READING, ARGUMENTATION, AND WRITING: COLLABORATION AND DEVELOPMENT OF A READING COMPREHENSION INTERVENTION FOR STRUGGLING ADOLESCENTS

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READING, ARGUMENTATION, AND WRITING: COLLABORATION AND DEVELOPMENT OF A READING COMPREHENSION INTERVENTION FOR STRUGGLING ADOLESCENTS by Martha Susan Grogan, May 2014

ABSTRACT

The purpose of the study was to develop and implement a new reading intervention with fifth grade struggling readers that included reading across multiple texts, constructing arguments from the texts, engaging in oral argumentation, and writing argumentative essays. A Convergent Mixed Methods design incorporated both quantitative and qualitative data to determine if teacher collaboration influenced the implementation of the new intervention and its subsequent effect on students' reading and writing outcomes. The intervention focused on a 10-week argumentative unit based on the American Revolution War. Group 1 teacher implemented the intervention in a whole-class setting, plus collaborated with the researcher on implementation issues; Group 2 teacher implemented the intervention in a small pullout group, but did not collaborate with the researcher; and Control Group teacher did not implement the intervention. All student groups took a pre and post reading comprehension assessment, and Groups 1 and 2 students took a pre and post essay writing assessment. The reading comprehension scores showed no significant improvement for any group. The pre and post essay writing scores for Groups 1 and 2 showed significant improvement ($p = .000$), yet there was no significant difference between the two intervention groups ($p = .66$). The qualitative results indicate student achievement in the intervention groups may have been affected by five implementation factors: (1) implementation fidelity, (2) short duration, (3) size of group, (4) task complexity, and (5) aligned assessments.

MEMORANDUM

TO: Susan Grogan, Reading Education (College of Education)

Dr. Linda Dorn

CC: Edwina Mosby, Assistant Research Compliance Officer

FROM: Dr. Elisabeth Sherwin, IRB Chair

UALR Institutional Review Board

DATE: 06 March, 2013

RE: IRB Request for Expedited Review

Thank you for your recent Institutional Review Board Request for Expedited Review (Protocol # 13-142) titled "Reading, Argumentation, and Writing: Collaboration and Development of a Reading Comprehension Intervention for Struggling Adolescents." We have reviewed this request and find that it meets the IRB's criteria for protection of human participants. Your project has IRB approval from today until **3/5/2014** and you are free to proceed with data collection. After this date, all interaction with human subjects and data collection for this project must cease.

If you would like this study to continue unchanged for more than one year, you will need to submit a Request for Continuing Review prior to the above expiration date. If this study continues for more than one year and there are changes to the research design or data that is collected, you will need to submit a Request for Review of Modification or Amendment to Approved Research form.

** This message is a reminder that you may begin your research project.**

Best of luck with your study

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CHAPTER 1

Introduction to the Research Study

During the past 20 years, the prevention of reading difficulties in the early grades has been a major focus of educational research and federal funding. This investment has led to some increases in the achievement scores of fourth graders, particularly low income and minority students (Heller & Greenleaf, 2007). However, over the same period, reading achievement at the middle and secondary levels has remained stagnant. In 2009, the National Center for Educational Statistics reported that the majority of American adolescent students were reading below a proficient level and almost half were so far behind that it would be difficult for them to catch up without intensive intervention. In 2011, the *National Assessment of Education Progress* (NAEP) reported that only 21 percent of twelfth grade students performed at a proficient level or above in reading; and only 30 percent of eighth graders scored at or above the proficient level. Based on the NAEP results, many educators and policy makers have called for more research on effective instructional practices and interventions that accelerate the reading achievement of adolescent readers.

The adoption of the Common Core State Standards (CCSS) (National Governors' Association and Council of Chief State School Officers, 2010) by most states has made the problem of low reading achievement even more urgent. In order to meet the rigor of the CCSS, students must be able to read texts that are more complex and engage in intellectually challenging work. To accomplish this goal, students must acquire high-level strategies for analyzing, evaluating, and producing information. They must learn to read and comprehend more complex texts and apply strategies for synthesizing

information across texts, critique arguments, and build stances from which to reason and argue (Goodin, Weber, Pearson, & Raphael, 2009).

Another facet of the problem is that the nature of text itself is changing and there is a wider array of text types. Therefore, the demands for critical reading across contexts are increasingly challenging (Leu, Kinzer, Coiro, & Cammack, 2004; Lankshear & Knobel, 2007). Researchers such as McKeown, Beck, and Black (2009) and Raphael, George, Weber, and Nies (2009) have called for more research on approaches to reading comprehension instruction. With the emphasis on complex texts and close reading in the CCSS, educators need more research on ways that adolescent readers apply strategies for critical thinking and evaluate a broad spectrum of texts. Despite the efforts that have proven helpful, educators and policymakers need additional evidence-based practices for improving the literacy skills of students in American schools (Graham & Hebert, 2010, p. 3).

Teacher reflection and collaboration play critical roles in the successful implementation of any new instructional strategy. Reflective practice and collaboration are effective professional development processes that enable the improvement of teaching and learning (David, 2009; Gearheart & Osmondson, 2008; Marsh, Pane, & Hamilton, 2006; Borko, 2004).

Statement of the Problem

There is a need for teachers of struggling adolescent readers to provide research-based literacy interventions that significantly improve students' reading comprehension.

In order to improve reading comprehension, adolescent readers require different instructional emphases and pedagogies than younger readers (Faggella-Luby & Deshler, 2008).

Several meta-analyses have been conducted to compare adolescent reading interventions and to determine their effectiveness. Scammacca, Roberts, Vaughn, Edmonds, Wexler, Reutebuch, and Torgesen (2007) examined the effectiveness of 31 adolescent reading interventions and found: (1) struggling readers benefit from interventions focused at both the word and the text level, and (2) the explicit teaching of comprehension strategies improves reading comprehension. Several researchers (McKeown et al, 2009; Fisher, Grant, & Frey, 2009; Kintsch & Kintsch, 2004; Sinatra, Brown, & Reynolds, 2002) have studied and cautioned against teaching individual comprehension strategies in isolation. The meta-analysis by Scammacca, et al. (2007) included findings about the effectiveness of multi-component approaches such as reading, writing, discussion, fluency, vocabulary, and interventions that emphasize the teaching of multiple comprehension strategies within context. Scammacca, et al. (2007) proposed multi-component interventions, such as Semantic Mapping, Peer Assisted Learning Strategies, Peabody Reading Lab, and a combination of Reading, Spelling, and Lindamood Auditory Discrimination were encouraging but, as of yet, do not show strong effects and need more research.

Results from the Scammacca, et al. (2007) meta-analysis were similar to a later meta-analysis of 13 reading interventions for older students (Edmonds, Vaughn, Wexler, Reutebuch, Cable, Klinger-Tackett, & Schnakenberg, 2009). Edmonds and colleagues found that students with reading difficulties and disabilities improved their

comprehension when provided with targeted reading intervention in comprehension, multiple reading components, or, to a lesser extent, word reading strategies. Word reading strategies had the smallest effect sizes.

When examining the effectiveness reports for adolescent literacy interventions on the *What Works Clearinghouse* website, established by the U.S. Department of Education's Institute for Education Science, only two interventions received a rating of "potentially positive" for general literacy achievement and comprehension in grades 4 through 12. *Peer Assisted Learning Strategies* and *Student Team Reading and Writing* were multi-component interventions (described in Chapter Two). Not all of the previously mentioned studies centered on improving reading comprehension: rather, some focused on improving vocabulary, fluency, or word-learning strategies. Given the small number of studies that met the criteria for comparison in meta-analyses, there is a need for additional studies focusing on comprehension strategies and reading interventions for adolescent students.

Instruction in reading comprehension should be "dynamic, flexible, and context-sensitive with many opportunities to discuss and argue positions based on analysis across texts" (Wilkinson & Son, 2011, p. 367). There is evidence that reading across multiple texts can improve comprehension (Pappas, Varelas, Barry, & Rife, 2003); evidence that argumentative discourse helps develop comprehension and written arguments (Chinn and Anderson, 1998; Reznitskaya, Anderson, & Kuo, 2007); and evidence that writing can increase reading comprehension (Graham & Hebert, 2010). However, research is needed to determine whether combining the processes of reading across texts, engaging in

argumentative discourse, and writing argumentative essays can significantly improve the reading comprehension of struggling adolescent readers.

Despite the abundance of research on the importance of discussion to facilitate comprehension, research on argumentation approaches that incorporate the reading of multiple texts, oral argumentation, and writing and how that combination of components might affect reading comprehension has not been published (Wilkinson & Son, 2010). Several researchers have called for more research on how students develop comprehension and what instructional strategies prove most effective (Scammacca, et al., 2007; Edmonds et al., 2009; Goodin et al., 2009; Wilkinson & Son, 2011).

