University of Cincinnati

Date: 3/26/2013

I, Deborah Elledge, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Communication Sciences and Disorders.

It is entitled: Improving Reading Comprehension Through Explicit Summarization Instruction

Student's name: Deborah Elledge

This work and its defense approved by:

Committee chair: Nancy Creaghead, PhD
Committee member: Sandra Combs, PhD
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Improving Reading Comprehension through Explicit Summarization Instruction

A dissertation submitted to the
Division of Research and Advanced Studies of the
University of Cincinnati

In partial fulfillment of the
Requirements for the degree of
Doctor of Philosophy
In the Department of Communication Sciences and Disorders
in the College of Allied Health Sciences
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ABSTRACT

Research over the last several decades has revealed that adolescents in the United States are leaving school with insufficient literacy skills to compete in the global marketplace. A primary contributor to poor literacy rates is poor reading comprehension. The purpose of this research was to develop and test the efficacy of a protocol for teaching summarization, a frequently used reading comprehension strategy, to fourth, fifth, and sixth grade students. Participating students wrote summaries of science textbook passages which were analyzed for the inclusion of main ideas and the deletion of extraneous details. One class at each grade level served as the experimental group and received 4 lessons of explicit summarization instruction, and one class at each grade level served as the control group (students did not receive summarization instruction). Results of repeated measures ANOVA of the within-subject factor of Time for experimental groups indicated that there was no significant difference between the percentage of main ideas included in the pre-assessment summaries and post-assessment summaries of students after summarization instruction. A significant difference was found among the percentage of main ideas included in the summaries of students in the three grades with sixth grade students including a higher percentage of main ideas than student in fourth or fifth grade. Results indicated a significant difference between the percentage of main ideas included in the summaries of students in the experimental group and students in the control group on the post assessment summaries with the experimental group including a significantly lower percentage of main ideas. Analysis of extraneous details revealed that the experimental group included significantly fewer details in their summaries after the summarization instruction. A significant difference was also found between conditions with students in the experimental group including significantly fewer extraneous details than students in the control group on post
assessment summaries. These results suggest that the protocol was effective in teaching students to write shorter summaries, but not in teaching them how to identify the main ideas of a textbook passage.
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Chapter I
Introduction

The United States of America is a land founded on the idea of equal opportunity, opportunities that are given to people from all backgrounds and cultures through public education. Historically, the great equalizer has been an educational system that enabled Americans to leave school with the skills necessary to find employment and become productive members of society. The diversity of employment opportunities available ensured that most people who completed the required curriculum of the educational system were rewarded with the means to support themselves and their families, which in turn contributed to the overall health of the economy. However, the world has changed and with it, the types of jobs available to graduates have also changed. In 2008 the National Joint Committee on Learning Disabilities released a technical report on adolescent literacy and students with learning disabilities indicating that the average graduate’s level of literacy was not sufficient for today’s job market. Findings from this report stated that a significant number of adolescents in the United States read and write below levels needed to meet the demands of the twenty-first century and that “underdeveloped literacy skills have profound consequences for students, families, and society” (National Joint Committee on Learning Disabilities, 2008, p. 2).

Researchers Shanahan and Shanahan (2008) suggested that the literacy rates of students have not changed, but that the jobs for people with lower literacy rates are no longer as prevalent as they once were. Basic literacy skills (e.g., decoding and knowledge of high-frequency words) are typically achieved by the end of elementary school. In the past it was believed that basic literacy skills automatically evolved into more sophisticated literacy skills (e.g., the ability to comprehend a wide variety of texts across content areas) with a minimal amount of instruction;
and although this was the case for a small segment of society, many students never achieved these advanced literacy skills. However, forty years ago individuals who left school with basic literacy skills were able to find jobs that enabled them to support their families, take care of their own needs, and be active participants in society (Shanahan & Shanahan, 2008). The literacy requirements of the twenty-first century workplace now require more than basic literacy skills from workers. Advanced literacy skills often require direct teaching of comprehension strategies, vocabulary, and content specific skills. Nokes and Dole (2004) reviewed research regarding educational practices in the United States and noted an absence of direct reading comprehension instruction in schools over the last several decades. This failure to provide appropriate high-literacy reading instruction propagates the gap between proficient readers who are able to learn strategy use with limited instruction and the many more students who struggle with reading and would benefit from explicit and structured strategy instruction (Afflerbach, 2002; Duffy, 2002; Kamhi & Catts, 2012; Nokes & Dole, 2004; National Reading Panel, 2000; Ogle & Blachowicz, 2002).

The mandate of education, therefore, should be to instruct students in such a way that they develop high-level reading comprehension skills that enable them to actively engage with the demands of the twenty-first century. According to www.dictionary.reference.com, comprehension is the “capacity of the mind to perceive and understand”. Kintsch (2005) viewed comprehension as a continuum of understanding between automatic perception and active problem solving. He described reading comprehension as an inconstant state on this scale with its location dependent upon the reader as well as on the content being read. Due to the complex nature of comprehension, effective reading comprehension strategy research must narrow the
focus from the broad area of general comprehension to the more specific area of text comprehension.

Text comprehension requires an active engagement of the reader with the text. Background knowledge, vocabulary, inferencing skills, knowledge of reading strategies and text structures, metacognition, motivation, oral language skills, and task demands are among the many factors that influence the reading process (Gersten, Fuchs, Williams, & Baker, 2001; Hogan, Bridges, Justice, & Cain, 2011; Kamhi & Catts, 2012). It is therefore easy to understand why many students do not simply acquire the skills necessary for understanding the increasingly complex material required during high school and beyond. Reading research has examined several of these factors and demonstrated that with appropriate instruction, students can improve their reading comprehension (Cain, 1999; Edmonds et al., 2009; Gersten et al., 2001). However, due to the multifaceted nature of reading instruction, implementation of best practice strategies can be challenging.

Instruction in reading strategies is a familiar topic in reading comprehension research. In 2000, the National Reading Panel (NRP) released a report evaluating the state of reading research and reading instruction in the United States. This report made several suggestions regarding research-based strategies and the use of explicit instruction to improve the literacy rates of all students. However, despite these recommendations, integration of explicit reading comprehension instruction is uncommon after fourth grade, thus leaving students at risk of not developing the advanced literacy skills necessary for success in later grades (Biancarosa & Snow, 2004; Bursuck & Blanks, 2010; Pearson, 2010; Shanahan & Shanahan, 2008; Shanahan & Shanahan, 2012).
Summarizing is one of the evidence-based comprehension strategies advocated by the NRP’s report (2000) to improve reading comprehension, and proficient summarizers use the task to organize, condense, understand, and remember information (Hill, 1991). Summarizing narrative and expository text is a frequent task assigned to students and is included in the Common Core State Standards (CCSS) starting in fourth grade (www.corestandards.org). However, although most students are expected to know how to summarize, direct instruction in summary writing is rarely taught (Crowley & Mountain, 1988; Hill, 1991; Vacca & Vacca, 1989). Summarizing texts, particularly as the texts become more complex in middle and secondary grades, is a difficult metacognitive skill (Brown & Day, 1983; Day, 1986; Hill, 1991; Kintsch & van Dijk, 1978), and without direct instruction many students will not be able to use this strategy effectively. A contributor to the lack of effective teaching of summarization may be that many teachers do not recognize the complexity of summarizing, and instead believe that telling students to “find the main idea” is sufficient. In fact, a review of the research revealed that the instruction, “Find the main idea”, was not uncommon in studies examining the effectiveness of summarization as a comprehension strategy (Bereiter & Bird, 1985; Boulware-Goode, Carreker, Thornhill & Joshi, 2007; Malone & Mastropieri, 1992; McKeown, Beck & Blake, 2009; Nelson Smith, & Dodd, 1992). Of the extant research literature, little pertains to the effectiveness of explicit summarization instruction with elementary and middle school students in spite of the common use of summarizing in these settings. Instead, much of the previous research on summarization writing (Brown & Day, 1983; Brown, Day, & Jones, 1983; Brown & Smiley, 1977; Day, 1986) focused on high school and college students. Results from these studies indicated that, with instruction, older students improved their ability to write summaries of texts. The salient question, therefore, is whether younger students, when provided
with appropriate and explicit instruction, are capable of learning to produce written summaries similar to the summaries produced by older students. The conundrum for educators then becomes how to effectively teach this complex skill to students as young as fourth grade in order for them to meet the academic expectations of the CCSS. Scaffolded instruction, which incorporates explicit and concrete rules for summarizing (Brown & Day, 1983) similar to the instruction used in the previously mentioned research studies with older students, may be equally helpful for younger students.

In order to write summaries, students need to be able to distinguish important (main idea) information from redundant or extraneous information and then condense the text into a few short cohesive sentences (Brown & Day, 1983; Westby, Culatta, Lawrence, & Hall-Kenyon, 2010, p.277). The ability to differentiate important information from less important information is dependent upon many reader variables including background knowledge, inferencing skills, and knowledge of text structures (Hogan et al., 2011). The research regarding the effectiveness of teaching text structure to improve a student’s ability to determine main ideas and increase reading comprehension is abundant. (Armbruster, Anderson, & Ostertag, 1987; Armbruster, Anderson, & Ostertag, 1989; Brooks & Dansereau, 1983; Gaddy, Bakken, & Fulk, 2008; Reynolds & Perrin, 2009; Richgels, McGee, Lomax, & Sheard, 1987). According to the CCSS, familiarity with text structure should begin in first grade with the compare and contrast text structure. It is therefore appropriate to include both the explicit instruction of summarization rules as well as text structure instruction in a protocol for the explicit instruction of summary writing.

The purpose of this research was to develop and test the efficacy of a protocol for teaching summarization skills to fourth, fifth, and sixth grade students. For the purpose of this
study, proficient summarizers are those individuals who are able to identify the gist of the macrostructure as evidenced by the inclusion of the main ideas of a text in a written paragraph. The protocol was developed to include the explicit instruction of Brown and Day’s (1983) rules for summary writing as well as a lesson regarding text structure. Passages of expository text were used as educators and researchers have indicated that expository text is often more challenging for students to comprehend than narrative text (Armbruster et al., 1987), yet the ability to comprehend expository text is important to students due to its prevalence throughout school as well as life. Information from this study adds to the paucity of current data regarding the effectiveness of using explicit comprehension instruction with adolescents to improve the acquisition of literacy skills. Additionally, results from this research inform future literacy intervention for students with language disabilities by providing foundational information regarding effective strategies with typically developing students. Written summaries of students who received one text structure lesson and three lessons of explicit summarization rule instruction were compared with the summaries of a control group who did not receive the instruction. Student summaries were analyzed for percentage of main ideas included relative to the number of main ideas present within the text as determined by expert raters. Summaries were also analyzed for the number of extraneous details present in the summary. Extraneous information included details, examples, and redundant information. The protocol was deemed effective if the number of main ideas included in the student summaries significantly increased from the pre-assessment summary to the post-assessment summary. Additionally, an effective protocol would decrease the number of extraneous details that students used in their summaries. The specific research questions for this study were:
1. Is there a significant difference between the percentage of main ideas included in the written summaries of students before and after four sessions of explicit summarization instruction?

2. Is there a significant difference between the percentage of main ideas included in written summaries of students in the experimental and control groups?

3. Is there a significant difference among the percentage of main ideas included in the written summaries of students in the fourth, fifth, and sixth grade?

4. Is there a significant interaction among time, condition, and grade for main ideas?

5. Is there a significant difference between the number of extraneous details included in the written summaries of students before and after four sessions of explicit summarization instruction?

6. Is there a significant difference between the number of extraneous details included in written summaries of students in the experimental and control groups?

7. Is there a significant difference among the number of extraneous details included in the written summaries of students in the fourth, fifth, and sixth grade?

8. Is there a significant interaction among time, condition, and grade for extraneous information?
Chapter II

Literature Review

A critical review of the existing literature is essential to provide context for the current concerns regarding adolescent literacy, and more specifically to examine the research with respect to the teaching and use of summarizing in comprehending expository text for this age group. For the purpose of this study, the review of the literature will examine the following relevant issues: 1) Reading Comprehension, 2) Teaching Reading Comprehension, 3) Summarization, and 4) Instructional Design.

Reading Comprehension

Comprehension has been loosely defined as the “nature of understanding” (Keene, 2010, p. 8). It is an idea that has been tossed around by psychologists, educators, philosophers, and speech-language pathologists. What does it mean to understand? Is comprehension a mental state beyond conscious control or can it be taught? During the nineteenth and most of the twentieth centuries, reading comprehension was defined by the American educational system as one’s ability to memorize written information (Pearson, 2010). However, over the last 30 years reading comprehension has been redefined to encompass increasing depths of understanding, thereby allowing readers to be critical consumers of written material both in and out of school (www.corestandards.org).

Theory of comprehension

Comprehension, according to Kintsch & van Dijk (1978) is a complex set of cognitive processes that cannot be considered as a whole, but must instead be “decomposed into components” (p.364) for study. They proposed a model for text comprehension that focuses on
the underlying semantic structures (propositions) of the text at both the microstructure and macrostructure levels, with cognitive processes working both in parallel and sequentially. The *construction-integration model* (CI) of comprehension (Kintsch, 1998, 2005) described this process as being the reciprocal relationship between bottom-up (sensory) and top-down (memory & knowledge) cognitive processes. The comprehension continuum described by Kintsch (2005) places conscious, intentional problem-solving on one end and automatic perception on the other. The place of text comprehension along this continuum is dependent on the skills (i.e., decoding, reading fluency, background knowledge, etc.) of the reader. Factors such as fluent decoding or a deep understanding of the content area help to move text from the problem-solving end of the continuum to the automatic perception end. The stronger the reader’s skills in these areas, the more cognitive resources they have available for comprehension processing (Kintsch, 2005).

Kintsch (1998) described the CI model of comprehension as beginning at the level of the proposition (bottom-up) with the words used to *construct* these propositions. As the propositions are decoded, the various possibilities of meaning are activated. From these possibilities, irrelevant meanings are quickly dismissed due to the *integration* of cognitive processes (top-down) that create appropriate mental representations. As the reader continues through the text, these mental representations are held in short term memory and linked through relational cohesion to other propositions. These propositions, together with the inferences and background knowledge provided by the reader, are formed into “nodes” (Kintsch, 1998); the more positive connections that a node has with other nodes, the greater the likelihood that node will be maintained in the final mental representation (comprehension) of the text. Nodes that have few or negative connections with other nodes will be suppressed through the process of constraint-satisfaction. The CI model for text comprehension is therefore a highly interactive cognitive
model that engages the processes of auditory and visual perception, syntactic and semantic analysis, and the integration of background knowledge and reasoning (Kintsch, 2005).

