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Organizing around main ideas: a writing intervention using graphic organizers, sentence sorting tasks and self-regulation strategies

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Organizing Around Main Ideas: A Writing Intervention Using Graphic Organizers, Sentence Sorting Tasks and Self-Regulation Strategies

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ABSTRACT

This case study was conducted with a seventh grade student that was identified with Other Health Impaired and had attention related difficulties. He was identified as a struggling reader who was not performing at grade level in reading or writing. The researcher investigated the effectiveness of an intervention which included the following strategies: teaching expository text type, using sentence sorting tasks, the use of graphic organizers, summary writing, and self regulation strategies. These strategies taught in a scaffolded instructional approach during ten 90 minute one-on-one tutoring sessions helped the student to increase his summary writing and study skills as seen in the results of the assessments given. Further research on students' ability to retain and transfer these strategies would increase the data. In addition, research on the effectiveness of these strategies among a larger sample size of students with various needs could produce more thorough and comprehensive results.

CHAPTER 1

Introduction

This case study was conducted with a student who just completed 6th grade named Thorn[1]. At the time of this research study during the summer of 2012 Thorn was 12 years and 0 months old. He is African American. In addition to academic support at school he also received tutoring services at a community center. During the summer of 2012 he attended this community center for tutoring support three days a week for five weeks. During the school year he attends a K4-12 independent charter school located in Southeastern Wisconsin.

Thorn received Special Education services during the school year. On his Individualized Education Plan (IEP) created by the educational team working directly with him he received support services both in the general education classroom as well as in a resource classroom. He received support in academic areas for 50 minutes a day five times a week that took place in a small group setting in a resource classroom. He also received Special Education services that took place in the general education classroom for support in all academic areas for thirty minutes a day five times a week. During his Annual IEP meeting for the 2011 and 2012 school year his Speech and Language services were reduced to 15 minutes a month for consultation.

According to guidelines laid out in the Individuals with Disabilities Act (IDEA), Thorn was entitled to an educational experience that placed him in a setting that would meet his academic needs, within the least restrictive environment (2004). During the school year Thorn received Special Education services in the general education classroom

[1] Name changed for anonymity.

for 30 minutes a day and in a resource classroom for 50 minutes a day. Over the course of the summer he participated in a 1:1 tutoring program at a local community center. Since this was in addition to regular school it was not considered to be a placement that removed him from his non-disabled peers. Furthermore, the hope was that by participating in this reading intervention he would become more independent with his reading, writing, and study skills and could more fully participate in the general education classroom with reduced support.

Thorn has an IEP for Other Health Impaired (OHI). It was noted from his tutor at the community center that he struggled in the area of sustaining attention. This challenge with sustaining attention was also documented as being a challenge in his IEP. He received supplementary aids during the school year to aid in organization including a weekly locker clean out for organization and use of an assignment notebook. This challenge with attention and organization also appeared on his IEP in his present levels of performance. Present levels of performance is a section of the IEP that describes the students academic levels and how the students disability affects participation and progress in academic and social settings. Thorn's disability is described as affecting his ability to perform academic tasks without cueing.

The area where Thorn had the greatest challenge was with writing. In his most recent IEP this was noted in his present levels of performance. Both his reading and writing levels were documented as being below his general education peers. His reading levels were identified as being at the mid fifth grade level. It was noted on his IEP that he was performing at a mid third grade level in writing. It was noted that with cueing he was able to put his ideas into basic paragraphs, but needed to work on the skill of organizing his

ideas and creating topic sentences and introductions and conclusions for his essays. It was noted in his IEP end of year progress report that he needed cueing in order to keep his writing organized.

Thorn was identified as being a struggling reader and writer. His academic performance levels in reading were below grade level. Areas of concern that were indicated by his tutor included study skills, sounding out words, expression and rate, spelling, penmanship, and written expression and organization. It was noted by Thorn's tutor that he struggled with organization particularly when asked to write about what he has read. Thorn took a Qualitative Reading Inventory (QRI) in June 2012 (Leslie & Caldwell, 2011). The results of the QRI placed his reading levels several levels below grade level. For Oral reading on the QRI at Level 4 he had 75% comprehension with and without look backs. At Level 5 his comprehension dropped to 50% without look backs and 63% with look backs. Thorn also took the Woodcock Reading Master Tests, third Edition (WRMT-III) in June 2012 (WRMT-III; Woodcock, 2011). Although his comprehension was below grade level it was noted as a relative strength on the WRMT-III. He scored a 4.7 grade level equivalent for listening comprehension, which was his second highest score. He scored a 4.8 for passage comprehension, which was his highest score.

At his current school it was noted on his IEP that he had been working on reading comprehension by using strategies such as self-correcting, making predictions, drawing conclusions, developing visual images, and applying knowledge of story structures. During the school year this intervention with story structures had been applied in the area of reading comprehension to expository text types. A goal on his IEP was to use text structures including (compare/contrast, cause/effect, problem/solution, and description)

in order to comprehend expository material. On his progress report it was noted that he understood the text structures and was working on using them to comprehend expository material. However, these strategies for comprehension had not been used to support him in organization with writing.

Based on this information the intervention for this student was designed to help Thorn gain the organizational skills in composition writing so that he could apply his relative strength of comprehension to his writing, which lacked organization. This intervention extended the work that he had been doing during the school year with expository text structure to aid in comprehension and used additional strategies to improve his writing organization and ability to attend to and organize his writing.

Since Thorn was identified as reading and writing below grade level implications for instruction included a plan that would help Thorn gain skills so that he could be more successful. One of the challenges for middle school students is that they have transitioned from learning to read to reading to learn and are expected to know how to navigate and use expository texts such as textbooks in the content areas. Research suggests that struggling readers have a more difficult time reading and comprehending expository texts than narrative texts (Saenz & Fuchs, 2002).

This research study intervention was designed around the broad goal of the student meeting the Common Core State Standard for Literacy in the Content Areas RST.6-8.10: Range of Reading and Level of Text Complexity which states, “By the end of grade 8, read and comprehend science/ technical texts in the grades 6-8 text complexity band independently and proficiently”(Common Core State Standards Initiative, 2012). This

intervention was designed to focus on comprehension skills so that Thorn, who was reading below grade level, would make progress towards this state standard.

This research study intervention was designed to teach Thorn to recognize text features including expository text type. Based on the text type the student learned to used graphic organizers and summary writing in order to increase his understanding of science topics. This intervention was designed for Thorn to work towards the Common Core State Standard for Literacy in the Content Areas RST.6-8.5 Craft and Structure which states, " Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic"(Common Core State Standards Initiative, 2012).

Crucial to the understanding of a topic is the ability to determine central ideas. This intervention involved instruction in identifying main ideas both through sentence sorting tasks, using chart graphic organizers and summary writing. These strategies were designed in order for Thorn to reach proficiency in the Common Core State Standard for Literacy in the Content Areas RST.6-8.2 Key Ideas and Details which states, "Determine the central ideas or conclusions of a text; provide an accurate summary of a text; provide an accurate summary of the text distinct from prior knowledge or opinions" (Common Core State Standards Initiative, 2012).

In the next chapter academic research was reviewed in order to determine best practices for creating and implementing an intervention for the student described in this chapter. This following chapter will look at Research-Based methods for writing and reading comprehension skills. Chapter 2 considers the research on instruction in expository text types, strategies to improve writing organization around a main idea

including graphic organizers and sentence sorting tasks, summary writing, and self-regulation strategies to help maintain student focus.

CHAPTER 2

Review of Literature

The focus of this action research examined the effects of explicit instruction in conjunction with the reading comprehension of expository texts. This chapter begins with researchers' findings regarding the need for explicit reading instruction in the content areas. The second section of this chapter focuses on main idea identification through the use of graphic organizers and a flexible sentence-sorting task. The final section of this chapter looks at explicit reading instruction for students with attention-related disabilities that include self-regulation strategies in conjunction with oral and written summaries. Overall, the research presented supports an intervention for a struggling reader and writer with an attention-related disability that includes, self-regulated strategies, the teaching of expository text types, main idea instruction through the use of graphic organizers and sentence sorting tasks, and summary writing.

Comprehension Instruction in the Content Areas

In this first section four research studies are presented. These studies demonstrate the need for specific literacy instruction in conjunction with content area instruction. These studies point to a need for comprehension instruction that focuses on teaching students how to state relational and inferential information. Intervention practices for students with disabilities, in particular students who are struggling readers, should focus on the comprehension of expository texts. This is particularly important for middle school readers who are not reading at grade level. By the time students enter high school most of the instructional material they read is expository in nature (Dymock & Nicholson, 2007). Expository text is the most challenging form of text, and research indicates that all readers struggle at times with content area reading material (Dymock & Nicholson, 2007). The following studies show evidence for using content area

expository texts as a means to teach reading comprehension. These studies provide the basis for a content area reading comprehension intervention for a middle school student with a disability who is reading below grade level.

The study conducted by Vaughn, Cirino, Wanzek, Wexler, Fletcher, Denton, et al. (2010), explored the effects of Tier 2 reading interventions. The purpose of this study was to measure whether middle school students with reading difficulties involved in Tier 2 reading interventions would close the gap with typical readers. The independent variable was the additional Tier 2 interventions. The dependent variable was students' performance on reading tests including tests for decoding, spelling, fluency, and reading comprehension.

The sample consisted of students from two large urban cities in the southwestern United States. Approximately half of the students were from each site. The rate of students qualifying for reduced or free lunch ranged from 40% to 86% across the sites. Participants in the study for the intervention group were selected based on receiving a failing score on the Texas Assessment of Knowledge and Skills (TAKS; Texas Education Agency 2007). TAKS is a criterion-referenced test that measures reading comprehension that is used for accountability testing in Texas. Students who participated in an alternative curriculum as well as students who had a second grade reading level or lower were excluded from the study. There were 241 struggling readers who received the Tier 2 intervention, 115 struggling readers who received only the Tier 1 interventions. Students were in fifth grade at the time of the initial study, and were in sixth grade during the interventions. Students were randomly assigned to either the test condition where they received Tier 2 and Tier 1 interventions or the control condition, where they were only involved in Tier 1 interventions. From the sample of struggling readers 52% were female, 79% qualified for free or reduced lunch, 46% were African American, 40% were Hispanic, 12% were

Caucasian and 1% were Asian. The comparison group was a random sample of typical readers and was selected to approximate the demographics of the struggling reader population. This study represents the first year of data in a proposed multi -year study.

As a Tier 1 intervention all 6th grade content area teachers participated in professional development for teaching vocabulary and comprehension. This professional development included a 6 hour session at the beginning of the year followed by monthly study groups where teachers worked with a facilitator to apply the vocabulary and comprehension strategies. The vocabulary and comprehension strategies were adapted from Denton, Bryan, Wexler, and Vaughn (2007), and included strategies to select vocabulary words to teach, using graphic organizers, and note taking guides.

For the Tier 2 intervention, students were placed in intervention groups and received a yearlong Tier 2 intervention. Tier 2 interventions were given in a series of three phases. Phase 1 consisted of 25 lessons that emphasized word study and fluency. Phase two lasted for 17-18 weeks and emphasized vocabulary and comprehension and practice was provided for applying the word study and fluency skills. Phase three lasted for 8-10 weeks and the emphasis on vocabulary and comprehension was maintained. Both expository and narrative texts were used for instruction and practice.

A pretest posttest format was used to measure student progress. Decoding skills were measured by assessing word reading accuracy for real words and pseudo words on the Letter-Word Identification and Word Attack subtests of the Woodcock-Johnson III Tests of Achievement (WJ-III; Woodcock, McGrew, & Mather, 2001). The WJ-III Spelling subtest was given to assess spelling. Multiple assessments of fluency were used. The first fluency

assessment was the Sight Word Efficiency and Phonemic Decoding Efficiency from the Test of Word Reading Efficiency (TOWRE; Torgesen, Wagner, & Rashotte, 1999). The AIMS web Reading Maze (Shinn & Shinn, 2002) was also used to measure reading fluency. This test is a 3-minute group-administered curriculum based assessment. The Test of Sentence Reading Efficiency (TOSRE; Wagner et al., in press) was administered. For this test students are given three minutes to read a series of short sentences and measured if they were realistic or not. The final tests of fluency were designed specifically for this study. An assessment of Passage Fluency (PF) and an assessment of Word List Fluency (WLF) were administered (Vaughn, Cirino, Wanzek, Wexler, Fletcher, Denton, et al, 2010). The PF consisted of graded passages of ranging levels. Both expository and narrative test passages were used. Students were given five passages per test and the number of words read correctly in one minute was measured. For the WLF, students were given three word lists of varying difficulty and source. Word fluency was scored based on number of words read correctly in one minute from each passage. Reading comprehension was measured using the TAKS.

The findings showed that students in the Tier 2 interventions showed gains on decoding, fluency and comprehension, but that the differences relative to the comparison group were small. Students scored significantly higher on post-test data in the intervention group, on measures of word attack, spelling, the state accountability test, passage decoding, and phonemic decoding, although most often in particular subgroups. In other words some groups or classes of students showed more improvement than others.

The research suggested that more intensive interventions for students who are struggling readers are needed. They noted that it was perhaps unreasonable to expect that an additional 50 minutes a day of Tier 2 interventions with reduced class size and targeted intervention would

close the achievement gap for struggling readers. They suggested that more intensive and more targeted interventions might be necessary to achieve this outcome. The study by Saenz and Fuchs (2002) expands on this research and suggests that since students exhibit differential performance on expository texts compared to narrative texts that an intervention that focuses on the skills needed to successfully read and make inferences with expository texts would be of more benefit to students than an intervention that broadly covers skills needed for both narrative and expository text types.

The study conducted by Saenz and Fuchs (2002) explored the skill areas in which high school students with learning disabilities (LD) exhibited different performance on narrative versus informational text. The secondary purpose of this study was to specify and identify the skill areas that are influencing this differing performance. The authors investigated whether high school students with (LD) would exhibit different performance on reading fluency as a result of text type. In other words, would students read informational texts less fluently than narrative texts? For this first question the independent variable was the type of text read; either informational or narrative and the dependent variable was fluency, which was measured as words read correctly in a two-minute timed trial.

The second question the researchers investigated was whether high school students with (LD) would exhibit differing performance on questions from narrative and informational text as a result of both text type as well as question type. Questions were identified for both texts as testing either literal or inferential comprehension. In this second section of the study the independent variable was the type of text read. The dependent variable was the number of questions of each type, literal and inferential, that students answered correctly following reading.

The researchers asked the question if differences in comprehension between the two text types would persist even when there were similarities in reading fluency.

The sample consisted of 111 students from 6 high schools in 20 remedial and special education classrooms in a southeastern U.S. urban school district. All students who participated in this study received special education services. In order to be eligible to participate in this study, students had to be identified as having a Learning Disability (LD) as determined by the discrepancy model of more than one standard deviation between achievement and cognitive functioning. All students who participated in the study had a reading level between 2.0 and 6.0 as identified by their teachers based on recent statewide testing, classroom observations, and other diagnostic data teachers had collected. Sample demographics include 64% of participants were African American, 46% White, and 1% other. The majority of participants were male (80%). Students from ninth through twelfth grade participated in the study with 48% from grade nine, 23% in grade ten, 28% in grade eleven, and 12% in grade twelve. Students participating in the study who received free or reduced lunch were 42%. This study was conducted within the context of a larger study of peer assisted learning strategies (HSPALS; Fuchs, Fuchs, & Kazdan, 1999).

Students were tested on one occasion. Each student read aloud two passages of each text type. The order in which students read the passages was randomly assigned. Four narrative and four informational passages were used to assess fluency and comprehension. The narrative passages were from Monitoring Basic Skills Progress (Fuchs, Hamlett, & Fuchs, 1997). The expository passages were from the Timed Reading Series (Spargo, 1989). Readability was computed by typing passages into Microsoft Word and running a readability analysis to determine a Fleish Kincaid readability level for each document. Readability level ranged from

4.4 to 5.4. Passage length ranged from 345-434 words. A statistical analysis of variance (ANOVAs) revealed no significant difference between text types for reading level or length.

Reading fluency was measured as the number of words read correctly in two minutes. Students were told prior to starting that they had two minutes and were not allowed to read the remainder of the passage after two minutes. If a student was stuck on a word for more than three seconds the test administrator stated, "go on". While students read insertions, omissions, substitutions, hesitations longer than 5 seconds, and mispronunciations were marked. Omissions and additions of endings were counted as errors. Self-corrections did not count against the total score. Students were not given words that they did not read for either passage.

For the comprehension section of this study students were read aloud ten comprehension questions. They responded orally and the examiner recorded their response. Students were not allowed to look back at the passage or to reread it. Of the 10 comprehension questions from each passage eight questions were literal and two were inferential. The literal questions were chosen from details and facts that were mentioned at least twice in the passage. The inferential questions were developed by reviewing the passages for implicit ideas and developing questions that could not be answered without having read the passage. For each passage students were scored on the number of explicit questions answered correctly out of eight and the number of implicit questions answered correctly out of two. The scores were averaged to give students four total scores for comprehension; the average number of literal questions correct on narrative texts, the average number of implicit questions correct on narrative texts, the average number of literal questions correct on expository text, and the average number of implicit questions correct on expository texts.

The findings from this study indicate that high school students with LD, who have reading levels between 2.0 and 6.0 have more difficulty with expository text reading than narrative text reading. On the fluency section of the test students read a greater number of words correctly on the narrative texts than the expository texts. Means for words correct on narrative versus expository texts were (narrative text M=223.16) and (expository text mean= 212.62). These results indicate that secondary students with LD read expository texts less fluently than narrative texts.

To determine differential performance by text type and question type an ANOVA analysis was conducted. This analysis indicated an effect for text type, and question type, as well as a significant effect for text type by question type. Dependent T-tests were also run for text types and inferential questions (t=4.58). With 99% confidence text type influences the percentage of inferential questions answered correctly. A T-test was not run for literal questions and text type, as the means and standard deviations were equivalent. What this indicates is that students are equally able to answer literal questions regardless of text type. This indicates that secondary students with LD had similar literal comprehension of narrative and expository texts, but that they had a lower ability to answer inferential questions for expository texts.

Educators can learn from this study that specific attention needs to be paid to the instruction of how to read and answer questions from expository texts. Based on this study, secondary students with LD are not only reading expository text less fluently, but are also less able to make inferences based on what they have read. Students were able to answer literal questions from both text types at equivalent levels. Based on this finding it seems evident that more attention needs to be paid to instruction in improve the answering of inferential questions in expository texts. More broadly, this study supports the notion that particular focus should be

paid to instruction that aids with reading comprehension of expository texts. The study by Fang and Wei (2010) provides additional support for interventions that support reading skills of expository texts. This study also suggests that interventions that target expository reading skills have the potential to raise levels of overall reading comprehension, as well as content area mastery.

The third research study focuses on content area reading instruction integrated into the science curriculum. Fang and Wei (2010) addressed the question of whether specific literacy instruction is critical to overall science literacy. They investigated the influence of explicit reading strategy instruction and quality science trade books in conjunction with an inquiry science based middle school curriculum. They addressed the trend in middle school content area classes to not provide specific literacy instruction, and found that even a relatively small amount of literacy instruction improved performance both on reading specific as well as content specific tests. The independent variable was 15-20 minutes a week in explicit reading strategy instruction and access to a home reading program where students read and responded to one science trade book per week. The dependent variable was student performance on a norm referenced reading test, curriculum-referenced science tests, and academic year science grades.

All of the students who participated in this study were in the 6th grade. They attended a public middle school near a major research university in the United States. Nine hundred students attended this school. The middle school demographics included 51% white, 34% Black, 9% Hispanic, 4% Asian, and 2% other. Roughly half of the students at this school were considered as having a low socioeconomic status, and qualified for free or reduced school lunch. The school was ranked as being one of the lower performing schools in the district, with class averages below the district average on a statewide high-stakes reading assessment.

An intervention group and a comparison group study were randomly assigned from the ten sixth grade science classes. The intervention group had 140 consenting students in six classes and the comparison group had 93 consenting students in 4 classes. All students in the study had fifty minutes of science every day. Both groups used an inquiry-based curriculum. The intervention group received 15-20 minutes a week in explicit reading strategy instruction and access to a home reading program that assigned students to read and respond to one science trade book per week. The study lasted for 22 weeks from October to April. The reading strategies included predicting, thick and thin questioning, concept mapping, morphemic analysis, recognizing genre features, paraphrasing, note taking and think pair share. Each lesson included a review of the previous lesson, and explanation and modeling of the new strategy, and guided and independent practice. The students were reminded to use the strategy throughout the week. The home science reading program included a selection of 196 award winning non-fiction books that ranged in topic and ability level. For each book read the student filled out a response form that included the amount of time they spent reading, who they shared the book with, one big idea that they learned from the book, and rated their enjoyment of the book on a 1-5 scale. The control group was instructed in the same inquiry based science curriculum as the experimental group, but did not receive any additional explicit instruction in literacy instruction or participate in a weekly trade book reading and response program.

Several measures were used to assess these interventions. An analysis of covariance (ANOCOVA) was run to determine significant difference between score measures and the intervention and control group. Students were given a pretest posttest assessment on the Gates-MacGinitie Reading Tests (GMRT; MacGinitie, MacGinitie, Maria, & Dreyer, 2002). The GMRT is a standardized test of general reading ability and includes vocabulary and

comprehension subtests both presented in a multiple choice format. The ANOCOVA analysis showed that the intervention group significantly outperformed the control group on vocabulary, comprehension, and total score.

The second measure was a researcher and teacher designed curriculum-referenced science test (CRST). A pretest and posttest design was used. Half of the items directly tested science skills and concepts. One quarter of the items tested math skills using the science content, and one quarter tested reading skills using the science content. The intervention group performed significantly higher on the CRST. The third measure was a comparative measure of the students' academic year science grades (AYSG). The science grades were determined based on weekly quizzes, lab reports, term projects, and other class assignments. The intervention group performed significantly higher than the control group on this measure as well.

The results of this study indicate that reading instruction should be integrated with content area instruction. Further questions for research include how much explicit instruction in reading integrated with science content instruction and inquiry instruction would bring the highest gains in test performance? In this study a relatively small amount of reading instruction was included, 15-20 minutes of explicit instruction a week and a weekly trade book reading assignment. Would gains have been greater if this amount of time had been doubled? Furthermore, it is unclear which part of the intervention brought the largest result. Was it the explicit strategy instruction, or the reading of trade books? This study is insightful in that it emphasizes that the literacy strategy was strategically chosen by researchers and teachers to match the content for the week.

The work of Stephens (2010) expands on the previous studies in that it offers support for a reading intervention that focuses on reading comprehension of expository texts. Stephens (2010) investigated the effect that integrating reading and writing activities including read aloud and corresponding instruction and practice in main idea summary in a journal format with science related informational text would have on students' reading comprehension. The independent variable was that one group of students received the intervention and the other group did not. The dependent variable was student performance on comprehension tasks.