Statement of the Purpose

The purpose of this study was to closely examine the influence of a new multi-component reading intervention on the performance of struggling adolescent readers and to study the impact of teacher collaboration on the implementation of the intervention. The model included a combination of four evidence-based components: (1) reading across multiple non-fiction texts on the same topic, (2) construction of an argument from text, (3) learning and participating in the discourse of argumentation, and (4) producing argumentative written essays. Studying students' oral and written responses and students' interactions with the teacher and each other during this multi-component intervention generated some needed insight and information into how students develop critical literacy and its influence on reading comprehension. Simultaneously, an analysis of the collaboration between the teacher and the researcher and subsequent actions provided insight into the implementation of the intervention.

Research Questions

The study used a Convergent Mixed Methods design (Creswell & Plano Clark, 2011) that incorporated both quantitative and qualitative data to determine if teacher collaboration influenced the implementation of the new intervention and its subsequent effect on students' reading and writing outcomes. The quantitative data determined the impact of the intervention on student literacy achievement while the qualitative data were used to explore potential reasons for student achievement outcomes. The three research questions guided the direction of this mixed methods study.

1). Does the students' participation in the reading intervention influence their reading comprehension?

2). Does the students' participation in the reading intervention influence their essay writing?

3). How does teacher collaboration influence the development and implementation of the reading intervention?

Significance of the Study

Rigorous research on effective instruction in reading comprehension with older students is a national priority (Scammacca, et al., 2007). A review of three meta-analyses of reading interventions (Scammacca, et al., 2007; Faggella & Deshler, 2008; Edmonds, 2009) and other comprehension studies revealed no research on multi-component interventions that include the reading across multiple texts of student-chosen topics, understanding the structure of argumentation, argumentative discourse, and culminating written argumentative essays. Learning to argue and write argumentation essays has been studied (Yeh, 1998) and these studies have reported positive effects on student

writing, but the studies did not include reading across multiple texts and looking for improvement in reading comprehension. Given the current attention to argumentation as a means of developing critical thinking in the *Common Core State Standards,* the proposed study could fill a gap in the existing research on effective interventions for adolescent readers.

Theoretical/Conceptual Framework

The foundation for this inquiry is framed by theories and concepts currently understood and accepted by many literacy educators and practiced in school-based literacy instruction. The theoretical framework is presented in two parts: (1) the learning theories that support the study and (2) the instructional strategies that make up the basis of the intervention model.

Learning Theories That Support the Study. Constructivism is the theoretical base on which the foundation is laid. It is the learning theory that centers on a person's active participation in problem-solving and critical thinking regarding something he or she finds relevant and engaging, usually in a mediated social setting. Meaning is negotiated and constructed and not in isolation (Searle, 1995; Vygotsky, 1978).

Self-regulation is the active, constructive process whereby learners set goals for themselves and then attempt to monitor, regulate, and control their thinking, motivation, and behavior within the contextual features in the environment (Wolters, 2011). Learning to self-monitor and make decisions is critical to higher order thinking **(**Hadwin & Jarvela, 2011; Borkowski, et al., 1990; Sodian and Frith, 2008).

Apprenticeship learning happens when skilled teachers use language and action to help students, side-by-side, learn a new task (Rogoff, 1990; Tharp & Gallimore, 1991).

Based on Vygotskian theory (1978), what the learner is able to do today with assistance, the learner will be able to accomplish independently tomorrow. Students learn new skills with a mentoring adult who understands the cognitive and sociological value of dialogue for assisting the learner's performance (Diaz, Neal, & Amaya-Williams, 1990). Apprenticeship learning builds on a gradual release model that includes direct explanation, modeling, guided practice, and independent practice (Pearson & Dole, 1988), as well as degrees of assistance for scaffolding the learner's independence in accomplishing the task (Tharp & Gallimore, 1991; Wood, 2006).

Motivation and engagement have been recognized as being critical for students' learning and performance within academic contexts (Guthrie & Wigfield, 2001). Motivation research has reduced the issues down to two main concepts: (1) expectations for success and (2) personally valuing the activity. Novelty, relevance, challenge, and student point-of-view (which varies across cultures) should be used to support individual interests that are self-sustaining (Anderman & Wolters, 2006; Graham & Wiener, 1996; Pintrich & Schunk, 2005; Biancarosa & Snow, 2004; Guthrie & Wigfield, 2001; Hidi & Renninger, 2006).

Self-efficacy is an individual's judgments of his or her own capabilities to organize and execute courses of action required to facilitate certain performances **(**Bandura, 1986). A person's self-efficacy is highly dependent on the feedback received from others. Self-efficacy predicts text comprehension. If a reader has confidence and believes it is possible to understand, then the reader is more likely to read with comprehension (Alvermann, 2002).

Text Processing Theory. Klauda and Guthrie (2011) proposed a cognitive model for reading and comprehending expository text that is useful in understanding the framework of the proposed study. Readers interact with text, they build a structured network of knowledge that represents the information in the text plus their prior knowledge and experiences related to the topic of the text (RAND Reading Study Group, 2002; Klauda & Guthrie, 2011; Caccamise, 2011). This theory defines reading comprehension as a complex process that involves the integration of multiple skills, strategies, and knowledge. The processes of understanding the main concept, sub concepts, and making inferences with expository texts help readers synthesize information from all parts of the text.

Teacher Collaboration and Reflection. Teacher collaboration and reflective practices enable teachers to hypothesize ways to change instructional strategies to produce better student outcomes (Schon, 1991; Hatton & Smith, 1995). The present study focused on how collaboration between the teacher and researcher influenced the implementation of the reading intervention. Observations and analyses that occur in a collaborative environment are likely to lead to greater learning than if done individually (Osterman & Kottkamp, 1993). Stopping to reflect after certain increments of instructional time, such as every two weeks, gives teachers the opportunities to make changes as needed (David, 2008; Gearheart & Osmondson, 2008).

Instructional Strategies. The theoretical framework for the study was also built on the existing research in four areas of reading associated with comprehension: (1) *reading across multiple texts* (Hartman & Hartman, 1993; Levy, Campsell, Browne, Cooper, Waterhouse & Wilson, 1995; Wolfe & Goldman, 2005), (2) *using graphic*

organizers to support comprehension (Marzano, Pickering, & Pollock, 2001; Darch, Carnine, & Kameenui, 1986; Kim, Vaughn, Wanzek, & Wei, 2004), (3) *learning the discourse of argumentation* to help develop critical thinking (Reznitskaya & Anderson, 2002), and, (4) *writing of argumentative essays* for organizing critical thinking (Anderson, 2001). These strategies have been included in different configurations within previous interventions. Multi-component interventions have shown promise (Scammacca, et al, 2007), so I sought to examine: (1) the influence of teacher collaboration and reflection in the development and testing of a new intervention and (2) the influence of a new multi-component intervention on the reading comprehension of struggling adolescent readers. In *Figure 1*, the conceptual framework displays the relationship between the supporting theories, participant interactions, intervention components, and the research questions.