**Proficient Readers**

As the CI model suggests, the development of reading comprehension is a complex process that continues to evolve through years of experience and instruction. In an attempt to address the needs of our youth who are struggling with basic literacy skills, it is helpful to first examine the reading behaviors of individuals with advanced literacy skills. Researchers have identified strategies that are often used by those who demonstrate proficient understanding of different texts. First, good comprehenders are adept at using their background and world knowledge to make connections during reading (Mateos, Martin, Villalón, & Luna, 2008; Pressley & Wharton-McDonald, 1997; Westby, 2012). Second, they ask questions of themselves as well as the author to establish what they know, do not know, and want to know (Pressley & Wharton-McDonald, 1997). Additionally, good comprehenders integrate and synthesize information across texts, make inferences, and use knowledge of text structure to organize their thinking (Barr, Blachowicz, Katz, & Daufman, 2002; Edmonds et al., 2009; Gersten et al., 2001). Proficient readers also demonstrate strong metacognitive skills and an active engagement in reading (Boulware,-Gooden et al., 2007; Çubukçu, 2008; Gaddy et al., 2008; Nokes & Dole, 2004; Pearson, 2010; Pressley & Wharton-McDonald, 1997) as evidenced by their demonstration of self-regulated reading, knowledge of reading strategies, and the ability to know which strategy to use in a given situation (Nokes & Dole, 2004).

The research appears conclusive that these skills are important for the development of advanced literacy and reading comprehension, but certain questions remain. First, is there a
level of complexity among these strategies and skills that require them to be taught to students at
different times (i.e., are the metacognitive requirements of summarizing beyond the abilities of
elementary aged students)? And second, what is the best way to teach these skills?

*Teaching Reading Comprehension*

In 2000, the National Reading Panel (NRP) released a report evaluating the state of
reading research and reading instruction in the United States. The NRP chose the following
topics for study: (1) Alphabetics (phonics), (2) Fluency, (3) Computer Technology and Reading
Instruction, (4) Teacher Education and Reading Instruction, and (5) Comprehension.
Comprehension was further divided into (a) vocabulary instruction, (b) text comprehension
instruction, and (c) teacher preparation and comprehension strategies instruction. The NRP
concluded that reading comprehension was best addressed with explicit and formal instruction
utilizing a combination of strategies including comprehension monitoring, cooperative learning,
use of graphic and semantic organizers, question answering, question generation, knowledge of
story (text) structure, and summarization. Biancarosa & Snow, in their report *Reading Next: A
Vision for Action and Research in Middle and High School Literacy* (2004), addressed literacy
issues for adolescents and stated that many students who read well in the third grade would
exhibit reading difficulties by the middle and secondary grades if reading instruction was not
continued through these years. One of the fifteen key elements identified by Biancarosa & Snow
for effective literacy programs was the inclusion of direct, explicit comprehension instruction
including strategies such as questioning, clarifying, predicting, and summarizing.
Perusal of the research illuminates some of the issues that obscure the path to improved reading comprehension instruction. A primary issue is that many of the studies examining reading comprehension strategies have assessed multiple strategies simultaneously making it difficult to tease out the effectiveness of one strategy over another. McKeown, Beck, and Blake (2009) conducted a two year study comparing the effectiveness of three different instructional approaches: strategy based instruction, content based instruction, and basal based instruction. Strategy based instruction included summarizing, predicting, drawing inferences, question generation, and comprehension monitoring; the content based instruction used “general, meaning-based questions” (p. 223) to focus students’ attention to the text; and the basal based instruction was derived from the teacher’s edition of the district’s basal reading program with an emphasis on comprehension questions. All lessons were scripted and differed only in the types of questions asked at predetermined stopping points. They found that across measures of text-based assessment (e.g., recall and text-related discourse), as well as beyond-text assessment measures (e.g., comprehension monitoring and application of strategies to novel material) students in the content and basal groups significantly outperformed students in the strategies group. There were no significant differences across approaches on a text-based measure of text recognition. The authors hypothesized that the focus on content in the content and basal approaches as opposed to a focus on which strategy to use at a particular juncture in the strategy approach, allowed students to develop deeper levels of text comprehension. Overall, growth on comprehension tasks were noted for all three approaches possibly due to the increased engagement of readers encouraged by all three methods. Despite the many different assessment
measures used for this study, all results included the five different strategies as a single entity, thus providing little information regarding the individual strategies.

Boulware-Gooden, Carreker, Thornhill, and Joshi (2000) developed a study to examine the effectiveness of multiple-strategy use for improving the reading comprehension of third grade students. Strategies included use of graphic organizers, think-alouds, identifying the main idea with details, and both oral and written summaries. Results of this study indicated that the multiple-strategies group demonstrated a significant increase on a standardized measure of reading comprehension when compared with the control group. However, as with the McKeown et al. (2009) study, information regarding the usefulness of individual strategies was not available.

Prado and Plourde (2011) examined the use of seven different comprehension strategies (e.g., question generation, making inferences, finding the main idea) taught to fourth grade students to improve reading comprehension. Results indicated a significant difference between the pre and post assessments of students. Results of this study, however, must be viewed with caution due to the large number of strategies included in the intervention and the absence of a control group. Additionally, Prado and Plourde reported that several of the participants received extra reading intervention from other sources (e.g., special education teachers) throughout the duration of the study. Studies such as these would seem to support the use of strategies to improve the reading comprehension skills of students; however for instructional purposes, educators are not provided with the specific information regarding individual strategies needed to facilitate the development of reading intervention instruction.
Summarization

Summarization is a comprehension strategy supported by a wide body of reading comprehension research (Armbruster et al., 1987; Bean & Steenwyk, 1984; Biancarosa & Snow, 2004; Brown & Smiley, 1977; Day, 1986; Frey, Fisher, & Hernandez, 2003; NRP, 2000; Taylor, 1986; Westby et al., 2010). The ability to summarize is a valuable skill for both reading and writing, and students who develop proficiency in this area are more likely to experience educational success than those who struggle (Frey et al., 2003; NRP, 2000; Westby et al., 2010). The skills required for summarization align with the problem-solving end of Kintsch’s (2005) comprehension continuum. Students engage in problem-solving behavior as they make critical decisions regarding both the macrostructure and microstructure of the text to then determine the gist of the piece. Kintsch (1990) found that both age of reader and quality of the micro- and macro-structure of the text significantly influenced students’ written summaries. She hypothesized that younger students, even those considered fluent readers, experienced greater difficulty than older readers constructing meaning from the macrostructure of a text due to their less sophisticated knowledge of background information, content vocabulary, and reading strategies. These factors interfered with the younger students’ ability to engage in the inferential and critical thinking required to create summaries.

In Brown and Day’s (1983) seminal research on summarization, they examined the rules participants (fifth grade, seventh grade, tenth grade, and college students) used when writing summaries. Each participant read a passage three times, wrote a summary of unconstrained length, and then rewrote the summary using sixty words. Summaries were analyzed to determine which of Brown and Day’s six rules of summarizing students used to shorten their summaries, and to evaluate if different rules were used by students of different ages. All age groups used the
deletion rules to effectively eliminate redundant or trivial information. The use of the superordination rule increased across all age groups under the constrained condition while the overall probability of this rule being used efficiently increased with age of participant. Age differences were also noted in the use of the topic sentence selection or invention rule with increased usage associated with increased age. While there were no differences noted between conditions for the elementary and high school students, college students decreased their use of the selection rule and increased their use of the invention rule in the constrained condition. Brown and Day hypothesized that this was due to the more mature summarizing abilities of the older students as they collapsed and integrated information across paragraphs to meet the limitations of the constrained task.

Summarizing, as a reading comprehension strategy, has been included in several studies; however, examination of the methods used to teach summarization revealed significant differences in the research protocols. Antoniou & Souvignier (2007) included summarization as a strategy in their work with fifth through eighth grade students with learning disabilities. In this study, students were taught to turn sentences into questions, and then to use the answers to these questions as the basis for a written summary. Boulware-Gooden et al., (2007) taught their third grade students to find the main idea and details, create a “pyramid” with this information, and then use the pyramid to form an oral summary that was scribed for them by the teachers. Malone and Mastropieri (1992), McKeown et al. (2009), Nelson et al. (1992) and Gaddy et al. (2008) all used variations of telling participants to “find the main idea” in order to summarize information in their research protocols. Each of these studies indicated significant improvement in the reading comprehension skills of participants exposed to reading strategies. Unfortunately, due to the variations in instructional protocols as well as the large number of strategies used, specific
information regarding individual strategies is difficult to glean from the existing research. Furthermore, although many studies have examined similar reading comprehension strategies, the extent to which the strategies were explicitly taught varied from study to study (Klingner, Urbach, Golos, Brownell, & Menon, 2010) calling into question the generalizability of study results.

Perhaps due to the belief that summarizing is an advanced and complex cognitive skill, much of the research regarding summarization has been completed with secondary and post-secondary students (Brown & Day, 1983; Brown & Smiley, 1977; Day, 1986; Idris, Baba, & Abdullah, 2007; Mateos et al., 2008; Peterson & French, 1988; Wang, 2009). A review of the literature indicated that students with greater self-regulation processes, active engagement with reading, and knowledge of reading strategies also demonstrated greater proficiency with summary writing (Alexander & Murphy, 1998; Baker, 2002; Baker & Zimlin, 1989; Brown, 2002; NRP, 2000). Brown and Day (1983), suggested that older students were more competent summary writers than younger students as they used the summarization rules more efficiently, rearranged material across paragraphs, and condensed information using the fewest number of words. Although their research indicated that older students were more proficient summarizers, it was speculated that with training in the use of summarization rules, other students could also improve their summarization skills (Day, 1980; Winograd, 1982). This conjecture was supported by the work of Hare & Borchardt (1984) with high school students in which students trained in summarization skills outperformed the control group in both use of summarization rules and the quality of written summaries.

In response to the research that provided information regarding what younger students could not do in the area of summarization, Garner, Belcher, Winfield, & Smith (1985) conducted
a study to specifically examine the question of what fifth graders could do. Participants (15 good readers and 15 poor readers) were asked to write a summary, judge the proficiency of a written summary, and then reflect upon what they did to write their summaries. The authors found that although two-thirds of the students were able to identify a “good” summary, they did not have the skills to produce such a summary. Results indicated that the less proficient summaries of younger students was not due to a lack of knowledge regarding the purpose of a summary (to identify the gist of a piece), but may instead have been related to the lack of instruction regarding how to write a good summary.

Instructional Design

Explicit instruction

One of the strongest themes that can be extrapolated from reading comprehension research is that explicit strategy instruction can significantly improve the reading comprehension skills of students from elementary to post-secondary school (Antoniou & Souvignier, 2007; Boulware-Gooden et al., 2007; Chan, 1991; Gaddy et al., 2008; McKeown et al., 2009; Nokes & Dole, 2004; Prado & Plourde, 2011; Pressley & Wharton-McDonald, 1997; van den Bos, Nakken, Nicolay, & van Houten, 2007). The NRP (2000) advocated the use of explicit instruction to encourage the active engagement of readers, something that has been shown to improve reading comprehension (Gauthier & Schorzman, 2012; Guthrie & Wigfield, 2000). Edmonds et al. (2009) reviewed the research on reading interventions for older struggling readers and found that explicit strategy instruction typically yielded strong effects for improving the comprehension of readers (Biancarosa & Snow, 2004; Gersten et al., 2001).
Day (1986) suggested that students with more advanced metacognition required less explicit strategy instruction due to their ability to behave more strategically. However, she also stated that although older students required less explicit instruction than younger students, “all students profited most from explicit, detailed training” (p.207). Mateos, Martin, Villalón, and Luna (2008) reported that many secondary school students lacked the skills necessary to construct meaning and paraphrase information from written material. Additionally, students did not demonstrate the skill to monitor their comprehension or reflect on their own problem-solving, skills necessary for strategic reading and writing. Despite the literature that consistently points to the benefit of explicit instruction prior to expecting students to proficiently use a strategy or perform a skill, the curriculum of most schools has not incorporated reading strategy instruction into upper elementary, middle, or high school classrooms (Biancarosa & Snow, 2004; Bursuck & Blanks, 2010). Instead, the adage that children “first learn to read and then read to learn” is a widely held and tenacious belief in the minds of many educators and educational policy makers. Andreassen and Braten (2011) investigated the effect of the explicit teaching of four reading strategies to fifth grade students. Results of the study revealed that students in the explicit instruction condition demonstrated a significant improvement on measures of reading comprehension when compared with the control group that did not receive the same instruction. Additionally, students in the experimental condition showed an increase in their knowledge and use of reading comprehension strategies.

Nelson and Manset-Williamson (2006) examined the effect of explicit instruction with fourth to eighth grade students, most of whom demonstrated a learning disability. A large effect size was noted in the experimental group on measures of oral retell and main idea identification. Miller, Darch, Flores, Shippen, and Hinton (2011) conducted a study with similar students (third
to eighth grade students with disabilities) and found a significant difference between experimental and control groups with a medium effect size on measures of reading comprehension, metacognitive skills, and maintenance of skills. The authors noted that their results were consistent with a study conducted by Chan (1991) where explicit instruction improved students’ identification of main ideas and comprehension strategy use.

Duffy et al. (1987) and Anderson (1992) conducted studies that involved teacher education in the use of explicit strategies with their students. Duffy et al. taught ten of twenty teachers how to make decisions regarding reading strategies and then how to explain the strategies to their students. Students of teachers in the experimental group demonstrated significantly greater awareness of content and the need to read strategically as well as significantly better scores than control peers on the measure of reading comprehension. Anderson trained sixth to eleventh grade special education teachers to increase their use of explicit instruction with their students. Teachers in both experimental and control groups received information regarding explicit instruction, but only teachers in the experimental group receive specific reading strategy training in addition to the general explicit instruction information. Students of teachers in the experimental group demonstrated significant gains on reading comprehension assessments.

*Brown and Day’s Rules of Summarization*

The cognitive processes required for summarization include reasoning, inferencing, organization, and planning (Brown & Day, 1983; Kamhi & Catts, 2012; Westby et al., 2010). Based on their construction-integration model of comprehension, Kintsch and van Dijk (1978) proposed macro-rules used by proficient readers to determine the information to be included in a
summary. These rules include the processes of deletion, generalization, and integration. Based on these macro-rules, Brown & Day (1983) identified six general rules of summarization: (1) deletion of trivial information, (2) deletion of redundant information, (3) replacing lists of items with a superordinate term, (4) replacing lists of actions or events with a superordinate term, (5) selection of a topic sentence, and (6) construction of a topic sentence. Previous research indicates that younger readers tend to rely on the rules of deletion when creating summaries, while older students (e.g., high-school or college-age) use the more complex strategies of integration (superordinate term rules) and topic sentence identification or construction (Brown & Day, 1983; Brown, Day, & Jones, 1983; Day, 1986; Taylor, 1986).

Summary

Proficiency in reading comprehension is a critical element in the development of advanced literacy skills. A significant amount of research has been conducted in the areas of reading comprehension skill acquisition and reading instruction. This research has indicated that the development of advanced reading comprehension skills is multifaceted and influenced by the text, the skills of the reader, and the comprehension demands placed upon the reader. Proficient readers exhibit a depth of background knowledge, advanced metacognitive skills, and knowledge of reading strategies and text structures (Nokes & Dole, 2004). Research regarding reading comprehension instruction has identified several strategies that are effective in improving the comprehension skills of students. The NRP (2000) indicated that multiple strategy instruction was an effective teaching method, and many of the studies examining the efficacy of the strategies have also included multiple strategies. However, the study of multiple strategies simultaneously inhibits our ability to determine the usefulness of individual strategies.
Additionally, the methods used to teach strategies varied from one study to another, thus making evidence-based instructional planning difficult.