This study took place over the course of twelve weeks. The study included two fourth grade classes at public schools in Northeast Texas. The schools both had a high percentage of students who were designated as being economically disadvantaged according to guidelines from the National School Lunch Program (USDA Food and Nutrition Service, 2006). At the intervention school 93% of the total population was designated as economically disadvantaged, and 86% at the comparison school. Forty students participated in the intervention but only 28 sets of data were completed and reported. At the comparison site 15 students were tested and observed; fourteen data sets were completed and to reported.

The intervention was carried out by the classroom teacher who agreed to implement the study. Participating teachers were trained in procedures for read-aloud, group discussions, responses involving graphic organizers. Researcher observations as well as e-mail contact confirmed the interventions were implemented with fidelity. The intervention included teacher read-aloud using high interest science based text, followed by guided discussions and teacher modeled journal entries. Written responses included the title, a summary of the main ideas, a brief retelling with details, a simple graphic organizer, or other response. This intervention took 15-20 minutes and happened 2-3 times per week. The second intervention also took place 2-3

times a week and took 15-20 minutes. This involved students reading similar texts either independently or with a partner, and compiling written responses in their reflective journals. Students in the control group followed a regular instructional routine, and instruction did not include emphasis on content area literacy. During qualitative observations the non-intervention group instruction was typically focused around test preparation and worksheets, and topical discussions or mini lessons were not observed.

Students were given the Comprehensive Subtest of the Gates-MacGinitie Reading Test (GMRT), both before and concluding the study. The GMRT comprehension subtest consists of 11 passages and 48 questions and includes both narrative and informational text passages (MacGinitie, MacGinitie, Maria, & Dreyer, 2000). The scores were analyzed using an univariate analysis of variance (ANOVA). When the results of the two groups were compared the intervention students showed a higher mean growth (M=19.21) compared to the control group (M=-10.50). The results of ANOVA showed that there was a significant difference with a strong effect size that indicated that 40% of the variance could be explained by the intervention. Students were also assessed using the Texas Assessment of Skills (TAKS) at the conclusion of the study (Texas Education Agency, 2005). An ANOVA was conducted which showed no significant difference in the scores between the intervention group and the control group.

Although there was not a measurable improvement on the TAKS there was a mean difference of improvement of 19 points on the *Gates-MacGinitie Reading Tests* (GMRT) (MacGinitie et. al., 2000). The GMRT is a standardized reading test that is designed to measure general levels of vocabulary and reading comprehension. There are separate tests depending on student grade level. An ANOVA analysis was conducted using the GMRT difference scores. The effect size was shown to be strong that indicated that 40% of the variance could be

explained by the intervention. The results from this test indicates that providing a reading intervention that includes teacher read aloud, guided discussions, modeled summaries and journal entries, followed by independent or paired reading and student practice with the writing strategies that had been modeled can lead to significant gains in reading comprehension for students from a low socioeconomic status (SES) school. A limitation of this study was that the GMRT assessment scores are not broken down into specific areas, so it is difficult to state which specific reading skills this intervention improved most, although it would be fair to state that both vocabulary and general comprehension skills improved for the intervention group. This study also does not break down which graphic organizers and summary strategies are used with which types of expository text. A sample graphic organizer showed students using a graphic organizer to compare and contrast hurricanes and thunderstorms, but information is not provided overall about expository text types. No data was collected to show if students improved differentially on their ability to make relational statements versus factual statements. There is also no information provided on the extent that the GMRT tests students for their ability to draw inferences and relational information in reading comprehension.

In review, these studies show the need for targeted reading instruction with expository texts. The study conducted by Cirino, Wanzek, Wexler, Fletcher, Denton, et al. (2010) emphasized the challenges of closing the achievement gap for struggling readers and the researchers suggests that based on the results of this broad Tier 2 intervention that more specific and intensive interventions may be necessary to bring about significant gains for struggling readers. The study by Saenz and Fuchs (2002) showed evidence that since students with disabilities exhibit differential performance on expository and narrative texts that successful interventions for students with learning disabilities should target the skills needed to successfully

read expository texts, in particular this study supports interventions that focus on building students' skills to make inferential and relational statements and conclusions. Fang and Wei (2010) showed that incorporating reading instruction specific to expository texts into an inquiry based science curriculum raised students' general reading comprehension skills as well as their content area scores. Stephens (2010) took this research in a more targeted direction by provided a reading comprehension specific intervention in conjunction with science content area instruction. In summary, closing the achievement gap for struggling readers is not as straight forward as providing Tier 2 broad interventions. These studies lend support to instruction for middle school students that target the ability to read and comprehend expository texts.

Using Graphic Organizers in Conjunction with Expository Text Type

Since students with disabilities exhibit differential performance on expository texts compared to narrative texts and in particular struggle more with inferential and relational comprehension it is important that intervention strategies help students' to improve their ability to make inferential and relational connections when reading expository texts (Saenz & Fuchs, 2002). The research studies presented in this section demonstrate research supported methods for increasing students' abilities to make inferential and relational statements from reading expository texts and thus decrease the differential performance between expository and narrative reading tasks. The studies presented focus on the use of graphic organizers as a strategy in conjunction with teaching the common expository text types. The first study presented looks at graphic organizers and their ability to aid students in the memory and recall of relational information. The following study researches the effect of teaching students text type in conjunction with a paragraph restatement strategy. The final two studies look at the use of graphic organizers matched with expository text type.

The study by DiCecco and Gleason (2002) addressed the question of the effectiveness of graphic organizers as a tool to improve reading comprehension. This study differentiated knowledge tasks into two separate groups. The first grouping was information that was explicit in the text, otherwise known as factual information. The first grouping was relational knowledge or information that was implied in the text. The authors asked if students involved in an intervention with graphic organizers that conveyed and cued relational knowledge would outperform students who were taught relational knowledge with more traditional note taking strategies. The independent variable was the intervention condition of using graphic organizers. The control group used guided notes. The dependent variable was students' ability to use relational statements in their writing and performance on multiple choice and true and false content area tests. The researchers hypothesized that the study group would outperform the control group on tasks involving relational knowledge.

All students who participated in this study were students identified as learning disabled (LD) by the discrepancy model, and participated in special education programs with services in pullout resource room programs. All students were identified as having active reading goals as part of their Individualized Education Program (IEP). Complete data sets were collected from 24 students from two middle schools in a mid-sized city in Oregon. One school was identified as being in a low SES area, and the second was identified as being in a middle SES area. Participants were assigned randomly to either the treatment group that used the graphic organizer (GO) or the control group. The mean age of the treatment group was 13.5 years. Participants of this group were all white and the group had 10 boys and 2 girls. The mean age for the control group was also 13.5 years. There were 2 girls and 10 boys in this group as well. One participant was African American, 11 were White.

Pretest data were collected both to determine group equivalence and current knowledge and levels of performance. These measures included; the Word Identification and Word Attack Subtests of the Woodcock Reading Mastery Test – Revised (Woodcock, 1987), a 20-item multiple choice pretest, and a pretest writing sample. The groups were not significantly different on scores from the four pretest measures. In the writing sample, the number of relational statements used was 0-2 for the GO group (M=1.0; SD=.95) and for the No GO group 0-3 relational statements were used (M=1.5; SD=.90).

Participants in both groups received instruction every day for 40 minutes for twenty school days in the Special Education Resource room. The content used was from chapters 42 and 43 of the middle school Social Studies textbook, *America! America!* (Buggey, Danzer, Mitsakos, and Risinger, 1997). All students were taught a summarizing strategy for 20 minutes of sessions 2-7 using the summary strategy from Sheinker and Sheinker (1989). Students were also taught a strategy for previewing a chapter that included reading title, headings and subheadings, chapter summary and chapter questions at the end of the chapter (Archer and Gleason 1990). This intervention took 15 minutes during two lessons. The format for instruction included 5-10 minutes at the beginning of each session teaching vocabulary, followed by oral reading by students for 10 minutes, followed by 20 minutes of discussion focused on making implied relationships in the chapters more explicit and clearer for students. Instructional Scripts were used for both groups and both groups were taught the relational information. The GO group was taught the relational information using a total of five graphic organizers that placed the main idea at the center and used arrows to show relations among various elements. Students in the No GO group used a guided notes sheet. The difference was that the information was not graphically organized to show relationships.

Students were assessed and intervention effects were determined using pretest and posttest content knowledge multiple choice tests, eight content knowledge fact quizzes, and two knowledge essays. On the content knowledge multiple choice tests a two way condition and ANOVA analysis was run that showed no significant difference between the GO group and the No GO group. However, significantly higher posttest scores by both groups were recorded. On the 20 item test the No GO group improved from an average pretest score of 22% (m=4.25) to post test score average of 63% (m=12.58). The GO group improved from a pretest score average of 30% (M=6.08) to a posttest average of 67% (M= 13.42). On the content knowledge fact quizzes a two way Condition x Test ANOVA revealed no significant difference between the two groups. A significant difference was found for time of test, but since the highest quiz scores were found at the beginning of the unit the researchers hypothesized that quiz scores varied by difficulty of quiz. On these two measures students did not show significant differences on measures of factual or explicit knowledge gained, which indicates that the use of graphic organizers will not significantly improve students' ability to recall, and answer factual information comprehension. On written measure assessments a two way analysis and ANOVA was run to test for effects in number of words written. There was not a significant effect size difference between the No GO and the GO group for number of words written. There was, however, a significant effect size for time of test. Both groups wrote significantly more words on the posttest essays which indicated that both groups benefited from the summary writing intervention as well as the content area instruction.

Essays one and two were also analyzed to compare for relational knowledge statements used. An effect size was found favoring the GO group. Students in the GO group made significantly more relational statements in their posttest essay than students in the No GO group.

Students in the No GO group averaged 2.54 statements (SD=1.56) compared to students in the GO group who made an average of 4.33 relational knowledge statements. On essay two students in the GO group made a total of 57 relational knowledge statements with a mean of 4.75 and a median of 5. Students in the No GO group made a total of 27 relational knowledge statements with an average of 2.25 and a median of 2. The effect size for group was found to be significantly different between the two groups on the second essay.

Based on the findings of this study it seems prudent that teachers and researchers consider the purposes for which a graphic organizer is used. For purposes of gaining explicit knowledge a guided notes strategy and a graphic organizer strategy are comparable. However, the results of this study show that graphic organizers that portray implicit relational information result in gains in students' ability to use relational statements in their writing. A limitation of this study is that it does not specify expository text types to which graphic organizers would be the most beneficial. Since cause/ effect and compare/contrast expository text types focus around the comprehension of relational information it seems that pairing graphic organizers with these text types would be beneficial.

One use of a graphic organizer that is paired with a text type is in the study by Stagliano and Boon (2009). This study used a story mapping procedure with expository text types that have the elements of a story. This strategy would be beneficial in the instance of increasing students' ability to read newspapers and other forms of expository text with a story line, and could help students see the connection between expository and narrative text.

The study conducted by Stagliano and Boon (2009) investigated whether teaching students a story mapping procedure would improve their comprehension skills on expository

texts. A story map is a version of a graphic organizer that uses story-grammar elements as headings. This study differed from previous research on story maps in that it focused exclusively on the use of expository text rather than narrative text. The independent variable was the use of a story mapping graphic organizer. The dependent variable was students' scores on comprehension questions. The authors hypothesized that a story map graphic organizer would aid students in comprehension tasks on expository texts.

The researchers provided interventions for three students. Participants in this study were in fourth grade at a public school in Georgia. All three students were male. Two of the three were Caucasian, and one was African American. All students received special education services in a resource room setting for at least one period a day and were identified by the discrepancy model as being students with a learning disability. All participants were identified as being at least two years behind grade level in reading on the *Qualitative Reading Inventory-4* (QRI-IV;Leslie & Caldwell, 2006).

Before the start of the study students were assessed using the *Read Naturally* series (Ihnot &Ihnot, 2007). Throughout the study the *Read Naturally* series was used for all passages. This series was chosen because it contained expository text passages, was leveled, and contained comprehension questions. At the end of each *Read Naturally* passage were four multiple choice questions and a short answer question that required a short response of a sentence. Expository text stories that contained all of the story elements, and had elements easily identifiable were chosen for this study. Story elements included, time/place, who/what, problem/goal, solution/ending, and main idea.

The study lasted two months and took place over 24 sessions. The study took place during three phases. During the first phase students were not provided with a story map graphic organizer. They were given the story and were told to answer the comprehension questions that followed it. Scores during this phase were averaged to give researchers baseline data. Students were then given one-on-one instruction on story elements and how to use the story map for three sessions. Following this direct instruction, students had to complete the story map while reading, and then answer comprehension questions. During the intervention phase students were allowed to practice using the story mapping tool as an aid until a student independently received three consecutive scores of 80% or higher. Two weeks after reaching this benchmark during the maintenance phase each student was given three tests following the same procedures to see if they had retained the skills.

Table 1

Story Elements Identified

	Baseline	Intervention	Maintenance
Student A	(m=6.67%)	(m=92%)	(m=86%)
Student B	(m=26.67%)	(m=85%)	(m=86.67%)
Student C	(m=11.43%)	(m=86.67%)	(m=86.67%)

From this data collection for these three students gains were shown for all three students. Furthermore, all three students scored an average above 80% which is often used as a benchmark for mastery on both the intervention and maintenance phases of this study. When conducting an error analysis of correctly identified story elements the main idea had the lowest percentage of correct identification (m=66.67%). This implies that students had the most difficulty identifying the main idea.

The story map has potential to aid students in comprehending expository text as well as narrative text. However, this study presented several limitations that warrant further investigation. The researchers choose expository stories where the story elements were fairly obvious creating a condition that will only improve students' reading skills with one type of expository text. This type of expository text is the most like narrative texts, which students tend to be more adept and reading and comprehending. Therefore, it does not seem that this strategy would be effective with many expository text types including compare/contrast, cause/effect, descriptive or sequential. Bakken, Mastropieri, and Scuggs (1997) provided a foundation for research in interventions involving teaching students text structures. They used structures that are more common with expository text types than narrative types.

The third study examined the effectiveness of teaching students the main text types found in expository texts in order to increase their ability to recall central and incidental information. The study conducted by Bakken, Mastropieri, and Scuggs (1997) investigated the effect of a text structure and main idea identification intervention. Students taught these strategies were compared with students taught a paragraph restatement strategy and students in a third group who were taught to read passages, answer questions, and review responses. The dependent variable was the type of instruction. The independent variable was students' recall of central and incidental information.

Participants in the study were 54 eighth grade students who received special education services, were identified by their teachers as having reading comprehension problems and were identified as students with learning disabilities as determined by discrepancy criteria. The student demographics were 38 Caucasian students, 13 African American students, and 3 Hispanic students. The average age was 14.4 years. Students in the study spent an average of

156.52 minutes a day in special education settings. Thirty students were classified as being from middle socioeconomic class (SES) backgrounds and 24 were classified as coming from lower SES backgrounds. Students were randomly assigned to groups and there was no significant difference between groups on these variables. Implementation scripts were used to ensure fidelity. Instructional time across groups was the same, and the same instructional passages were used. Passages were selected and adapted from grade level content area texts. Students were instructed one on one for three days, for a total of 94 minutes, and were tested on day four and five.

The group that received instruction in text structure specific strategies was taught a new text based strategy on each of the three instructional days. On the first day the students were given an overview of three different types of structures and were given examples of the three types of passages. The students were given a list of key words and clues for identifying passage types and practiced identifying passages. Then the main idea strategy was introduced. The main idea strategy included the students identifying and underlining the main idea and then identifying the supporting details. The students were then instructed to write down the main idea and supporting details in his/her own words. The students then practiced on two passages, one with the instructions written underneath the passage and the second without the instructions. Following the second passage the student was asked to recall the information orally. The session concluded with a review of the main idea summary strategy. On the second day a similar procedure was used, with the addition of reviewing the previous strategy. The students were taught a strategy for summarizing list passages. The students were taught to identify and underline the general topic and then to write the general topic and subtopics in the students' own words. On the third day the same procedure was used beginning with review of the previous

strategies and instruction on characteristics of the new type. The students were taught a strategy for order passages which included underlining the general topic and describing the changes or differences from one step to the next.

In the paragraph restatement condition students were instructed on the similarities and differences between expository and narrative texts. They were then given instruction and practice in identifying narrative and expository text types. Students were then taught to read the paragraph and then wrote short statements about the passages in their own words. Students then read what they had written. The students followed the same procedure as the text structure group, but instead of main idea and text structure instruction students reviewed and practiced the paragraph restatement strategy.

In the traditional instruction condition students were instructed in the differences between expository and narrative texts. They were then taught to identify narrative and expository texts. They were then given instructions to read the passages and answer specific questions about the content of the paragraphs. Students followed this strategy for all three text-types and concluded each session by being asked to recall the information on which they had been questioned.

On the fourth day students were given six science passages of approximately 100 words each. Students listened to text and then were given a free recall prompt where they were asked to tell everything they remembered about the text. Responses were recorded and were scored based on the number of central and incidental ideas. On the fifth day the same test format was used, but with a delayed recall and a social studies passages. The purpose of the social studies passage test was to see if transfer had occurred.

All tests were scored and an ANOVA analysis was run. A statistically significant difference was found for condition. Students in the text structure group scored significantly higher on than the paragraph-restatement group on immediate, delayed and transfer tests on measures of central idea recall, but not incidental statement recall. Students in the text structure group and paragraph restatement group scored significantly better than the traditional instruction group on immediate recall, delay recall and transfer tasks for both incidental and central idea recall. The effects of recall for the text based condition compared to the traditional instruction were very strong.

The researchers recommended further research on text structure based strategies for reading comprehension. Based on the instructional methods for the text-based condition it seemed unclear whether the strong effect size was due to the emphasis on main or general idea and supporting details or whether it was influenced by the strategy being specific to text type. Since both the paragraph-restatement group and the text structure group showed improvement an intervention that used elements of both would be logical. It seems that best practice would be to match the strategy to the text type and to include main and general idea instruction in conjunction with strategy type. In this study it seemed that the strategy specific instruction was very similar in terms of text type. The study by Montelongo, Herter, Ansaldo, and Hatter (2010) expanded on the previous study in that it presented a lesson cycle that paired the teaching of expository text type with the use of graphic organizers.

The study by Montelongo, Herter, Ansaldo, and Hatter (2010) investigated the effect that using a lesson cycle that taught students to recognize different types of expository text and measured how this affected their ability to pull the main idea sentence from the text. The independent variable was a lesson cycle that used direct instruction and involved a sentence

completion and sorting sentences into graphic organizers specific to the text type. Students were taught to recognize cue words for text structure. Following five weeks of instruction students showed improvement on main sentence retrieval from expository paragraphs. A pretest post- test format was used. The dependent variable was the student scores on main idea identification tests.

Sixty-one students participated in this study. Thirty of the students were sixth graders, and 31 were seventh graders. Twenty-one of the sixth grade students were Latino, and nine were white. Nineteen of the seventh graders were Latino, and 12 were white. There were 20 male sixth graders and 10 females. There were 21 male seventh graders and ten females. The study took place during the summer as part of a credit recovery program. Students who had failed at least three classes were eligible to participate in the summer program in order to be promoted to the next grade. The study took place at a California middle school.

The study took place over a five-week period. The students were introduced to the types of expository text structure one at a time in the following order: generalization, sequence, compare and contrast, and problem and solution. Each text structure was taught following the same lesson sequence. A new cycle began every third day. The lesson cycle took place in four stages. During the first stage vocabulary words were introduced through a sentence completion task. Students were told to use context clues and to make guesses. They then used dictionaries to verify their answers. Following this, students generated their own sentences using the vocabulary words. The second step of the lesson plan was introducing a paragraph corresponding to one of the text structures and modeled separating details from the main idea. At this stage signal words corresponding with the text type are presented and the students were taught that signal words point to details, rather than the main idea. In the third step students were

presented with a fill-in-the blanks worksheet where half of the sentences are related and the other half are not. Students fill in the vocabulary words and then write or paste them into a graphic organizer that corresponds with the expository text type. In step 4 of the lesson cycle students took the paragraphs and summarized them in their own words. They are shown how to replace the author's words with synonyms, antonyms, and experiences to make the paragraph in their own words.

Main idea pre-tests and post-tests were given. The tests contained 12 paragraphs from commercial workbooks for grade levels five through eight (Flash Kids Editors, 2004a, 2004b). On both the pre-tests and post-tests half of the main ideas were located in the beginning paragraph and half were located at the end of the paragraph. Students had to read the paragraph, extract the main idea, and write it on the space provided. Students were given thirty minutes for the pre-test and thirty minutes for the post-test. Students improved their ability to identify the main idea of a paragraph. On the pretest the average main ideas identified correctly was 59.32%. On the post-test the average main ideas correctly identified was 77.86%. The ability to locate the main idea when it occurred in the end of a paragraph improved by 43.9%, which showed that students were not just selecting the first sentence because that is what they were told to do, but represented a deeper level of understanding.

The researchers recommended further research and work with paragraphs as the base for students to analyze. Further work could be done researching the ability of students to extract the main idea when it is not the first or last sentence of a paragraph, as well as when the main idea is not clearly stated in a separate sentence. Furthermore, they recommended research using the described lesson cycle on the quality of student writing, and the effect on content area

comprehension. In another study authored by Montelongo and Hernandez, (2007) the effectiveness of the versatile sentence completion task is further confirmed.

The study conducted by Montelongo and Hernandez (2007) investigated the effects of teaching a sentence completion and paragraph sorting task on students' ability to sort information into paragraphs and identify main ideas and supporting details. They developed this strategy in order to expand on and improve traditional sentence completion tasks typically assigned in the classroom such as fill-in-the-blank and cloze activities. The secondary purpose was to teach students about structure of texts in order to improve students' metacognitive knowledge. The researchers' hypothesis was that following instruction in the sentence completion and organizing task that students would be able to sort related and non-related information into paragraph form and would be able to identify main ideas and supporting detail sentences. The independent variable was the group that the researchers were working with who received instruction and practice in the sorting strategy. The dependent variable was students' performance on tasks where they were asked to identify and state the main idea. There was not a group that did not receive the treatment, but Montelongo and Hernandez note that the study by Garner et al. (1986) looked at the ability of third, fifth, and seventh graders to identify paragraphs on a page, differentiate between related and unrelated sentences and to arrange these sentences in a coherent matter. The trends from this study showed that most students could identify paragraphs on a page, but that only the seventh graders were able to explain that paragraphs contained related ideas. The third and fifth grade readers struggled to arrange sentences in a logical order and were not able to exclude sentences that were not related to the topic of the paragraph.

This study was conducted during summer school session for 21 students who were current fourth graders, and 22 students who were current fifth graders. The intervention lasted eight sessions for the fifth grade students and nine sessions for the fourth grade students. The 50 minute sessions took place during the last two weeks of summer school on consecutive days. They occurred before the lunch recess for the fifth grade class, and after lunch recess for the fourth grade class. No other student demographics were provided in the study summary.