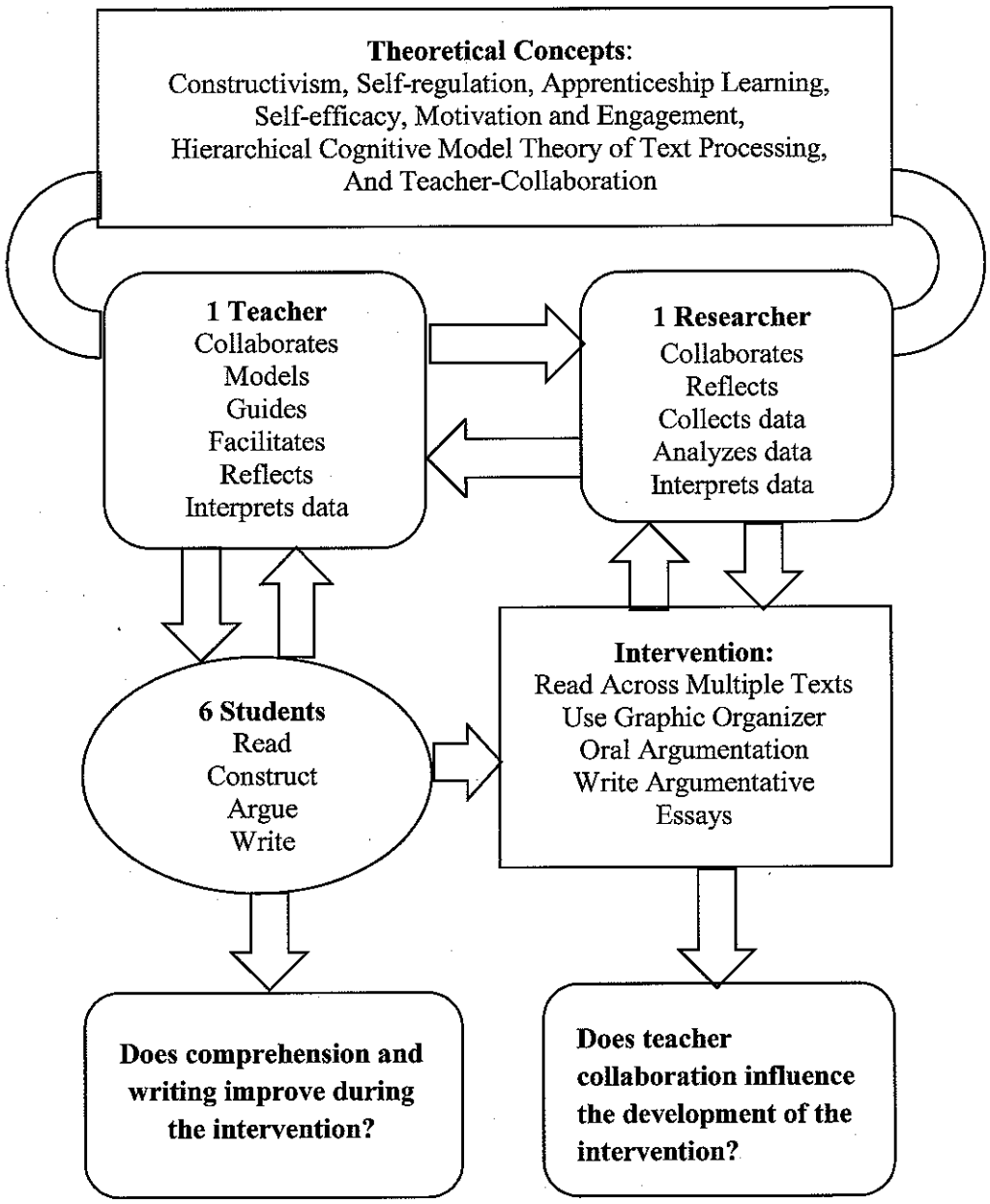


Figure 1. Conceptual framework of the study

Summary of Methodology

The primary purpose of the study was to determine if a new reading intervention that focused on argumentation would increase the reading and writing achievement of low-achieving adolescent readers. A secondary purpose was to explore how teacher collaboration influenced the development and implementation of the reading intervention.

A Convergent Mixed Method Design (Cresswell & Plano Clark, 2011) was the best method for conducting the study. Both strands of inquiry, qualitative and quantitative, allowed for a fuller explanation of the study's results because both strands were conducted independently, yet side-by-side, and then results converged for further analysis.

The intervention was developed and implemented with two small groups of struggling readers, with two teachers and a researcher, and took place across a 10-week period. The participants were fifth grade students who were identified (prior to the study) and scheduled to receive reading intervention from a Language Arts/Social Studies teacher or from an intervention teacher during the normal course of the school day. At the beginning of the study, I trained the two teachers in the intervention framework and the specialized procedures. During the duration of the study, I collaborated weekly with the Group 1 teacher to review student data and to discuss implementation issues. I had no contact with Group 2 teacher or the control group teacher.

Data included both quantitative and qualitative sources: (1) videotapes of oral argumentation interactions from Group 1 students, (2) anecdotal notes and reflections from Group 1 teacher, (3) researcher notes/observations from collaborations with Group 1 teacher, (4) students' written essays from Groups 1 and 2, and (5) pre- and post-test reading comprehension levels from Groups 1 and 2 and control group students. The five forms of data were triangulated to provide informative answers to the research questions.

The preliminary analysis of the qualitative data allowed themes to emerge and then be coded and analyzed for frequency and significance. The videoed data from Group 1 was analyzed and reflected on by collaboratively viewing the video clips with

the teacher and recording notes of the conversations. A review and discussion of the coding of the data by the teacher helped to ensure inter-rater reliability. Manipulation of the qualitative data was explored by making a matrix of the categories with evidence. A time-ordered data display (Miles & Huberman, 1994) was created and placed the evidence in some initial order and allowed a general strategy to emerge for further data analysis (Yin, 2009). The general strategy of examining the evidence relied on the theoretical propositions or explicit theories which represented the foundation of the study: (a) socio-cultural learning; (b) apprenticeship learning; (c) self-regulation; (d) engagement and motivation; and (e) teacher collaboration and reflection.

Following that, a story narrative was constructed as a way to re-analyze the data to provide a better picture of what had happened during the intervention. From that narrative, an explanatory visual display was constructed with the summary of events linked to evidence that led to the explanations. The teacher from Group 1 was included in the review of the matrix, and the input from this "other" person, who was familiar with the data, ensured that some important data were not excluded and other possible explanations were considered.

The pre-and post-reading comprehension levels were compared to the videoed observations, teacher anecdotal notes and reflections, teacher-researcher collaborations, and the written essays, all of which produced informative answers to the research questions. From the many layers of qualitative data analysis, together with the results of the quantitative data analyses, the answers to the research questions were explained and the implications discussed.

Definition of Terms

The following definitions apply to the argumentative concepts utilized in the intervention study:

Argumentation vs. argument: Argumentation is the action or process of reasoning systematically in support of an action, idea, or theory, usually entailing civil debate, dialogue, conversation, and persuasion. Argument is the statement or claim, supported by evidence, used to persuade someone of something (Kuhn & Udell, 2003).

Argumentation discourse: the discussion or conversation that consists of arguments and counter-arguments and reasoning logically to a conclusion.

Argumentative vs. Persuasive: Successful persuasion relies on both the argument-evidence formula of argumentative writing and the emotional appeal.

CHAPTER TWO

Description and Critique of Scholarly Literature

What is known about research in reading comprehension instruction? What about reading comprehension intervention? What is working? What is needed? The review and critique of the literature is organized under the follow topics: (1) Purpose; (2) Search strategies; (3) Theoretical foundations; (4) Teacher collaboration and reflection; (4) A brief history of reading comprehension research (with an extended look at intertextuality and argumentation); (5) How writing impacts reading; (6) Interventions reviews; (7) summary of the literature review; and (8) Implications for the forthcoming study.

Purpose of the Literature Review

The purpose of the literature review is to (1) present the theoretical foundations for the study; (2) explore the practice of teacher collaboration and reflection and the effects on instructional changes; (2) recount the development of reading comprehension instruction in the last four decades; (3) describe reviews of reading intervention for struggling adolescents, (4) summarize the important findings relating to the proposed study; and (5) expose a gap in current knowledge within the field of reading comprehension intervention,

Search Strategies

A computer search of ERIC, Education Complete, and PsycINFO was conducted to locate studies published primarily between 1998 and 2011 in peer-reviewed journals, so as to reflect the most current research on this topic, although some useful material was found dating back to the 1980's and before. Descriptors (*adolescent, argumentation, at-risk*, *comprehension, difficulty, dialogue, discourse, discussion,*

English Language Arts, high-risk, intervention, instruction, learning, *literacy*, *reader, reading*, *response*, *struggling, teacher reflection, teacher collaboration, and writing*) were used in different combinations to find the greatest possible number of articles. A hard-copy search was also conducted of the articles in the peer-reviewed handbooks of literacy research: *Handbook of Reading Research, Volumes II, III, and IV (Kamil et al., 2011, 2000,1994), Handbook of Research on Reading Comprehension* (Israel & Duffy, 2009), and *Handbook of Research on Literacy and Diversity* (Morrow, et al., 2009). After reading through several meta-analyses of studies pertaining to comprehension instruction or comprehension intervention, a more specific examination of single studies was conducted, as well as other studies not included in the meta-analyses.

Theoretical Foundations

The theories of constructivism, self-regulation, apprenticeship learning, motivation, and self-efficacy form the theoretical foundations of the study. The study is also grounded in a text-processing theory that explains how readers process text information and apply strategies to comprehend text. In addition, the study builds on the theories that explain how teachers learn new skills and methods, specifically how they develop greater knowledge and expertise through collaboration and self-reflection. The theoretical foundation provides a context for critiquing the research on reading comprehension and instructional approaches, thus setting the stage for the study.