One of the more popular reading comprehension strategies found in research as well as the classroom is summarization. The existing research suggests that summarization is an advanced literacy skill, yet the CCSS expects students to independently summarize narrative and expository text by the end of the fourth grade. Brown and Day (1983) found that college-aged students were more proficient summarizers and used more complex strategies to synthesize and summarize texts when compared with fifth, seventh, and tenth grade students. However, little research has been done to examine the effectiveness of explicit summarization skill instruction to students in elementary and middle school. Due to the prolific use of summarizing in elementary and secondary schools as a reading comprehension strategy, additional research is needed to examine effective methods of teaching this complex skill to younger students through scaffolded and explicit instruction.

Purpose and Research Questions

The purpose of this study was to develop and test the efficacy of a protocol for teaching summarization skills to upper elementary and middle school students. The protocol was developed using the premise of explicit instruction and Brown and Day’s (1983) rules of summarization. Student summaries were analyzed for percentage of main ideas included relative to the number of main ideas present within the text as determined by expert raters. The protocol was deemed effective if the percentage of main ideas included in the student summaries significantly increased from the pre-assessment summary to the post-assessment summary. The specific research questions for this study were:
1. Is there a significant difference between the percentage of main ideas included in the written summaries of students before and after four sessions of explicit summarization instruction?

2. Is there a significant difference between the percentage of main ideas included in written summaries of students in the experimental and control groups?

3. Is there a significant difference among the percentage of main ideas included in the written summaries of students in the fourth, fifth, and sixth grade?

4. Is there significant interaction among time, condition, and grade for main ideas?

5. Is there a significant difference between the number of extraneous details included in the written summaries of students before and after four sessions of explicit summarization instruction?

6. Is there a significant difference between the number of extraneous details included in written summaries of students in the experimental and control groups?

7. Is there a significant difference among the number of extraneous details included in the written summaries of students in the fourth, fifth, and sixth grade?

8. Is there significant interaction among time, condition, and grade for extraneous information?
Chapter III

Method

The purpose of this study was to develop and examine the efficacy of a protocol for teaching summarization skills to upper elementary and middle school students. Three language arts teachers (one fourth, one fifth, and one sixth) volunteered two of their class periods (one control and one experimental) for participation in this project.

Research Site

This study took place at a suburban Catholic school in a midsize, Midwestern city. This K-8 school reported a total population of 668 students with 34 teachers. Specific demographics for students are reported in Table 1. Students in this school change classes for content areas beginning in the fourth grade; each grade level is assigned a “homeroom” group with whom they rotate to the different classes (e.g., math, language arts, social studies, physical education, etc.) throughout the day. Research classrooms included fourth, fifth, and sixth grade language arts classrooms.

Table 1. Demographics of students at research site.

<table>
<thead>
<tr>
<th></th>
<th>Number of students in school</th>
<th>Percentage of students</th>
<th>Percentage in local area code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free/Reduced lunch</td>
<td>0</td>
<td>0%</td>
<td>7.25%</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>1%</td>
<td>.1%</td>
</tr>
<tr>
<td>African American</td>
<td>15</td>
<td>2%</td>
<td>1.4%</td>
</tr>
<tr>
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<td>1%</td>
<td>1.9%</td>
</tr>
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<td>White</td>
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<td>96%</td>
<td>92.8%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td></td>
<td>Male</td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>53%</td>
<td>47%</td>
<td></td>
</tr>
</tbody>
</table>

Participants

Students

Student participants were convenience samples recruited from three classrooms at a local parochial school whose teachers volunteered to allow the Primary Investigator (PI) into their classroom to conduct research. Each teacher taught three sections of the same content area (i.e., language arts) and grade level; from these three class periods the teachers selected two classes that would participate in the research study. After the teacher selected the two participating classes, the researcher randomly assigned one of the classes to the experimental condition and the other class to the control condition. Classrooms from the following grade levels were recruited: fourth, fifth, and sixth. Student ages ranged from 9 to 12 years old. All students in the classrooms, including those with individual education plans (IEP), were invited to participate. From the experimental classrooms, permission forms were returned for 23 fourth graders, 24 fifth graders, and 24 sixth graders. Of these students with permission forms, 20 fourth graders, 19 fifth graders, and 23 sixth graders completed both the pre and post assessment passages due to absences and other school schedule conflicts (i.e., some of the students were scheduled for enrichment classes during the time the researcher was in the classroom). From the control classrooms, permission forms were returned for 21 fourth graders, 20 fifth graders, and 25 sixth graders; all but two fourth grade students completed both the pre and post assessment passages. Instruction was given to all students in the experimental classrooms; however, pre- and post-
instruction summaries were analyzed only for those with parental permission. In the control classrooms, all students were asked to write the pre- and post- assessment summaries, and summaries were collected from those with parental permission for analysis.

Research Assistants

Undergraduate and graduate students from the Communication Sciences and Disorders department at the University of Cincinnati were trained as research assistants. Two assistants were trained by the PI to locate appropriate expository text reading passages to be used for the pre- and post- assessment summaries. Two different students were trained by the PI to code the students’ written summaries for analysis.

Expert Raters for Main Ideas

Students in two different graduate level classes were recruited from the Communication Sciences and Disorders Department at the University of Cincinnati to serve as expert raters in identifying the main ideas contained in the assessment passages. These students were considered experts due to the training they received from the PI prior to the rating task as well as their background as graduate students in speech-language pathology. These experts were used to identify the main ideas within each passage with which student summaries were compared. Information regarding this procedure can be found in the following section.

Expert Raters for Extraneous Information

Three faculty members and one doctoral candidate from the Communication Sciences and Disorders Department at the University of Cincinnati were recruited to create rubrics (Appendices H-I) that were used to identify the number of extraneous details in student
summaries (details, examples, or redundant information). These individuals were experts in child language with 3 to 40 years of experience in teaching and research in child language.

Materials

Assessment Passages

The PI worked with research assistants to locate expository texts from grade level text books as well as content related trade books to be used as authentic material for instruction and assessment. The criteria given to the research assistants to facilitate selection of passages included the following: cause and effect text structure, 250-300 words in length, and readability level between fourth and seventh grade. Two assessment texts were selected from a 5th grade science text book for pre-and post-instruction assessments. Passages were then modified to achieve an appropriate readability level for each grade level. Readability levels for all passages were analyzed using the Flesch-Kincaid Grade Level scale using the Readability Consensus Calculator (www.readabilityformulas.com). This scale is frequently used in research and is highly correlated (0.91) with reading comprehension of expository texts (Williamson & Martin, 2010). Fourth grade passage “A” (Appendix A) had a readability level of 4.5 and 284 words; passage “B” (Appendix B) had a readability level of 4.3 and 337 words. The fifth and sixth grade classrooms used passages with the same readability level. The fifth/sixth grade passage “A” (Appendix C) had a readability level of 5.5 and 307 words; passage “B” (Appendix D) had a readability level of 5.0 and 325 words. Fourth grade students were given passages with lower readability levels than the older students in an effort to decrease the decoding demands of the text and to provide the students with the best opportunity to focus on comprehension of the passage. The fifth and sixth grade students used the same reading passages that were either at or
slightly below their grade level in order to decrease the number of variables in the study. Text features such as titles, subheadings, and bold words were maintained to provide authentic textbook passages for students.

**Instructional Passages**

Passages chosen for instructional practice during the four lessons were selected from a fourth grade science textbook as well as science related expository trade books. All classes used the same instructional passages to maintain consistency of instruction across grade levels. Readability of passages was determined in the same manner as for the assessment passages. Each practice passage was one paragraph and approximately 55-70 words in length.

**Passage Text Structure**

In addition to readability level, passages were further limited by text structure. Due to the complex nature of expository texts, one specific text structure, *cause and effect*, was chosen for all assessment and instructional passages. The one exception to the use of the cause and effect text structure was during the lesson on using the superordination rule. This rule requires the reader to replace a list of items or actions with a word or phrase. Due to the fact that cause and effect passages do not often contain lists of items or actions, the decision was made to use a passage with a *descriptive* text structure to model and practice this rule. The otherwise exclusive use of cause and effect enabled the students to focus on using their knowledge of this text structure (as taught to them in lesson 1) to identify the main ideas in the passages. Limiting the variability of the text structure decreased the cognitive burden on students as they were not required to first identify the text structure before summarizing the passage. By decreasing this
burden, it was hypothesized that students would be better able to focus on summarizing the text. Additionally, limiting the text structure decreased the variables introduced to this research study.

*Main Idea Scoring Guide for Student Passages*

Student passages were coded for the number of main ideas (based on expert ratings) contained within each summary. Research assistants were given a color-coded key (Appendices E and F) to use for coding. Information was then transferred to a summary sheet (Appendix G) for analysis. This procedure is described in more detail in the procedure section.

*Extraneous Information Checklists*

Student summaries were analyzed using a checklist for each passage (Appendices H and I) to identify the number of extraneous details included in the summary beyond the main idea information. Information from the passages that was not considered a main idea by the experts was then rated by the PI as a detail, example, or redundant information.

*Summarization Instruction lessons*

For the instruction portion of the study, four thirty-minute lesson plans were developed in the following sequence:

- **Lesson 1: Cause and Effect Text Structure Lesson** (Appendix J)
  
  This lesson introduced students to the five primary expository text structures (problem-solution, descriptive, sequential, compare-contrast, and cause-effect). The students were given handouts that provided definitions, signal words, and signal questions that could be used to identify the structure and the main ideas of the passages. The example paragraph and lessons 2 and 4 focused on the cause-effect text structure; lesson 3 focused on the descriptive text structure.
- **Lesson 2:** Deletion Rule Lesson—trivial or redundant information (Appendix K)

This lesson reviewed the text structure information and how signal words and questions could be used to identify the main idea of the paragraph. Students were then taught how to delete information that was not the main idea by eliminating trivial or redundant information. As part of this lesson, students were introduced to the concept that summaries should be shorter than the original passage. Students were asked to count the number of words they used in their practice summaries, and examples of summaries of different lengths were read aloud and compared with one another through class discussion.

- **Lesson 3:** Superordination Rule Lesson (Appendix L)

This lesson first reviewed the text structure information of using signal words and signal questions to identify the main idea. For this lesson, the signal words and questions were specific to the descriptive text structure instead of the cause-effect text structure. Students were then also prompted to look for trivial or redundant information which could then be deleted. The PI provided a model of using the new superordinate rule to condense information to write a summary. This lesson used a descriptive text structure to practice the rule of condensing lists of items or actions into a shorter phrase due to the fact that most cause and effect passages do not contain lists. Due to an oversight in choosing assessment passages, students were not given the opportunity in the pre or post assessment passages to demonstrate use of this rule as neither assessment passage contained a list.

- **Lesson 4:** Identifying/Creating Topic Sentence Lesson (Appendix M)

This lesson reviewed information from the previous lessons including the use of signal words and signal questions to identify the main idea of the paragraphs. The lesson first modeled identifying and then using topic sentences to write a summary of the practice paragraphs. As
with the superordination rule, students were not given an opportunity to demonstrate use of this rule in the pre or post assessment. Although the assessment passages were multiple paragraphs, many of the paragraphs were not traditional paragraphs containing a topic sentence or, in some cases, a main idea.

Lesson plans included a 30 minute lesson which was taught by the PI with the teacher remaining in the classroom in accordance with school policy. Lessons are described in detail in the discussion section of this text. The PowerPoint lessons and scripts for each lesson are included in the appendices. Teachers were not participants in the study. The lessons were scripted to ensure fidelity to the research protocol. Each lesson provided students a rationale for the topic, followed by modeling of the strategy/rule to the whole classroom, and concluded with opportunities for the students to practice the new strategies/rules in a supported environment. Students shared examples of their summaries at the end of each lesson. All practice paragraphs were collected at the end of the lesson; students were provided with written feedback, and the paragraphs were handed back to the students at the beginning of the next lesson.

**Procedure**

**Classroom Recruitment**

The PI recruited classrooms from a suburban parochial school in a midsized Midwestern city. After IRB approval, the PI coordinated with the school principal to invite teachers to an informational meeting during the work day. During this meeting, the PI presented the research to interested teachers, answered questions, and had volunteer teachers sign consent forms. In addition to the orally presented information, written information regarding the study was given to the teachers. Initially, three language arts teachers (fourth, fifth, and sixth grade) and one sixth grade social studies teacher volunteered to include their classes in the study. However, it was
discovered that the social studies teacher and the sixth grade language arts teacher taught the same three groups of students at different times during the day. Due to the fact that the sixth grade teachers taught the same students, the sixth grade social studies teacher volunteered to withdraw from the study. A follow-up meeting was held with the remaining three teachers to assign two of their three classes to either the experimental or control condition and to establish a schedule for the research intervention and data collection. During this meeting, the teachers arbitrarily chose two of their three class periods to participate in the study (classes were identified by the initials of their homeroom teacher). The PI then randomly assigned the six classes into control and experimental groups with a control and experimental classroom at each grade level. After these assignments were made, the research schedule was coordinated with the teacher/school schedule.

*Student recruitment*

Informational letters regarding the research and parental consent forms were sent home to all students in the six language arts class periods chosen for inclusion in the study. Students for whom parental consent forms were received also signed student assent forms prior to their data being included in the study. All students in the experimental classes received the summarization instruction, but work was collected for analysis only from students with consent/assent forms. Students in the control classrooms completed the pre-instruction and post-instruction written summaries, but did not receive the summarization rule instruction. As with the experimental group, all students in the control classroom completed the written summaries, however work was analyzed only for those students for whom permission was received. All students were assigned a research number to be used in lieu of their name on written summaries to ensure confidentiality.
Expert Rater evaluation of passages for Main Ideas

The PI met with each class of graduate student expert raters and explained the process for rating the passages. Expert raters judged the importance of information contained in individual sentences within the assessment passages and ranked them according to how important it would be to include or exclude the information in a summary of the passage (Brown & Day, 1983). Sentences that included information deemed essential for inclusion in a summary (the main ideas) were given a rating of “3”, sentences with moderately important information that may or may not be included in a summary were given a rating of “2”, and sentences with unimportant or redundant information that experts deemed should not be included in a summary were given a rating of “1” (Brown & Day, 1983; Brown & Smiley, 1977; Garner et al., 1985). To perform the analysis, the raters were given packets of potential assessment passages in two forms. Passages were first presented in a typical paragraph form for ease of reading, and then the paragraph was presented sentence by sentence to allow the raters to rank the level of each sentence for inclusion in the summary (Appendix N).