The first two sessions focused on teaching students the terms topic, main idea and supporting details and the exercise was modeled. The remaining sessions encouraged individual performance of the tasks. The stimulus paragraphs were taken from commercially produced skill books at the student's grade level. Fourth grade students used passages from fourth grade books and fifth graders used passages from fifth grade books. During the third session the terminology was reviewed as a whole group. The fourth graders were given an additional formative session which involved direct instruction using signal words indicating time and importance (first, next, finally). It was taught that signal words most often indicate supporting details rather than main ideas. The final session focused on testing. The fourth graders, who had received additional instruction in the use of signal words were given a more difficult task of having sentences that could be sorted into two paragraphs, rather than having a group that fit in a paragraph and a group of unrelated information. There were 10 sentences on the assessment. During this session students were given passages that differed from their peers to avoid copying.

The mean performance was calculated for; categorization, selection of main idea and correct ordering. The mean number of 5^{th} grade students who correctly identified sentences as related to the same paragraph was 4.63 (83.6%). Fifteen out of nineteen of the fifth grade students were able to identify the main idea (m=78.95%). Thirteen out of the 19 students

ordered the sentences correctly (m=68.42%). For the fourth grade students 12 out of 19 correctly identified all of the sentences (m=63.26%). Eight of nineteen students correctly identified both main ideas (m=42.12%). Thirteen 4th grade students out of 19 correctly ordered at least one of their paragraphs (m=68.42%). These findings are difficult to analyze as pre-test data was not provided, so a baseline is not present in order to determine growth. It is difficult to compare the fourth and fifth grade scores, as there was not one clear variable being tested. It does seem that the task of sorting sentences into two separate paragraphs is indeed more difficult, and that students given this task had a lower overall mean (m=57.93%) compared to the fifth graders who were given the task of sorting related and nonrelated details (m=76.99%).

Neither the study by Garner et. Al. (1986) nor Montelongo and Hernandez included information or data related to how students with disabilities performed on these tasks either in a pre-test or post-test condition, so this is a question that warrants further research. I would predict that students with learning disabilities including students who struggle with organization in writing would perform more aligned with their reading level rather than their grade level on pre-test performance, and would thus benefit from a deeper understanding of text structures through learning and practicing this sentence completion and ordering strategy. The structure of paragraphs, including topic sentences and supporting details is a skill that students, in particular struggling readers may not have mastery of. The strategy that is often used in classrooms - teaching students to identify the topic sentence as the first sentence in a paragraph is inadequate, as it does nothing to further students' knowledge or mastery of text structure.

In summary, these research studies point to using graphic organizers in conjunction with teaching expository text type. The study by DiCecco and Gleason (2002) differentiated between the use of graphic organizers to support the learning of relational knowledge versus incidental

knowledge. In other words, this intervention can help students with getting to and remembering the main idea, and remembering important relationships. As noted in section 1, this is important as relational and inferential knowledge skills are more challenging for students with learning disabilities on expository texts (Saenz & Fuchs, 2002). The work of DiCecco and Gleason has been expanded on by other researchers to include the use of graphic organizers in conjunction with teaching of expository text type. Stagliano and Boon (2009) paired expository text that had story elements with a story mapping graphic organizer. This work showed an increase in students' abilities to state the main idea and other story elements. However, the work by Stagliano and Boon (2009) does not cover the majority of expository text types nor does it teach the skills needed to navigate these types. Bakken, Mastropieri, and Scuggs (1997) in their hallmark study taught expository text type and keywords for identifying them and measured recall on reading tasks. Following the intervention students who had been instructed in text types and key words outperformed the other groups in their recall of central information on immediate, delayed and transfer recall tasks. This study provided a basis for the use of expository text type instruction to improve students' skills in recalling central information. The work of Montelongo, Herter, Ansaldo and Hatter (2010) both confirms and expands on the work by Bakken, Mastropieri and Scuggs (1997) by teaching expository text type as part of a lesson cycle that also involves the use of a flexible sentence completion task where the elements of the text can be sorted into graphic organizers. The work by Montelongo and Hernandez (2007) provides additional research of the validity of the sentence completion and sorting strategy. Further direction for research involves making use of the lesson cycle designed by Montelongo, Herter, Ansaldo and Hatter (2010) but expanding on this research by looking at how it affects students' ability to write a summary of what they have read using relational knowledge statements.

Summary Writing and Self Regulated Strategies

In this third section three research studies are presented. These studies demonstrate the need for explicit instruction in writing for all students. These studies expand on the previous section in that they specifically look at the skill of summarization. They also show evidence for learning content knowledge through the summarization process. This section also examines the need for specific strategies to aid students with attention-related disabilities. The following studies show evidence for using self-regulation strategies in order to improve reading comprehension with expository text. These studies provide the basis for including a self-regulation component into an intervention for a middle school student who has been identified as having attention-related difficulties by teachers and family and is doctor identified as Attention Deficit Disorder (ADD).

The study by Reynolds and Perin, (2009) compared two techniques for teaching middle school students to compose from expository text sources. This study compared an intervention that focused on text structure and summarization rules (TSI) with a self-regulation strategy (SRSD) in this study the (SRSD) used were PLAN & WRITE for summarization (PWS). There were three groups, TSI, PWS, and a traditional instruction group. The independent variable was the type of instruction that the student group received. Three dependent variables were used to measure the intervention effectiveness. They included a composing from sources test that measured writing quality and main idea inclusion on both area of study and transfer tasks. The third dependent variable measured was content knowledge. The researchers hypothesized that the students in the TSI group would show the greatest gain on the inclusion of main ideas from pre to post test and that the PWS group would show the largest pre and post gain in writing quality. The researchers did not make a hypothesis for which group would show the largest

content knowledge gains due to a lack of literature on the topic of the effects of writing instruction on implicit learning of content knowledge.

The study included 121 students (62 male, 59 female) in six seventh-grade social studies classrooms. The middle school was located in a suburb of a large city in western Canada. National Curve Equivalent Scores on the *Gates-Mac Ginitie Reading Tests* GMRT (1992) indicated that this was an average performing sample. Students were selected from an initial pool of 177 children. Criteria for selection included; parental consent, attendance for all sessions and completed pre and post test data, and scores within one standard deviation from the mean on the (GMRT) and the *Test of Written Language* (TOWL-3, Hammill & Larsen, 1996). All 177 students received the intervention, but only data from students who met these criteria were included in the analysis. The TSI group included 40 students in two classes. The PWS condition included 39 students in two classrooms. The neutral literacy or control condition included 42 students in two classrooms. The researchers felt that the possibility of teacher effect was minimal determined by researcher observation the teachers had similar teaching styles and followed the same curriculum.

The study took place over ten sixty-minute sessions during regularly scheduled social studies periods. The sessions included; two pretest sessions, five instructional sessions, and three post-test sessions. The same assessment measures were given to all students. On the first day of the study students were given the GMRT and the TOWL-3. These tests were used to determine initial levels and inclusion for study. Post-test scores for these measures were not taken. On the second day of the study students were given a content knowledge test designed for the study and a composing from sources test on mummies; which was also designed for the study. Following instruction students took an alternate form of the composing from sources test and retook the

content knowledge test. Students were given two tests to measure transfer of knowledge to science content area reading. A near transfer test was given five days following instruction. It included a composing from sources test on a different social studies topic. A far-transfer test was given seven days following instruction. It involved a composing from sources test based on an equivalent grade level science area reading on the digestive system. All social studies passages followed the sequence text structure pattern. The science passage used for far transfer followed the descriptive text structure format.

Main idea and writing quality were measured on all of the composing from sources tests. The composing from sources tests required the reading of 2-3 passages and the writing of a summary from the passages. The main idea measure was the proportion of main ideas in the source texts present in the students' summaries. The written summaries were scored for whether the main ideas were stated fully (3 points), adequately (2 points), partially (1 point) or not at all (0 points). The writing quality of the summaries was measured using a four-part writing rubric that measured, meaning, style, form, and writing conventions.

Students received different strategy instruction based on which group they were a part of. In the TSI group students were taught to record main ideas and details, take notes, organize notes in order to plan for writing, and practice writing summaries from single and multiple sources. Students were taught to first scan the passage and think of and record the topic. Then they were taught to underline the main idea of each paragraph and choose one detail of interest. They were then taught to record these notes in their own words in a sequence frame graphic organizer.

In the PWS group students were taught to compose from sources using the mnemonic PLAN and WRITE. As part of this intervention students met individually with their teachers to

set individual goals. The students were taught to follow these steps, "Pick out the big idea and underline the important parts, List main ideas, Add supporting details, Number your ideas, Work from your plan to develop topic sentences, Remember your goals, Include transition words, Try to use different kinds of sentences, and Edit your work." (Reynolds & Perin, 2009, p. 276) This strategy was adapted from De La Paz (1999). Students were initially given note-taking grids, but after the second session students took notes on blank paper. Students were also given examples of well-written and poorly written summaries as part of instruction.

In the Neutral Literacy (NL), control condition the session was divided into two parts. In the first part students read passages from their booklets either on a volunteer basis or independently and responded to questions that are typical of end of chapter questions. During the second half students completed a creative writing task on Ancient Egypt, the theme of the unit. The creative writing task involved being shown six pictures from the text and told to make up a story based on the pictures.

The results of this study support explicit instruction in strategies for expository writing. Both of the treatments were associated with better scores on all outcome measures at all testing points. It was hypothesized that students instructed in the TSI group would perform better on main idea inclusion than the PWS group . On post-test and near transfer measures the amount of change for these two conditions was the same. However, the TSI group performed better on the far-transfer assessment. It was hypothesized that the PWS group would show greater gains on the writing quality assessments. In actuality, the TSI group showed greater gains than the PWS group on all measures including post-test and near and far transfer measures. All three groups showed gains on the post-test content area assessment, which supports the use of writing to learn content area knowledge. The groups given explicit instruction in summary writing

outperformed the NL group in gains on content area test. The TSI group showed greater gains on the content area test than the PWS group.

Based on the results of this study it is apparent that explicit instruction in summarizing expository texts is a beneficial intervention for improving expository writing. There are a variety of possible factors that could have influenced the TSI group's superior gains to the PWS group. It is possible that teaching students how texts are structured aids in summary writing. The TSI was also more straightforward than the PWS, which may have made it easier for students to remember on the transfer measures. The TSI made explicit use of a graphic organizer that taught students to state the topic, main idea and one detail for each main idea. It is possible that the use of the same graphic organizer over the course of instruction helped students to better organize their writing on future writing tasks. This study was limited in that it only taught sequential text in conjunction with a concept frame graphic organizer. Further research could involve the teaching of multiple expository text types paired with graphic organizers and summarization strategies. The study conducted by Hedin, Mason and Gaffney (2011) takes a different look at the effectiveness of self-regulated strategy development because the study was conducted specifically as an intervention for two students with attention-related disabilities.

A problem for students with attention-related disabilities is sustaining attention during writing and reading tasks. This difficulty often leads to lower performance and academic levels. The study conducted by Hedin, Mason and Gaffney (2011) looked at the effect of teaching two students with poor comprehension and attention-related difficulties a reading comprehension strategy with self-regulation elements. The independent variable was one on one instruction in self-regulated strategy development (SRSD) for the Think Before Reading, Think While Reading, and Think After Reading (TWA) reading comprehension strategy. The dependent

variable was the number of main ideas, details, and overall quality of students oral retells after reading science passages that students included during baseline, instructional phase and on a delay measure. The researchers hypothesized that during and following strategy instruction students would show improvement in their oral summaries.

The research study was conducted with two male students. Both students received special education services, and were identified by their teachers as being at risk for academic failure. Both students were identified as having Attention Deficit Hyperactivity Disorder (ADHD), a second disability and had reading scores that did not meet standards on state testing the previous year. Both took Ritalin for ADHD. The first student was a 10 year-old fourth grade student who was identified as having a Speech and Language impairment and ADHD. The second student was an 11 year-old fifth grade student who was identified as having a Learning Disability as well as ADHD.

Students were taught to use TWA in ten one-on-one tutoring sessions that were 30 minutes each. Fourth and fifth grade science passages that were revised to be at a fourth grade readability level using the Dale-Chall readability measure were used for all sessions and assessment measures (Chall, Bissex, Conard, & Harris-Sharples, 1996). The sessions involved explicit instruction and modeling in each of the TWA steps. The control of the strategy was gradually transferred to students as students met set mastery criteria for including main ideas in oral summaries. Students were taught to use the following steps for TWA. In the Think Before Reading stage students were taught to think about the authors purpose, tell what they already know, and tell what they want to know. In the Think While Reading phase students were taught to; adjust reading speed, reread for meaning, and link knowledge. In the Think After reading phase students were taught to identify main ideas and details and to develop an oral summary.

Students were first taught to identify main ideas and details using two colors of highlighters, and in later lessons were taught to mark main ideas with MI and details with D beside sentences. Tutoring sessions involved self-regulation strategy elements that included: signing a contract agreeing to learn the TWA strategy, checking off strategy steps as they were completed, coloring in a segment of a cartoon rocket for each step completed, developing self-encouraging statements to replace negative self talk, and goal setting involving strategy use.

An A B experimental design was used where students were measured by comparing initial retells with those during instruction phase, and in maintenance phase. Students were recorded on three to four baseline measures, five to six during instructional phase, one on the last day of instruction, one five days following instruction, one four weeks following instruction, and one to two eight weeks following instruction. Retells were audiotaped, transcribed and scored for the number of main ideas and overall quality of retell. The overall quality was scored using a rubric that assigned a score from zero to seven. A score of zero was given for no response or no accurate information recorded. A score of one was given for a retell that included a few details, but no main ideas. A score of seven was given for a retell that included five or more main ideas with supporting details, and that completely explained the gist of the passage.

Scores for both students showed the same pattern. Both students begin with low scores on both main idea recall and quality measures scoring between zero and two. During instructional phase both students' scores increased. During this phase students scored between two and five main ideas and received quality scores between three and six. However, for both students on the four and eight week maintenance measures their scores returned to near pre-test measures.

The results of this study indicate that using the TWA and SRSD strategies helped students with reading comprehension and recall. However, this research also indicates that this improvement was not maintained. Future research could look at the question of maintaining improvement from specific strategy instruction. Possible successive interventions could include booster lessons over time and in different contexts. Another possible question is whether levels would have decreased if students were provided with a SRSD strategy card that they could have used during four and eight-week post-test measures. It is possible that in order for students with attention-related disabilities to increase comprehension during reading that providing checklists for attention monitoring could be beneficial. The study conducted by Rogevich and Perin (2008) lends further support for an intervention that uses elements of TWA and SRSD for students with attention-related disabilities.

The research study conducted by Rogevich and Perin (2008) looked at the effect of teaching a self-regulation strategy for summarizing expository science texts with students with behavioral disabilities (BD) and attention deficit hyperactivity disability (ADHD). Students with BD and ADHD show considerably lower achievement than their typically developing peers and the question of specific supports to increase achievement for this population is of significance. The dependent variable included instruction group. Participants worked in either the self-regulation strategy development intervention called Think Before Reading, Think During Reading, Think After Reading, With Written Summarization (TWA-WS) or the comparison condition. The independent variable measured in this study was the number of main idea units included in written summarization. The researchers hypothesized that students with BD and ADHD that were taught a self-regulation strategy for writing would show more gains in summary writing than the control group.

This study took place at a self-contained residential treatment facility in a suburb of a major metropolitan city in North Eastern United States. Participants were typically court ordered to attend. The study worked with a group of students who was assigned to stay at the facility for 1-2 years. Participants were mandated to attend a Special Education school on campus. Sixty-three males whose ages ranged from 13-16 (M=14.75) participated in the study. Of the students 35% were Caucasian, 41% were African American, and 24% were Hispanic. All students were of low socioeconomic status, according to agency records of family income. In order to participate in the study individuals had to meet the following criteria; parental consent, an IQ that ranged from 70-109 (m=88.9, SD=8.5), and a prior Diagnostic and Statistical Manuel of Mental Disorders (DSM-IV) diagnosis of behavioral disorder (BD) specifically conduct disorder, oppositional defiant disorder, or ADHD in conjunction with conduct disorder or oppositional defiant disorder (American Psychiatric Association, in press). Participants were assigned to groups so that age, IQ and reading level for groups was comparable. Disability distribution was also taken into account, so that one or two students in each group of three or four were BD only and one or two were BD+ADHD. The instructor, group size and length and number of sessions were the same for both groups.

Students in the TWA-WS group were taught a self-regulation and summary strategy that can be broken down into three phases. In phase one, the students are instructed to Think Before Reading. This phase involved having students think about the author's purpose including the type of text structure that they were reading. The before reading phase also included a version of a KWL graphic organizer where the students filled in what they already knew and what they wanted to learn. For the second phase students were instructed to Think While Reading. Students were instructed to focus on reading speed, linking new knowledge to previous

knowledge, and rereading important parts. In the third phase of Think After Reading students were instructed to think about the main ideas and to summarize what they had read using a modified version of the 5 summarization rules proposed by Brown and Day (1983). The modified rules included,

> (a) Cross out information in the passage that is not really important; (b) cross out information that is important but has already been said; (c) if the passage includes a list of terms or actions, substitute one word or phrase for the list; (d) find the topic sentence and rephrase it in your own words (Rogevich & Perin, 2008 p.144).

The final step involved discussing with the instructor what they had learned. As part of this process students were instructed and used a self-regulation strategy that involved a TWA mnemonic chart that students checked off as they progressed through the three phases. On day one students were given an explanation of the strategy and its importance. Students practiced writing the mnemonic. On day two the teacher modeled the use of the strategy following the self-regulation chart. On day three the students practiced collaboratively reading and writing a summary using the self-regulation strategy. On the fourth day students practiced writing summaries mostly independently, while the teacher continued to provide scaffolds for support. Independent feedback on summaries was also provided. During the fifth and final instructional session students continued to practice using TWA and students quizzed each other on the steps of TWA.

In the comparison condition students read given passages, had group discussion, and then wrote summaries. Students used the same passages as the study group and wrote the same number of summaries. Instead of strategy instruction students completed multiple choice, fill in

the blank and true and false tests from the teacher's edition of the text the passages were taken from. (Cooney et al., 2000b)

Students were assessed on the dependent variable of written summarization based on their gain scores. Task measures included; pretest, posttest, near transfer, far transfer and maintenance. During the first session students were given the *Gates-MacGinitie Reading Tests* (MacGinitie et. Al., 2000), in order to determine reading level. Since the mean reading ability was at the fifth-grade level the passages for both testing as well as instruction were at the fourth-grade level to ensure an independent reading level. The readability level was measured using the Dale-Chall formula (Chall, Bissex, Conard, & Harris-Sharples, 1996). All passages were approximately three hundred words in length. Students were provided with two passages for both pretest and post test and were instructed to read the passage carefully and to write a summary of what they read. The near transfer task involved the reading of a social studies passage instead of a science passage. The far transfer task required composing from two science passages instead of one. Assessments were scored using a rubric, which measured the inclusion of important idea units. Important idea units from each passage were written on the rubric. A student was given a score of 0,1, or 2 based on the inclusion of the important idea units. The student received a 0 if the idea was not mentioned at all, a 1 if the idea is mentioned but not supported, and a 2 if the idea is fully supported. The data was analyzed for student gains from pre-test to post-test measures.

The data was analyzed using a repeated measures multivariate analysis of covariance (MANCOVA). The post hoc comparisons showed significantly better performance for the intervention group than the control group on all four measures. The students with only behavior disorder in the intervention group showed significantly better gains on near transfer, far transfer,

and maintenance tasks than the students with both BD and ADHD in the intervention group, although students in the intervention group with BD and ADHD scored significantly better than both BD and BD+ADHD students in the control group.

Based on the results of this study using a self-regulation strategy in conjunction with reading expository texts and writing summaries appears to be an effective strategy to improve task performance for students with behavioral disabilities (BD) and for students with attention difficulties. Further research could investigate the use of self regulation strategies compared to direct instruction that did not include self-regulation strategies for students with behavioral and attention difficulties. Students in this study were expected to memorize the mnemonic in order and were not allowed to use an anchor chart agenda with the mnemonic on it. Also, although students were instructed in the Think Before Reading phase to think of the author's purpose including expository text type no explicit instruction was provided for students to recognize various text types. It seems that future research could involve allowing students to use prompts or writing process agendas on all measures including post test in order to help with executive functioning. Further development could also include self regulation strategies for other academic processes such as studying for tests and summary writing tasks could be expanded to self regulation strategies for performing more complex tasks including research papers and projects. For more complicated tasks the process could be expanded to include teaching students ways to self regulate the organization of their ideas and their summary writing.

In review, these three studies show the need for summary instruction in addition to self-regulated strategies for students with attention-related disabilities. The study conducted by Reynolds and Perin (2009) found higher scores on main idea and writing quality summaries for students who participated in an intervention that involved either a text structure and

summarization rules strategy or a self-regulation strategy in conjunction with writing instruction. Although in the study conducted by Reynolds and Perin (2009) the text structure and summarization group that did not receive self-regulation strategy instruction outperformed the group that did this study was conducted with a general education population. The research conducted by Hedin, Mason and Gaffney (2011) and by Rogevich and Perin (2008) shows support for self-regulation strategies for students with attention-related disabilities. The study conducted by Rogevich and Perin (2008) showed that the group instructed Think Before Reading, Think While Reading and Think After Reading (TWA) with written summarization instruction and self-regulation strategy instruction outperformed the traditional instruction group. All students in this study were students with Behavioral Disabilities either with or without comorbid ADHD. This study points to self-regulation strategies being particularly effective as a targeted intervention for students who struggle with task attendance and executive functioning, and may be used both to teach these skills as well as to improve academic performance. In the study conducted by Hedin, Mason and Gaffney (2011) students showed improvement on oral summarization during the instructional period, but did not maintain this performance on testing at four weeks and eight weeks following the intervention. The results of this study imply that teachers working with students with attention-related disabilities may need to provide continued supports in order to aid students with attention-related disabilities in order for students to internalize the self-regulation strategies. However, the improved performance during the intervention phase lends support to self-regulation strategies being an important part of an intervention for students with attention-related disabilities.

Conclusion

This chapter provided a review of the literature pertinent to this action research project. There were three main areas of research regarding reading instruction that were addressed. The chapter started by summarizing the research regarding the need for explicit reading instruction in conjunction with expository text. The focus for this research was on middle school age, when the majority of reading required for school is expository in nature, yet many students, especially struggling readers are lacking specific strategies to navigate and be successful readers and writers of expository text types. The study conducted by Cirino et al. (2010) emphasized the challenges of closing the achievement gap for struggling readers and suggests the need for more intensive interventions for struggling readers and writers. The study conducted by Saenz and Fuchs (2002) lends support for these interventions to be targeted using expository texts rather than narrative texts, since they found that students with learning disabilities exhibited differential performance on expository and narrative texts. Fang and Wei (2010) and Stephens (2010) both conducted research studies that provided explicit strategy instruction in conjunction with science content area classes. Both studies show evidence of improved comprehension skills and content area knowledge for students involved with interventions that target the skills needed to read and understand expository texts. These two studies also lend support for the use of science trade books as the source material for interventions for students who are struggling readers.