Constructivism and sociocultural learning. From a constructivist perspective, learning involves a person's active participation around relevant and engaging topics, usually in a social setting. It is the creation of personal knowledge based on prior experiences and the new experience and perceptions. Construction of knowledge happens

by testing ideas and approaches based on prior knowledge and experience, applying these in a new situation, and integrating the new knowledge gained with pre-existing mental constructs. Meaning is negotiated and constructed not in isolation, but within a socially mediated situation **(**Searle, 1995; Vygotsky, 1978).

Sociocultural learning is based on a Vygotskian perspective of a more knowledgeable person creating opportunities for the novice to learn through assisted performance; therefore, instruction leads development. It is participation in social settings that allows children to observe, try out, and eventually internalize various "psychological tools" (Vygotsky, 1981) that moves their cognitive development to higher levels.

Self-regulation in learning. The theory of self-regulated learning involves personal, behavioral, and environmental processes (Zimmerman, 1989). Successful completion of tasks involves personal perceptions, efficacy, and environmental conditions, such as support from teachers and feedback on previous problems. Self-regulation research has historically focused on an individual perspective, but there is increasing interest in considering these processes at the social level with concepts such as social regulation, shared regulation, or co-regulation (Hadwin & Jarvela, 2011). The self-regulation theory describes learners who are highly motivated students and who do not need external motivation to provide effort and to persist at academic tasks.

Self-regulation in academic settings is defined as the "active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment" (Pintrich, 2000a, p. 453). Self-regulated

learning can be conceptualized as a dual psychological-social condition that calls for the integration of an individual psychological concept within the social shared and interactive processes of learning. This approach is critically important for understanding engagement and participation in real-life social learning environments (Hadwin & Jarvela, 2011).

Self-regulated learners exhibit four characteristics (Wolters, 2011). First, they have a broad collection of cognitive learning strategies. Second, they have a great deal of knowledge about their own cognitive processing, about learning in general, and about when particular learning strategies will be useful (Borkowski, Carr, Rellinger, & Pressley, 1990; Butler & Winne, 1995; Schunk & Zimmerman, 1994; Zimmerman, 1986). Third, they are quite proficient at monitoring and adapting their use of the various cognitive strategies needed to complete different learning tasks (Butler & Winne, 1995; Zimmerman, 1989). Fourth, self-regulated learners are highly motivated students who do not need external motivation to provide effort and to persist at academic tasks (Pintrich, 1999, 2000). Researchers from neuroscience, psychology, and education agree that self-regulation (or monitoring oneself) and making decisions is critical for higher order thinking and is somewhat related to developmental stages (Tokuhama-Espinosa, 2010). The person's knowledge of his or her metacognition is vital to becoming a self-regulated reader and this knowledge develops in social settings (Clay, 2001).

Proficient readers apply self-regulating strategies to construct meaning from text. They make predictions based on prior knowledge, ask themselves questions and look for answers in text, make inferences, construct mental images related to what is mentioned in text, seek clarification when confused, and summarize (Pressley, 2000). Reading

comprehension is increased when readers actively and strategically are involved in monitoring their reading. This theory of reading comprehension aligns with the theory of self-regulation, a strategic, deliberate, and goal-oriented process for solving a problem (Hilden & Pressley, 2007; Schunk and Zimmerman, 1997).

Sodian and Frith (2008) described how self-control (i.e., an awareness of how to control one's thinking) implies self-reflection. "…self-reflection transforms the way in which learning occurs" (p. 112). Many readers learn and possess strategies, but may lack the metacognitive understanding about where and when to apply them. Students need skilled teachers who model how to apply strategies and to scaffold students in transferring these strategies to new contexts. Results of research by Brown, Palinscar, and Ambruster (2004) indicated that students require guided practice to learn how to apply strategies across changing contexts and for different purposes.

Self-regulation is integral to Clay's (2001) theory of literacy development. As students take more and more ownership of their learning, they are assisted and enabled to become self-regulated readers who notice when they have made an error, assemble their mental working systems flexibly (Singer, 1994), and self-correct. Clay (2001) emphasized that skilled teaching includes the wise practice of knowing how to pace the lesson and the difficulty level of the student's reading material.

Findings from the fields of neuroscience, psychology, and education have confirmed several concepts important to the development of literacy: (a) human brains are as unique as faces; no two are alike, (b) all brains are not equal in their ability to solve problems, (c) the brain is changed by experience, (d) the brain is highly plastic, and (e) the brain connects new information to old (Tokuhama-Espinosa, 2010). Experts from the

three fields also agree that the search for meaning is hardwired in human nature. Brains are designed to make sense of what is being perceived and to relate it to something already known. Sensory input comes in from many sources and the brain processes the information in a non-linear way (Tokuhama-Espinosa, 2010). This means not all students learn in exactly the same ways.

The journey of a student's learning to self-regulation is marked by self-corrections. When a student self-corrects, it is an observable behavior that indicates the student is processing metacognitively. These behaviors are evidence of a kind of executive control that is developing and being mobilized by readers and writers to keep them on the right track. The process of self-monitoring and decision-making is required in all reading and writing and a student's errors help the teacher to decide what to teach next. Self-monitoring is difficult to observe, but self-corrections are overt and more reliably observed (Clay, 2001).

Apprenticeship learning: Self-regulation in the making. Teaching should be redefined as assisted performance and educators should come to understand that teaching occurs when performance is achieved with assistance (Vygotsky, 1978). Having skilled teachers who help students, side-by-side, effectively transfer learning into their own working systems is known as apprenticeship learning (Rogoff, 1990, 1995). Rogoff argued that students should work in a social environment where they are able to dialogue with their teacher and their peers in order to understand concepts more deeply. Students learn these skills with a mentoring adult who understands the cognitive and sociological value of dialogue.

Diaz, Neal, and Amaya-Williams (1990) argued that the child is not just a passive recipient of the adult's teachings nor is the adult simply a model of expert, successful behavior. Rather, the adult-child pair engages in joint problem-solving activity, where both share knowledge and responsibility for the task. Once the child shares the adult's goals and definition of the problem, the adult must gradually and increasingly transfer task responsibility to the child. The reading, talking, and writing experiences enable students to understand more than just the words on the page. Deeper comprehension (Dorn & Soffos, 2001) requires a reader to go beyond the author's message to where the student assimilates the reading experience into his or her own background understandings and that process creates a new message in the reader's mind.

Motivation. Models of self-regulated learning have been broadly used as a way of conceptualizing how students understand, monitor, and manage their own academic functioning (Wolters, 2011). These models explain students' willingness to engage in and persevere at academic tasks using a variety of beliefs, attitudes, values, and other related cognitive constructs (Pintrich & Schunk, 2005). For at least the past 20 years, components of the concept of motivation, which are beliefs such as interests, self-efficacy, achievement goal orientations, attributions, self-concept, and self-determination theory, have become increasingly recognized as critical for students' engagement, learning, and performance within academic contexts (Anderman & Wolters, 2006; Graham & Wiener, 1996; Pintrich & Schunk, 2005). Motivation research has reduced the issues down to two main concepts: (1) expectations for success and (2) personally

valuing the activity. Novelty, relevance, challenge, and student point-of-view (which vary across cultures) all support individual interests that are self-sustaining (Hidi & Renninger, 2006).

Motivation has been considered together with successful comprehension instruction, but most research in the last 30 years has only implicitly studied how motivation affects reading comprehension (Miller & Faircloth, 2009). Guthrie and Wigfield (2001) defined motivation as the cluster of personal goals, values, and beliefs with regard to the topics, processes, and outcomes of reading that an individual possesses. These factors can be present in a robust, focused discussion shared between teachers and students around culturally relevant texts that can increase student engagement in reading. Topics that resonate and engage adolescents are critical, global, and cognitively complex (Feger, 2006). Choice is a highly important element in student motivation. When students have some amount of choice of reading materials, their motivation to read is higher than if a teacher chooses what they read (Biancarosa & Snow, 2004).

Studies have shown that motivational variables (Guthrie, Wigfield, Metsala, & Cox, 1999, Guthrie, Hoa, Wigfield, Tonks, & Perencevich, 2006) together with cognitive variables (Pressley & Harris, 2006) predict reading comprehension and other achievement outcomes. Present within motivation are the variables of (a) self-efficacy, (b) intrinsic motivation, and (c) values and goals (Wigfield & Tonks, 2004). Self-efficacy, individuals' assessments of their own abilities and a sense that they can accomplish the activity, is formed by previous experience, watching peers do the activity, and encouragement from others (Bandura, 1977).

Self-efficacy. Self-efficacy is an individual's judgments of his or her own capabilities to organize and execute courses of action required to facilitate certain performances (Bandura, 1986). Self-efficacy predicts text comprehension. If a reader has confidence and believes it is possible to understand, then the reader is more likely to read with comprehension. Bandura stressed that a person's self-efficacy is highly dependent on the feedback received from others. For adolescents, the feedback they receive from peers and respected adults is critical to their opinion of their self-efficacy.

