students struggled in reading a particular text followed by question/answer sessions where the entire class debriefs problems and understanding. Devising strategies to improve reading comprehension are created as a group.	Because this follows the theory of social constructivists, that learning is a social process, this is a helpful method to put all students on an "equal footing."