The second section of this chapter addresses the findings of Saenz and Fuchs (2002) that students with disabilities in particular struggle more with inferential and relational comprehension in expository texts than in narrative texts. The study conducted by DiCecco and Gleason (2002) found evidence that students who used graphic organizers rather than guided notes outperformed the guided notes group on the inclusion of relational information in written

summaries. The research studies in the second section point to using graphic organizers in conjunction with teaching expository text types. Stagliano and Boon (2009) paired expository text that had story elements with a story mapping graphic organizer. This study showed an increase in students' abilities to state the main idea and other story elements. However, many expository text types do not have many of the story elements. The research conducted by Bakken, Mastropieri, and Scuggs (1997) showed results that students who had been taught expository text types in conjunction with summarization skills outperformed the summarization control group on immediate, delay, and transfer recall tasks of central information. The work of Montelongo, Herter, Ansaldo and Hatter (2010) and the research conducted by Montelongo and Hernandez (2007) both confirms and expands on the research by Bakken, Mastropieri, and Scuggs (1997) by teaching expository text type as part of a lesson cycle that also involves the use of a flexible sentence completion task where the elements of the text can be sorted into graphic organizers.

The research studies conducted by Bakken, Mastropieri, and Scuggs (1997) and DiCecco and Gleason (2002) both included the use of summarization as a strategy for reading comprehension. The third section in this chapter looks more closely at summarization as a strategy for reading comprehension. A series of research studies have been conducted that looked at summarization as a skill in conjunction with teaching students self-regulation strategies. The study by Reynolds and Perin (2009) compared teaching text structure and summarization skills with a self-regulated strategy and summarization with a neutral literacy condition. Both the group taught text structure with summarization and the self-regulated strategy with summarization outperformed the neutral literacy group on composing from sources tasks that measured main idea and writing quality as well as content knowledge tasks. In this

study the group that was taught text structure and summarization outperformed the group that was taught self-regulation strategies and summarization. However, this research was conducted with a general education sample. Further research conducted by Rogevich and Perin (2008) and Hedin, Mason, and Gaffney (2011) shows support for self-regulation strategies for students with attention-related disabilities.

Based upon the research cited, it appears that explicit instruction using expository texts that focuses on the teaching of expository text types in conjunction with the use of graphic organizers, sentence sorting tasks, summarization strategies, and self regulation strategies, may have a positive effect upon student comprehension. Therefore, this action research will look at the following question: What is the effect of explicit instruction in expository text structures using graphic organizers, sentence sorting tasks, summarization, and a self regulation strategy on the reading comprehension and writing abilities of a struggling student who had recently completed sixth grade with an attention-related disability.

CHAPTER 3

Procedures

Methodology

The purpose of this study was to improve the summary writing quality, main idea identification and recall from expository text through instruction and practice including the use of sentence sorting tasks, graphic organizers, summary writing and the use of self-regulation strategies. The ability to read and summarize expository texts is an important skill as students enter middle school and high school they are increasingly expected to use this type of text as a means to learn. Summary writing is important both as a means to learn and also is a skill that is required in content area classes.

There were four main strategies used to improve summary writing quality from expository texts. First Thorn was taught to recognize expository text types which focused on descriptive and compare and contrast text structures. Second he worked with sentence sorting tasks in order to group related ideas. Then he was shown how to match a graphic organizer to text type, in order to organize information, which he then used to write summaries. Self-regulation strategies were used in terms of making strategies explicit, and using student managed checklists for task completion.

Description of Sample

Thorn was 12 years 0 months at the beginning of the study. He completed sixth grade in June of 2012. He was a student who identified as having a disability under the category of other health impaired (OHI). It was noted that he struggled with focus and attention on academic tasks by both his special education teacher and his tutor at the community center. He received 50 minutes a day of special education services provided in a special education resource room and 30

minutes a day of special education support services provided in the general education classroom. He also received 15 minutes a month of speech and language support services.

Thorn has been identified as a struggling reader and writer. His most recent Individualized Education Plan (IEP) placed his present level of performance in reading at the fifth grade level. It was noted that he performed better on comprehension tasks when cuing was used. His most recent IEP present level of performance placed his writing at a mid third grade level. It was noted that with cuing he was able to put his ideas into paragraphs, but that he struggled with organization and focus during writing tasks.

Description of Data Collection

In this section data collection will be described. Overall reading level was measured using pre and post testing on the Woodcock Reading Master Tests, third edition (WRMT-III; Woodcock, 2011). Summary writing quality was assessed using a rubric. His ability to write main ideas from paragraphs was also assessed. Data on his ability to recall orally information from the passage were collected after an initial read of the text, after the lesson was given and during a delay measure.

Overall Reading Level. Overall reading level was assessed using the WRMT-III assessment (WRMT-III; Woodcock, 2011). His literacy instructor at the community center before the study began and after session eight gave this assessment. The WRMT-III assessment given included eight subtests which included, basic skills, reading comprehension, total reading, word identification, word attack, listening comprehension, and oral reading fluency.

Summary Writing Quality. Progress on writing quality was assessed at various points of the intervention. Writing samples were assessed on a summary writing rubric adapted from Kissner (2006, see Appendix A). This rubric included the following categories, (a) inclusion of

important ideas from the text, (b) essay organization around an introductory paragraph and topic sentences, (c) accurately paraphrasing, (d) deleting trivial and repeated information, (e) collapsing lists, and (f)reflecting the structure of the text. Each category was scored as, beginning (1), developing (2), or proficient (3). In addition to being scored quantitatively the researcher also provided qualitative feedback on each writing sample including areas of strength and areas that needed improvement. Summary length was also calculated based on number of words.

Passages for assessment were selected to be at an independent reading level for Thorn. His independent reading level was determined based on pre-assessment information. For oral reading on the QRI at level 4 he had 75% comprehension with and without look backs (Leslie and Caldwell, 2011). His reading level was documented as being at the fifth grade level on his most recent IEP. All passages used for assessment were between the third and fifth grade level (Table 2). Passage difficulty was determined based on publisher information when available and Flesch Kinkaid levels if publisher level information was not available. Flesch Kincaid levels were calculated using Microsoft Word. This formula is based on the average number of words per sentence and the average number of syllables per word. The following paragraph will lay out more detailed information about the conditions under which writing sample data were collected.

During session one Thorn was given a pre-assessment for summary writing quality. The student was given a blank sheet on which to take notes. He was instructed to read the passage, take notes, and to summarize what he read answering the question of how tools help scientists. The student read the selection out loud. The researcher prompted him at the end of each paragraph with the question, “Is there anything that you want to write down from that

paragraph?" At this point he had not been taught to use any specific strategies for the intervention, as this was his initial assessment.

During session four the student was given the passage, a blank sheet of paper for a graphic organizer or notes, and was told to write a summary of what he read. The student read the passage orally. Writing samples were collected for sessions five through ten. During these sessions the student was given decreasing support until the post assessment during session nine.

Table 2
Passage Information for Writing Sample Assessment

Passage	*Session Used*	*Number of Words*	*Level Information*
Tools of a Scientist[a]	1	428	3.0-4.0[b]
Gardening With Native Plants[c]	4	450	5.4[d]
A Wasp is Not A Bee (various passages)[e]	5-10	220-330	4.3[f]

[a](Marshall and Roskopf, 2006 p. 3-5)
[b](PCI Education, 2012)
[c](Kissner, 2006 p.56)
[d](Flesch Kincaid, 2012)
[e](Singer, 1995)
[f](Book wizard, 2012)

Written Recall of Main Ideas During session four an assessment was. Thorn read four passages and was told find, highlight, and restate below the main idea if it was stated in the paragraph. He was told that if the main idea was not stated to just state the main idea below and to not highlight. He was given space to write the main idea in his own words. The first paragraph contained a main idea that was explicitly stated and located at the beginning of the paragraph. The second paragraph contained a main idea that was explicitly stated, but located at the end of the paragraph. The third paragraph contained a main idea that was implicitly stated. Paragraph four contained an implicitly stated main idea, with four choices (see Appendix T). This was used as a pre assessment for Thorn's ability to state main ideas from writing. His

writing sample from session nine was evaluated for his ability to state main ideas from what he had read as a post assessment (see Appendix S).

Oral Recall of Important Information. During sessions 5-10 an assessment of oral recall of important information was assessed at initial, post lesson cycle and delay points. This assessment measure was used to determine the extent to which the use of sentence sorting tasks, graphic organizers, and self-regulation strategies affected the amount of information Thorn was able to recall. The initial measure occurred immediately following the first reading of a passage. The post lesson cycle measure occurred on the same day after the student had completed the sentence sorting task, graphic organizer, and summary. The delay measures were collected during the next session. Important information statements were researcher selected from the passages (Appendix B).

Procedures

Self-Regulation Strategies. Sessions one through eight included the use of a session agenda, which was designed to increase Thorn's time on task. At the beginning of each session Thorn read the agenda. As each task was completed Thorn checked it off (Appendix C). Sessions five through nine included additional self-regulation strategy. This self-regulation strategy was created by the researcher for this study in order to support independent reading, note taking, and summary writing. This sheet was designed around the acronym TASK with the letters standing for elements that the student should think about when reading and writing about expository text. The T stood for topic. The A stood for Ask what the main ideas are. The S stood for summarize and the K stood for Keep up the good work. The self-regulation strategy involved the student filing in the title, topic, and source information onto a sheet. The student then marked which text type he was reading and noting which graphic organizer he should use

for note taking. He then checked off when he had completed the graphic organizer and written summary. Summary rules were included on the TASK sheet for reference (see Appendix D).

Mini Lessons. Mini lessons to target specific skills were given throughout the intervention. Session one mini-lesson one required the student to sort a selection of texts that included both expository and narrative books. The student was given an explanation about how learning to read and write from expository texts was important and how that was what he would be focusing on for the tutoring sessions. The student read key words to identify the descriptive text type and was told that these details most often identify an example or detail rather than a main idea. The final mini-lesson in session one included reading a book about what a synonym is (Cleary, 2007). The student then matched pairs of words that were synonyms (see Appendix E).

Session three included a mini lesson on summarization rules. Summary rules were adapted from Reynolds & Perin, (2009, p.276) who adapted the summarization rules from Brown and Day (1983). This mini lesson included reading selected paragraphs and practicing the skills in order to summarize and a summary rule memory task (see Appendix F). The passage for this mini lesson was about the sun (Marshall & Rosskopf, 2006, p. 81-82).

Session four included a mini-lesson where the student read three versions of summaries where one was well written and the other two were not. The researcher and student reviewed and applied the summary rules from the previous mini lesson. Following this the student was directed to choose and explain which passage was written the best (see Appendix G).

During sessions five through ten the focus of the mini-lesson was on introductory paragraphs and topic sentences. This was emphasized through researcher modeling and explicit

instruction in conjunction with the use of graphic organizers and sentence sorting tasks that will be explained in the following procedures sections.

Sentence Sorting Tasks. Throughout the intervention a version of the sentence-sorting task developed by Montelongo (2007) was used. The purpose of this intervention is to increase student understanding of related ideas belonging in paragraphs together as well the ability to determine main ideas from a paragraph. For these tasks the student was given cut sentence strips. The student was then given instructions about how they should be sorted. Sentence sorting tasks varied (Table 4). Passages that text was chosen from for sentence-sorting tasks are also included (see Appendix G). Sentence sorting task student work samples are included (see Appendix H-N).

Graphic Organizer and Summary Writing. Graphic organizers were used in order to aid the organization of information into categories. Three types of graphic organizers were used during the course of this intervention. During session one a sentence-sorting task was done into a web graphic organizer (Table 4 & Appendix G). This graphic organizer was then used for writing a summary during session two. The web circles from the main topic were used as topic sentences for the paragraphs.

The second two types of graphic organizers were used in conjunction with compare and contrast text structure. During session five the student sorted information into a Venn diagram. Following this sort he created a chart graphic organizer to organizer the same information. The researcher and student had a discussion about the advantages and disadvantages of each type of graphic organizer. Since chart headings require the reader to determine the topic they are better suited as an organization intervention that focuses on multi-paragraphs that are organized around central themes. Sessions five through nine included researcher scaffolded support to aid the

student in reaching an independent level at using a chart graphic organizer to structure his writing using an introductory paragraph, topic sentences, and paragraphs organized around a topic sentence (see Appendix 0-R)

Conclusion

The instructional intervention provided by this case study aimed to improve Thorn's ability to comprehend expository text and to improve his writing skills. Since writing organization was noted as being a challenge for Thorn this intervention focused on translating reading comprehension skills into the writing of summaries. There were four main strategies used during this intervention. They included, self-regulation strategies, mini-lessons, sentence-sorting tasks, and graphic organizers with summary writing. This intervention included self-regulation strategy components in the form of a student checklist for reading and writing summaries and the use of session agendas. The student checklist TASK facilitated the student to independently think about text type and prompted greater independence with a note taking strategy using a graphic organizer that he could hypothetically apply to any passage. The mini-lesson component was designed to supplement the other strategies used through explicit instruction. The mini lessons were focused around increasing summary writing skills, recognizing expository text structure, and recognizing main ideas. The sentence-sorting intervention was designed to improve the student's understanding of related ideas belonging together in a paragraph and his ability to identify both implicit and explicit main ideas. The use of graphic organizers with summary writing was designed to improve his ability to organize his thoughts in writing and to increase his recall of important ideas from reading.

The following chapter will analyze and discuss the validity and success of these interventions in relation to the progress of a student who was a struggling reader and writer with

a documented disability in the category of other health impaired with attention related difficulties. This chapter will analyze the following measures, his summary writing quality, and his ability to recall main ideas from passages read at initial, post lesson cycle and delay measures. Thorn's progress on an overall literacy will be discussed based on pre and post assessments using the WRMT-III (WRMT-III; Woodcock, 2011). These measures will be used to evaluate the success of the interventions used.

CHAPTER 4

Results

This study examined the effectiveness of an intervention that involved teaching expository text comprehension through the use of sentence sorting tasks, graphic organizers, summary writing, and self-regulation strategies. The effectiveness of these interventions were measured in terms of the pre and post testing results on the WRMT-III, summary writing quality, and oral recall of information at three test points. Oral recall of information was measured after Thorn had orally read the passage an initial time, after completing an lesson cycle (post-lesson cycle measure), and on the following tutoring session (delay measure). Summary writing quality was assessed based on a rubric adapted from Kissner (2006) that measured writing quality based on the following categories, inclusion of important ideas from the text, essay organization around an introductory paragraph and topic sentences, accurately paraphrasing, deleting trivial and repeated information, collapsing lists, and reflecting the structure of the text. Essay length was also measured. Qualitative researcher observations for each session were recorded and are reported in this chapter. The purpose of this chapter is to present and analyze the data that resulted from the interventions provided.

Findings and Results

In this section the findings and results from this case study are presented. The data presented includes pre and post-test for overall reading, oral recall, summary quality, and identifying implicit and explicit main ideas. The data will be presented and analyzed for these measures in this section.

Overall Reading Level. The WRMT-III tests were administered on March 6, 2012 and on August 2, 2012. Both tests were given by Thorn's literacy coach at the community center.

This is a time period of five months and four days. The total reading cluster is an estimate of Thorn's overall reading level and is made up of an average of the tests presented in Table 4. The scores are presented in terms of grade level equivalent.

Table 4

Pre and Post Lesson Results (WRMT-III)

Subtest	Before Intervention Grade Equivalent	After Intervention Grade Equivalent
Total Reading	**3.8**	**4.5**
Reading Comprehension	4.4	4.5
Word Identification	4.0	4.1
Word Attack	2.0	5.5
Listening Comprehension	4.7	7.7
Word Comprehension	3.7	4.6
Passage Comprehension	4.8	4.3
Oral Reading Fluency	4.2	4.6

Based on the results present in this table for total reading Thorn showed 0.7 year grade level progress in a five-month period. It should be noted that two of these five months were summer months during which his instructional time only involved his tutoring sessions at the community center.

Oral Recall. Data for this measure were collected for sessions five through nine. The purpose of collecting this data was to compare the amount of information that the student remembered at three points. For the first data collection for each lesson cycle the student read the passage orally and then was asked to recall as many important ideas from the passage as he could. The researcher marked on the data collection chart how many important ideas the student recalled (see Appendix B). For the post lesson measure the same procedure was followed. The post lesson measure was collected after the student completed a lesson cycle which consisted of filling out a TASK sheet (see Appendix D) completing a sentence sorting task, completing a graphic organizer, and writing a summary for the essays A Wasp is not a Bee and A Spider is

Not an Insect (Kissner, 1995 p. 1-4). For the essays A Toad is Not a Frog and A Bat is Not a Bird the sentence sorting task was not included in the intervention lesson cycle and the researcher decreased support on the graphic organizer completion (Kissner p. 6-7 & 26-27). The delay measure was collected on the following tutoring session. Before the delay measure was taken the student was allowed to look at his graphic organizer for two minutes. These data sets were collected in the same format is the first two measures (see Appendix B). The researcher counted the number of important ideas from each selection that the student included out of total number possible from researcher selected important ideas. This was calculated as an average for each measure.

Based on these data points the student remembered an average of 44.5% of important information after an initial read. Following the lesson cycle he remembered on average 84.7% of the important ideas. This represents a 40.2% increase from initial to post lesson for recall of important information. For the delay measure he recalled on average of 77% of important ideas from the passage. This represents a 32.5% increase between the initial and the delay measure. This represents an average decrease of only 7.7% from post lesson to delay measure.

The recall on A Wasp is Not a Bee and a Spider is not an Insect, which included the sentence-sorting task had a higher recall of important information than for A Bat is Not a Bird which did not include the sentence-sorting task. The post lesson score for measure one was 93% and for two was 93% of important information compared to 69% for four. This represents a 23.5% difference. Data was not collected for measure three due to the student arriving late for the session.

In summary, the student increased his recall of important information for post lesson and delay measures from the initial measure. He scored higher on recall of important

information for measures one and two than on number four for post lesson recall of information.

Table 5
Oral Recall at Initial, Post Lesson and Delay Measures

Recall Measure	Initial	Post Lesson	Delay
Recall Measure 1: A Wasp is not a Bee	36%	93%	100%
Recall Measure 2: A Spider is not an Insect	33%	92%	67%
Recall Measure 3: A Toad is not a Frog	86%	Data not collected.	64%
Recall Measure 4: A Bat is not a Bird	23%	69.5%	Data not collected.
Average for measures.	44.5%	84.7%	77%

Summary Quality. Thorn was assessed in the areas of summary length, rubric adapted from Kissner (2006) and qualitative observations. These were used as an overall measure of writing quality. These results are presented and analyzed in this section.

Summary length. Summary length was calculated as a measure of quality by typing Thorn's written summaries into Microsoft Word and using the auto word count feature (Appendix S). Summaries varied between 41 and 236 words.

Table 6
Summary Length

Writing Sample	Number of words
Sample 1 pre assessment	41
Sample 2	110
Sample 3	46
Sample 4	236
Sample 5	165
Sample 6	198
Sample 7 post assessment	140

The initial pre assessment for writing sample length was 41 words long. The post assessment for writing length was 140 words long. This represents a 341% increase in summary length from pre assessment to post assessment writing sample length and in this case is representative of the change from a single paragraph response to a multi-paragraphed essay.

Writing sample rubric. The second measure for summary quality was measured using a rubric adapted from Kissner (2006). Each essay was scored on a rubric which measured the following qualities, (a) included important ideas from the text, (b) essay organized around topic sentences and introductory paragraph, (c) accurately paraphrased the authors words, (d) deleted trivial and repeated information, (e) collapsed lists, and (f) reflected the structure of the text. This rubric was based on a three-point scale. A writing sample that was proficient in a category received a three. A score of two indicated developing and a score of one was noted as initial. Further break down of what each of the levels is included in Appendix A.

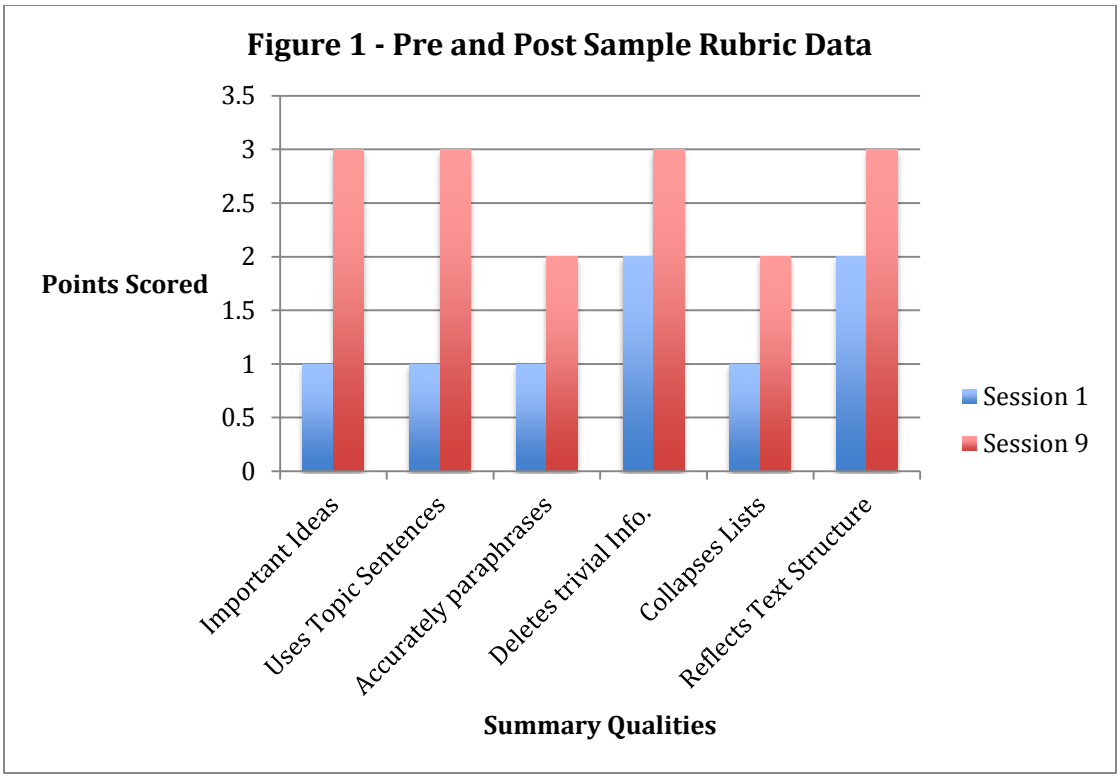
Table 7
Writing Sample Rubric Scores

Qualities	S1[a]	S2	S3	S4	S5	S6	S7
Important ideas from the text.	1	3	1	3	3	3	3
Essay is organized around topics.	1	2	1	3	3	3	3
Accurately paraphrases the author's words.	1	2	1	2	2	2	2
Deletes trivial and repeated information	2	2	NA	3	3	3	3
Collapses Lists	1	NA	NA	3	3	2	2
Reflects the structure of the text.	2	3	1	3	3	3	3
Sample Totals	7/15	12/15	4/12	17/18	17/18	13/15	16/18
Percentage for total.	47%	80%	33%	94%	94%	87%	89%

[a]S1 – S7 refer to samples 1 - 7

On the first measure Thorn received initial (1) on all measures of the rubric but deletes trivial and repeated information and reflects the structure of the text. His average on this measure that was conducted during the first session was 47%. On the second writing sample collected his average increased to 80%. On the third writing sample his average was 33%, which was his lowest score. Writing samples four through seven are all above 85%. Next sample one and sample seven will be compared, as these samples represent an essay from the first session and the last session, and can be used to measure progress over the course of the intervention. Essays one and seven are used as pre and post assessment measures.