Each of these theoretical concepts - constructivism, socio-cultural learning, self-regulation, apprenticeship learning, motivation, and self-efficacy - is important in understanding the dynamics of teaching and learning. In the social setting of a small group of students accompanied by a mentoring teacher, comprehension of text becomes easier. Apprenticeship learning occurs as the teacher models, gives feedback, and leads students into more complex material, requiring them to engage in reading and analyzing multiple texts, participate in argumentative discourse, and engage in argumentative writing. In the process, students develop the capacity to self-regulate their learning in these areas and bring about positive effects on reading comprehension.

Hierarchical Cognitive Model of Information Text Comprehension

The proposed study is based on a cognitive model for reading and comprehending expository text (Klauda & Guthrie, 2011; Caccamise, 2011). From this perspective, as readers interact with text, they build a structured network of knowledge, which represents the information in the text plus their prior knowledge and experiences related to the topic of the text (RAND Reading Study Group, 2002; Klauda & Guthrie, 2011; Caccamise, 2011). This theory defines reading comprehension as a complex process that involves the

integration of multiple skills, strategies, and knowledge. The theory is further supported by the Construction-Integration Model of reading (Kintsch, 1998; Kintsch & Kintsch, 2004), which describes the reading process in terms of three levels of comprehension:

1) At the decoding skills level, the perceptual and conceptual activities that happen at the word and sentence level yield basic idea units within the text (micro or macro propositions—referring to the degree of detail versus importance for a given idea unit)
2) At the text level, the textbase (where the reader creates a mental representation of the information contained in the text) includes the main (macro) ideas
3) The integration of the textbase with the reader's prior knowledge, experience, and reader goals allows the text information to become elaborated, flexible, and transferable.

Good comprehenders use inferential processes to build coherence between elements of the textbase and to construct meaning on a larger global level (macropropositions), based on ideas in the micro propositions (idea units) that make up the textbase. The comprehenders replace the micropropositions with global concepts that link the big ideas of the textbase and integrate them with prior knowledge to create the situation model. This process forms a gist of the text, and the gist replaces all the details in long-term memory (Kintsch, 1998; Caccamise, 2011; Klauda & Guthrie, 2011). The gist is part of a larger knowledge network.

Constructing a knowledge network through reading requires recognizing the main concept and subconcepts of the text and identifying supporting facts for the subconcepts, as well as links and relationships among the main concept, subconcepts, and prior

knowledge that are related to the text – or making inferences. These processes of understanding the main concept, subconcepts, and making inferences help readers synthesize information from all parts of the text. The three levels in the current theory are referred to as propositional processes, structural processes, and integrative processes (Klauda & Guthrie, 2011).

The lowest-order components (propositional processes) are considered fluency and literal text comprehension for they enable higher-order comprehension processes. At this level, the reader has developed an accurate representation of the text information, on which more constructive and integrative comprehension processes can proceed. Next, inferring and simple passage comprehension proceeds (the structural processes) because they are dependent on the microstructure and macrostructure of the text. The highest level (integrative processes) is where the formation of a knowledge network is viewed as the ultimate goal of comprehension. It is here that the reader integrates meaning from parts of the text, and perhaps other text readings, plus prior knowledge to generate new knowledge and formulate a more abstract understanding.

Teacher Collaboration and Reflection

The theories of constructivism and socio-cultural learning, self-regulation, apprenticeship learning, motivation, self-efficacy, and the text processing model of reading previously described apply to teachers as well as to students. All professions that self-consciously improve view the process of collaboration to produce accumulating knowledge, as a way of improving their practices (Argyris & Schon, 1996).

Teachers' observations and analyses of student performance and outcomes are better when colleagues work together than when they work alone (David, 2008;

Osterman & Kottkamp, 1993). Teacher collaboration and reflective practices enable teachers to hypothesize ways to change instructional strategies to make them work better and produce better student outcomes (Schon, 1991; Hatton & Smith, 1995).

Teaching, or any kind of professional practice, can be developed through a spiral model of action and reflection: the teacher acts, reflects on the action, and plans a new action as a result of the reflection. The spiral keeps going; and although it can be interrupted, never completed, or cause problems, it, nevertheless, keeps teachers focused on the planning goals (Schon, 1991). Stopping to reflect and collaborate after certain increments of instructional time, such as every few weeks, gives teachers the opportunity to improve and to make needed changes (David, 2008; Marsh, Pane, & Hamilton, 2006; Schon, 1991).

Teachers can share new knowledge when they learn from, and contribute to, a growing knowledge base by (1) studying their own students; (2) learning from researchers, subject matter experts, colleagues, and from the teaching-learning knowledge base; (3) developing hypotheses to guide their attempts to improve teaching; (4) deciding what methods are best for their classroom when planning instruction; (5) monitoring student thinking by observation and by using formative assessment; and (6) reflecting on instruction and determining what worked well and how students responded (Stigler & Thompson, 2009).

Borko (2004) studied teachers who met regularly to look at student work. From their collaborative study of students' responses to assignments, the teachers gained a better understanding of their students' thinking and, consequently, changed their instructional practices. Gearheart and Osmundson (2008) studied grade-level teams of

teachers who shared student assessment portfolios and because of those discussions the teachers deepened their knowledge and began to use the portfolio assessment to shape their instruction.

Collaborative inquiry is among the most effective strategies for strengthening teaching and learning, but it does not happen naturally (David, 2008). Without some training, teachers often lack the necessary skills of collaboration, data collection, interpreting data, and understanding the implications. Collaboration seems to create value and motivation for making changes (David, 2008). Ingram, Louis, and Schroeder (2004) reported teachers are more likely to collect and use data systematically when they work as a group. When working by themselves, teachers tend to lean on anecdotes and intuitive judgments. Factors that keep inquiry teams focused and on track are (a) sufficient increments of time to meet, (b) training in inquiry skills, (c) agreed upon procedures to guide data collection and discussion, and (d) a skilled facilitator to keep the discussions focused on implications for classroom instruction (Cochran-Smith & Lytle, 1999; Nelson, Slavit, Perkins, & Hathorn, 2008)**.**

Experts and practitioners working together to create, refine, and validate knowledge to improve teaching is a model that is an alternative to the more commonly accepted model where experts construct new knowledge, validate it in large-scale randomized pilot studies, and then disseminate the knowledge to teachers and teacher educators (Stigler & Thompson, 2009).

A Brief History of Reading Comprehension Research

In the last forty years, comprehension instruction has developed from teaching single comprehension strategies to teaching combinations of strategies, to teaching

strategies in more flexible ways and in collaborative social contexts (Wilkerson & Son, 2011). The research on comprehension instruction has evolved over the years from studies of individual comprehension strategies with relatively modest benefits for comprehension to studies of multiple strategies with larger effects (Applebee, et al., 2003).

First movement: individual comprehension strategy instruction. Four movements or "waves" (Pressley, 1998) of comprehension research have evolved over the years (McKeown, et al., 2009, Wilkerson & Son, 2011). The first movement began in the 1970's and extended into the early 1980's with an emphasis on the effects of teaching individual comprehension strategies (i.e., inferring, summarizing, questioning, and finding the main idea). The research indicated that students made gains on reading comprehension tests, but there was limited or no evidence of maintenance over time, generalization across settings, and transfer to new and more difficult texts (Palinscar & Brown, 1984).

Second movement: multiple comprehension strategy instruction. The second wave occurred in the 1980's when studies on the use of multiple comprehension strategies came together in approaches such as *Reciprocal Teaching* (Palinscar & Brown, 1984), a model where students learned the strategies of questioning, summarizing, clarifying, and predicting, in small groups. Research on multi-strategy approaches indicated that students develop metacognitive awareness of strategies while discussing texts with their peers and teachers with the goal of motivating them to use strategies for pleasure reading (Goodin, et al., 2009; Brown, Armbruster, & Baker, 1986). The concept of explicit instruction in literacy was introduced and included the instructional strategies

of direct explanation, modeling, guided practice, and independent practice (Duffy, Roehler, Sivan, Rackliffe, Book, Meloth, Vavrus, Wesselman, Putnam, & Bassiri, 1987; Swanson, 1999; Rosenshine & Meister, 1994; Pearson & Fielding, 1991; Pearson & Dole, 1988).

The use of graphic organizers was found to be an effective comprehension strategy for helping students to understand the texts they are reading (Darch, Carnine, & Kameenui, 1986; Marzano, Pickering, & Pollock, 2001). Researchers, such as Kim, Vaughn, Wanzek, and Wei (2004), explained how graphic organizers enable students to classify their thinking and to hold the information in place until it can be analyzed.