The initial rating process took place in a graduate class with 47 students. Passages were divided by grade level into three separate packets and distributed evenly to the raters so that 16 raters analyzed fourth grade passages, 16 raters analyzed fifth grade passages, and 15 raters analyzed seventh grade passages. Seventh grade passages were included due to the fact that the research was open to all students in the school and the school had students through the eighth grade. Seventh grade passages would have been used with any seventh or eighth grade classes had teachers from those grade levels volunteered to allow their students to participate in the study. The seventh grade passages were analyzed by one fewer expert than the fourth and sixth grade passages due to the uneven number of expert raters in the class. Information from this
rating session was examined using an excel spreadsheet to determine the importance of each sentence in contributing to the main idea as agreed upon by the expert raters. Sentences were judged to be a main idea if at least 80% of the raters marked the sentence as a level 3. The PI then evaluated the passages to locate two passages with a similar number of main ideas to be used as pre- and post- assessment passages at each grade level. The remaining passages were discarded and only these two passages were used.

Results of the assessment passages resulted in a wide discrepancy between the total number of main ideas (level 3) in passages at the two readability/grade levels. In order to decrease assessment passage variability, the PI selected two passages that the first group of expert raters had determined contained an equal number of level 3 ideas. The two passages were taken from the same chapter of a fifth grade science textbook. Readability of passage A as taken from the textbook was 4.7 and 298 words; readability of passage B was 4.4 and 341 words. These passages were then rewritten by the PI to obtain readability levels appropriate for fourth and fifth grades. Passages were adjusted by using synonyms for core vocabulary and either increasing or decreasing sentence complexity to raise or lower readability levels. A second group of expert raters (43 graduate students) was then asked to count the number of main ideas in these final two passages. Analysis of experts ratings determined that passage A contained seven main ideas (25% of the passage) and passage B contained eleven main ideas (35% of the passage). These passages were used in the pre and post assessment of all students.

*Expert Rater evaluation of passages for Extraneous Information*

Three CSD faculty members and a CSD doctoral candidate collaborated with the PI to create the checklists (Appendices H-I) used to analyze student summaries for extraneous
information. Each group member, with the exclusion of the PI, independently summarized the two assessment passages. Two of the faculty members and the PI met and compared the summaries to identify information included by all participants. This common information (main ideas and important vocabulary) was judged by the panel to be the required elements of a good summary and as such, made up section A of each checklist. The remaining elements of the passage were evaluated by the PI and parsed into details, examples, or redundant information. This information was used to create section B of the checklists.

Data Collection

Data collection began with the three control classrooms. Students were provided with packets that contained passage A or passage B (these were randomly distributed) and a blank sheet of lined notebook paper. Students were asked to read the passage and write a summary on the blank sheet of paper. Additionally, they were told that, if they wanted, they could write on the passage itself. Two weeks later, data was again collected from the control classrooms. At this time, the students were given passage A or B depending on which passage they had summarized during the first session so that each student had the opportunity to summarize both passages. Pre-assessment data was collected for experimental groups on the same day as the post-assessment information for the control groups. If students asked questions about what to write, they were told to “do their best” and to “write a summary like they would for their teacher”. Students were given 30 minutes to complete the summaries. This procedure was followed for all classes both pre and post assessment.
Instructional phase for Experimental Group

The week following collection of baseline data, the PI delivered the first two lessons in the research protocol to the experimental classrooms. Lesson 1 served as an overview of some of the more common expository text structures to facilitate schema building in students to improve reading comprehension (Kintsch & van Dijk, 1978). Four text structures were briefly reviewed (compare and contrast, description, sequence, and problem/solution). The review of these text structures included definitions and short examples of each. The fifth text structure, cause and effect, was then discussed in more detail as this was the structure used for assessment and instructional passages. In addition to a definition and examples, students were taught how to identify cause and effect structure through the use of signal words and questions. For more detail, see the power point for Lesson 1. Lessons 2 through 4 were based on Brown and Day’s (1983) rules of summarization. Lesson 2 provided instruction on the summarization rule of Deletion (trivial or redundant information). Lesson 3 provided instruction on the summarization rule of Superordination. Lesson 4 provided instruction on the summarization rules of identifying or creating topic sentences (Appendices J-M).

At the conclusion of lessons 2-4, three to five student volunteers read their summaries to the class, and the PI provided verbal feedback regarding the shared summaries. All of the student summaries that were completed at the end of lessons were collected by the PI, and written feedback regarding how well each student had used the rule from the lesson was provided to all students for each summary when the summaries were returned to the students at the beginning of the following lesson. After handing back the summaries from the previous lesson, the PI asked for questions before beginning the next lesson. Lessons 2-4 contained reviews of the previous lesson prior to the introduction of new information.
Control Group

Students in the control classrooms did not receive the intervention lessons. Assessment data was collected from control groups prior to implementation of the intervention with the experimental groups.

Scoring Student Summaries for Main Ideas

After completion of data collection, participating student summaries were typed into a Microsoft Word program. All identifying information was removed from each summary and summaries were labeled with the students’ research numbers. Spelling errors were corrected during transcription. Research assistants were provided with color coded keys that identified the level of ideas as determined by the second group of expert raters (Appendices E-F). In addition to levels 1-3, a level 0 was added to the coding key to account for novel information that a student may have added to the summary that was not present in the actual text. The PI held a training session with the research assistants to train them in the coding of the student summaries. Each research assistant then independently coded all of the summaries using the key and entered the results on a summary sheet (Appendix G). The PI compared the analyzed summaries to determine if the assistants had coded the information consistently (agreement = 98.5%), and any discrepancies noted between the independent evaluators (research assistants) were settled through discussion between the research assistants and the PI. The PI reviewed 100% of the coded summaries to determine if the assistants had coded the same information as a main idea. The percentage of main ideas included by students in their summaries was determined by comparing the main ideas identified by the evaluators with the total number of main ideas possible for the passage.
Scoring Student Summaries for Extraneous Information

To calculate the amount of extraneous information included in student summaries, the PI used the Extraneous Details Checklist (Appendices H-I) to analyze the data. Student summaries were first examined for main ideas and key vocabulary using section A of the checklist. This information was highlighted to separate it from the rest of the summary. The remaining information was then analyzed with section B of the checklist. Students were given one point for every detail, example, or piece of redundant information included in their summaries. These points were then totaled and the sum was used to calculate the extraneous details data. This analysis was completed by the PI.

Data analysis

To examine the overall effectiveness of the instructional protocol, two repeated measures analysis of variance (ANOVA) were performed. Time (pre-assessment, post-assessment) was the within-subjects factor with Grade (fourth, fifth, sixth) and Condition (control, experimental) the between-subject factors. The first analysis was conducted to evaluate the percentage of main ideas included in summaries, and the second analysis was conducted to evaluate the number of extraneous details in summaries.
Chapter IV

Results

Six research questions drove this study. Results are presented separately for each research question. Using the SPSS software, repeated measures ANOVAs were conducted with time (pre-assessment, post-assessment) as the within-subjects factor and grade (fourth, fifth, sixth) and condition (experimental, control) as the between-subject factors. An alpha level of .05 was used for all statistical tests. Mauchly’s Test of Sphericity was not significant ($p > .05$), for either ANOVA, thus corrective measures were not necessary.

Research Question 1: Is there a significant difference between the percentage of main ideas included in the written summaries of students before and after four sessions of explicit summarization instruction?

Results of repeated measures ANOVA of the within-subject factor of time for experimental groups indicated that there was no significant difference between the percentage of main ideas included in the pre-assessment summaries and post-assessment summaries of students after summarization instruction, $F(1, 61) = 1.92, p > .05$. There was also no significant difference between the pre-assessment and post-assessment summaries of the control group, $F(1,61) = 2.54, p > .05$. Means and standard deviations for percentage of main ideas at pre-assessment and post-assessment for all groups are reported in Table 2.
Table 2. Means and standard deviations for percentage of main ideas included in summaries of experimental and control groups of fourth, fifth and sixth grade students before and after instruction in summary writing.

<table>
<thead>
<tr>
<th></th>
<th>Pre Assessment Mean (SD)</th>
<th>Post Assessment Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fourth Grade Experimental</td>
<td>30.86 (22.10)</td>
<td>32.60 (24.31)</td>
</tr>
<tr>
<td>Fourth Grade Control</td>
<td>48.12 (22.6)</td>
<td>53.58 (24.87)</td>
</tr>
<tr>
<td>Fourth Grade Total</td>
<td>39.27 (23.72)</td>
<td>42.82 (26.48)</td>
</tr>
<tr>
<td>Fifth Grade Experimental</td>
<td>29.81 (19.63)</td>
<td>26.85 (22.32)</td>
</tr>
<tr>
<td>Fifth Grade Control</td>
<td>41.57 (21.40)</td>
<td>44.75 (27.96)</td>
</tr>
<tr>
<td>Fifth Grade Total</td>
<td>35.84 (21.14)</td>
<td>36.03 (26.63)</td>
</tr>
<tr>
<td>Sixth Grade Experimental</td>
<td>59.44 (21.55)</td>
<td>47.72 (22.89)</td>
</tr>
<tr>
<td>Sixth Grade Control</td>
<td>64.10 (21.37)</td>
<td>69.60 (16.76)</td>
</tr>
<tr>
<td>Sixth Grade Total</td>
<td>61.63 (21.53)</td>
<td>59.11 (22.60)</td>
</tr>
<tr>
<td>Experimental</td>
<td>41.14 (25.18)</td>
<td>36.44 (24.52)</td>
</tr>
<tr>
<td>Control</td>
<td>51.99 (23.61)</td>
<td>57.08 (25.17)</td>
</tr>
<tr>
<td>Total</td>
<td>46.61 (24.90)</td>
<td>46.92 (26.84)</td>
</tr>
</tbody>
</table>

Research Question 2: Is there a significant difference between the percentage of main ideas included in written summaries of students in the experimental and control groups?

Repeated measures ANOVA indicated that there was a significant difference between the percentage of main ideas included in the summaries of students in the experimental group and students in the control groups, $F(2, 120) = 22.55, p < .001$.

Research Question 3: Is there a significant difference among the percentage of main ideas included in the written summaries of students in the fourth, fifth and sixth grade?

A significant difference was found among the percentage of main ideas included in the summaries of students in the three grades, $F(2, 120) = 21.28, p < .001$. Post hoc (Bonferroni) comparisons indicated the sixth grade students included a significantly higher percentage of main
ideas than the fourth or fifth grade students ($p<.05$). There was not a significant difference between the percentage of main ideas of students in the fourth and fifth grade ($p>.05$).

Research Question 4: **Is there significant interaction among time, condition and grade for main ideas?**

Repeated measures ANOVA indicated that there was not a significant interaction between time (pre-assessment, post-assessment) and grade (fourth, fifth, sixth), $F(2,120) = .774$, $p>.05$ on the measure of main ideas.

A significant interaction was noted between time and condition (experimental, control), $F(1, 120) = 4.060$, $p<.05$. Paired-samples t-tests were conducted between groups to locate the differences. Significant differences were noted between the post-assessment summaries of the experimental and control groups in fourth grade, $t(18) = 2.154$, $p< .05$, fifth grade, $t(18) = 2.917$, $p< .05$, and sixth grade, $t(22) = 3.983$, $p< .001$. In all three cases, the experimental group included a lower percentage of main ideas in their summaries than did the control group.

There was not a significant interaction between grade and condition, $F(2,120) = .280$, $p>.05$, nor was there a significant interaction among time, grade, and condition, $F(2, 120) = .917$, $p>.05$.

Research Question 5: **Is there a significant difference between the number of extraneous details included in the written summaries of students before and after four sessions of explicit summarization instruction?**

Results of repeated measures ANOVA for the within-subject factor of time for the experimental group indicated that there was a significant difference between the number of
extraneous details included in the pre-assessment summaries and the post-assessment summaries of students after summarization instruction, $F(1, 61) = 22.42, p<.001$. There was not a significant difference between the number of extraneous details included in the pre-assessment summaries and the post-assessment summaries of students in the control group, $F(1, 61) = .011, p>.05$. Means and standard deviations for the number of extraneous details included in pre-assessment summaries and post-assessment summaries for all groups are reported in Table 3.

Table 3. Means and standard deviations for number of extraneous details included in summaries of experimental and control groups of fourth, fifth and sixth grade students before and after instruction in summary writing.

<table>
<thead>
<tr>
<th>Grade and Experimental Status</th>
<th>Pre Assessment Mean (SD)</th>
<th>Post Assessment Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fourth Grade Experimental</td>
<td>3.15 (2.01)</td>
<td>1.60 (1.60)</td>
</tr>
<tr>
<td>Fourth Grade Control</td>
<td>5.05 (2.68)</td>
<td>5.26 (3.33)</td>
</tr>
<tr>
<td>Fourth Grade Total</td>
<td>4.39 (2.72)</td>
<td>3.38 (3.16)</td>
</tr>
<tr>
<td>Fifth Grade Experimental</td>
<td>3.11 (1.91)</td>
<td>1.74 (1.63)</td>
</tr>
<tr>
<td>Fifth Grade Control</td>
<td>4.20 (3.09)</td>
<td>3.30 (2.08)</td>
</tr>
<tr>
<td>Fifth Grade Total</td>
<td>3.67 (2.61)</td>
<td>2.54 (2.01)</td>
</tr>
<tr>
<td>Sixth Grade Experimental</td>
<td>4.70 (2.80)</td>
<td>2.52 (2.19)</td>
</tr>
<tr>
<td>Sixth Grade Control</td>
<td>5.64 (2.78)</td>
<td>6.20 (2.94)</td>
</tr>
<tr>
<td>Sixth Grade Total</td>
<td>5.19 (2.80)</td>
<td>4.44 (3.18)</td>
</tr>
<tr>
<td>Experimental</td>
<td>3.71 (2.40)</td>
<td>1.98 (1.87)</td>
</tr>
<tr>
<td>Control</td>
<td>5.02 (2.87)</td>
<td>5.02 (3.05)</td>
</tr>
<tr>
<td>Total</td>
<td>4.37 (2.72)</td>
<td>3.52 (2.95)</td>
</tr>
</tbody>
</table>

Research Question 6: Is there a significant difference between the number of extraneous details included in written summaries of students in the experimental and control groups? Repeated measures ANOVA indicated a significant difference between the number of extraneous details included in the written summaries of students in the experimental and control groups, $F(1, 120) = 36.353, p<.001$. 

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Research Question 7: Is there a significant difference among the number of extraneous details included in the written summaries of students in the fourth, fifth and sixth grade?

Repeated measures ANOVA revealed a significant difference among the number of extraneous details included in the summaries of students in the three grades, $F(2, 120) = 7.91, p<.05$. Post hoc (Bonferroni) analysis revealed a significant difference between sixth grade students and fourth grade students and sixth grade students and fifth grade students ($p<.05$) with sixth grade students including more extraneous details in their pre-assessment summaries than both groups of younger students. There was no significant difference between the number of extraneous details included by fourth and fifth grade students ($p>.05$).

Research Question 8: Is there a significant interaction among time, condition, and grade for extraneous information?