The difference in percentage of points earned on the rubric is 42% improvement. He did not show the same amount of progress on all areas that were measured. He showed improvement from initial (1) to proficient (3) in the areas of includes important information from the text and essay organization around central topics. He showed improvement from developing (2) to proficient (3) in the areas of reflecting the structure of the text and deletes trivial and repeated information. He showed improvement from initial (1) to developing (2) in the areas of accurately paraphrases the author's words and collapses lists. This data from the rubric is presented in the following figure (see Figure 1)



This sample compares performance on writing sample one to writing sample seven based on rubric qualities. Based on the data presented in this chart Thorn improved in all areas on the summary quality writing measure. However, it should be noted that he made greater improvement in some areas than others. The possible reasons for this differential progress will be discussed in Chapter 5. The following session includes additional information about each of the writing sessions based on observations.

Observations. On writing sample one Thorn scored seven out of a possible fifteen on the rubric. There was an attempt at a topic sentence. He wrote, "Tools help the scientist find data in rock minerals." Within the topic sentence the majority of it was correct, as the selection was about the tools that scientists use. The addition of in rock minerals shows that he is attempting to integrate information. It represents an inaccurate statement. Cues were given at

the end of each paragraph that the student read. The researcher stated after each paragraph read, "Is there anything that you want to write down from this paragraph?"

On writing sample two Thorn scored twelve out of a possible fifteen on the rubric. All of his paragraphs included correctly stated topic sentences. This writing sample was created following a sentence-sorting task into a web graphic organizer (see Appendix H). During this session the researcher provided guidance for organization of topic sentences and paraphrasing the authors words. Thorn was attentive and focused during the writing and stated that he felt that he had done a good job with the essay.

For writing sample three Thorn read the text and began by creating a graphic organizer when given space to make one. His graphic organizer included a central topic in the middle with supporting details for the topic in the branching arms. His essay was organized as a single paragraph, and included repeating information. He completed this essay without researcher support.

On writing sample four Thorn used the graphic organizer with researcher guidance in order to organize his writing around central ideas and topics. He scored proficient on all categories but accurately paraphrases the author's words. During this session the researcher guided the student in setting up his graphic organizer. He was attentive and asked questions following the instructions to confirm that he was doing it correctly.

On writing sample five Thorn was able to score proficient in all categories but accurately paraphrases the author's words. He was able to do this with reduced support both during the planning phase that included a sentence sorting task and the creation of a chart graphic organizer (see Appendix P). During this session he asked several questions about how to set up his graphic organizer. He was able to do it independently when allowed to look at the graphic organizer that

he had created during the previous session (see Appendix O). During this session he showed an increased independence using transition words that are typically used in compare and contrast text structure such as *on the other hand, however,* and *instead*. He showed confusion with the context of when to use however. The analogy of playing basketball and changing directions example was used. It was emphasized that the word *however* should be used in writing when he wanted to change from talking about one thing to another that had different habits. During the writing of this essay he exhibited increased independence in organizing his essay into paragraphs based on the topics developed in his columns of his graphic organizer. He asked for reassurance with questions including, "Do I start a new paragraph now." Although he was asking for reassurance, his questioning was concurrent with when he should begin new paragraphs.

During writing sample six the Thorn scored a thirteen out of a possible fifteen points, which indicates proficient in all categories except for collapsing lists and accurately paraphrasing. In this instance rather than stating that a frog undergoes metamorphosis he described the steps. During this session he was able to independently set up his graphic organizer, and stated that his columns would become his paragraphs without prompting. He also began new paragraphs when he was finished transferring and stating the ideas from his columns without prompting.

On writing sample seven Thorn scored sixteen out of a possible eighteen points. He was able to set up his graphic organizer accurately and organized his essay around the column headings that he had created. He independently stated his main topic that, "Bats and birds are not the same." He followed in his introduction by stating the main ideas that he would cover in his subsequent paragraphs without prompting. His essay was organized into four paragraphs that all had topic sentences and included relevant on topic information. He was proficient on this

writing sample in the areas of, reflects structure of the text, deletes trivial and repeated information, essay organization, and includes important ideas from the text. He received a developing score on collapsing lists and accurately paraphrasing. Thorn seems to be limited in the necessary science vocabulary for certain topics, and this seems to be limiting his ability to be proficient in these categories. In this essay he described that bats and birds raise their young in different ways as that they have different "babie habits." While, this represents a developing level of pulling out main ideas when they are implicitly stated, this phrase lacks the eloquence that would be needed for it to be scored as proficient. In his second paragraph he stated two topics together that were appropriately grouped, but did not give them a broader category for his topic sentence. He stated, "They have different eating habits and time of day they come out." On his graphic organizer he struggled with deciding which category their eating habits should go with and changed his mind drawing an arrow from one column to the next which indicates that he is still struggling with determining main ideas that are implicitly stated.

Identifying Implicit and Explicit Main Ideas

For this measure five data points were included. For the main idea assessment given during session four and the A Bat is Not a Bird assessment given during session nine the student selected the main ideas independently (Kissner, 1995). The ability to determine main ideas and restate them was measured on a rubric. A one was given if the main idea was not included or was incorrectly stated. A two was given if an attempt was made to include main ideas but it is awkward and scientific vocabulary is not used. A three was given if an accurate main idea statement was included that used appropriate vocabulary.

Table 8
Main Idea Inclusion and Quality

Assessment Name[a]	Score	Percentage
Main Idea Assessment	5/9	56%
A Wasp is Not a Bee	9/9	100%

A Spider is Not An Insect	9/9	100%
A Toad is Not a Frog	9/9	100%
A Bat is Not a Bird	7/9	78%

[a]See Appendix S & T

Data for this measure were collected during sessions four through nine. During session four an assessment the student was given the task of reading three paragraphs and writing or choosing the main idea (see Appendix T). For the first paragraph the main idea was explicitly stated in the first sentence of the paragraph. For the second paragraph the main idea was explicitly stated in the end of the paragraph. For the third paragraph the main idea was implicitly stated. In the fourth paragraph the main idea was stated implicitly, but four multiple-choice options were given for the main idea. Thorn was able to correctly identify the main ideas that were explicitly stated, but the one that was placed at the end of the paragraph was not correctly restated. He choose correctly for the implicit main idea that had multiple-choice options. He incorrectly identified the main idea for the paragraph that had an implicit main idea. All of the passages read for sessions 4-10 had the main idea for the entire essay explicitly stated as the title of the passage, but all of the following paragraphs had main idea or topics that were implicit.

During the final writing sample collected Thorn correctly identified the main idea that was implicitly stated by choosing the larger grouping of appearance to describe physical characteristics of birds and bats. In his second paragraph he correctly identified the important supporting details as eating habits and the time of day they come out, but did not provide a broader grouping for the topic. He correctly identified rearing young as a main idea, but referred to it as “babie habits”. In summary, Thorn identified more main ideas on the post assessment than on the pre assessment for main idea identification. The following section of this chapter will include an overview of the findings and results.

Conclusion

In summary, Thorn demonstrated in increase on all measures that were documented. On the WRMT-III he showed more than a half of a year progress. On the oral recall measure Thorn increased his ability to remember important information after completing the intervention on all measures where initial and post lesson data were collected. Furthermore, although he showed some reduction in recall of important ideas from post lesson to the delay recall measure the average decrease was only 7.7% (see Table 5). On measures of writing quality he increased his summary length, and also improved on all sub categories measured on the rubric used. However, he showed the largest amount of progress on areas of the rubric that involved writing organization such as including topic sentences and using an introductory paragraph. He showed less progress on areas involving vocabulary that included collapsing lists and accurately paraphrasing. Based on notes on implicit and implicit main idea identification although he made progress in this area he is still struggling to accurately with appropriate word choice identify and state main ideas.

This chapter has described the data collected throughout the action research. Data related to overall reading levels, oral recall of information, and summary quality has been presented. In the final chapter, I will discuss my conclusions and connect this information to the Common Core State Standards as well as other research. Recommendations for future instructional focus for Thorn will be included. Strengths and limitations of this action research will be discussed as well as implications for future research.

CHAPTER 5

Conclusions

This final chapter draws conclusions about the results obtained from this case study. This chapter connects the case study to the body of existing research on reading and writing strategies for expository text comprehension. All results are discussed and explained. Strengths and limitations are also discussed. Connections are made to the Common Core State Standards (Common Core State Standards Initiative, 2012). Recommendations for further research are included. Specific recommendations for Thorn based on the conclusions made from the results are made. First, the researcher considered the overall design of the study that involved discussing the 1:1 teacher student ratio as well as the use of expository text passages. Then the following subsections discuss the components of the lesson cycle used that involved, sentence sorting tasks, graphic organizers, summary writing and self-regulation strategies.

1:1 Interventions

A strength of this study is that it provided an extended intensive intervention for a struggling reader. The study by conducted by Vaughn et al. studied the effect of a Tier II intervention for struggling readers that included 50 minutes of additional reading instruction in a small group (2010). The results of this study, suggest that more intensive interventions for students who are struggling readers is needed in order for struggling readers to close the gap that exists between them and their peers who are reading at or above grade level. The results of this case study support this recommendation by Vaughn et al. (2010). Thorn showed progress in his overall reading levels as indicated by gains on the WRMT-III. Thorn showed 0.7 year progress in 5 months. This represents the progress he made towards closing the gap that exists between grade level and his current performance. Thorn should continue to work with a 1:1 tutor at the

community center. School and district wide interventions should involve opportunities for struggling readers to receive more intensive interventions both during the school year as well as the summer. It should be noted that a portion of the time measured for Thorn's growth was during the summer, a time when many students do not make academic growth, and may even have losses. Part of the strength of this intervention, and perhaps why the student was able to show growth is that it was designed specifically to meet the student's needs. According to the Individuals with Disabilities Act (IDEA), Thorn was entitled to be placed in the least restrictive environment that also met his academic needs (2004). By participating in a 1:1 intervention he has narrowed the gap that exists between his grade level and his achievement levels as evidenced on the WRMT-III. His improvement here indicates increased levels in reading that could potentially translate into less time removed from the general education setting.

Use of Expository Texts

Content Area Knowledge

A strength of this case study is that it focuses on the area of reading instruction in the content areas. By the time that students enter high school most of the instructional material that they read is expository in nature. (Dymock & Nicholson, 2007). Expository text is the most challenging form of text, and research indicates that all readers struggle at times with content area reading material. (Dymock & Nicholson, 2007). In the research study conducted by Saenz and Fuchs secondary students with LD not only read expository texts less fluently, but were also less able to make inferences based on what they had read (2002). However, reading strategies are not often taught alongside the content areas in middle school. The research study by Fang and Wei (2010) suggested that even a small amount of reading instruction specific to content area texts can bring about gains in overall reading levels, academic grades, and content area

knowledge. A limitation of the study conducted by Fang and Wei (2010) was that although it measured broad gains and supports literacy instruction in the content areas in general it does not offer insight into which content area literacy strategies would produce the greatest gains.

This case study supports and expands on the research conducted by Fang and Wei (2010). It expands the study by Fang and Wei because it looks at the effect of specific literacy interventions rather than looking at broad measures. In this case study the effect of the lesson cycle was measured by Thorn's ability to remember information from what he read. Thorn was tested on his oral recall of important information from a reading passage both after an initial read and after completing a lesson cycle that included a sentence-sorting task a graphic organizer, and a written summary. On average, after the initial reading of the passage Thorn was able to recall 44.5% of researcher selected important information from the text. Following the intervention this average increased on average to 84.7% (Table 5). This represents a 40% increase in the number if important ideas remembered. In this case study the pairing of information under main idea groupings seems to have helped the student remember more information. It is notable that for the delay measure his ability to recall important information decreased only by 8%. This indicates that Thorn was able to recall more important ideas following the lesson cycle, but that he was able to recall more during the following session without rereading the text than after an initial reading. These results represent an initial evaluation of the effect of this lesson cycle. The validity of these results would benefit from confirmation on tasks that involved methods other than oral recall.

One factor that may have affected these results was that for Thorn oral comprehension was a relative strength. On the WRMT-III that was administered before the intervention Listening Comprehension was his second highest test score at a 4.7 grade level equivalent. It is

notable that on the post-test this was his area of largest gain. He went from a 4.7 grade level equivalent to a 7.7 grade level equivalent. Listening comprehension was the only measure that he received a score at or above grade level for. Since the focus of this intervention was not on listening comprehension these gains cannot necessarily be attributed directly to the lesson cycle used in this case study, but it should be noted that this strength may have had an affect on the oral recall measure.

The researcher recommends further research with this lesson cycle to determine the effects on content area knowledge. Recall measures that involve multiple choice and true and false tests should also be used. If the study were expanded, school year grades and progress on state and district norm referenced tests could be included.

Effect of Expository Text Type

Since the span of this research study was focused in order to achieve depth of knowledge it was limited in breadth. The focus of the case study was on descriptive and compare and contrast text with science passages. For the compare and contrast section of this study, which occurred from sessions five through nine, the passages were all selected from one book (Singer, 1995). This experimental design had both benefits and limitations.

One benefit of the design of this case study was that there was a degree of repetition in both methods and passage reading materials. The passages used for sessions five through nine were all selected from the same book (Singer,1995). This book had a repetitive format in that each passage compared and contrasted two animals that are often confused. All of the passages had implicitly stated main ideas. For example, in comparing two animals the first paragraph in all of the selections was about appearance. The text never stated directly that the animals differed in appearance. This degree of repetition for categories allowed for the student to gain

confidence as the researcher reduced support. This also allowed the student to have practice in figuring out larger topics for paragraphs. This research study was limited to nine ninety-minute sessions, and within this time the researcher attempted to achieve enough repetition to aid the student in gaining mastery on the topics that were covered. In the data collected on summary quality he improved on this measure from a rubric score of 47% to 89%. This represents a change of 42% from the initial summary quality measure to the final. This could have been greatly influenced by the fact that sessions five through nine involved reading of passages that were the same in format and differed only in topic. The largest change seems to have come from Thorn's ability to organize what he had read into meaningful groupings. This change in how Thorn approached expository text reading and writing was influenced by there being a very clear writing plan for him to follow. Since Thorn was a student who struggled with organization in writing the use of strategies and tools such as the graphic organizer seemed to bring about the greatest immediate change. It helped for his writing to gain in initial length and coherence that is necessary as a start before he could work on many of the more sophisticated aspects of writing. That being stated, although the graphic organizer prompts the student to think about larger groupings using a graphic organizer does not aid in the actual mental process of determining categories nor does it help create the vocabulary for the Thorn to be able to do this independently.

This research could be expanded to include testing on the extent to which Thorn would be able to apply his use of the graphic organizer and increased summary writing skills to other descriptive and compare and contrast expository text passages. Future testing could measure not only his ability to apply the use of the graphic organizers as an organization tool to science passages, but also social studies.

It should be noted that in order for students to benefit from graphic organizers and in particular be able to apply them appropriately to new tasks may require a large degree of practice. The researcher recommends that Thorn could potentially benefit substantially from using graphic organizers but that he would need continued instructor support and practice in using them, especially when they are paired with tasks that are in new contexts. He will also need additional vocabulary support.

The following sections will connect the specific components of the lesson cycle used in this research intervention to other research in the field, and will make recommendations for future research and student interventions. The following components of this lesson cycle will be analyzed including, sentence-sorting tasks, the use of graphic organizers and summary writing, and self-regulation strategies.

Sentence-Sorting Tasks

The sentence sorting task was chosen as in intervention because in its initial form it was designed to support students' ability to determine main ideas. In this case study it was specifically used to support the process of determining implicit main ideas. The sentence-sorting component of the lesson cycle used in this intervention was based off of the work of Montelongo, Herter, Ansaldo and Hatter (2010) as well as the work of Montelongo and Hernandez (2007). These studies used a sentence completion and sorting task and measured students' ability to identify main ideas. In the 2010 study students were taught the different types of expository text and worked on sorting main ideas from details. In the 2007 study students worked on sorting related and non-related information and identifying main ideas. The study by Montelongo, Herter, Ansaldo, and Hatter (2010) measured students' ability to identify main ideas that were located at either the beginning or the end of a paragraph. Their results

showed that students initially struggled more with identifying main ideas when they were located at the end of the paragraph than the beginning.

On a main idea assessment given during session four this appeared to be true for Thorn as well (see Appendix T). On this assessment he was able to correctly identify the main idea that was located at the beginning of the paragraph that was explicitly stated but incorrectly identified the main idea that was located at the end of the paragraph. On this initial assessment he correctly identified the main idea explicitly stated at the beginning of the paragraph and restated it correctly. He correctly identified the explicit main idea at the end of the paragraph, but did not correctly restate it. He did not correctly identify the implicit main idea when there were not choices given. He selected the correct main idea when implicitly stated when choices were given.

This case study expanded on the prior research by also looking at the task of identifying main ideas when they were implicitly implied. In the initial assessment Thorn was able to state the main idea when it was implicitly stated and he was given four choices to select from, but incorrectly stated the main idea when it was implicitly stated and he had to restate in in his own words. This data supports the idea that identifying and stating implicitly and explicit main ideas is a task that Thorn was not proficient in. From the time of this initial main idea assessment during session five and a post measure summary writing sample during session nine Thorn increased his ability to state main ideas. This was measured by scoring his main ideas on a three point scale. A main idea statement received a one if it was incorrectly stated or not included. It received a two if it was stated, but was awkward or did not use scientific vocabulary It received a three if it was stated using correct vocabulary. On the initial measure for main ideas he received a 56% on the final main idea assessment he received a 78%. This represents a 22%

increase in performance. This improvement in the ability to state main ideas came about after five sessions that involved the lesson cycle.

The first two lesson cycles that used the passages A bee is Not a Wasp and a Spider is Not an Insect included the sentence-sorting task that focused on separating sentences into two groupings based on main ideas as well as a graphic organizer and a summary writing task (Singer, 1995). The second two lesson cycles which used the passages A Toad is Not a Frog and A Bat is Not a Bird included the graphic organizer and summary writing task but did not include the sentence-sorting task (Singer, 1995).

When measures of oral recall for are used as a comparison measure Thorn scored higher on the measures that a sentence sorting task was used for post lesson recall. He scored a 93% and a 92% when the sentence sorting task was used as well and a 69.5% when it was not (see Table 5). Although this shows in increase in oral recall when sentence sorting tasks were used these results have several limitations. Data collection was limited to only three measures. Also, there were other factors at play including an increased time spent on the first two lesson cycles. Further more, researcher support was scaffolded so that Thorn received the most support during the first lesson cycle, and decreasing support from that point onward. These other factors most likely contributed to these results. Furthermore, it seems that sentence sorting tasks would not instructionally be the most logical choice for increasing oral recall.

A better measure for the effectiveness of a sentence sorting task is the ability to identify main ideas in writing. Data was collected on Thorn's ability to determine main ideas from paragraphs. On the pre assessment for main ideas Thorn scored 5/9 possible points which was a 56%. On the post assessment he scored 78%. This represents a 22% increase. However, this data collection measure should be expanded as it had several limitations. These results confirm

the work by Montelongo, Herter, Ansaldo and Hatter (2010) as well as the work of Montelongo and Hernandez (2007), as the measure used in these studies to determine the effectiveness of the sentence sorting task was an assessment where students stated main ideas from paragraphs located either at the beginning or the end of the sentence. This case study data expands on these prior studies in that it looks specifically at the ability to state implicit main ideas. A limitation of this case study data is that the number of data points collected in low. Since there was only a pre and post assessment that the student performed independently future testing on the effect of a sentence sorting task on students' ability to state implicitly stated main ideas is warranted. A second measure that was recommended as an area for future research by Montelongo, Herter, Ansaldo and Hatter (2010) was to evaluate the effect that the sentence sorting task had on essay writing.

The initial writing sample received a quality score of 47%. The post assessment writing sample received a quality score of 89%. This represents a 42% increase in writing quality. This increase from pre assessment to post assessment indicates that the lesson cycle overall was effective, but does not provide particular insight into the independent effectiveness of the sentence sorting task. When summary writing quality is compared for writing sample four and five that used the sentence sorting task to sample six and seven which did not use the sentence sorting task Thorn's average scores with the sentence sorting task are higher. There is a 6% difference. However, this measure is limited as during this time period there were differences in researcher support, as during the measures where Thorn used the sentence sorting task he was also given assistance with wording of his main ideas in his summary. Future research should specifically design a sentence sorting task that uses a vocabulary component to aid in category creation when implicit main ideas are used.

Based on the writing sample quality and researcher observations the stating of implicit main ideas may be a difficult task that is influenced by many factors including Thorn's vocabulary. The sentence-sorting task developed by Montelongo (2007 & 2010) included a vocabulary component. Because the current case study involved sentence-sorting tasks that were more complex because they included sorting ideas into two separate paragraphs rather than just sorting related and non related information the researcher decided to not use the vocabulary component that was initially part of this intervention. It would be possible to strategically use this vocabulary component in the sentence-sorting task to increase the ability for Thorn to categorize information, and thus increase his ability to identify and eloquently state implicit main ideas using content specific vocabulary. This may be best included after he is already familiar with the sentence-sorting task in order to scaffold the task. Lessons that include this component of content area vocabulary connected to categorization would benefit Thorn. Another way that the current study expanded on the current research is that it also included the use of graphic organizers and summary writing.

Graphic Organizers and Summary Writing

In the study conducted by Stagliano and Boon (2009) that involved the use of a graphic organizer that had students record story elements with expository texts students showed improved recall on comprehension questions. In the current study similar results were found with using a lesson cycle that included sentence-sorting tasks, a graphic organizer that was specific to expository text type and the writing of a summary. In the initial compared to the post lesson and delay measures Thorn showed an increase in the percentage of important ideas that he remembered from the passage read. Thorn showed on average an increase of 40% from initial to post lesson measures. He showed on average an increase of 33% from initial to delay measures.

Both the study by Stagliano and Boon (2009) as well as this case study show data where students improved in their recall of information following the lesson cycle. A limitation to both of these studies study is they do not provide insight as to how graphic organizers compare to other interventions that could have been used to aid in comprehension and recall. Based on these results it seems that the lesson cycle aided Thorn in remembering important information from what he read. Part of this could be due to an increase in time spent interacting with the information, however this study was based on research that suggests that graphic organizers may be particularly effective for tasks where relational knowledge is needed. Although the actual important information that was recalled was explicitly stated in the text the ability to group it into categories which were implicit may have aided in memory.