During the 1990's, several studies examined the reading behaviors of good and poor readers by asking them to "think aloud" while they read (Dole, Duffy, Roehler, & Pearson, 1991; Jiménez, Garcia, & Pearson, 1995). These studies found that good readers coordinate highly complex and well-developed skills and strategies before, during, and after reading to help them understand and learn from text and to remember what they read (Paris, Wasik, & Turner, 1991). In contrast, poor readers exhibit haphazard behaviors, such as guessing at unknown words and ignoring meaning.

Informed Strategies for Learning (ISL) was introduced by Paris, Lipson, and Wixson in 1983 and again in 2004. The researchers conducted a study in four third grade and four fifth grade classes. Two classes at each grade level received four months of whole-group instruction about reading strategies in half-hour lessons twice a week. The teachers used concrete metaphors, such as "Be a reading detective," "Plan your reading trip," and "Round up your ideas" in lessons and class discussions of reading texts. During each lesson, discussion centered on the purpose and value of the actions and when

they would be most helpful. The emphasis was on increasing awareness of the importance and use of strategies through practice and discussion. A comparison of pre- and post-test scores of control and experimental classes revealed that *Informed Instruction* was successful. Children in the experimental classes scored significantly higher than children in traditional instruction on measures of reported understanding about reading (i.e., a "metacognitive" interview), error detection, strategy ratings, cloze tasks, and reading comprehension.

Good readers use skills and strategies, such as reading words rapidly and accurately and understanding the structure and organization of text (Jenkins, Heliotis, Stein, & Haynes, 1987). They monitor their understanding while reading (Mastropieri, Scruggs, Bakken, & Whedon, 1996). Good readers also summarize, make predictions and confirm them as they read or revise them as needed. They are able to combine what they know about the topic with new learning (Kamil, 2003) and make inferences and use visualization (Swanson, 1999). Effective comprehension instruction in the elementary grades enabled students to summarize, use graphic organizers, generate and answer questions, and monitor their comprehension (Mastropieri Scruggs, Bakken & Whidon, 1996; Kamil, 2004).

Palincsar and Brown (1984) described *Reciprocal Teaching* as a structured conversation where students take on different roles in the discussion (e.g., questioner or clarifier of vocabulary), and they take turns with their conversational responsibilities. The students' questions and insights help teach other students to go deeper in understanding the texts. Over time, the students assume more responsibility for using all of the strategies when they read. According to Palinscar and Brown (1984), if a reader

has adequate decoding skills then reading comprehension would be the result of (a) texts that were considerate and not too difficult, (b) the compatibility of the reader's background knowledge with the content of the text, and (c) the active strategies the reader employed to enable understanding and retention and to prevent misunderstanding.

Palinscar and Brown (1984) conducted two quasi-experimental studies with at-risk seventh graders who were randomly placed in four groups. Group 1 (treatment) received *Reciprocal Teaching*, which focused on practicing the strategies of questioning, summarizing, clarifying, and predicting on reading passages, and taking turns leading the group discussion. Group 2 (treatment) received *Locating Information*, a commonly used model where teacher and students find answers together to questions within the text of a reading passage. Group 3 (control) received the daily reading passages and assessment tests, but no intervention; and Group 4 (control) remained in their classrooms for regular reading instruction.

The researchers found that at-risk seventh grade students who participated in the *Reciprocal Teaching* intervention made significant gains and maintained these gains over time as compared with a similar group of at-risk students who received more traditional reading instruction. The average comprehension gain was 15 months for the *Reciprocal Teaching* students with clear qualitative evidence of improvement in dialogue, which was maintained for at least eight weeks after the treatment. However, results on standardized comprehension assessments were less striking (Pressley, 2000).

Third movement: reading as decision making and responsive engagement. A shift toward the constructivist nature of multiple-strategies instruction informed the many

qualitative studies that occurred in the third wave, which started before 1989 and continued into the following decade. Pressley, El-Dinary, Gaskins, Schuder, Bergman, and Almasi (1992) introduced comprehension instruction with *Transactional Strategies Instruction* (*TSI*), a model emphasizing the transactions between the reader and the text, as well as other participants such as students and teachers, resulting in the joint construction of understanding. The TSI model drew on features of *Reciprocal Teaching* (Palinscar & Brown, 1984) and recognized the important role of metacognition in learning (Brown, Armbruster, & Baker, 1986).

TSI instruction, according to Pressley (2000), included direct explanations, teacher modeling of strategies, and guided practice of strategies with scaffolding provided as needed. In the *Transactional Strategies Instruction* studies, the teachers began the lessons with pre-planned ideas about topics to be discussed; however, if students did not understand, the teachers changed tactics. A student's response could cue an unplanned extensive and relevant discussion, so the teacher's behaviors and reactions affected students' behaviors and reactions. Simultaneously, the text and other aspects of the literacy curriculum affected both the teacher and the students.

The theory was that *transactional strategies* teaching should affect student's self-regulated cognition because (a) a repertoire of diverse reading strategies was presented with practice adapting them for use with other strategies and background knowledge; (b) development of metacognition was encouraged with appropriate use of the strategies being taught; (c) important world knowledge increased because the reading abilities developed in the reading group allowed students to construct understandings from all the reading they did, both in the group and independently; and (d) increasing student

motivation to use strategies and world knowledge was a high priority. The consistent message during group instruction was that all members could understand text and could contribute to the group's comprehension of text (Pressley, et al., 1992).

The goal of this type of teaching was to develop the students' self-regulated use of the comprehension strategies the teacher promoted during a reading lesson. When reading as a group, the students and teacher acted together, decided when to apply specific strategies and when to propose, modify, or reject interpretations of text. The reading group process was considered strategic. Long-term instruction in such a group was presumed to result in the internalization of the executive decisions of the group, implying that the types of decisions once made by and within the group are eventually made by the individual when reading alone. Besides being expected to internalize the processes and practice of the use of strategies, students participated in regular discussions of metacognitive information, such as when, where, and why to use particular strategies, which built their knowledge base and motivated students to use the strategies learned (Pressley, et al., 1992).

Collins (1991) conducted a study that utilized a similar discussion format as *Transactional Strategies Instruction (TSI)*. A total of 168 sixth and seventh graders in four schools located in a large urban area were randomly assigned to experimental and control classes. All groups read the same selection of children's literature and textbooks. Lessons were taught three times per week for four months. The experimental classes were taught eight embedded lessons that emphasized critical thinking ability including metacognitive strategies, decision-making tools, and problem-solving strategies among others. The experimental students scored significantly higher on the reading

comprehension subtest of the *Iowa Test of Basic Skills*; and their post-treatment writing sample, two weeks after the treatment, indicated the use of all eight of the reasoning and thinking strategies whereas the control students only used three (Collins, 1991). Pressley, et al., (1992) readily admitted that the implementation of the *Transactional Strategies Instruction* approach and the students' internalization of the strategies are acquired in the long-term with instruction happening over semesters and years (Pressley, 2000).

SAIL (Students Achieving Independent Learning). Another example of an instructional model that focused on reading as a decision-making process was *SAIL* (*Students Achieving Independent Learning*), introduced by Bergman and Schuder (1993). This model required the teacher to understand the components of skilled reading and how to encourage students to use strategies when reading alone or with others. Within the before, during, and after stages of reading, the strategies were grouped by the decisions that readers needed to make; and for each decision point, prompts were developed to stimulate conscious decision-making. The strategies were presented to students as possible responses to the prompts. The purpose of the model was to raise student consciousness of the strategic responses used by good readers and to provide a simple conceptual framework for these strategies (Bergman & Schuder, 1993; Pressley, Brown, Van Meter, Schuder, 1995). The *SAIL* model provided teachers with an intensive year of professional development and follow-up for the next four years. When groups of low achieving second graders in a *SAIL* group were compared to similar students in a control group, the *SAIL* group students did much better (Pressley, et al., 1995)

School-wide support. Raphael and colleagues (2009) insisted that this third wave of comprehension research should be considered as one in which school-wide coherence

was key to ensuring high levels of achievement for all learners (Goodin, et al., 2009). It is the responsibility of the whole school to provide children with high quality comprehension instruction (Raphael et al., 2009). Research showed that efforts to improve teaching and learning were more apt to be successful if the whole school engaged in the work; therefore, researchers recommended that schools build communities of teachers and learners who collaborate on a common purpose and vision (Goodin, et al., 2009; Bryk, Rollow, & Pinne, 1996). During the period of whole-school improvement, a controversy was taking place over whether teaching comprehension strategies was the best approach to comprehension instruction.