Repeated measures ANOVA indicated that there was no significant interaction between time (pre-assessment, post-assessment) and grade (fourth, fifth, sixth), $F(2,120) = .240, p>.05$ on the measure of extraneous details.

Significant interaction was noted between time and condition (experimental, control), $F(1, 120) = 9.141, p<.05$. Pairwise comparisons indicated that the experimental group had significantly fewer extraneous details in post assessment summaries than the control group ($p<.05$). Paired-samples t-tests revealed significant decreases in the number of extraneous details included between the pre- and post- assessment summaries of experimental students in fourth grade, $t(19) = 2.427, p<.05$, fifth grade, $t(18) = 2.430, p<.05$, and sixth grade, $t(22) = 3.215, p<.005$. Additional paired-samples t-tests indicated that there was no significant difference
between number of extraneous details included in the pre- and post-assessment summaries for the control group at any grade level ($p > .05$).

There was not a significant interaction between grade and condition, $F(2, 120) = 1.37$, $p > .05$, nor was there a significant interaction among time, grade, and condition, $F(2, 120) = 1.48$, $p > .05$. 
Chapter V

Discussion

The purpose of this research was to develop and examine the efficacy of a protocol for teaching summarization skills to fourth, fifth, and sixth grade students. Summarization is an important skill used to increase reading comprehension (Hill, 1991; NRP, 2000), and students are expected to independently demonstrate this skill beginning in the fourth grade (www.corestandards.org). Research has indicated that explicit instruction is important to the development of new skills (Bereiter & Bird, 1985; Bursuck & Blanks, 2010; Nokes & Dole, 2004); therefore this protocol was developed to teach specific rules of summarization to students. Text structure instruction was included in this protocol due to the research indicating that it positively influences reading comprehension and summary writing (Armbruster et al., 1987; Armbruster et al., 1989; Gaddy et al., 2008).

Eight research questions explored the effect of the protocol on students’ inclusion of main ideas in a written summary paragraph after reading an expository textbook passage. Statistical analyses were conducted to determine if there was a significant difference between the percentage of main ideas as well as the number of extraneous details that experimental group students included in their summaries before and after receiving the instruction in comparison to students in the control group. In addition the relationship between grade level and the effect of the instruction was explored.

Summarization: Main Ideas

The primary goal of the study was to determine if the instruction resulted in increased percentage of main ideas included in written summaries of a textbook passage. Analysis revealed no significant differences between the percentage of main ideas before and after
instruction. Further analysis indicated that, although there was no significant difference between the pre- and post-assessments of students in the experimental group, there were significant differences between experimental and control groups for all grades with students in the experimental group using a lower percentage of main ideas in their post-assessment summaries than the students in the control group. This decrease appears to be a response to Lesson 2 which focused on writing shorter summaries by deleting irrelevant or redundant information. This explanation would be consistent with previous research that indicated elementary and middle school students most often deleted information without regard to importance of the information when writing summaries (Brown & Day, 1983; Taylor, 1986).

Although results indicate that students included a lower percentage of main ideas in post-assessment summaries, analysis of what they did include revealed that 68% of students included all of the bold vocabulary words from the passage in their summaries. An additional 15% of students included at least 50% of the bold words, and only 6.5% of students left out all of the bold words. This inclusion of key vocabulary may be associated with Lesson 1, during which students were taught to use text features (e.g., titles and bold words) to help determine main ideas of a passage. The inclusion of bold words when juxtaposed with the decrease in main idea information, suggests that students did not learn to identify main ideas if they did not include a key vocabulary word. In fact, 11% of the students did not include any information in their post-assessment summaries other than definitions of key words.

Lesson 1, in addition to discussing the importance of text features, also instructed students to use the cause and effect text structure to ask themselves signal questions such as, “What is the cause?” and “What happened as a result of the cause?” to locate main ideas. They were told that all of the passages they would be asked to summarize would use a cause and effect
text structure in order to decrease the number of signal questions they had to remember. The results of the study suggest that students did not successfully use this information to locate the main idea. Possible reasons for this include the difference in length between the one paragraph practice paragraphs used during the lessons and the five and six paragraph assessment passages. This difference may have been too much of an increase for students to successfully use the signal question information without prior practice. Future protocols should incorporate passages of different lengths during lessons to provide students with the opportunity to practice using signal questions on a wide variety of passages to improve understanding and use of this strategy.

Lesson 4, which taught students the summarization rule of using or create topic sentences to summarize main ideas, would have also benefitted from the inclusion of longer passages into the lessons. Although the students practiced identifying and creating topic sentences during the lesson, the lack of practice using this rule with longer passages may have had a detrimental effect on their independent use of the rule on the post-assessment passage. It is possible that students thought all passages would have only one main idea, as that was the norm for practice paragraphs, and therefore did not consider that multiple paragraphs could have multiple main ideas.

The effect of grade on students’ inclusion of main ideas in their summaries was examined. Analysis indicated a significant effect of grade between the sixth grade students and both fourth and fifth grade students. Sixth grade students in both experimental and control groups included a significantly higher percentage of main ideas in pre- and post-assessment summaries than any of the younger students. This is consistent with previous research that indicated older students are more proficient summarizers than students who are only one grade younger (Brown & Day, 1983; Hill, 1991; Taylor, 1986). These differences may also be due to
the fact that sixth grade students, by virtue of being in the highest class, had more experience with summary writing than the students in lower grades. It is also likely that students in the different grades, and with different teachers, had received a variety of summary writing instructions from their language arts teachers prior to the study, which influenced their different summary writing skills.

Overall, the summarization protocol did not increase the percentage of main ideas included in the summaries of students; on the contrary, students who received the instruction used fewer main ideas in their post-assessment summaries. The students demonstrated an understanding that summaries should be shorter than the original passages, and that bold words were important vocabulary words, but they did not show evidence of being able to discriminate between main ideas and other information.

**Summarization: Extraneous Information**

Student summaries were analyzed for the inclusion of extraneous information. Proficient summarizers synthesize the main ideas of a text and exclude details, examples, and redundant information (Brown & Day, 1983; Kintsch & van Dijk, 1978). Analysis of experimental group data revealed a significant decrease in the amount of extraneous information found in post-assessment summaries when compared with pre-assessment summaries. A similar decrease was not found in control group summaries. Additional analysis indicated a significant difference between experimental and control groups in the post-assessment summaries with students in the experimental group including significantly fewer extraneous details in their summaries than students in the control group. These significant differences suggest that the instruction had an effect on elimination of extraneous detail. As stated above, the deletion rule lesson (Lesson 2) taught students that summaries are made more concise by eliminating extraneous information.
such as details, examples, and redundant information, and Lesson 3 taught students how to reduce a list of items or events to a categorical term or short phrase. However, as previously discussed, the decrease in the number of extraneous details was accompanied by a decrease in the percentage of main ideas, suggesting that the students did not learn to identify the difference between main ideas and extraneous information during instruction, but instead deleted information indiscriminately. This finding is consistent with previous research that found that, during summary writing, elementary and middle school students deleted information without regard to its importance (Brown & Day, 1983; Garner et al., 1985; Taylor, 1986).

The analysis of differences between students’ inclusion of extraneous details in their pre-assessment summaries based on grade indicated that the summaries of the sixth grade students included significantly more extraneous details than those of the fourth and fifth grade. After instruction, students in the experimental group at all three grades significantly decreased the number of extraneous details used in summaries. The difference between grades for the experimental group was no longer significant; however, there was no change in the use of extraneous details between pre-assessment and post-assessment for the control group. This result suggests that students at all grade levels were equally responsive to the lesson regarding the deletion of information to shorten a summary.

A question in the development of this research was whether or not the age of the student would be a factor in how well a student would learn to summarize expository information. Results indicate that the sixth grade students separated themselves from the fourth and fifth grades students by including a higher percentage of main ideas on pre- and post-assessments regardless of condition. The sixth grade students in the control condition consistently exhibited the highest percentage of main ideas when compared with all other groups on this measure (see
Table 2). The fact that the sixth grade students included more main ideas could indicate that they were better at identifying main ideas as a result of more experience doing so; however, it could also be related to the fact that sixth grade students simply wrote longer summaries (average 104 words) than the fourth (average 66 words) or fifth (average 64 words) grade students, thereby including more main ideas by default. The reasons for the fifth grade students being more similar to the fourth grade students than the sixth grade students are unclear. The differences could be related to grade level curriculum, teachers, experience level, or perhaps age related metacognitive changes. This study did not answer the question regarding whether or not younger students could learn to write better summaries after direct instruction. Due to the limitations of the protocol, we are unable to determine if it was the instruction or the age of the students that limited their skill in learning to identify main ideas.

**Summarization Protocol**

*Lesson 1: Text Structure*

The purpose of lesson 1 was to teach students how to use the cause and effect structure of a paragraph to identify main ideas. Students were taught to look for signal words, signal questions, and text features (e.g., bold words, titles) to determine the main idea of a passage (Appendix J). As stated previously, results indicate that students used the text feature information regarding bold words to identify key vocabulary in the passages, with 68% of students including all of the passages’ bold vocabulary words in their post-assessment summaries. There was no evidence that the additional instruction of using signal words and signal questions to identify main ideas was equally effective, as data analysis showed no significant difference between the number of main ideas present in pre-assessment and post-assessment summaries despite the use of key vocabulary.
This lesson could be improved by including additional text structures and integrating the text structure information into the other lessons instead of isolating the information. This would provide more authentic learning experiences for the students and may increase their independent use of the text structure information to identify main ideas. Expository writing often includes multiple text structures within the same passage (Armbruster et al., 1989, Gaddy et al. 2008); therefore, practice during the lessons in identifying and using each of the primary text structures to identify main ideas and write summaries would have improved the overall usefulness of this lesson topic.

Lesson 2: Deletion Rule

The purpose of lesson 2 was to introduce students to Brown and Day’s (1983) summarization rule of deleting irrelevant or redundant information. Through the use of a power point presentation (Appendix K), the lesson taught students to delete details, examples, and redundant information from a cause and effect paragraph in order to write a summary. After the lesson, students were given a worksheet with a cause and effect paragraph and asked to write a summary using the deletion rule. Student volunteers were asked to share their summaries with the class, and the PI led the class in a discussion of whether or not the rule was utilized appropriately. At the end of the lesson, the PI collected the summaries, provided written feedback for each student, and then returned the summaries to the students at the beginning of the subsequent lesson. This rule to make summaries shorter than the original paragraph through the deletion of information appeared to be the most easily understood and was the most often utilized by students. The average length of summaries for students in the experimental group, between pre- and post- assessment, decreased from 79 words to 53 words for fourth grade students, from 73 words to 54 words for fifth grade students, and from 123 words to 86 words for
sixth grade students. However, although it was encouraging that students learned to delete information, the fact that they did not discriminate between main ideas and extraneous details (as discussed earlier) is of concern.

This deletion rule lesson could be improved by integrating the deletion information with the text structure information. As students gain practice and skill in identifying main ideas through an increase in text structure knowledge, they may be able to increase their accuracy in identifying and then deleting details, examples, and redundant or irrelevant information.

Lesson 3: Superordination Rule

Lesson 3 focused on writing summaries by implementing what Brown and Day (1983) referred to as the superordination rule. This rule teaches the student to use a word or phrase (i.e., superordinate term) to condense a list of items or a sequence of events. The rule was most easily taught using a descriptive text structure; therefore this was the only lesson that did not use a cause and effect text structure for modeling or student practice. This lesson was very similar to the deletion rule lesson as students were taught to decrease the length of a passage through the use of a superordinate word or phrase (Appendix L). After the instruction portion of the lesson, students were again provided with a worksheet with a practice paragraph and asked to write a summary of the paragraph using the superordination rule. As with Lesson 2, student summaries were shared with the class on a volunteer basis, discussed, and collected for written feedback. Summaries were returned to students at the beginning of Lesson 4. In future protocols, this information would integrate nicely with the text structure and deletion rule lessons in that it would provide students with more explicit instruction of how to summarize information that is main idea information, but is also too detailed for a summary.
A concern regarding this specific lesson was the fact that neither of the assessment passages included a list or sequence of events, therefore there was no data to indicate if the students learned this rule or could have used it in writing a summary. This was an oversight in the development of the assessment passages and a significant limitation of the study.

*Lesson 4: Topic Sentence Rule*

Lesson 4 focused on teaching students to use topic sentences (either by identifying an existing topic sentence or creating their own topic sentence) to write a summary of the passage. During this lesson, students practiced identifying or creating topic sentences in one paragraph cause and effect passages. As with the other lessons, students were then provided with a paragraph and asked to summarize the paragraph using this rule. The students then shared their summaries with the class, and the PI collected the paragraphs in order to provide written feedback. Paragraphs were returned to students prior to writing the post-assessment summary. The use or creation of topic sentences is the most complex of the rules (Brown & Day, 1983), and students would have benefitted from more practice using this rule to write summaries. Although the assessment paragraphs, which were presented to the students as they were written for the textbook, were technically five and six paragraphs in length, the structure of some of the paragraphs did not follow the traditional paragraph structure of including topic sentences in each paragraph (see Appendices A-D). Therefore, as with Lesson 3, a weakness of the protocol was the assessment of this rule. Mastery of using or creating topic sentences when synthesizing information is important (Brown & Day, 1983), and therefore future protocols would be improved by spending a larger amount of time both modeling and teaching this rule as well as integrating it with the other rules.
Lessons: Summary

An overall strength of the protocol was that the explicit instruction appeared to be effective in teaching the individual rules to students at all grade levels. Examination of the practice summaries that students completed at the end of each lesson demonstrated that the majority of students understood the individual lessons as evidenced by their successful use of the rule to summarize the practice paragraph. However, these tasks were highly controlled with the practice paragraphs being very similar in structure and length to the paragraphs used as models during instruction. It is unclear if the students would have been equally successful in using the rule if the paragraphs they had been asked to summarize were less similar to the models. A more effective protocol would have provided the students with a wider variety of passages (in both text structure and length) both during the instruction of each lesson as well as during the practice paragraphs. Providing the students with greater opportunities for practice and integration of the rules of summarization would have been consistent with the explicit nature of the instruction.

The lessons for this protocol were separated as it was thought that by introducing the lessons individually, students would have a greater opportunity to learn each rule. Although Lessons 2-4 reviewed the information from previous lessons, additional lessons that modeled and provided students with practice integrating the text structure information and summarization rules would have been an improvement of the protocol.

An additional weakness of the overall protocol was the exclusive use of the cause and effect text structure. Restricting the research to this one text structure reduced the number of variables in the research study; however, it also decreased the generalizability of the information to other text structures. As discussed above, the number of lessons in the protocol is also a concern. Due to the complexity of text structure and the topic sentence rule, the students would
have benefitted from additional lessons to learn the information. Students were questioned after collection of the post-assessment summary regarding their perceptions of the lessons. For all grade levels, the students reported that the text structure information was the most difficult to understand. The format of the current protocol provided only one opportunity for students to talk specifically about text structure and then to practice each new rule before moving on to the next lesson. The limited number of lessons did not provide the students an opportunity to learn about the different text structures, achieve mastery of these complex target skills, learn to integrate the rules, or to get written feedback on their practice summaries on more than one occasion.