The study conducted by DiCecco and Gleason (2002) compared the use of graphic organizers to guided notes and looked at how each intervention impacted students ability to answer comprehension questions as well as on the recall and use of explicit and implicit statements in their writing. The students in this study did not show a difference in tasks involving explicit knowledge but the students who were taught using graphic organizers out performed the other group in tasks involving relational knowledge. The students who had used the graphic organizers in the study conducted by DiCecco and Gleason showed statistically more relational statements in their writing. DiCecco and Gleason (2002) defined relational knowledge as information that was implied in the text. Although more narrowly defined than relational information, determining implicit main ideas falls under this category. case study expands the work of DiCecco and Gleason (2002) in that it looks at the use of a chart graphic organizer in aiding a student to determine and apply in writing implicit main ideas. The results of this research study support the findings of DiCecco and Gleason (2002). As evidence in the writing

samples the use of a chart graphic organizer may prompt the student to consider what implicitly stated main ideas are. During the lesson cycle measures where researcher support was provided for aiding the student with wording of implicitly stated main ideas the student included 100% of the implicitly stated main ideas (see Table 8). When the student worked on an independent summary during Session 9 although he included all of the main ideas his wording was awkward describing how bats and birds raise their young differently as, "babie habits". It can be inferred from this data that the use of a chart graphic organizer in conjunction with a compare and contrast text with implicitly stated main ideas may prompt a student to think in terms of categories, it does not necessarily support the ability to categorize information into groups. Additional supports would be needed to improve Thorn's ability to categorize scientific information into a group using appropriate scientific vocabulary.

This case study narrowed the focus of the intervention that included graphic organizers to just include two types of expository texts and two types of graphic organizers. The approach that was used in this case study has both strengths as well as limitations. In pairing the descriptive text type to a web graphic organizer and the compare and contrast text structure to a chart graphic organizer the researcher was able to focus on graphic organizers that were best suited to the type of information being presented in the text.

However, different results were found for the descriptive essay writing compared to the cause and effect summary writing. The descriptive writing section of this intervention involved the first four sessions and writing samples one and three. The student did not show improvement between these two writing samples. Writing sample one as judged on the rubric used received a 47% compared to sample three that received a 33% (Table 7). The final writing sample received an 89%, which indicated mostly proficient scores on the rubric. In the descriptive writing

section of the intervention the student had only completed the lesson cycle with the use of a graphic organizer once, and had not practiced it independently. On writing sample three he made a web graphic organizer, but did not use the structure of the web in order to organize his information around central ideas. For the cause and effect writing sample that the student received an 89% on the post-test when he had completed the lesson cycle four times. The researcher believes that the level of repetition allowed for the student to be able to use the graphic organizer that aided in his writing. This comparison lends potential insight into instructional methods when working with struggling readers, in particular, struggling readers with attention-related disabilities. The success of an intervention to a large part may be based on how it is executed, and in order for an intervention to be successful it may require substantial repetition and practice for students to be able to apply it independently. This statement may be especially true for struggling readers. The following section will look at the use of self-regulation strategies that could aid students in gaining independence with strategy use that could improve writing quality.

Self-Regulation Strategies

The research conducted in the area of self-regulation strategies and summary writing shows that these strategies may not be needed for students in the general education population (Reynolds & Perin, 2009). However, these strategies may greatly benefit students with attention-related disabilities (Hedin, Mason & Gaffney, 2011; Rogevich & Perin, 2008). In this case study self-regulation strategies were used as part of an intervention that also involved sentence-sorting tasks, the use of text type specific graphic organizers and summary writing.

There are both strengths and limitations for the self-regulation component of this case study. Based on researcher observations Thorn expressed enthusiasm for the agenda checklist

used during this case study, and it seemingly aided in time that was spent on task. The researcher designed TASK sheet was meant to aid Thorn in recognizing the text structure, choosing a graphic organizer, and writing a summary (see Appendix D). Although he used this TASK sheet with researcher guidance during sessions five through seven and independently for sessions eight and nine this strategy sheet had limitations. Although this sheet helped remind him to use a graphic organizer and write a summary, it did not break down the task of either. Guidance sheets that broke down how to organize an essay based on a graphic organizer could benefit Thorn. These could be both posted in the classroom as well as being provided for him to use as checklists to guide executive functioning. Another limitation of the self regulation strategies used in this case study involves the fact that since this intervention involved 1:1 student teacher ration there was less need for outside cueing from a self-regulation sheet. The researcher feels that it would benefit this student to use self-regulation sheets during the school year when the teacher student ratio is greater.

Based on anecdotal notes the use of self-regulation strategies seems to have had a positive effect on his writing quality. Thorn's sense of enthusiasm for placing stars on the agendas indicates that this motivational tool increased his time on task. Future research could measure the quality of an essay when a self-regulation strategy was included and when it wasn't. The fact that Thorn created a graphic organizer for his writing samples when using the TASK sheet indicates that the self-regulation strategy prompted the use of a graphic organizer. In his initial writing sample, Thorn did not use a graphic organizer. The TASK sheet made explicit that he had to use a graphic organizer. This seems to have had a positive effect on his writing quality. There was a 42% increase in writing quality from initial sample to final sample (see Table 7). His essay length also increased from 41 words to 140 words from the first sample to

the final writing sample. This is a 341% increase in length. It seems logical that the use of a graphic organizer as prompted by a TASK sheet helped him to increase the information he included.

Connection to Standards

This intervention was designed for Thorn to work towards the Common Core State Standard for Literacy in the Content Areas RST.6-8.5 Craft and Structure, which states, "Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic." (Common Core State Standards Initiative, 2012). This research study specifically worked to meet this state standard in that text structure specific to expository text was explicitly taught. In this study Thorn learned to recognize descriptive and compare and contrast text structures. He was taught to think about the text structure in deciding which pre writing strategy to use. This emphasis was continued throughout the research intervention through the use of a self-regulation sheet where the student was required to check off which text structure he thought the passage was. This then required the student to pair the text type with a graphic organizer that was specific to the text type (see Appendix D).

A secondary focus of this research study was in determining central ideas from text. The Common Core State Standard for literacy in the Content Areas RST.6-8.2 Key Ideas and Details that states, "Determine the central ideas or conclusions of a text; provide an accurate summary of a text; provide an accurate summary of the text distinct from prior knowledge or opinions" (Common Core State Standards Initiative, 2012). In this case study summary writing was a crucial component. As part of summary writing Thorn was taught how to determine central ideas whether implicitly or explicitly stated and to organize his ideas around the central ideas.

He was taught specific strategies to use to aid in organizing his summaries including the use of graphic organizers to aid him in proficiency in this standard.

Conclusion

This intervention was of overall benefit to Thorn in that he made gain in overall reading level and in the area of writing quality. This intervention gave him a framework for organizing his writing when descriptive and compare and contrast passages are read. Thorn was a student whose strength was in the area of listening comprehension, which implied that he was able to understand much more than he was able to communicate in his writing. This intervention provided a clear path for him to follow in order to organize his writing so that his written communication can more closely represented his oral comprehension. The lesson cycle used in this case study was designed to support Thorn in this process. Although he is going to continue to need support in making use of graphic organizers they appear to be a tool that can aid him in organizing his writing around central themes.

Next steps for Thorn should involve expanding the sentence sorting task to include a vocabulary component. Since Thorn struggled with stating groupings for implicitly stated main ideas he should continue to work on this skill in a variety of ways. It is apparent that work with expanding content area vocabulary would be a next step for a target area for intervention. He should also continue to use self-regulation strategies in order to provide direction and focus for writing tasks. As a student with an attention-related disability this disability manifests in Thorn having increased difficulty with executive functioning including organization in writing. Self-regulation strategies appear to have a lot of potential to support Thorn in this area, especially as he moves to writing tasks in a larger group setting.

This intervention was designed to meet the state standards described in the section above. This intervention was also designed to meet the specific needs of a student who was identified as a struggling reader and writer with an attention-related disability. The researcher is left with questions that could be the foundation for future research that could assist struggling readers and writers make progress towards grade level standards. It is apparent that this 1:1 intervention was beneficial for Thorn. Would this lesson cycle produce similar results in a larger group size with a greater variety of students? A lesson cycle that includes a sentence-sorting task, the use of a expository text type specific graphic organizer, and a written summary is a lesson cycle that has not previously been used in a research study. The research recommends that this study is repeated over a longer period of time, including all expository text types and with more extensive data collection. The researcher also recommends further development of self-regulation strategies that can be used for students with attention-related difficulties in larger group settings.

Appendix A

Summary Writing Rubric

Date/ Session:_____

Text Type:_____

Title and Source Info:_____

Author:_____

Test Conditions:_____

_____

_____

Fleisch Kincaid Grade Level: _____

Other level information: _____

# of words: _____

	Beginning (1)	Developing (2)	Proficient (3)	N/A
Important ideas from the text.	Important ideas are missing OR Important ideas are incorrectly stated.	Some important ideas are presented, but Some ideas are missing. Used author's exact words. Doesn't use key vocabulary from the text.	Important ideas are presented clearly and in the students own words.	
Essay is organized around topic paragraph. Paragraphs have topic	Introduction paragraph is missing and paragraphs are missing or loosely connected.	Paragraphs are organized around central ideas, but the central idea is not stated.	An introductory paragraph is present that lays out the ideas in the following paragraphs. Topic	

sentences.			sentences are used for each following paragraph.	
Accurately paraphrases the author's words.	Many inaccurate statements OR copied directly from the text.	Attempt is made to paraphrase, but Awkward wording. Best words not chosen.	The author's words are accurately and precisely paraphrased.	
Deletes trivial and repeated information.	Many trivial or unimportant statements included.	Some trivial or unimportant statements.	No trivial or unimportant statements included.	
Collapses Lists	Lists are copied directly from text.	Attempt is made to collapse list, but word choice is not accurate.	Lists are collapsed with accurate terms.	
Reflects the structure of the text.	Seems random. Style of essay does not match text type: i.e. descriptive, cause/ effect, problem/solution, sequential, compare/contrast.	Attempt is made to match style of text, but is missing important components or connections.	The structure of the text is apparent in the summary.	

Additional feedback and comments:

_____

_____

_____

_____

_____

Appendix B

Recall Measure 1: A Wasp is not a Bee.

1= initial 2= post intervention 3= delay recall

Appearance

1._____ 2.____X___ 3.____X__ Bees are hairy.

1._____ 2._____ 3._____X__ Wasps are smooth.

Life Habits

1._____ 2._____X___ 3.____X___ Bees carry pollen on their legs.

1._____ 2._____X___ 3._____X__ Bees eat only pollen and nectar.

1._____ 2._____X__ 3._____X__ Bees make honey.

1.____X__ 2._____X__ 3._____X_ Wasps eat insects and sugary food.

1.___X___ 2._____X____ 3._____X__ Wasps live in nests made of paper.

1._____ 2._____X___ 3.____X___ Bees live in hives built of wax.

1._____ 2._____X____ 3._____X__ A beehive has many workers and one queen who never leaves the hive.

1._____ 2._____X____ 3.____X___ A wasp nest has many workers and one queen who never leaves the hive.

Stinging Habits.

1._____ 2.____X___ 3.____X___ Wasps are quicker to sting.

1.___X___ 2.____X__ 3._____X__ Wasps can sting you several times in a row.

1.___X___ 2.____X__ 3._____X__ Wasps do not die after stinging.

1.____X__ 2._____X___ 3._____X__ Bees die after they sting, so are less likely to sting.

1.____5/14__ 2.____13/14___ 3.____14/14___ Totals.

Recall Measure 2: A Spider is not an insect.

1=initial 2=post intervention 3=delay recall

Appearance

1._____X___ 2.___X___ 3.____X____Spiders have 8 legs.

1._____ 2.____X__ 3._____ Spider bodies have 2 sections.

1._____2.____X___ 3. _____ Insects have bodies with 3 sections.

1._____ 2.____X___ 3._____X___ Insects have 6 legs.

1._____ 2._____X__ 3._____X__ Spiders have palps near mouth which are used in feeding and reproduction.

1._____ 2._____X__ 3._____X__Insects have wings and antennae.

Eating Habits

1._____ 2._____ 3._____Spiders are meat eaters.

1.___X_____2.____X___ 3. ____X__ Spiders paralyze and kill their prey by injecting poison.

1._____2.____X___ 3.____X____Some insects have sucking mouths and feed on nectar and sap.

1._____ 2.____X___ 3._____X__ Some insects have chewing mouths and feed on a variety of foods.

Helpful/Harmful?

1._____X___ 2.___X____ 3.____X___Spiders can be helpful because they kill many insects that can be pests.

1._____X___ 2.____X___ 3._____ Most spiders are not dangerous.

1._4/12___ 2._11/12 3._8/12 Totals.

Recall Measure 3: A Toad is not a frog

Appearance

1. __X___2. _____ 3. ___X___A toad's skin is dry and bumpy, but it can't give you warts.

1. ___X__2. _____ 3. ___X___Frogs have wetter smoother skin.

1. ___X__2. _____3. _____ Frogs have long legs for leaping.

1. ___X__2. _____3. _____ They are streamlined with narrow waists.

1. __X___2. _____ 3. _____Toads don't jump so well. They are plumper and broader.

1. ___X__2. _____3. ____X___ Frogs have teeth.

1. ___X____2. _____ 3. ___X___ Toads don't have teeth.

Life Cycle

1. _____2. _____3. _____ Frogs and toads are both amphibians.

1. ___X___2. _____ 3. _____X___Frogs and toads both breed in water and give birth to tadpoles; which lost their tails, grow legs and turn into adults.

1. _____2. _____3. _____ Difference is that frogs live near water and toads generally live on land.

Protection

1. __X____2. _____3. ___X___ Frogs rely on jumping or swimming quickly out of danger or making noise.

1. ___X___2. _____3. ____X__ Frogs are tasty to many animals. Toads are not. Many toads produce a bitter tasting fluid so an animal would not eat a toad twice.

1. ____X__2. _____ 3. ____X___Frogs have camouflage in water because they are the same color as the weeds.

1. ____X___2. _____3. ____X___ Toads are hard to spot in the woods because they are the same color as the soil, rocks and leaves.

1.__12/14__ 2._____ 3.___9/14___ Totals.

Recall Measure 4: A Bat is not a Bird

Appearance

1._____ 2._____ 3._____ Bats are mammals.

1._____ 2._____ 3._____ Bats are the only mammal that flies.

1._____X___ 2._____X___ 3._____ Bats have a furry body.

1._____2._____X____ 3._____Bats have arm like wings that are webbed.

1. _____X____ 2._____X____ 3._____ Birds are covered in feathers.

1._____ 2._____X___ 3._____ Bats have teeth.

1._____ 2._____X___ 3._____ Birds have beaks.

Birthing and Raising Young

1._____ 2._____ 3._____ Birds lay eggs.

1._____ 2._____X___ 3._____ Bird chicks are fed a variety of foods which their parents gather for them.

1._____ 2._____ 3._____ Bats give live birth.

1._____ 2._____X___ 3._____ Bats nurse their young.

Life Habits

1.____X___ 2._____X____ 3._____ Bats eat a variety of foods. They hunt at night.

1._____ 2. _____X___ 3._____ Most birds except for owls and night hawks are active during the day.

1.___3/13_____ 2.____9/13___ 3._____ Totals.

Recall Measure 5: A Caterpillar is Not a Worm

1= after initial reading 2= after graphic organizer and summary

Appearance

1._____ 2._____ Both have long soft bodies with no backbone.

1._____ 2._____ Earthworms have no distinct head.

1._____ 2._____ Earthworms have no legs.

1._____ 2._____ Caterpillars have legs.

1._____ 2._____ Caterpillars usually have a distinct head.

Life Habits

1._____ 2._____ Caterpillars are active during the day.

1._____ 2._____ Earthworms are active during the night because light hurts their skin.

1. _____ 2._____ Caterpillars turn into butterflies or moths.

Helpful/ Harmful?

1._____ 2._____ Some caterpillars are helpful and some are harmful depending on which plants they feed on.

1._____ 2._____ Earthworms are always helpful.

1._____ 2._____ Earthworms aerate the soil.

Appendix C

Session 1: Agenda

_____ Take preliminary assessment.

_____ Informational and Narrative Texts: Mini Lesson.

_____ Sentence Sorting Task: including vocabulary.

Mini Lesson: Context clues.

_____ Mini Lesson: Synonyms (Read Pitch and Throw: Grasp and Know)

_____ Synonym Matching Activity.

Session 2: Agenda

_____ Review information from 1st session.

_____ Write essay from graphic organizer on the tools of a scientist.

_____ Sentence Sorting Task: Different topics belong in different paragraphs.

_____ Read p. 7 Understand Maps and p. 56 The Effect of Gravity. Discuss how text and paragraphs are organized into topics and main ideas. Note headings.

Session 3: Agenda

_____ Summarizing Rules Read and Practice

_____ Sentence Sort: Summarizing Skill focus: Write a topic Sentence if one is not provided.

_____ Sentence Sort: Same topic/ different main ideas. Summarize paragraph on Mercury.

_____ Summarizing: Practice writing from memory summarizing rules.

Session 4: Agenda

_____ Main Idea Assessment

_____ Gardening with Native Plants Summary

_____ Which summary is best?

_____ Look at rubrics discuss what makes a good summary. Review rules for summarization.

_____ Sentence Sort: Skill Topic versus main idea.

Sessions 5-8: Agenda

_____ Read selection from a Wasp is not a bee.

_____ Initial Recall.

_____ Graphic Organizer: Chart

_____ Summary writing for a Wasp is not a bee

Sessions 9-10 Agenda only included TASK sheet (Appendix D)

Appendix D


T

A

S

K

Topic Ask what main ideas are? Summarize Keep up the good work.

The title of the text is? _____.

It is written by? _____.

The topic of this writing is _____.

Text structure

A. Describing one thing (use a web)

B. Comparing and Contrasting

- Is it 2 (use Venn or table)
- Or more (organize with table)

C. Problem and Solution (Use a Flow chart with arrows)

D. Cause and Effect (use a branching diagram)

_____Ask what the main ideas are? Use a graphic organizer. Take notes.

_____ Summarize.

Remember:

1. Find the topic sentence. Underline it.
2. If there is not a topic sentence, write one in your own words.
3. Cross out information in the passage that is not really important.
4. If information is restated (state it once in your summary)
5. Collapse lists using one word or phrase for the list.

Appendix E

Mini Lessons Session 1

Narrative and Expository Text Types:

Task 1: Sort these books into two groups. How do they differ?

Narrative Texts	Expository Texts
Describe:	Describe:
Give an example:	Give an example:
What school subjects are you most likely to find this type of text in?	What school subjects are you most likely to find this type of text in?

Identifying Text Types: Descriptive

Examples:

1. an animals physical characteristics: habitat, diet, enemies, and “other things”
2. Description of a robot: Who invented it, why it was invented, how it works, and other machines.

Key words to indicate this text type include: For example, To illustrate, For instance, To begin with

Match the phrases (Synonym) Up to date, current, solid parts of the earth, rocks, particles that make up the rock, composition of rocks, more closely, carefully, take photos and soil samples, collect data.

Appendix F

Summary Rules Mini Lesson

Rules for Summarizing.

1. Find the topic sentence underline it and rephrase it in your own words.
2. If there is no topic sentence, make one up.
3. Cross out information in the passage that is not really important.
4. Cross out information that is restated.
5. If the passage contains a list of terms or actions, substitute one word or phrase for the list. Or combine ideas.

Summarize this paragraph using these rules.

The largest object in the solar system is the sun. In fact, the sun is larger than all of the planets put together. Its mass, the amount of matter it contains, is 99 percent of the entire solar system. So 99% of the "stuff" in the solar system is in the sun! The diagram compares the size of the earth and the sun.

Summarize this paragraph.

_____

_____

_____

Appendix G

Choose the Well-written Summary

Native Plant Summaries
Which summary is best?

#1
Native plants are the plants that naturally grow in an area. Orchids, sawgrass, and leather ferns grow in Florida. But native plants are disappearing. Native plants are great to grow. When you choose native plants, think about the amount of sun the plant needs. Some plants can't stand to have their roots wet. Pay attention to the eventual size of the plant.

#2
Native plants are used to the rain in an area. They depend on the wildlife of an area for food and shelter. Native plants are being bulldozed over. That shouldn't happen! People need to protect native plants so they don't become extinct. Put native plants in a forest. Have low-growing plants to attract bugs, reptiles and amphibians. Have shrubs and understory trees for birds and squirrels.

#3
Although native plants are beautiful and important to wildlife, they are disappearing. People can easily grow native plants in their gardens because they are accustomed to the conditions of an area. When choosing a native plant think about the plants needs. Be sure that you have the right amount of sunlight, moisture and space.

Directions: choose which summary of "Gardening with Native Plants" is the best. Then explain your choice on the lines below.