Limits to strategy instruction. Limits to strategy instruction surfaced later in the 1990's**.** Resnick (1985) preemptively argued that skilled readers are fast and fluent; therefore, they are unlikely to apply intentional strategies, such questioning, summarizing, and visualizing. Others suggested that when readers divert their attention from the text to think about strategy applications, this undermines comprehension (Sinatra, Brown, & Reynolds, 2002). Controversy led to new ideas of how students comprehend text and launched a series of studies that took researchers away from teaching comprehension strategies.

New theory: text processing and content orientation. During the third movement, attention focused on a newer text-processing theory of comprehension: content orientation. From a text-processing perspective, a reader goes through text to identify each new bit of information, decide how it relates to previous information and background knowledge (Kintsch & van Dijk, 1978; Graesser, et al., 1994; van den Broek, et al., 1998), and integrate the parts into a meaningful whole. According to McKeown,

Beck, and Blake (2009), text comprehension is improved when readers keep their focus on constructing meaning, rather than considering when and how to call up specific strategies to process new information. Two instructional approaches that use discussion groups to increase reading comprehension are *Questioning the Author,* an approach that focuses on text content in response to general questions (McKeown, Beck, and Blake, 2009) and *Instructional Conversations* (Saunders and Goldenberg, 1999), an approach that elicits response to a text in discussion (Garcia, Taylor, Pearson, Stahl, and Bauer, 2007).

Questioning the Author. McKeown, et al., (2009) conducted a two-year study with fifth graders from six classrooms in a low-performing urban school district. Two experimental instructional approaches were studied: (1) teaching content through a discussion approach called *Questioning the Author* (Beck, McKeown, Hamilton & Kucan, 1997) and (2) teaching *multiple-comprehension strategies*. These two instructional approaches were implemented and compared to a control group using a basal reading program. *Questioning the Author* instruction focused students' attention on the content of the text through open-ended, meaning-based questions about the text. QAR engaged students in discussion, the process of paying attention to text ideas, and building a mental structure of the ideas. There was no direction to consider specific mental processes or comprehension strategies. The *multiple-strategies* instruction focused on specific procedures, such as questioning, activating prior knowledge, inferring, and summarizing, which were taught to students for the purpose of guiding them through text during reading. The control group's approach used questions from the school's basal reading program, and each teacher used common texts and scripted lessons

to reduce variability. Teacher training and feedback were provided and there were fidelity checks for every lesson. Year 1 groups read narrative texts and Year 2 groups read expository texts.

There were two categories of assessments: (1) lesson-text comprehension and (2) beyond lesson-text-assessments. The lesson-text comprehension assessments included the Sentence Verification Technique, SVT, (Royer, Hastings, & Hook, 1979) for each text of the five lessons implemented in the study and included story recall for two of those lesson texts. The beyond-lesson assessments included a comprehension-monitoring task and a task that assessed knowledge of strategies. In addition, researchers analyzed transcripts of classroom discussions from consider differences in lesson discourses among the approaches.

The results revealed that all instructional approaches promoted adequate comprehension. All groups, including the basal reading groups, were moderately successful on the measures. McKeown, et al. (2009) reported that the small differences were not surprising, since all three approaches used scripted lessons of high-quality instruction; all teachers were trained, observed, and given feedback; and each approach was based on interspersed reading and discussion which provided a strong foundation for comprehension. The format of interspersed reading and discussion may have been the most positive influence in the instructional design, as that is not typically done during basal reading lessons (McKeown, et al., 2009).

There was a small, but consistent pattern in favor of the content approach (*Questioning the Author*); however, it was not a significantly larger effect than the basal reading program. The authors suggested getting students to actively build meaning while

reading may not require knowledge of comprehension strategies; but rather it may require attention to establish connections between appropriate strategies and important ideas from the text. They recommended strategies be introduced using short texts; then, during meaningful reading/discussion of text, strategies should be referenced as they naturally occur (McKeown, et al. (2009).

Instructional Conversations. The *Instructional Conversations* approach requires the teacher to assume the role of facilitator instead of transmitter of knowledge. Rather than provide step-by-step instruction designed to produce right answers or correct performance, the teacher, in an instructional conversation, encourages expression of the students' own ideas, builds upon information students provide, and generally guides students to increasingly deeper levels of comprehension. In research by Tharp and Gallimore (1991), the same teacher taught two *Instructional Conversations* lessons to a small group of students who read texts, compared the characters' experiences with those of their own, and wrote responses in their literature logs, followed by conversations about the book. The teacher and students engaged in scaffolded conversations around the text and the students wrote responses to the reading. The teacher also taught two more traditional lessons to a different group of students and emphasized comprehension and recall of the story. The lesson format used a common recitation format whereas the teacher asked questions, the students responded, and the teacher assessed their understanding of the story. Afterwards, all students were assessed on 10 open-ended, short answer questions and an essay. Both groups achieved the same average scores on the literal comprehension questions. However, the essays by the students in the *Instructional Conversation* group were of higher quality. They outscored the other group

by 4 to 1, indicating they understood the text at a deeper level and were able to communicate thoughts better in writing (Tharp & Gallimore, 1991).

Saunders and Goldenberg (1999) conducted a study with 116 fourth and fifth graders, over half of which were English Language Learners who were randomly assigned to one of four treatment conditions: literature logs only, *Instructional Conversations* only, literature logs plus *Instructional Conversations*, and a control group of the regular school reading instruction. The *Instructional Conversation* and the literature log and *Instructional Conversation* groups scored significantly higher than the control group on story comprehension. For limited English proficient students, the combined effects of literature logs and instructional conversations were greater than the effects of either treatment condition alone. For fluent English proficient students, however, the combined effects were not significantly greater than the effect of one treatment condition or the other (Saunders & Goldenberg, 1999)

Garcia, Taylor, Pearson, Stahl and Bauer (2007) later conducted a study with second through fifth grade students in 12 low-income schools in four sites. The responsive engagement instruction (*Instructional Conversations*) was intended to produce high levels of text discussion and was compared to multiple-strategies instruction and control groups receiving vocabulary instruction. The results were different depending on the school site, but did not show significant differences between the multiple-strategies and the responsive engagement (*Instructional Conversations*) groups. However, both groups did significantly better than the control groups, confirming the effects of strategy instruction, as well as text discussion, upon the reader's comprehension.

Strategies are important, but not sufficient. Fisher, Grant, and Frey (2009) reported that teaching and practicing comprehension strategies were not sufficient to produce student achievement at high levels, especially in the content areas. The role of background knowledge was noted to be critical and so was the understanding of content vocabulary, but comprehension strategies were not much help with either of those (Applegate, Quinn, and Applegate 2006). Sinatra, Brown, and Reynolds (2002) and Fisher, et al (2009) argued attention to strategies might undermine comprehension by diverting cognitive resources away from understanding text. It is possible teaching and learning strategies could become too mechanical and become an end point, rather than a means to an end (Hacker & Tennent, 2002).

Wilkerson and Son (2010) examined over 60 reviews of research published since 1999 on teaching reading comprehension and found that instruction in small repertoires of strategies produces robust effects on comprehension in standardized tests. Yet, some researchers have argued that it was not the strategies *per se* that were responsible for improvement in student comprehension, but rather it was the engagement level of the students with texts (Kintsch & Kintsch, 2004). Strategy use was valued in that knowledge of strategies gave students vehicles that enabled them to engage in dialogue and learn from each other (Palinscar, 1986; Wilkinson & Son, 2011).

Some researchers have argued that strategy instruction is somewhat difficult for teachers to learn and sustain over time; and it requires a long-term commitment (Hilden & Pressley, 2007; Conner, Morrison & Petrella, 2004; Deshler & Schumaker, 1993; Brown & Coy-Ogan, 1993). Garcia, et al (2007) found that some teachers who were taught to implement strategy instruction tended to overemphasize strategies during the

interactions with students. Wilkinson and Son (2011) noted that instruction became mechanical and highly structured and probably inhibited students' self-regulated and flexible use of the very strategies they were trying to learn. Other researchers have raised concerns that comprehension strategies could become an end-in-themselves, rather than a means-to-an-end (Brown & Campione, 1998; Paris & Winograd, 1990; Beck, McKeown, Hamilton, & Kucan, 1997).