Limitations

Some limitations should be noted in interpreting the results of this project. First is the lack of information regarding the participants. There was no demographic, academic, or language information collected regarding students, thus making it difficult to consider factors that may have affected group similarities and differences. Second, the participants were all from one school and each grade level had the same cohort of teachers. As mentioned previously, the differences between the sixth grade students and the fourth and fifth grade students may have been attributed to previous classroom instruction. Having participants from different schools would help to account for teacher influences. A third limitation for the study was the disparity between the rules taught in the lessons (i.e., the superordination rule and the topic sentence rule) and the assessment passages. Providing the students with multiple paragraphs post-instruction that also contain opportunities to use all of the rules of summarization, would allow them greater opportunity to demonstrate what they have learned.
**Future Research**

The study of efficient ways to teach reading and writing skills to students is a worthwhile endeavor. Much research has been conducted regarding the effectiveness of different strategies, but the implementation of those strategies has largely been left to the individual choices of the classroom teacher (Anderson, 1992; McKeown et al., 2009; NRP, 2000). Future research should continue to investigate the development and application of protocols for strategy instruction to decrease the trial and error approaches which may occur when little direct instruction is provided for educators. Explicit instruction can be an effective tool for teachers as well as students! Future research may consider a single-subject design with multiple baselines to gather more specific information regarding the effectiveness of instructional protocols with students of different backgrounds and skills. Because summarization is a strategy often used to improve reading comprehension, incorporating a pre-assessment and post-assessment measure of reading comprehension into the protocol would provide information regarding the effectiveness of this protocol to extend benefits beyond summary writing to reading comprehension.

**Implications**

While this research included a significant amount of within group variability, some encouraging information can be gleaned from the results. Although the students in the control group, particularly in the sixth grade, showed a decrease in the percentage of main ideas they included in their post-assessment summaries, this may have been a consequence of their overall attempt to implement the summary rule of deleting unimportant information. This same pattern was not observed in the control groups, and implies that it was an effect of the instruction. Through the expansion of the current protocol, as discussed previously, students could be given additional opportunities to learn and use text structure information and the summarization rules
to improve their summary writing skills. This expanded protocol, through the incorporation of a wider variety of text genres and structures and expository passages of different lengths, may facilitate the development and mastery of summarization.

Students in fourth, fifth, and sixth grade all struggled to identify the main ideas of expository passages taken from a fifth grade textbook. This fact reinforces the idea that identifying main ideas and summary writing are areas requiring further study. Teacher education programs need to be aware of the difficulty students may have acquiring these skills without direct instruction and that although some students do develop advanced literacy skills without explicit instruction, many more students will not advance past basic literacy without help. Summarization is a complex skill, and as such requires intensive and explicit instruction. Due to the complex nature of summary writing, teachers should begin introducing it in the early grades with less complicated material so that students can develop proficiency in writing summaries before they are challenged with the more complex reading material found in later grades. Although this study addressed the proficiency of students at different grade levels to learn to use text structure and summarization rules, little new information was acquired about grade level expectations in this area. Additional studies need to be conducted to determine the optimal age for introducing the rules of summarization to students.

This study showed that summarization is too complicated to be taught by using discrete rules and expecting students to integrate the information independently. Although the students successfully implemented the individual rules when summarizing the practice paragraphs after each lesson, they were less successful in identifying main ideas in the assessment passages. Students seemed to understand that summaries were shorter than the passages being summarized, but that appeared to be where the new knowledge stopped. Students needed more instruction
regarding how to use the information they were given in the individual lessons to tackle the task of summarizing novel (and longer) passages. A more effective way of teaching summarization may be to incorporate the instruction into content lessons, instead of teaching it as a discrete skill; a method consistent with the research findings of McKeown et al. (2009). This would allow students the greatest opportunity to use authentic material across content areas and to develop mastery of this skill.

As speech-language pathologists in the schools, we can use our knowledge of text structures and scaffolding to assist teachers in implementing research-based instruction for summarization into the classroom through consultation, collaboration, direct instruction, and teacher training. As classroom teachers focus on teaching academic content, we can supplement their instruction with explicit skill lessons thereby providing the students with a means of accessing and remembering the content information. We could also use this knowledge to collaborate with teachers and help them integrate the summarization lessons into their content lessons. By using our skills in dynamic assessment, perhaps we can help teachers distinguish between those students who will naturally acquire the more advanced literacy skills without explicit instruction and those who will not.

Conclusion

Summarization has often been touted as an evidenced-based strategy to improve reading comprehension (Kamhi & Catts, 2012; Hill, 1991; NRP, 2000). However, questions surrounding the most effective means of teaching this skill, as well as the age of students most ready to learn the skill, have been the subject of debate among educators and researchers (Afflerbach, 2002; Garner, 1985; McKeown et al., 2009). As we strive to improve the literacy rates of our students, and prepare them to be active and literate members of the twenty-first century, we must address
questions such as these and then use the information we find to inform classroom instruction.

Although the limitations of this research prohibit us from stating that this protocol, in its current form, is an effective method of teaching summary writing to fourth, fifth, and sixth grade students, the differences noted in the amount and type of information included between the pre-assessment and post-assessment summaries of students in the experimental group were encouraging. Future similar studies addressing the explicit instruction of reading comprehension strategies are essential to provide the requisite knowledge for developing effectual classroom instruction.
References


strategies for composing from sources by middle school students. *Reading Psychology, 30*, 265-300.


How Do Air Masses Affect Weather?

Weather maps show that cities across a large region can share the same weather. They also show how the weather in different areas can differ.

Why is weather in one part of a country different from weather in another part? Some cities have clear, cool weather. The air throughout these regions is cool and dry. Other cities have warm, cloudy weather. The air throughout these regions is warm and moist. A large region of the atmosphere where the air is the same is called an air mass.

An air mass gets its properties from the region where it forms. Air over the Gulf of Mexico is above very warm water. The water warms the air, and evaporation from the Gulf adds water vapor. The air becomes warm and moist. Air masses are named for the region they come from.

As air masses move, they bring these conditions with them. What happens if a cool, moist air mass moves over an area that has warm, dry weather? The warm, dry weather will change.

Once an air mass is formed, it is moved by global winds. In the United States, global winds tend to move air masses from west to east.

Air masses with different conditions can “meet.” That is, one runs into another. What happens when air masses with different temperatures meet? They don’t mix together. Instead, a narrow boundary forms between them. This boundary is called a front. It marks the leading edge, or front, of an air mass that is moving into an area where another mass is moving out. Weather changes rapidly at fronts. That’s because you pass from one kind of air mass into another. Fronts often cause rainy, unsettled weather.

Flesch-Kincaid Grade Level: 4.5

Words: 284

What Happens When Air Masses Meet?

Imagine one huge air mass of cold, dry air from the North Pole traveling south. Now think of a warm and wet air mass from the Gulf of Mexico traveling north. What happens when these air masses meet? Crash! Like two cars in a crash, the air masses smash into each other. The area where they meet is called a front. A front is a boundary between air masses that have different temperatures.

Fronts form along the boundary of warm air masses and cold air masses. Fronts usually bring changing weather. They may even cause strong storms. How do you think fronts change the weather?

When a warm air mass pushes into a cold air mass, a warm front results. A warm front is a boundary where the warm air mass slides up and over the cold air mass. The cold air mass moves back as the warm air mass advances.

Warm air rises slowly along a warm front. Layers of clouds form. Usually there is light rain. A steady drizzle may last a few hours or longer. When the warm front passes, the temperature in the area rises as advancing warm air replaces cooler air.

When cold air pushes into an area of warm air, a cold front forms. A cold front is a boundary where cold air pushes under warm air. As a cold front advances, warm air is forced upward very quickly along the boundary. The upward movement of warm air creates a steep, sloping front. Thick clouds form as the warm air rises and cools. Air in a cold front moves quickly and rises rapidly. Therefore, a cold front often brings violent weather, perhaps a thunderstorm. However, cold fronts move faster than warm fronts, and their storms pass quickly.

Sometimes rainy weather lasts for a few days. There may be a stationary front at work. A stationary front is a boundary between air masses that doesn’t move. Either a warm front or a cold front can become a stationary front.

Flesch-Kincaid Grade Level: 4.3
Words: 337

How Do Air Masses Affect Weather?

Weather maps show that cities across a large region can share the same weather. They also show how the weather in different areas can differ.

Why are weather conditions in one part of a country different from those in another part? Some regions of the United States have clear, cool weather, while different geographic regions have warm, cloudy weather? These different weather conditions are influenced by the air above the various regions. The air throughout one region is cool and dry, and the air throughout the other region is warm and moist. A large region of the atmosphere where the air has similar properties throughout is called an air mass.

An air mass gets its properties from the region where it forms. Air over the Gulf of Mexico is above very warm water. The water warms the air, and evaporation from the Gulf adds water vapor. The air becomes warm and moist. Air masses are named for the region they come from.

As air masses move, they bring these conditions with them. What happens if a cool, moist air mass moves over an area that has warm, dry weather? The warm, dry weather will change.

Once an air mass is formed, it is moved by global winds. In the United States, global winds tend to move air masses from west to east.

Air masses with different conditions can “meet.” That is, one runs into another. What happens when air masses with different temperatures meet? They don’t mix together. Instead, a narrow boundary forms between them. This boundary is called a front. It marks the leading edge, or front, of an air mass that is moving into an area where another mass is moving out. Weather changes rapidly at fronts. That’s because you pass from one kind of air mass into another. Fronts often cause rainy, unsettled weather.

Flesch-Kincaid Grade Level: 5.5

Words: 307

Appendix D

Fifth/Sixth Grade Passage B

What Happens When Air Masses Meet?

Imagine one huge air mass of cold, dry air from the North Pole traveling south. Now think of a warm and wet air mass from the Gulf of Mexico traveling north. What happens when these air masses meet? Crash! Like two cars in a crash, the air masses smash into each other. The area where they meet is called a **front**. A front is a boundary between air masses that have different temperatures.

Fronts form along the boundary of warm air masses and cold air masses, and usually bring changing weather. Weather fronts may even cause strong storms. How do you think fronts change the weather?

When a warm air mass pushes into a cold air mass, a **warm front** results. A warm front develops when a mass of light, warm air slides over a cold air mass which results in a boundary between the air masses of different temperatures. Layers of clouds form. Light rain may fall over a large area. High cirrus clouds may also form. When the warm front passes, the temperature in the area rises as advancing warm air replaces cooler air.

When cold air pushes into an area of warm air, a **cold front** forms. A cold front develops as heavy, cold air pushes under a warm air mass. As a cold front advances, warm air is forced upward very quickly along the boundary. The upward movement of warm air creates a steep, sloping front. Thick clouds form as the warm air rises and cools. Air in a cold front moves quickly and rises rapidly. Therefore, a cold front often brings violent weather, perhaps a thunderstorm. However, cold fronts move faster than warm fronts, and their storms pass quickly.

Sometimes rainy weather lasts for a few days. There may be a **stationary front** at work. A stationary front is a boundary between air masses that doesn’t move. Either a warm front or a cold front can become a stationary front.

**Flesch-Kincaid Grade Level:** 5.0  
Words: 325

How Do Air Masses Affect Weather?

Weather maps show that cities across a large region can share the same weather. They also show how the weather in different areas can differ.

Why are weather conditions in one part of a country different from those in another part? Some of the cities are having clear, cool weather. The air throughout this region is cool and dry. Other cities are having warmer, cloudy weather. The air throughout this region is warm and moist. A large region of the atmosphere where the air has similar properties throughout is called an air mass.

An air mass gets its properties from the region where it forms. Air over the Gulf of Mexico is above very warm water. The water warms the air, and evaporation from the Gulf adds water vapor. The air becomes warm and moist. Air masses are named for the region they come from.

As air masses move, they bring these conditions with them. What happens if a cool, moist air mass moves over an area that has warm, dry weather? The warm, dry weather will change.

Once an air mass is formed, it is moved by global winds. In the United States, global winds tend to move air masses from west to east.

Air masses with different conditions can “meet.” That is, one runs into another. What happens when air masses with different temperatures meet? They don’t mix together. Instead, a narrow boundary forms between them. This boundary is called a front. It marks the leading edge, or front, of an air mass that is moving into an area where another mass is moving out. Weather changes rapidly at fronts. That’s because you pass from one kind of air mass into another. Fronts often cause rainy, unsettled weather.
Appendix F

Main Idea Scoring Guide Passage B

What Happens When Air Masses Meet?

Imagine one huge air mass of cold, dry air from the North Pole traveling south. Now think of a warm and wet air mass from the Gulf of Mexico traveling north. What happens when these air masses meet? Like two cars in a crash, the air masses smash into each other. The area where they meet is called a front. A front is a boundary between air masses that have different temperatures.

Fronts form along the boundary of warm air masses and cold air masses. Fronts usually bring changing weather. They may even cause strong storms. How do you think fronts change the weather?

When a warm air mass pushes into a cold air mass, a warm front results. A warm front is a boundary where the warm air mass slides up and over the cold air mass. The cold air mass moves back as the warm air mass advances.

As the diagram shows, warm air rises slowly along a warm front. Layers of clouds form. Usually there is light rain. A steady drizzle may last a few hours or longer. When the warm front passes, the temperature in the area rises as advancing warm air replaces cooler air.

When cold air pushes into an area of warm air, a cold front forms. A cold front is a boundary where cold air pushes under warm air. As a cold front advances, warm air is forced upward very quickly along the boundary. The upward movement of warm air creates a steep, sloping front. Thick clouds form as the warm air rises and cools. Air in a cold front moves quickly and rises rapidly. Therefore, a cold front often brings violent weather, perhaps a thunderstorm. However, cold fronts move faster than warm fronts, and their storms pass quickly.