_____

_____

_____

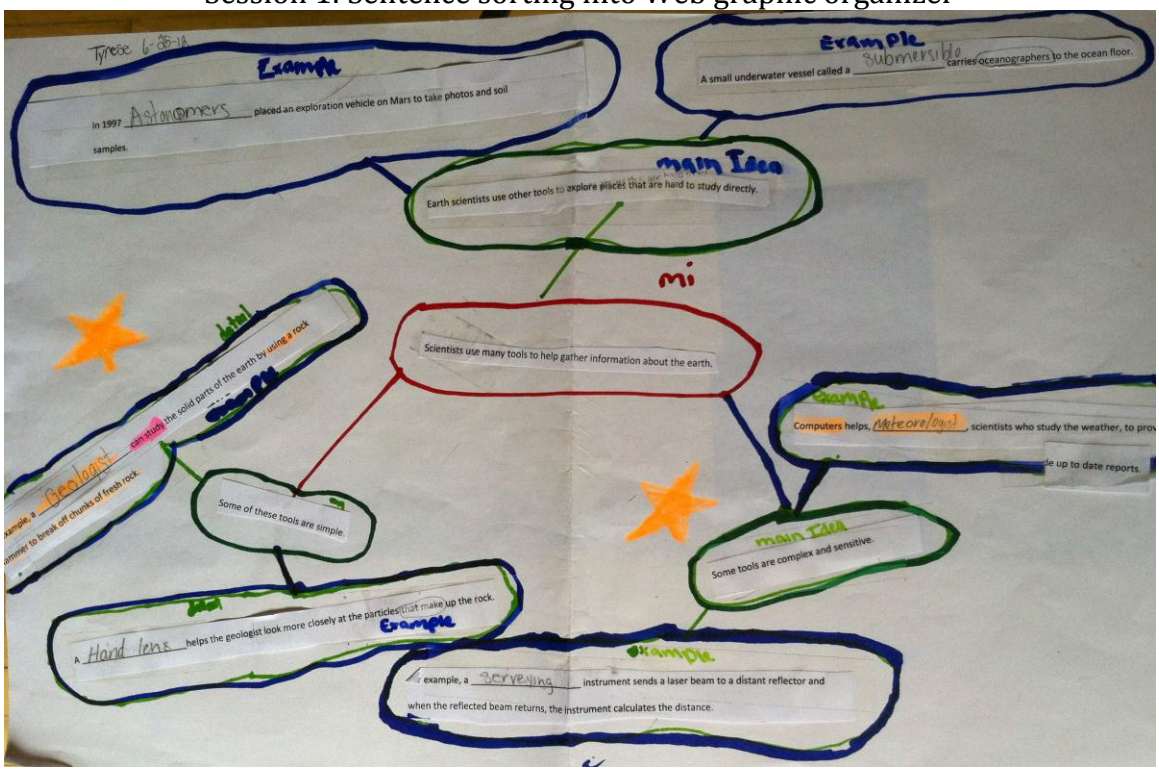
_____

Appendix H

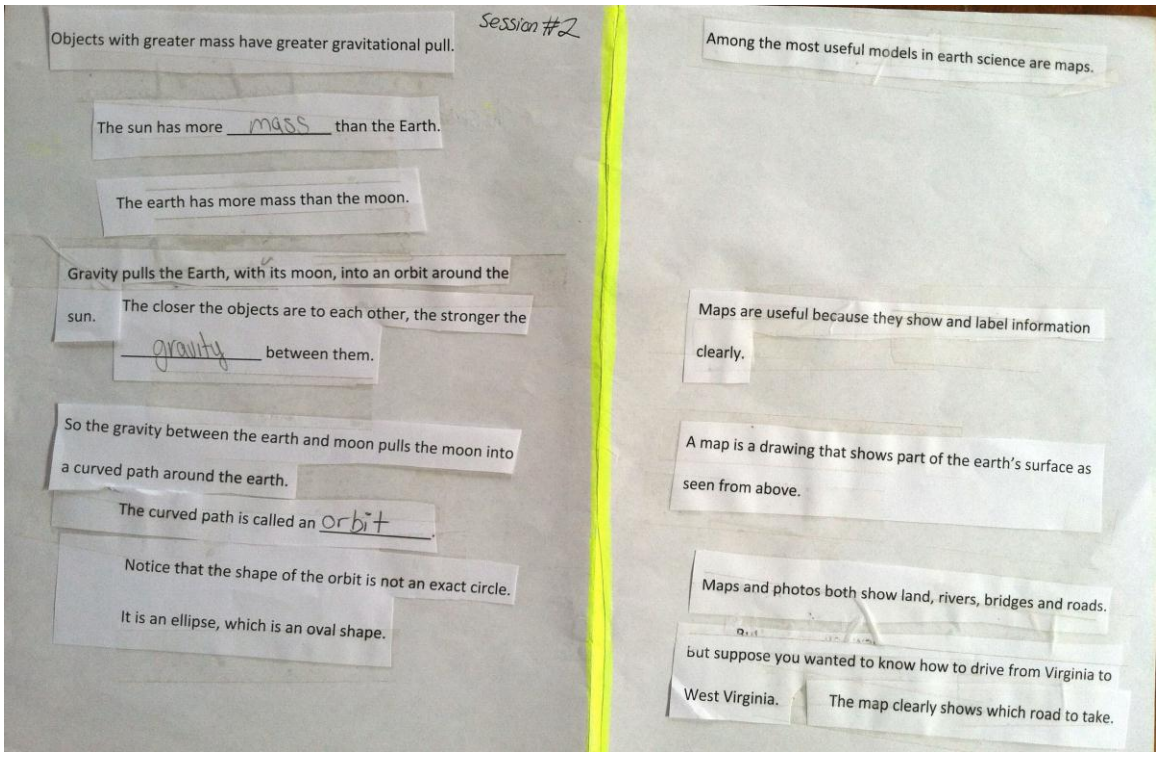
Table 4
Sentence Sorting Tasks

Session Number	Sentence Sorting Task
Session 1 (Appendix G)	Sentence sort using descriptive text on the tools of a scientist into a web graphic organizer (Marshall & Rosskopf, 2006, p. 3-4).
Session 2 (Appendix H)	Sentence sort using descriptive text on two different topics that were maps and orbits (Marshall & Rosskopf, 2006, p. 2, p.56).
Session 3 A (Appendix I)	Sentence sort using two different topics with main ideas explicitly stated (Isamov, 2002, p. 5-6).
Session 3 B (Appendix I)	Sentence Sort with two topics that were sun and satellites with implicit main ideas (Marshall & Rosskopf 2006, p. 81-82). Student had to write main ideas.
Session 4 (Appendix J)	Sentence sort with same topic and different main ideas. The paragraphs were on wetlands (Kissner, 2006, p. 36, p.37).
Session 5 (Appendix K)	Compare and contrast text structure on a wasp is not a bee (Singer, 1995 p.2, p.3). Sentences were sorted into a venn diagram graphic organizer.
Session 6 (Appendix L)	Compare and contrast text structure on a spider is not an insect (Singer, 1995 p. 4, p.5). Sentences were sorted into two categories based on topic for paragraphs.
Session 7 (Appendix M)	Sentence sort into three groups. Student adds additional information from passage. The passage was a compare and contrast passage on Frogs and Toads (Singer, 1995 p. 26-27).

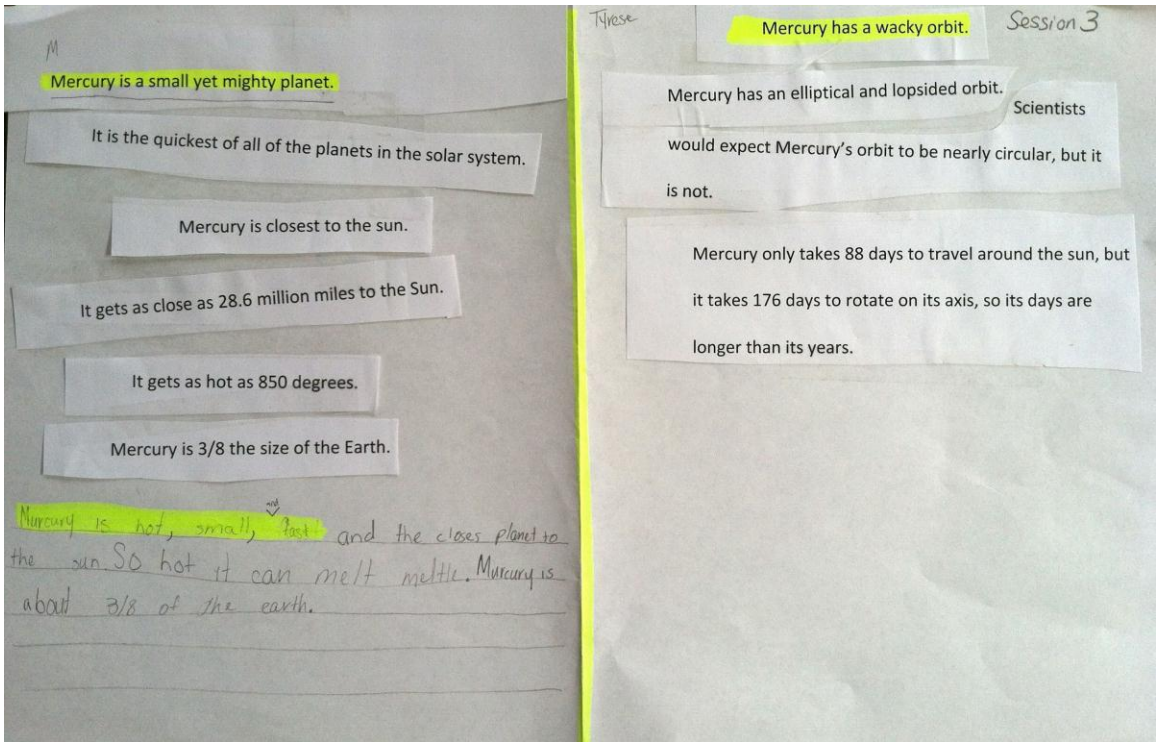
Session 1: Sentence sorting into Web graphic organizer

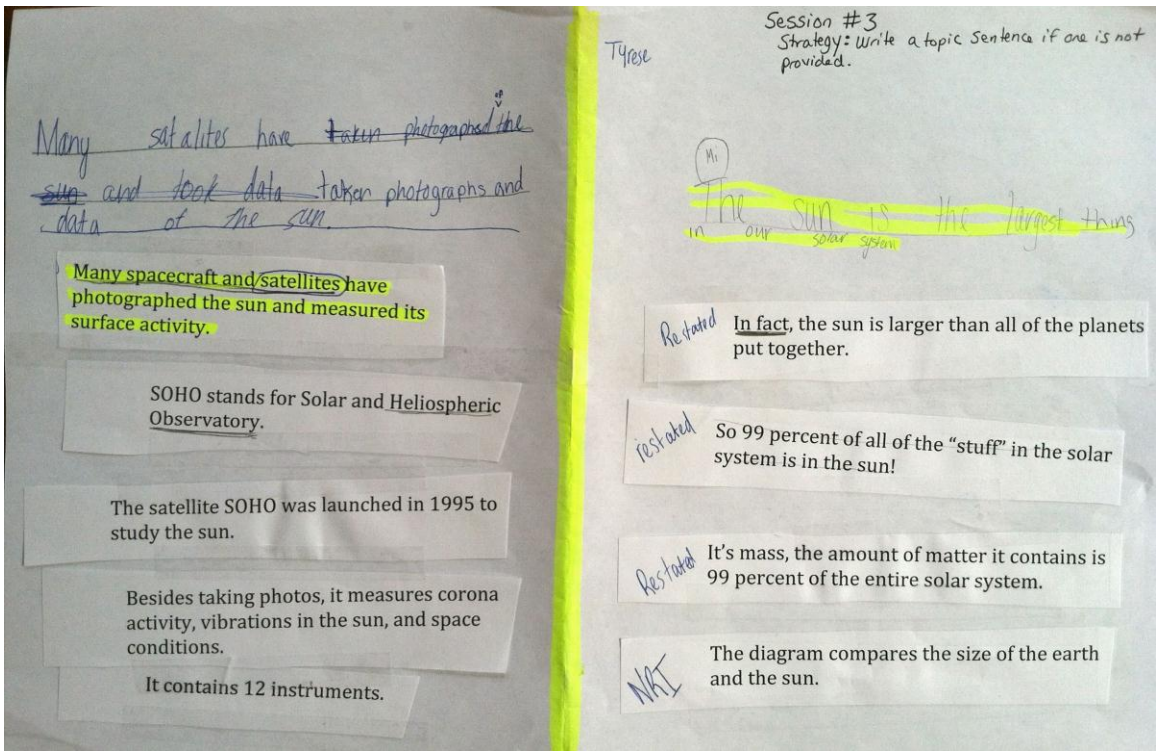


Appendix I
Sentence Sort: Session 2 (Maps and Orbits)

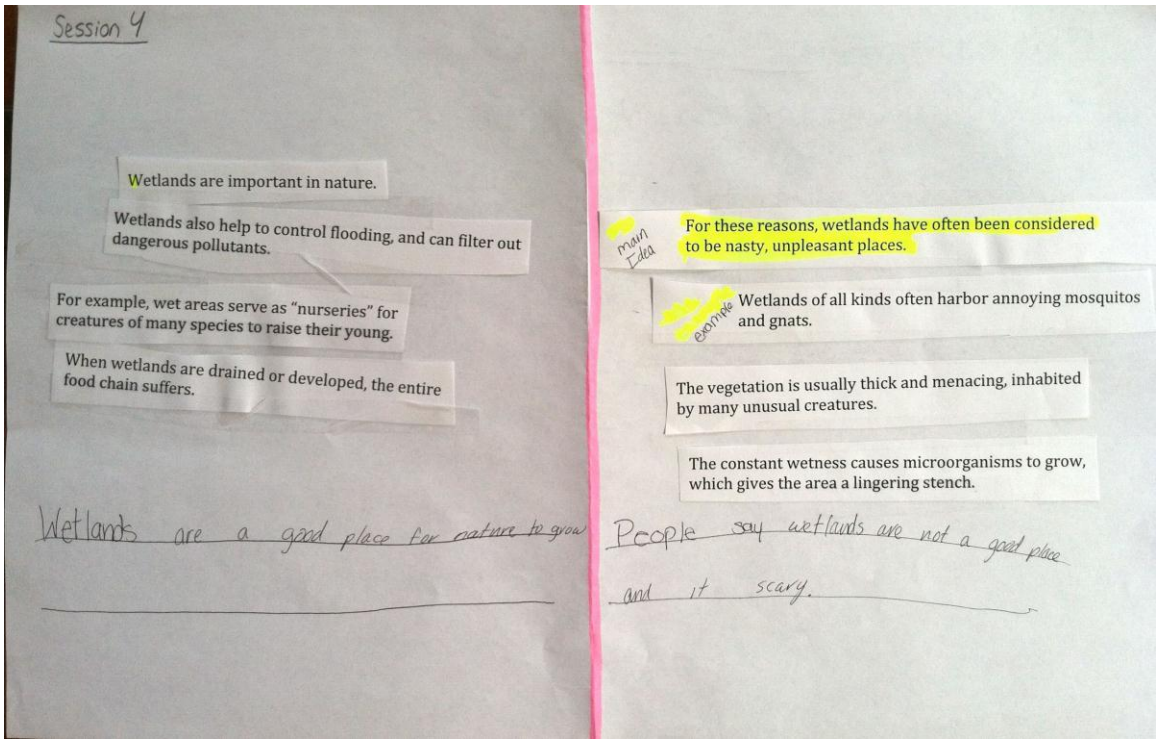


Appendix J
Session 3 Sentence Sort (Implicit and Explicit Main Ideas)

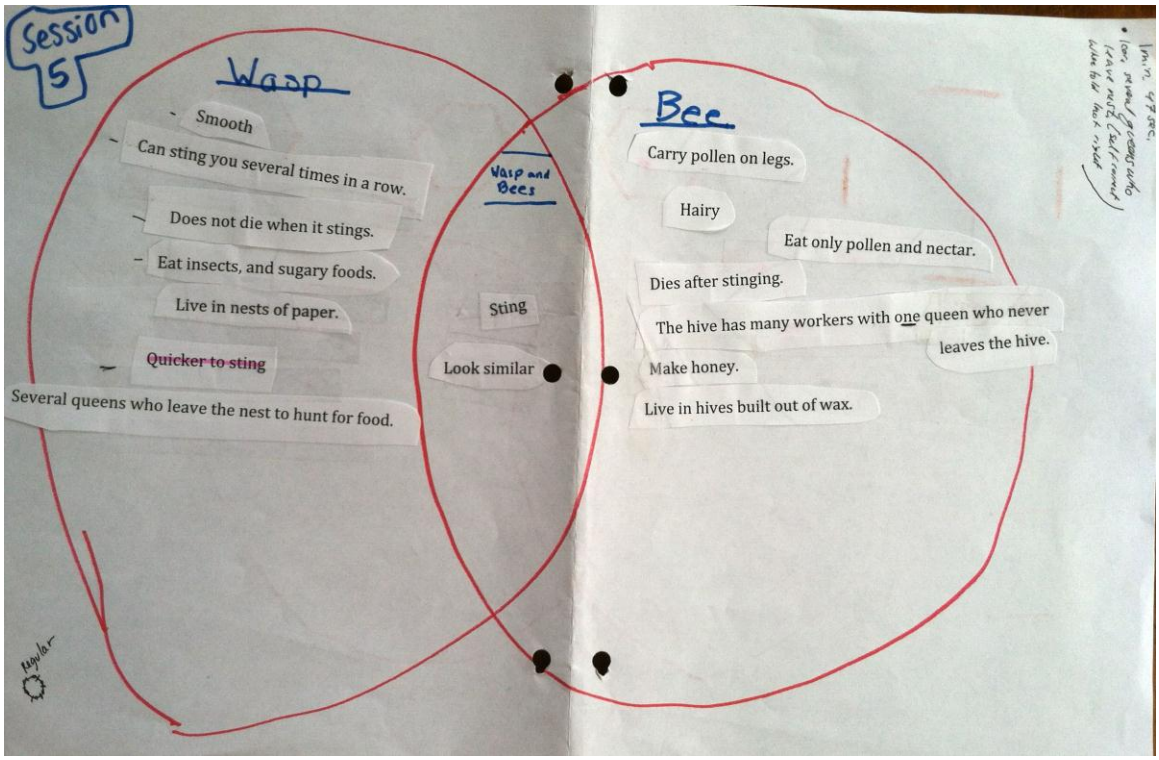




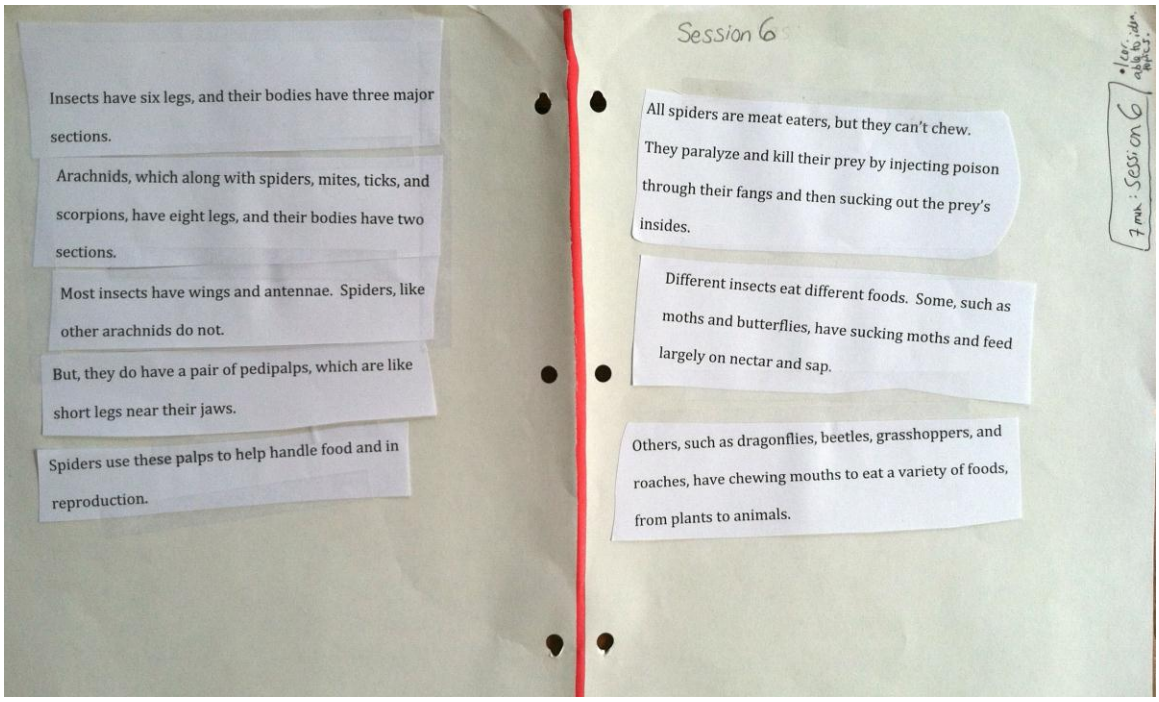
Appendix K
Session 4 Sentence Sort (Same Topic with Different Main Idea)



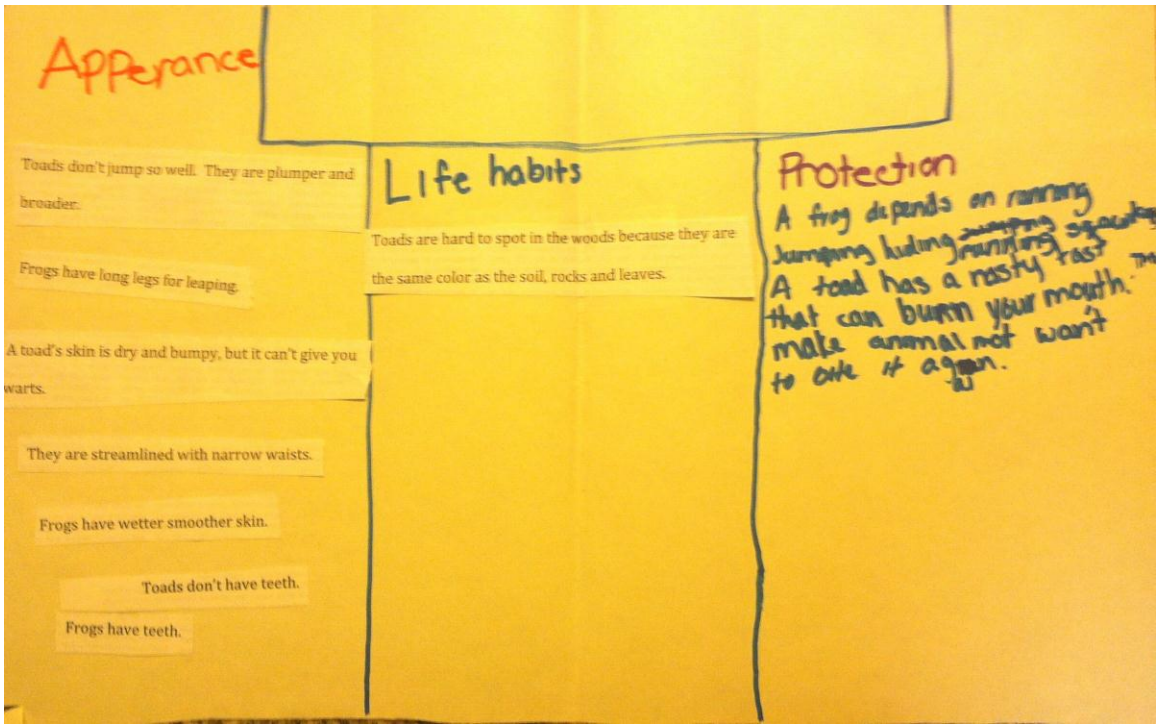
Appendix L
Session 5
Sentence Sort (Compare and Contrast into Graphic Organizer)



Appendix M
Session 6 Sentence Sort (Compare and Contrast: Sort by Main Idea)

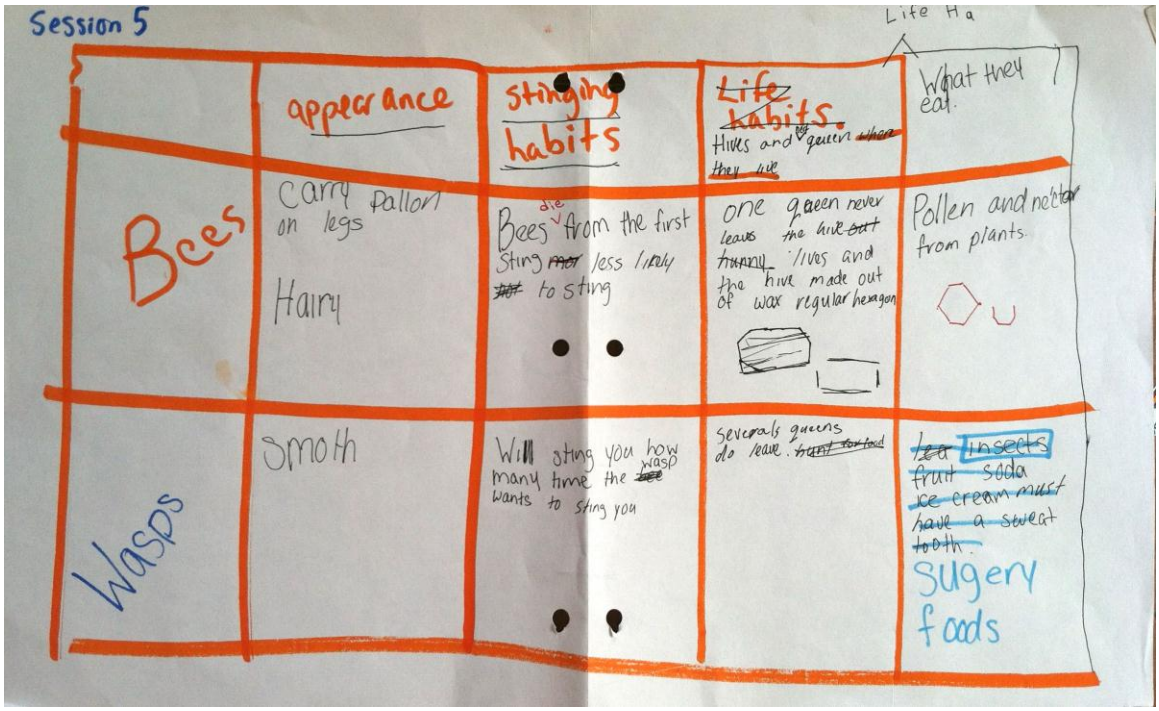


Appendix N
Session 7
Sentence Sort (Three Groups: Added Information)

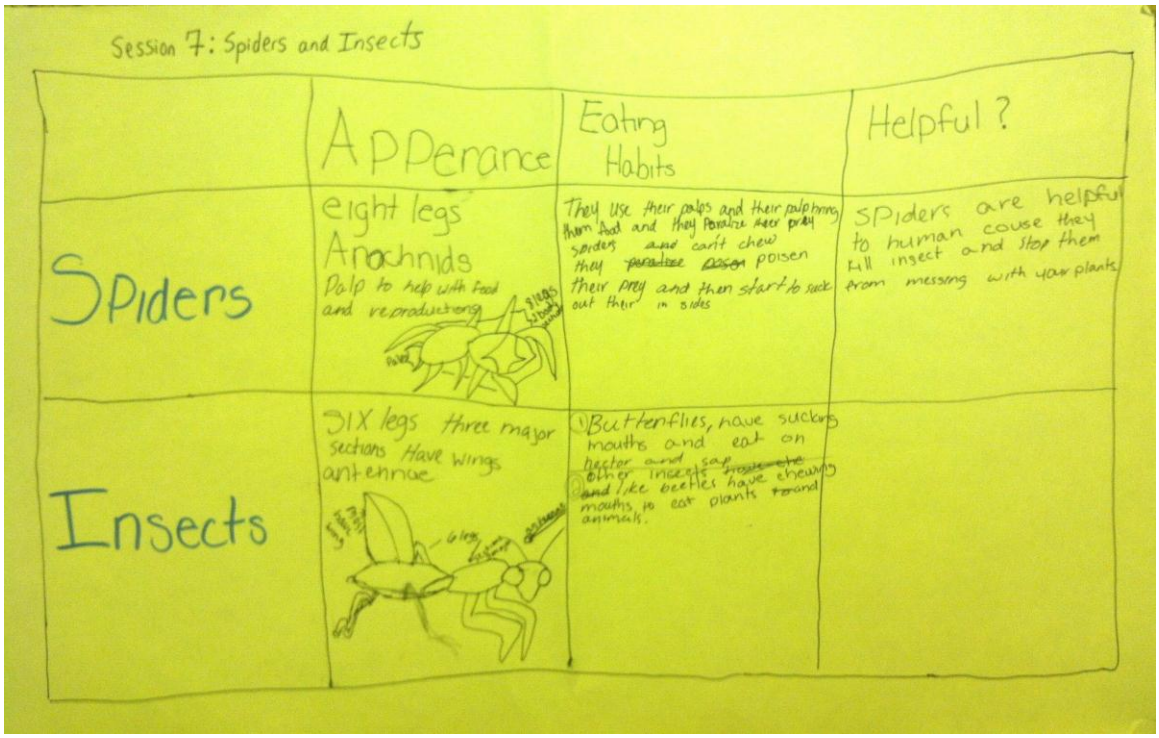


Appendix O

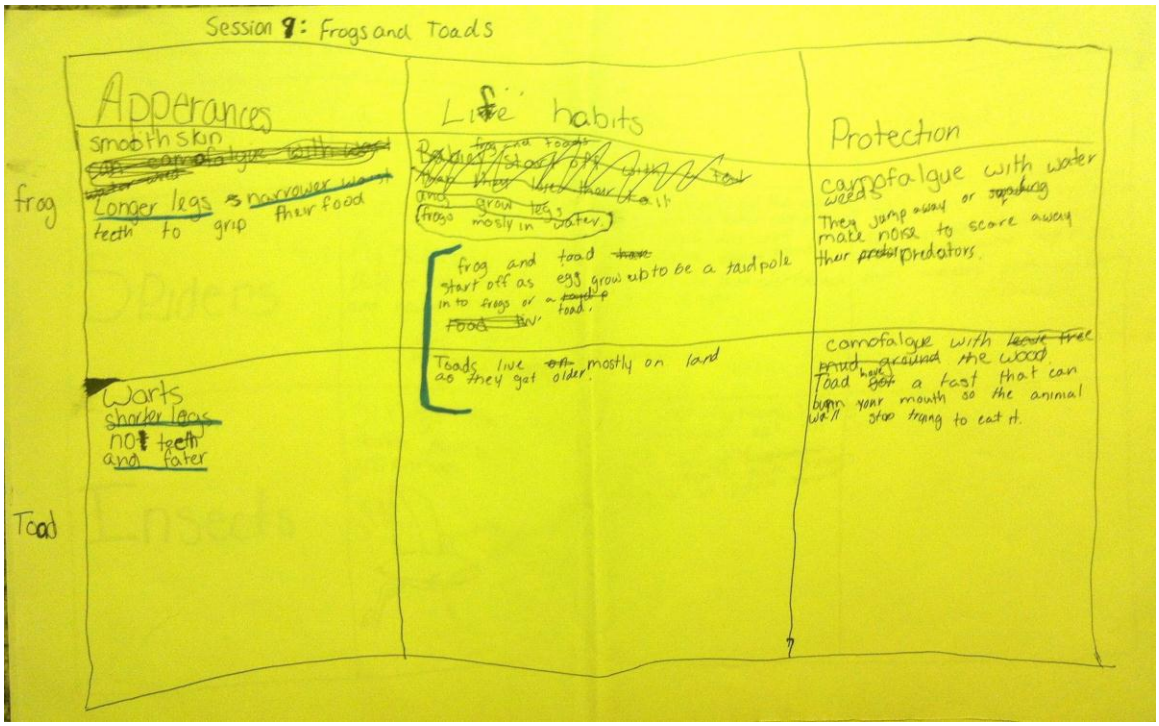
Session 5 Graphic Organizer (A Bee is not a Wasp)



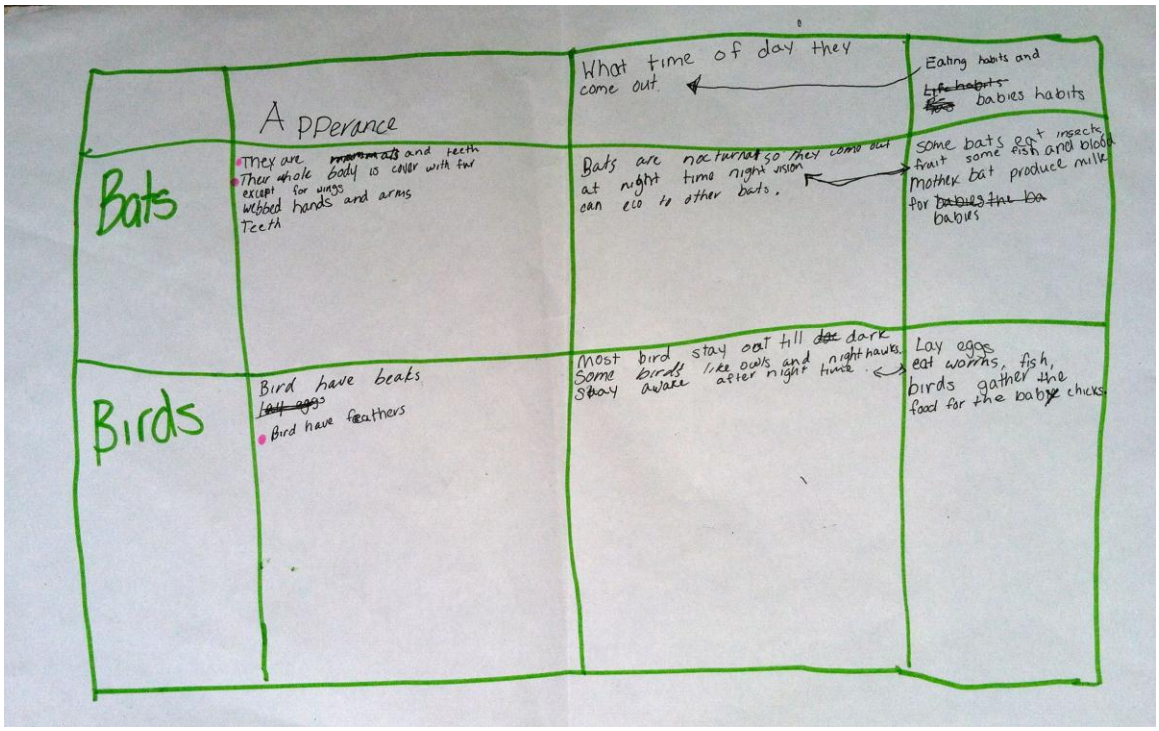
Appendix P
Session 7 Graphic Organizer
A Spider is Not an Insect



Appendix Q
Session 9 Graphic Organizer
A Frog is not a Toad



Appendix R
Session 9 Graphic Organizer
A Bat is not a Bird



Appendix S
Writing Samples

Writing Sample 1 (Session 1)

Tools help the sciencetist find data of rock minerals. The metric system helps the scientist. The computer helps out with rapid calculation. A submersible helps explore small deep places. Exploration vehicles can be used to study planets and make important discoveries.

Writing Sample 2 (Session 2)

Scientists use tools. Some tools are simple. For example, a geologist uses a rock hammer to break off chunks of fresh rock to look at the rock. I science class I use a hand lens and a hammer to look at rocks.

Some tools scientist use are sensitive or complex. Meteorologists uses computers to know the up to date report about the weather. They use spaceships are complex. What make it complex is a lot of button.

Scientists use tools to study places that are hard to study. Scientists use vehicles to study planets like Mars Saturn and other planets. Submersibles carry scientists to the ocean floor.

Writing Sample 3 (Session 4)

Gardening Native Plants Plant a garden in your backyard to help animals. Don't keep in sunlight don't keep in shade all day long. Save wildlife with plants before buying a plant look at tag to see if it is going to stay little or get big.

Writing Sample 4 (Session 6)

A wasp is not a bee. They both have stripes and at first glance they may look the same. However, they differ in appearance, stinging habits, where they live, and what they eat.

Bees and wasps look different. Bees carry pollen in their legs and hair. Bees are round and hairy where as wasp are smooth and long.

Bees and wasp have different stinging habits. Bees die from the first sting so they are less likly to sting you. But a wasps can sting you several time with out dieing so you need to watch out for the wasp.

Bees and wasp also live diffrently. The bee life habits is the queen never leaves the hive cause she could die if she has to sting you. On the other hand wasp has several queens and they can leave the nest to get food cause they can't die from a sting.

Bees and wasp has different food habits. A bee eat pollen from plants. They turn the pollon from plants nector into honey then bears and people eat the honey. Wasps eat sugery foods and insects and live in a nest.

But now you will not mistake a bee for a wasp. I think it is amazing when a bees sting you it dies but when a wasp sting you it does not die. Something I want to know is why do a wasp like sugary foods.

Writing Sample 5 (Session 7)

Spiders are not insects. They differ from insects in appearances, eating habits, helpfulness.

Spider and insect do not look alike spider have eight legs and insects has six legs. Spider and other Arachnids have two body parts. On the other hand, insects have three

major body parts. They also differ and one other part of their body the head. Insects have antennae where is spiders have palps to bring in there food.

Spider have different eating habits than insect. Spider can not chew. Instead they poisen there prey and the start to suck out their insides. Spiders eat only meat. However, insects eat in 1 of 2 ways. Butterflies have sucking mouths and eat on nectar and sap. Other insects like beetles have chewing mouths to eat plants and animals.

Spiders are helpful to humans cause they kill insects and stop them from messing with our plants and keep them from out of house. Only some spiders do have poison and they usually don't bite.

Writing Sample 6 (Session 8)

A toad is not a frog. They differ in appearance, life habits and how they protect theirselves. Many people think they are the same but they are not the same.

Toads and frogs differ in appearance. A frog has smooth skin and a toad has warts but it can't give you warts. Frog has longer legs and a narrow waist but on the other hand a toad has shorter legs and fater one. Last way they differ in appearance is a frog has teeth to grip their food and toads don't have teeth.

Frogs and toads have some of the same life habits. Frogs and toads start of as egg and grow up to be a tadpole into a frog or a toad. Frogs mostly live in water. Toads mostly live on land as they get older.

Frog and toad protect themselves and similar and different ways. Frog protect themselves by camoflogue with water weeds. They also jump away or make noise to scare away their predators. On the other hand, toads camoflogue with the woods. Toads also

protect their selves by a taste that can burn your mouth so the animals will stop trying to eat it.

Writing Sample 6 (Session 9)

Bats and birds are not the same. Bats and birds differ an appearance, life habits, babies habits. Some people mistake bats for birds.

Bats and birds do not look alike. Bats they are mammals where as birds are not mammals. The bats whole bodie is covered with fur. However, bird has feathers. Birds have beaks. On the other hand, bats have teeth.

They have different eating habits and time of day they come out. Bats are nocturnal. Birds stay out till dark. Except for some birds like the owl, nighthawk. Bats have night vision can eco to other bats to say danger. Birds eat worms, fish where as some bats eat insects, fruit, fish and even blood.

Bats and birds have different babie habits. Birds gather their baby chicks food. Bats on the other hand produce milk for baby bats.

Appendix T

Implicit and Explicit Main Ideas

Directions: Highlight the main idea sentence, if stated. Then write the main idea in your own words.

Wetlands are important in nature. For example, wet areas serve as "nurseries" for creatures of many species to raise their young. Wetlands also help to control flooding, and can filter out dangerous pollutants. When wetlands are drained or developed, the entire food chain suffers.

State the main idea: Wetlands are important in nature.

Wetlands of all kinds often harbor annoying mosquitos and gnats. The constant wetness causes microorganism to grow, which gives the area a lingering stench. The vegetation is usually thick and menacing, inhabited by many unusual creatures. For these reasons, wetlands have often been considered to be nasty, unpleasant places.

State the main idea: Wetlands have nasty mosquitos and gnats.

Forest wetlands occur in wet areas that can still support tall tress. Bogs, special wetlands that are found in the far north, contain an amazing array of strange plants. Seabed and stream bottoms are also sometimes considered wetland habitats, as are sandy shores and tidal flats.

State the main idea: Bogs, special wetlands that are found in the far north.

Read this paragraph and choose the best topic sentence.

_____. These birds nest in holes, or cavities in large dead trees. Many people take down dead trees on their properties, leaving the bluebird with no

place to live. Also, nonnative species such as English sparrows have pushed the bluebird out of the few nesting sites they have left. English sparrows will even kill baby bluebirds. As if this weren't enough, the bluebirds nest in wide, open wetlands, which are being turned into roads and developments.

A. The Eastern bluebird has many interesting nesting habits.

B. English sparrows are crowding the Eastern bluebird out of its home.

C. Eastern bluebirds and English sparrows do not get along.

D. The Eastern bluebird faces several problems.

RESOURCES

American Psychiatric Association. (in press). Diagnostic and statistical manual of mental disorders. Washington D.C.

Asimov, A. (2002). The Solar System: Mercury. Milwaukee, WI: Gareth Stevens Publishing.

Bakken, J. P., & Mastropieri, M.A. and Scuggs, T. E. (1997) Reading comprehension of expository science material and students with learning disabilities: *Journal of Special Education, 31*(3), 300.

Book Wizard. (2012). Retrieved July 30, 2012 from http://www.scholastic.com/teachers/bookwizard.

Buggey, L.J., Danzer, G.A., Mitsakos, C.L., & Risinger, C.F. (1977). America! America! New York: Scott Foresman.

Building the Legacy of IDEA. (2004). Retrieved July 22, 2012 from http://idea.ed.gov

Chall, J. S., Bissex, G.L., Conard, S.S., & Harris-Sharples, S.H. (1996). *Qualitative assessment of text difficulty: A practical guide for teachers and writers.* Cambridge, MA: Brookline Books.

Cleary, B. (2007). Pitch and throw, grasp and know: What is a synonym. Minneapolis, MN: Millbrook Press.

Common Core State Standards Initiative. (2012). Retrieved July 22, 2012, from http://www.corestandards.org

Cooney, T., DiSpezio, M. A., Foots, B. K., Matamoros, A. L., Nyquist, K. B., Ostlund, K. L., et al. (2000a). *Scott Foresman Science.* New York: Addison-Wesley Educational.

Cooney, T., DiSpezio, M. A., Foots, B. K., Matamoros, A. L., Nyquist, K. B., Ostlund, K. L., et al. (2000b). Scott Foresman Science. *Teacher's Assessment Package.* New York: Addison-Wesley educational.

De La Paz, S. (1999). Self-regulated strategy instruction in regular education settings: Improving outcomes for students with and without learning disabilities. *Learning Disabilities Research and Practice, (14),* 92-106.

DiCecco, V. M., & Gleason, N. M. (2002). Using graphic organizers to attain relational knowledge from expository text. *Journal of Learning Disabilities, 35*(4), 306.

Dymock, S., Nicholson, T., (2007) Teaching text structures: A key to nonfiction reading success. New York: Scholastic.

Edmonds, M.S., Vaughn, S., Wexler, J., Reutebuch, C.K., Cable, A., Tackett, K., et al. (2009). A synthesis of reading interventions and effects on reading outcomes for older struggling readers. *Review of Educational Research, 79*, 262-300.

Fang, Z. Wei, Y. (2010). Improving middle school students science literacy through reading infusion. *Journal of Educational Research*, 103(4), 262-273.

Fuchs, L. S., Fuchs, D., & Kazdan, S. (1999). Effects of peer-assisted learning strategies on high school students with serious reading problems. *Remedial and Special Education, 20*, 309-318.

Fuchs, L.S., Hamlett, C., & Fuchs, D. (1997). Monitoring basic skills progress: Basic reading (Computer software). Austin, TX: PRO-ED.

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

Garner, R., Alexander, P., Slater, W., Hare, V.C., Smith, T., & Reis, R. (1986). Children's knowledge of structural properties of expository text. *Journal of Educational Psychology, 78,* 411-416.

Hammill, D., & Larsen, S. (1996). *Test of written language* (3rd ed.). Austin: Pro-Ed.

Hedin, L., Mason, L., & Gaffney, J. (2011) Comprehension strategy instruction for two students with attention-related disabilities. *Preventing School Failure, 55* (3), 148-157

Ihnot, C., & Ihnot, T. (2007). Read naturally. St. Paul, MN: Read Naturally, Inc.

Kissner, E. (2006). Summarizing paraphrasing and retelling. Portsmouth, NH: Heinemann.

Leslie, L., & Caldwell, J. (2006). *Qualitative reading inventory* (QRI 4th ed.). Reading, WA: Allyn & Bacon.

Leslie, L. and Caldwell, J. Qualitative Reading Inventory. 5 (2011). Pearson/ Allyn and Bacon. Boston, MA.

MacGinitie, W. H., MacGinitie, R. K., Maria, K., & Dreyer, L. G., (2000). *Gates-MacGinitie Reading Tests, Levels 4&5, Forms S&T.* Itasca, IL: Riverside Publishing.

MacGinitie, W., & MacGinitie, R. (1992). *Gates-MacGinitie Reading Tests* (2nd Canadian ed.). Toronto: Nelson Canada.

Marshall, R. and Roskopf A. (2004). Earth Science. Circle Pines, MN: AGS Publishing. PCI Education. (2012). Retrieved July 30, 2012 from

Microsoft Word 98 (Computer software). (1998). Richmond, WA: Microsoft. Nagy, W. E. (1998).

Montelongo, J., and Hernandez, A., 2007. Reinforcing expository reading and writing skills: A more versatile sentence completion task. *The Reading Teacher 60*: 538-46.

Montelongo, J., Herter, R. J., Ansaldo, R., & Hatter, N. (2010). A lesson cycle for teaching expository reading and writing. *Journal of Adolescent & Adult Literacy,* 53(8), 656-666

PCI Education. (2012). Retrieved July 30, 2012 from http://www.pcieducation.com/store

Reynolds, P., and Perin, D., A comparison of text structure and self-regulated writing strategies for composing from sources by middle school students. *Reading Psychology (30).* 265-300.

Rogevich, M., and Perin, D., Effects on science summarization of a reading comprehension intervention for adolescents with behavior and attention disorders. *Exceptional Children (74).* 135-154.

Saenz, L.M. & Fuchs, L.S. (2002). Examining the reading difficulty of students with learning disabilities: Expository versus narrative text. *Remedial and Special Education 23*(1), 31-41.

Scammacca, N., Roberts, G., Vaughn, S., Edmonds, M., Wexler, J., Reutebuch, C.K. (2007). Interventions for adolescent struggling readers: A meta-analysis with implication for practice. Portsmouth, NH: RMC Research Corporation, Center on Instruction.

Sheinker, I., & Sheinker, A., (1989). Metacognitive Approach to Study Strategies. Rockville, MD: Aspen.

Singer, M. (1995). A wasp is not a bee. New York, NY: Henry Holt and Company.

Spargo, E. (1989). *Timed reading series* (3rd ed.). Providence, RI: Jamestown.

Stagliano, C., & Boon, R. (2009). The effects of a story-mapping procedure to improve the comprehension skills of expository text passages for elementary students with learning disabilities. *Learning Disabilities: A Contemporary Journal 7* (2), 35-58.

Stephens, K. E. (2010). Improving reading achievement of low SES minority students with science related information texts and structured reading. *College Reading Association Yearbook, (31),* 317-333

Texas Education Agency. (2005b). *Texas essential knowledge and skills.* Retrieved November 17, 2007, from http://www.tea.state.tx.us/teks/index.html

Torgesen, J. K., Wagner, R. K., & Rashotte, C. A. (1999). Test of word reading efficiency. San Antonio, TX: PRO-ED.

USDA Food and Nutrition Service. (2006). Food and nutrition service. National School Lunch Program. Retrieved November 20, 2006, from http://www.fns.usda.gov/cnd/lunch/AboutLunch/NSLPFactSheet.pdf

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

Wagner, R. K., Torgesen, J. K., Rashotte, C. A., & Pearson, N. A. (in press). Test of sentence reading efficiency (TOSRE). Austin, TX: PRO-ED.

Woodcock, R. W. (1987). Woodcock reading mastery test – Revised. Circle Pines, MN: American Guidance Services.

Woodcock, Richard. Woodcock Reading Master Tests, Third Edition (WRMT-III). (2011). Pearson/Allyn and Bacon. Boston, MA.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). Woodcock-Johnson III Tests of Achievement. Itasca, IL: Riverside.