Sometimes rainy weather lasts for a few days. There may be a stationary front at work. A stationary front is a boundary between air masses that doesn’t move. Either a warm front or a cold front can become a stationary front.
Appendix G

Main Idea Scoring Summary Sheet

Grade:

Control or Experimental:

Pre or Post:

Research Assistant:

<table>
<thead>
<tr>
<th>STUDENT NUMBER</th>
<th>PASSAGE (A or B)</th>
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<th>Level 1</th>
<th>Level 0</th>
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</tbody>
</table>
Appendix H

Passage A--Extraneous details rubric

**PASSAGE A**

<table>
<thead>
<tr>
<th>Section A: MAIN IDEAS and KEY VOCABULARY</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather determined by mass of air over area</td>
<td></td>
</tr>
<tr>
<td>Air masses are large masses of air with similar properties</td>
<td></td>
</tr>
<tr>
<td>Properties of air masses are determined by area where mass is formed</td>
<td></td>
</tr>
<tr>
<td>Air masses moved by global winds</td>
<td></td>
</tr>
<tr>
<td>Masses of different temps don’t mix, instead they create boundaries called fronts</td>
<td></td>
</tr>
<tr>
<td>Fronts cause the weather to change</td>
<td></td>
</tr>
<tr>
<td>“Air mass”</td>
<td></td>
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<tr>
<td>“Front”</td>
<td></td>
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<tr>
<td>Used title</td>
<td></td>
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<tr>
<td>total</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Section B: EXTRANEOUS DETAIL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weather maps show that cities across a large region can share the same weather. They also show how the weather in different areas can differ. (example)</td>
<td></td>
</tr>
<tr>
<td>Why are weather conditions in one part of a country different from those in another part? (rhetorical question)</td>
<td></td>
</tr>
<tr>
<td>Some of the cities are having clear, cool weather. The air throughout this region is cool and dry. (example)</td>
<td></td>
</tr>
<tr>
<td>Other cities are having warmer, cloudy weather. The air throughout this region is warm and moist. (example)</td>
<td></td>
</tr>
<tr>
<td>Air over the Gulf of Mexico is above very warm water. (example)</td>
<td></td>
</tr>
<tr>
<td>The water warms the air, and evaporation from the Gulf adds water vapor. (example)</td>
<td></td>
</tr>
<tr>
<td>The air becomes warm and moist. (detail)</td>
<td></td>
</tr>
<tr>
<td>Air masses are named for the region they come from. (detail)</td>
<td></td>
</tr>
<tr>
<td>As air masses move, they bring these conditions with them. (detail)</td>
<td></td>
</tr>
<tr>
<td>What happens if a cool, moist air mass moves over an area that has warm, dry weather? The warm, dry weather will change. (example)</td>
<td></td>
</tr>
<tr>
<td>In the United States, global winds tend to move air masses from west to east. (detail)</td>
<td></td>
</tr>
<tr>
<td>That is, one runs into another (example)</td>
<td></td>
</tr>
<tr>
<td>What happens when air masses with different temperatures meet? (redundant)</td>
<td></td>
</tr>
<tr>
<td>It marks the leading edge, or front, of an air mass that is moving into an area where another mass is moving out. (redundant definition)</td>
<td></td>
</tr>
<tr>
<td>because you pass from one kind of air mass into another. (redundant explanation)</td>
<td></td>
</tr>
<tr>
<td>Fronts often cause rainy, unsettled weather. (redundant)</td>
<td></td>
</tr>
<tr>
<td>total</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix I

Passage B--Extraneous details rubric

### PASSAGE B

<table>
<thead>
<tr>
<th>Section A: MAIN IDEAS and KEY VOCABULARY</th>
</tr>
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<tbody>
<tr>
<td>Air masses with different temps meet—form boundary called a front</td>
</tr>
<tr>
<td>Fronts cause weather to change</td>
</tr>
<tr>
<td>Warm fronts form when warm air pushes cold air</td>
</tr>
<tr>
<td>Warm fronts cause light rain</td>
</tr>
<tr>
<td>Cold fronts form when cold air pushes warm air</td>
</tr>
<tr>
<td>Cold fronts bring storms</td>
</tr>
<tr>
<td>Stationary fronts form when air masses don’t move</td>
</tr>
<tr>
<td>May rain for several days with a stationary</td>
</tr>
<tr>
<td>“front”</td>
</tr>
<tr>
<td>“warm front”</td>
</tr>
<tr>
<td>“cold front”</td>
</tr>
<tr>
<td>“stationary front”</td>
</tr>
<tr>
<td>Used title</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Section B: EXTRANEOUS DETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imagine one huge air mass of cold, dry air from the North Pole traveling south. Now think of a warm and wet air mass from the Gulf of Mexico traveling north. What happens when these air masses meet? Crash! (expanded example)</td>
</tr>
<tr>
<td>Like two cars in a crash, the air masses smash into each other. (redundant example)</td>
</tr>
<tr>
<td>The area where they meet is called a <strong>front</strong>. (redundant definition)</td>
</tr>
<tr>
<td>Fronts form along the boundary of warm air masses and cold air masses. (redundant)</td>
</tr>
<tr>
<td>They may even cause strong storms (redundant)</td>
</tr>
<tr>
<td>How do you think fronts change the weather? (rhetorical question)</td>
</tr>
<tr>
<td>A warm front is a boundary where the warm air mass slides up and over the cold air mass. (redundant definition)</td>
</tr>
<tr>
<td>The cold air mass moves back as the warm air mass advances (detail)</td>
</tr>
<tr>
<td>warm air rises slowly along a warm front (detail)</td>
</tr>
<tr>
<td>Layers of clouds form (detail)</td>
</tr>
<tr>
<td>A steady drizzle may last a few hours or longer (redundant)</td>
</tr>
<tr>
<td>When the warm front passes, the temperature in the area rises as advancing warm air replaces cooler air (detail)</td>
</tr>
<tr>
<td>A cold front is a boundary where cold air pushes under warm air (redundant definition)</td>
</tr>
<tr>
<td>As a cold front advances, warm air is forced upward very quickly along the boundary. The upward movement of warm air creates a steep, sloping front. (detail)</td>
</tr>
<tr>
<td>Thick clouds form as the warm air rises and cools. (detail)</td>
</tr>
<tr>
<td>Air in a cold front moves quickly and rises rapidly (detail)</td>
</tr>
<tr>
<td>However, cold fronts move faster than warm fronts, and their storms pass quickly (detail)</td>
</tr>
<tr>
<td>There may be a <strong>stationary front</strong> at work. (redundant)</td>
</tr>
<tr>
<td>Either a warm front or a cold front can become a stationary front. (detail)</td>
</tr>
</tbody>
</table>

**total**
Lesson 1: Cause and Effect Text Structure Lesson

Today we are going to talk about something you may have heard of before—text structure. Look at this picture. What do you see? Just like the frame of this building, text structure is the frame or outline that an author uses to organize information in expository text. Who can tell me what expository text is? (If needed) Expository text is writing that tells us factual information. Your science book, history book, the newspaper, brochures, etc. are examples of this kind of writing. Up to this point in school, a lot of what you have read is what we call narrative writing. Stories that have characters, settings, conflict, and resolutions. Does this sound familiar? But, as you get older, more of the reading that you will do for school and for life will be expository text. And just like your teachers have taught you how to understand narrative writing by teaching you about story grammar, if we know the different frames or structures that authors use to write expository text it will be easier to find and remember what we read.

So how are TS and blueprints alike? Just like a builder uses a blueprint to build a building, an author will use a text structure to organize his or her information. For example, when an architect builds a new school, he or she needs to include certain things in the building. What are some things you will always find in a school? How about a house? And if I go into a new grocery store, I have a pretty good idea of where to find what I want, because most grocery stores are laid out in a similar fashion, at least around the edges. Even though the food in the middle aisles might be in different places, for the most part I can find what I want. I want you to keep these examples in mind as we talk about the structures that authors use when they write different types of passages and books. As a reader, being able to understand the structure will help you understand what you are reading. When we understand what we are reading, we can then tell other people about what we read and we can remember it better. A lot of times your teachers or the tests that you take will ask you to “summarize what you have read” or to “write a summary”. We are going to work together to learn how understanding the structure that the author used to develop their writing will help us to summarize information in the same way that the builder’s ability to understand a blueprint helps them to build a house.
When we refer to expository text structure (the frames or patterns that authors follow when they write) there are basically 5 different types of TS that we talk about. Authors will often use more than one TS in their writing, but usually there is a primary or main TS that they will use to organize the writing. Let’s look at these with an example. Let’s say we want to talk about goose bumps (Does everyone know what goose bumps are?), but the way we talk, or in this case write, about goose bumps is going to change based on the TS that we want to use.

The first TS is DESCRIPTION and this is what it would sound like….SEQUENCE…COMPARE & CONTRAST

Next we have PROBLEM & SOLUTION….and the last TS is CAUSE & EFFECT. For the next 2 weeks, we are going to focus on the CAUSE & EFFECT structure. C & E is used a lot in science and history, and I thought it would be a good place to start. We will first practice how to recognize it, and then we will work together to learn how to use this information to help us figure out the main ideas of what we read.

Some important things to know before we get started…Let’s look at the handout with the dominoes on it that I gave you. First, what do I mean when I say, “Cause and Effect?”

• **Cause** is why something happened and **effect** is what happened. (GIVE EXAMPLES) Do you think that when an author is writing a cause and effect piece that the cause always comes first? (if needed) No. Sometimes when an author is writing, he or she will list what happened BEFORE they talk about why it happened. This is important to remember. In expository writing, an author will list one or more causes or events and the consequences or results of those events or processes. The reason authors use this is to explain why or how something happened, exists, or works.

• A **signal** is something that is used to get your attention or tell you that something is important. A signal can also be used to give you directions or hints about what to do—just like a traffic light tells drivers what to do.
Signal words are also known as flag words. How many of you watch football? What happens when a referee throws down a flag on a play? The game stops so that everyone can take a closer look at what happened during the last play and to see if one of the players did something wrong, right? So, in the same way, our signal/flag words grab our attention and tell us to look closely at what comes next because it is going to be important. Each text structure has its own set of signal words, and we are going to learn what some of these words are for cause/effect.

A signal question, is a question that we can ask ourselves to guide our thinking and help us understand what the important ideas are in what we read. All of the different text structures have different signal questions, so if we know what these questions are for the different structures, we will be able to use them as clues to figuring out what we read. Let’s look at some signal questions that will help us understand C & E…

DON’T FORGET YOUR TEXT FEATURES! Many of you used the BOLD words on the summary, and that was a good strategy, and when you are reading a text book, these features really come in handy. Looking at text features before you start to read helps you know what you are going to be reading about, and helps you to remember what you have read.

Let’s practice

The natural habitat of many wild animals is disappearing, because humans are cutting down trees to build houses and furniture.
More practice...

When the temperature rises deep under the Earth’s crust, it becomes hot enough to melt rock and turn it into magma.

Flip-Flop

Elephants are an endangered species due to the poachers who kill them for their ivory tusks.

Let’s practice

SINK OR SWIM

Most fish have a swim bladder that fills with air to keep them afloat when they’re not swimming. A shark doesn’t. It has to keep swimming to keep from sinking. But the shark has at least one flotation device—a big liver. The liver, which is sometimes a quarter of the shark’s weight, contains oil. Since oil is lighter than water, it helps keep the shark afloat.

• Let’s look at this paragraph. What is the first thing that you notice when you look at it? (Title, bold words). So based on those text features, what do you think this paragraph is going to be about? (brainstorm ideas with students)
• Okay, now before I read this, let’s remind ourselves of some of the signal questions that go with cause and effect writing. (Have students look at their handouts and brainstorm some of the questions and what they might find in this paragraph)
• Now I’m going to read this, and I want you to follow along. While I’m reading, I want you to see if you can find any signal words. (student input—

Signal words:

to keep them afloat
To keep swimming
Since oil is lighter than water
Let’s practice

SINK OR SWIM

- Most fish have a swim bladder that fills with air (in order) to keep them afloat when they’re not swimming. A shark doesn’t. It has to keep swimming (in order) to keep from sinking. But the shark has at least one flotation device—a big liver. The liver, which is sometimes a quarter of the shark’s weight, contains oil. Since oil is lighter than water, it helps keep the shark afloat.

Graphic Organizer

CAUSE
- Swim bladder fills with air
- Shark keeps swimming
- Oil is in the shark’s liver

EFFECT
- Fish and shark don’t sink!

YOUR TURN

- It was raining outside this morning (cause), so I
  ________________________ (effect).
- If __________________________ (cause), then I eat a
  snack when I get home from school (effect).
- Because Sue felt sick (cause), she __________________ (effect).
  Bonus:
- There was ice on the step (cause) and Sam slipped (effect).

Now sometimes, the signal words may look a little different than the ones we have on our list. For example, in this paragraph the author didn’t use the whole phrase “in order to”, but we can put those words in ourselves to see if they make sense. Do you think they make sense when we put them into the sentences?

- Let’s look at our first sentence. Which part of this sentence is the cause? (students answer—swim bladder fills with air)
- What is the effect? (fish stay afloat)
- How about with the second sentence? What is the cause? (keeps swimming)
- Effect? (shark doesn’t sink)
- And for the last sentence, the cause? (oil is lighter than water—the shark has oil in it’s liver)
- The effect? (shark stays afloat)

Now if we wanted to take this information, we could use the signal words that we just found, to fill out this graphic organizer. (REVIEW THE GO) This simplifies the passage and helps us focus only on the main ideas. There was other information in the paragraph that might have been interesting, but if we are looking only for the MAIN ideas, this is one way to find them.
(Students were asked to come create a “cause and effect” based on the picture)

References

Lesson 2: Deletion Rule Lesson

Today, we are going to start learning how to write a good summary of expository information. We talked about ET on Tuesday when we talked about text structure—does anyone remember what “expository” meant? When we write a summary, we can follow some basic rules to figure out what information we want to include and what information we can leave out. Today, we are going to start with the first rule which we will call the DELETION RULE. What does “delete” mean? That’s right, so if we are talking about “deletion rules” we are talking about learning what information we can leave out of our summary.

Now let’s think about what we learned when we talked about cause and effect text structure. When an author uses C & E text structure, they are writing to tell us why something happens and what caused it. So we can use this information to help us find the main idea so that we know what information to put in our summary. This can be hard, because sometimes there is a lot of interesting information in a paragraph, but if we keep in mind our signal questions, it will help us to know what is important to include in our summary, and what we can leave out.

So our deletion rule means, that sometimes, when we are trying to figure out the main idea, the first thing we have to do is decide what information is unimportant. The details in a paragraph often are unimportant when you are writing a summary, because remember, the summary is just THE MOST IMPORTANT information and details just give us MORE information about what is important.

The second thing this rule tells us is that we only need important information once. Often, the same information might be listed more than once, but stated in different ways to help you understand better. When an author gives us examples, they are repeating information. So if we can find this information, and mark out things are repeated, that will also help us to write a better summary.
First, let’s look at this paragraph. Think back to the last lesson when we talked about text structure and text features. Do you see anything here that fits one of those categories? (title—then brainstorm some ideas of what the paragraph will be about, and talk about what they may already know about electrical charges)

Based on the title, what information do you think the author will want you to know after you have read this? Keep that in mind as you listen, because it will help you to know what is important and what is not important. We need to know that to write a summary.

As I read this to you, I want you to think about the first rule of summarizing—deleting trivial (unimportant) and redundant (repetitive) information.

Now I am going to apply our first rule of deleting unimportant or redundant information to this paragraph and talk you through it so you can hear what I was thinking when I was going to write my summary.

Restate the title and what the students had decided this paragraph was going to be about.

The first sentence seems to be talking about the title, so we are going to leave that sentence alone for now.

The second sentence “Like charges repel” also seems to be talking about the title, so I am going to leave that one also.

Now this third sentence “They push away from each other” makes me stop and think. This sentence is saying the same thing as the second sentence, because repel is another way of saying that two things move away from each other.

That means it is repetitive, and according to our rule, we don’t need that for our summary. To help us remember that we don’t need this information, we can draw a line through it.

“Unlike charges attract.” Is this new information? It is, so I am going to leave this sentence alone.

The next sentence “They pull toward each other” sounds like an example, so that makes me stop and look at it more closely.

This sentence means the same thing as the sentence before it, because attract is another way of saying that two things are drawn closer together. Just like the first sentence that we crossed out, we can delete this sentence because it is also redundant.

Let’s look at the last two sentences. Is there any new information in either of these sentences?
Let’s practice together

How Charges Behave

Electric charges can act on each other, even without touching. Like charges repel. Unlike charges attract.

Summary

How Charges Behave

Electric charges can act on each other, even without touching. Like charges repel. Unlike charges attract.

Summary Option #2

How Charges Behave

Electric charges can act on each other, even without touching. Two objects with like charges repel each other. Two objects with unlike charges attract each other.

No, these are repeating the same information, so we can delete them also. Why do you think the author was so repetitive in this paragraph? (class discussion)

Okay, so now let’s look at what we have left if we delete all of the repetitive information (rule 1).

What do you think about this as a summary? Remember that a summary is a shorter way of retelling something by including only the most important ideas. We talked earlier about what the author wanted us to know. Do you think this summary does that? Another point I want to make is that you could have deleted these sentences and kept some of the other sentences if you liked those better. Since they are repetitive, there is more than one way to summarize this paragraph. Let’s look at another way we could have summarized this.

This is a little longer than the first one we did, but it provides a little more information which might be helpful if the person reading this didn’t know a lot about electric charges.
Now that we have summarized our paragraph, let’s fill out a graphic organizer. Because we have gotten rid of information that we didn’t need, we can easily determine what the causes and effects are, and we can understand and remember the information that the author wanted us to know!

Let’s practice another one...

**Why does Jupiter have a red spot?**
Jupiter has a large red spot in the clouds below its equator. No, it’s not the beginning of planetary measles. The red blotch seems to be a monstrously large storm, nearly 30,000 miles long—big enough to swallow the Earth whole. Like Earth’s small hurricanes, the oval-shaped storm on Jupiter rotates. But because it is so large, it takes 6 Earth days to turn once.

Let’s practice another one...

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The last paragraph had a lot of repetitive information. But that is only part of our rule. The other part of our summarization rule is that we also need to delete trivial, or unimportant, information. It’s important to remember, that something may be interesting or funny, but that doesn’t make it one of the important points. That can be hard to do, so when trying to decide if something is important or not, try to remember that the author has a purpose for what was written, and we need to figure out what that is.

What is the first thing we should do before we read this paragraph? (read/discuss title and author’s purpose)
Who wants to guess, based on just the title of this piece, what text structure the author used? (C & E) What else does the title tell you? (we are looking for the cause of the red spot, which is the effect)
As I read this paragraph, think about our summarization rule. We want to find the gist (or main point) of the paragraph. When we do that, we will have the important information that the author wants us to know. We are going to do this by reading and talking about each sentence, one at a time.

The first sentence relates directly back to the title. I think this sentence is important because it is our topic sentence and is telling us what the rest of the paragraph is going to be about. Based on the title, I also think that the first sentence is an effect and now we need to find the information that tells us more about why Jupiter has this red spot (the cause).
The second sentence, although funny, doesn’t give me any more information about why Jupiter has a red spot. This is trivial information and so I crossed it out.
As I read the next sentence, I see some signal words—"seems to be" is going to give me a reason. Remember when we talked about what a cause was? Another word for cause is reason. These words tell me that what is coming up is going to be important. As I read this sentence, I also realize that the author has used a lot of words to tell me that the red spot is a very large storm. That must mean that the size of the storm is important, but I wonder if I need to keep all of the different ways she used to describe how big it is? It looks like she is being repetitive, and I know that part of our summarization rule is to delete repetitive information, so let’s look at this sentence and see which parts we can mark out.

I have decided that since this is an expository text and we are trying to find the factual information, I want to keep the most specific information in the paragraph. Even though “monstrously” and “big enough to swallow the Earth whole” are great descriptions, the actual size of the storm is what I want to remember, so I cross them out.

The next two sentences can be tricky. The information is really interesting, but I have to remember to ask myself, “What is the purpose of this paragraph?” The author wanted me to know why Jupiter has a red spot. I know that the red spot is caused by a 30,000 mile long storm. When I think about the next two sentences, I realize that they are just giving me more descriptions of the storm’s size. Therefore, because I am only interested in knowing what causes the red spot, I can delete these sentences also for being redundant and unimportant to my purpose.
Now, we can look at the information that we have left and write our summary. READ SLIDE. Some people might say that we can also take out the words “in the clouds below its equator” and that would be okay also. I left it in because it was part of the topic sentence, but this is another example to show you that not all of our summaries will always look exactly alike. This is okay.

Now it’s your turn. I want everyone to look at the paragraph that I’ve given you. Read through this paragraph, mark out the information that you think is unimportant or redundant, and then write your summary on the lines below it.

Summary

Why does Jupiter have a red spot?
Jupiter has a large red spot in the clouds below its equator. The red blotch is a large storm, nearly 30,000 miles long.

Cause (large storm) ——— Effect (red spot)

Your turn...

1. Look at your paragraph. Do you see any text features that might be helpful?
2. Decide what information (trivial and/or redundant) you can mark out.
3. Write your summary.
Lesson 3: Superordination Rule

What is a summary?

A summary is a shorter version of something that only includes the main or most important ideas; the gist, or the main point.

Review

- Text structure
- Text features
- Signal or Flag words
- Signal questions
- Summary rule # 1: deletion of trivial and redundant information

- When we summarize expository text, we are finding the main idea.
- When we are dealing with a cause and effect text structure, we do this by using signal questions to identify the cause and effect in the passage.

- We also want to review (or summarize) some of the main points from the lessons we’ve already had.
- Knowing text structure helps us organize our thoughts and focus on specific information
- Text features help point us in the right direction
- Signal words grab our attention and tell us to pay attention
- Signal questions help us figure out cause and effect
- The first “rule” of summarization that we talked about was the DELETION RULE which told us to delete trivial and redundant information.
Today I’m going to introduce to you a new rule. This rule uses some big words, but it is really a simple idea.

This paragraph talking about something called a phobia. If you have a phobia, that means that you are more afraid of an object or situation or place than is usual.

Now, we want to summarize this paragraph.

First we look for text features

- Title
- Italic: Italics are used to draw our attention to important words. Let’s look at the word in italics (je-fey-ro-pho-bia) and see if we can figure out what it means. Here, we look at the sentence right before the italicized word to see what it means. It is telling us that someone who is really, really afraid of crossing a bridge suffers from a phobia called gephyrophobia.
- Signal words—As and Once
- Signal question—What caused it to happen?

Before we start our summary, I am going to read the paragraph to get a general idea of what it is going to be about. I think I know because of the italicized word, but reading the rest of the paragraph will help me know if I am right. (read)

Ok, now let’s look at the first 2 sentences and start thinking about our summary. Do we think that this information is important? I think it is important because it gives us a name for what
What happens when you have gephophobia?
One type of phobia is the fear of crossing bridges. This is called gephophobia. What would this feel like? As you try to cross, your heart starts to race. You may feel dizzy and your stomach might be upset. You may feel so afraid and nervous that your only thought is to get off the bridge. Once you do, you feel safe, and the panicky feelings quickly go away.

What happens when you have gephophobia?
One type of phobia is the fear of crossing bridges. This is called gephophobia. What would this feel like? As you try to cross, your heart starts to race. You may feel dizzy and your stomach might be upset. You may feel so afraid and nervous that your only thought is to get off the bridge. Once you do, you feel safe, and the panicky feelings quickly go away.

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One type of phobia is the fear of crossing bridges. This is called gephophobia. What would this feel like? As you try to cross, your heart starts to race. You may feel dizzy and your stomach might be upset. You may feel so afraid and nervous that your only thought is to get off the bridge. Once you do, you feel safe, and the panicky feelings quickly go away.
What happens when you have gephyrophobia?

One type of phobia is the fear of crossing bridges. This is called gephyrophobia. What would this feel like? As you try to cross, you feel like you are panicking. Your heart starts to race. You may feel dizzy and your stomach might be upset. You may feel so afraid and nervous that your only thought is to get when you get off the bridge. Once you do, you feel safe, and the panic stops. Panicky feelings quickly go away.

Summary

A phobia of crossing bridges is called gephyrophobia. As you try to cross, you feel like you are panicking. When you get off the bridge, the panic stops.

When you suffer from a phobia called gephyrophobia, you panic when you cross bridges. The panicky feelings stop when you get off the bridge.

The important part here is that when you get off the bridge, the panic stops—so let’s just say that.

CAUSE = afraid of crossing bridges (gephyrophobia)
EFFECT = feel panicky when you cross bridges
CAUSE = leave the bridge
EFFECT = panic goes away

Your turn...

1. Read your paragraph
2. Look for text features
3. Apply rule 1 (deletion rule). What information can you cross out?
4. Apply rule 2 by replacing lists with a category word or phrase
5. Write your summary
What makes a healthy breakfast?

Like any other meal, breakfast should include a mix of the five nutrients to be healthy.
Carbohydrates—found in cereals, bread, bagels, muffins, and grains—are very important. The body converts carbohydrates into glucose to give you energy all morning. Dairy products such as milk, eggs, and cheese, along with nuts and peanut butter, give you some protein, minerals, and fat. A glass of fruit juice or a piece of fruit gives you a dose of vitamins.

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Summary

A healthy breakfast should include a mix of carbohydrates, protein, minerals, fat, and vitamins.
Lesson 4: Identifying/Creating Topic Sentence Lesson

We are going to continue talking about summarization today by introducing another rule.

Before we get started, let’s remind ourselves what we are talking about when we use the word summary.

We also want to review (or summarize) some of the main points from the lessons we’ve already had. Knowledge of text structures helps us to focus our thinking as we read. Text features helps us to know when to stop and pay attention. Rule 1—delete trivial and redundant information. Rule 2—replace lists with a category word or short phrase.

<table>
<thead>
<tr>
<th>Writing Summaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying or creating a topic sentence</td>
</tr>
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</table>

### What is a summary?
A summary is a shorter version of something that only includes the main or most important ideas; the gist, or the main point.

### Review
- Text structure
- Text features
- **Summary rule # 1:** deletion of trivial and redundant information
- **Summary rule # 2:** replace lists of items or actions with category word or short phrase
Summary rule #3

When writing a summary, use paragraph topic sentences to help identify the main idea. If there isn’t a topic sentence, create your own.

**Topic sentence:** a sentence that tells you the main idea of a paragraph

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**Ways That Forces Change Motion**

Three things affect the motion of an object, the strength of the force, the direction of the force, and the mass of the object. The stronger the force is, the greater the change in motion. If you toss a ball gently, it doesn’t move fast or far. If you throw a ball hard, the ball moves faster and farther. Therefore, you use more force on the ball when you throw it as hard as you can.

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**Ocean Currents**

The Earth’s rotation affects surface currents. As Earth rotates, it pulls water on the surface. This causes currents to bend to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. The ocean currents run along the edges of continents. This affects the land’s climate. The California current carries cold water along the West Coast. The Gulf Stream keeps the climate warm on the East Coast.

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- Today I’m going to introduce to you another rule. This rule tells us to use a topic sentence to figure out what is important. Talk about what they already know about a topic sentence and why this could be helpful when writing a summary—how are a topic sentence and a summary alike?
- There is a second part to this rule, and it says that if there isn’t a topic sentence, then we can create our own.
Ocean Currents

The Earth's rotation affects surface currents. As Earth rotates, it pulls water on the surface. The ocean currents move to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. The ocean currents run along the edges of continents. This affects the land's climate. The California current carries cold water along the West Coast. The Gulf Stream keeps the climate warm on the East Coast.

Summary

Ocean currents are affected by the rotation of the Earth.

How does light behave?

Reflection (rth FLEHK shun) is what happens when light waves hit a surface and bounce off. When you see an object, you are really seeing light bouncing off the object. For example, you can see this page because it reflects some light into your eyes.

Summary

When a light wave bounces off of a surface, this is called reflection.
Creating a topic sentence

Some materials transmit most of the light that hits them. This means the light waves pass through the materials. However, these materials may cause light to slow down and bend. The bending of light waves is called refraction (nih FRAHK shun). Refraction can make objects look as though they are bent or broken. Glass, water, and clear plastic can transmit and refract light.

When light that is transmitting through a material bends, the bending is called refraction.

Your turn

1. Read the paragraph
2. Find the topic sentence
3. Reword the topic sentence for your summary.

Student Practice

What happens to soil?

Summary

Clean, healthy soil is important to everyone. Farmers need it to grow crops. Habitats that support animal and plant life rely on healthy soil. Soil is a mixture of plant, animal, and mineral materials. It takes thousands of years for soil to form. Soil is polluted by waste from towns and cities, farms, chemicals, bad irrigation, and mining.

SUMMARIZATION REVIEW

1. Identify text features—what clues do they give you?
2. Identify text structure—it will help focus your thinking and figure out the main ideas
3. Delete redundant and unimportant information
4. Replace lists with a general term or phrase
5. Use or create topic sentences
Appendix N

Example passage given to expert raters for determining main ideas

**DIRECTIONS**: Please read the following passage. Then, imagine that you are going to write a summary.

**How Do Air Masses Affect Weather?**

Weather maps show that cities across a large region can share the same weather. They also show how the weather in different areas can differ.

Why are weather conditions in one part of a country different from those in another part? Some of the cities are having clear, cool weather. The air throughout this region is cool and dry. Other cities are having warmer, cloudy weather. The air throughout this region is warm and moist. A large region of the atmosphere where the air has similar properties throughout is called an air mass.

An air mass gets its properties from the region where it forms. Air over the Gulf of Mexico is above very warm water. The water warms the air, and evaporation from the Gulf adds water vapor. The air becomes warm and moist. Air masses are named for the region they come from.

As air masses move, they bring these conditions with them. What happens if a cool, moist air mass moves over an area that has warm, dry weather? The warm, dry weather will change.

Once an air mass is formed, it is moved by global winds. In the United States, global winds tend to move air masses from west to east.

Air masses with different conditions can “meet.” That is, one runs into another. What happens when air masses with different temperatures meet? They don’t mix together. Instead, a narrow boundary forms between them. This boundary is called a front. It marks the leading edge, or front, of an air mass that is moving into an area where another mass is moving out. Weather changes rapidly at fronts. That’s because you pass from one kind of air mass into another. Fronts often cause rainy, unsettled weather.
How Do Air Masses Affect Weather?

Weather maps show that cities across a large region can share the same weather.
They also show how the weather in different areas can differ.
Why are weather conditions in one part of a country different from those in another part?
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Instead, a narrow boundary forms between them.
This boundary is called a **front**.
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another mass is moving out.
Weather changes rapidly at fronts.
That’s because you pass from one kind of air mass into another.
Fronts often cause rainy, unsettled weather.