Fourth wave: Discussion Approaches in Comprehension Instruction

During the 1990's, researchers began to argue that high-quality discussions were necessary and critical to the developing understandings of readers and writers (Eeds &Wells, 1989; Gambrel1 & Almasi, 1996; Guthrie, Schafer, Wang, & Afflerbach, 1995), and thus began the fourth movement or wave of comprehension research (Wilkinson & Son, 2011). David Bohm (1996), a noted scientist who made significant contributions to the field of neuropsychology and philosophy, distinguished between the act of communicating and that of dialogue. Bohm described communication as telling one's ideas and making one's thinking clear to another, whereas he explained that dialogue is "coming to an intellectual exchange, willing to see and hear something new in the exchange and actually creating a newer, stronger understanding because of the exchange. It is a true negotiation of meaning" (Bohm, 1996, p. 2).

Tharp and Gallimore (1991) agreed that when it comes to the development of thinking skills or the ability to form, express, and exchange ideas in speech and writing, the most important form of assisting learners, or scaffolding them, is dialogue. They defined dialogue as the questioning and sharing of ideas and knowledge that happens in conversation. Giving children comprehension strategies to use and opportunities for

success and feedback develops their expertise as readers (Wigfield & Tonks, 2004) and scaffolding student discussions around texts develops their expertise in thinking, defined as the ability to form, express, and exchange ideas in speech and writing. The most important form for scaffolding students, therefore, is dialogue: the questioning and sharing of ideas and knowledge that happens in conversation (Tharp and Gallimore, 1991).

Intrinsic motivation with elements of curiosity, preference for challenge, involvement, and perceived autonomy or the belief that one has some control of his/her learning, is related to long-term engagement and deeper learning (Hidi & Harackiewicz, 2000, Lepper & Henderlong, 2000). Values and goals, such as an orientation toward improving skills and developing competencies, also enable a person's learning (Anderman, Austin, & Johnson, 2002). Engagement in discussion around relevant and interesting texts can activate curiosity, challenge, and autonomy. Frequent and successful participation in discussion can improve competency and skill in dialogue, thus enhancing self-efficacy (Pressley & Harris, 2006).

Expanding on the definition of dialogue, Almasi and York (2009) defined discussion as a "dialogic classroom event in which student and teachers are cognitively, socially, and affectively engaged in collaboratively constructing meaning or considering alternate interpretations of texts to arrive at new understandings" (Almasi & York, 2009, p. 471). Study results indicated that discussions that rely on a more student-centered dialogic approach leads to significant growth in comprehension (Almasi & York, 2009). Students in grades 7 and 8 in middle schools and grades 10 and 11 in high schools participated in the study.

Four lessons were observed in each classroom and teachers were asked to conduct lessons that required class discussion of some kind of literature. Field researchers used the CLASS computer software to record classroom interactions and later to complete a variety of ratings. The measures were teacher and student questionnaires and three essay performance tasks. The researchers found evidence of dialogic instruction, envisionment building (helping students see the big picture and see examples of what they are expected to do), extended curricular conversations, and high academic demands. Envisionment building occurs in classrooms that provide activities that are effective in the development of students' reading and writing skills and include a variety of discussion-based approaches (Langer, 1995).

Applebee et al. (2003) found that high academic demands and discussion-based approaches that included dialogic instruction, envisionment building, and extended curricular conversations about important academic concepts were significantly related to positive gains, with controls for initial literacy levels, gender, socioeconomic status, and race/ethnicity. The findings indicate that these approaches were effective across a range of situations and for students of varying levels of academic ability.

Discussion improves comprehension. Wolf, Crosson, and Resnick (2004) conducted a qualitative study of discussion or talk moves that teachers learned and used with students and the impact of those moves in rigorous, high level discussions. A total of 21 teachers of first through eighth grade classrooms and from two urban school districts volunteered to have researchers observe their reading comprehension lessons. Two trained raters visited each teacher one time and videotaped and transcribed the lesson using two rubrics from the *Instructional Quality Assessment (IQA)* tool developed

at Learning and Research Development Center at the University of Pittsburg. The two rubrics focused on (1) Accountable talk in the classroom and (2) academic rigor of the lesson. The purpose was to examine the relationship between classroom talk and the rigor of the lesson. To reduce the variability across the lessons, the teachers structured their lessons similarly. The teachers designed their lessons to include the following three components: (1) a text was read aloud to, with, or by the students; (2) the teacher lead a whole group discussion for about 20 minutes; and (3) the teacher assigned group work or individual tasks for small-group or independent work (Wolf, et al., 2005).

The IQA tool defined the rigorous reading comprehension lesson as one involving a thorough understanding of the text in addition to analyzing and interpreting the text. The correlation and regression analyses indicate that good accountable talk moves had a positive and strong relationship with the level of rigor in the lessons. The results of the study result found that the teachers most often lead the conversation, and used more talk moves to obtain student's responses. One interesting finding was that the talk moves regarding accountability for knowledge or reasoning were relatively prevalent, but the talk moves of students and teachers linking ideas to each other was not a common practice. It is important to note that the discussions that were analyzed were of whole group discussions and not in small groups. This study provided evidence that classroom discourse that includes listening to others, questioning the knowledge of others, and expanding one's own thinking is positively correlated with the academic rigor of reading comprehension. The evidence indicates that students who engage in meaningful discussion demonstrate better text comprehension (Wolf, et al., 2005).

A Study of Nine Discussion Approaches

Soter, Wilkinson, Murphy, Rudge, Reninger and Edwards, (2008) conducted a three-year study in which the first year was spent in an exhaustive literature review and meta-analysis of discussion approaches to teaching and learning comprehension. The second year was a qualitative study of nine different discussion approaches with teacher training in each approach and four complete discussions (a total of 36) evaluated on a set of discourse features common to quality discussions. First, the researchers identified the common discourse features that would accommodate all approaches; then they grouped the approaches according to their stance toward text (Chinn, Anderson, & Waggoner, 2001). The three approaches were (1) *expressive stance* (focused on students' affective response to text), (2) *efferent stance* which focused on acquiring information and, (3) *critical-analytic stance* which focused on interrogating the text in search of underlying arguments, beliefs, or worldviews (Sotor, et al., 2008). The three approaches are described in the following section and are important in considering which discussion approach brings higher-level, critical thinking from the participating students.

Sotor, et al. (2008) identified 13 parameters of discussion that characterize discussion approaches for promoting high-level comprehension (though, not necessarily critical-analytic thinking). The 13 parameters were (1) pre-discussion activity to promote individual response; (2) teacher choice of text; (3) teacher control of topic; (4) students have interpretive authority; (5) students control turns; (6) small group structure; either teacher-led or peer-led but begin with teacher-led; (7) heterogeneous ability grouping; (8) reading prior to rather than during discussion; (9) genre (narrative fiction); (10) medium

to high expressive stance; (11) medium to high efferent stance; (12) high critical-analytic stance; and (13) content/and or process post-discussion activity (Wilkinson, et al., 2010).

Expressive stance discussion approaches. The discussions that used Expressive stance (focused on student's affective response to text) were *Book Club*, *Literature Circles*, and *Grand Conversations*. The first*, Book Club,* was a discussion approach in which small groups of students read the same book, wrote responses to the text, and then talked about it in a Community Share experience (Raphael & McMahon, 1994). The second, *Literature Circles* (Short & Pierce, 1990) was a variation of *Book Club* with the goal to develop habits of sustained and motivated reading that would provide the foundation for the development of strategies such as interpretation, prediction, analysis, and comprehension of literary texts through regular negotiation of meaning with others. Students were provided with instruction and graphic organizers for each "role" they were to play in the discussion (e.g. word clarifier, summarizer, questioner) with the intent of rotating the roles among the students in the group and eventually assuming all the roles each time they discussed a text (Daniels, 1994). Last, *Grand Conversations* (Eeds & Wells, 1989) was an approach in discussion about literature that imitated the kinds of conversations that naturally occur when adults have conversations about literary texts. The assumption was that by participating in conversations like this, children would naturally talk about books in rich and meaningful ways (Eeds & Wells, 1989). The discussion approach contained these elements: interesting books; reading aloud daily by the teacher; extensive reading by students; and dialogue that was begun by a ''big question'' such as, ''what do you think?'' (Peterson & Eeds, 1990).

Efferent stance discussion approaches. The discussions that used an *Efferent stance* (focused on acquiring information) were *Instructional Conversations*, *Questioning the Author*, and *Junior Great Books*. The first, *Instructional Conversations,* as previously described, was a variation on an earlier instructional model called *Directed Reading* (Au, 1979: Tharp & Gallimore, 1991) and included such elements as teacher-led, open-ended questions, connected discourse between students and teacher, a challenging but safe environment, participation through students volunteering to talk, and taking turns speaking in response to texts jointly read. Written responses in literature logs were used in tandem with the discussions (Goldenberg, 1993; Tharp & Gallimore, 1991).

Second, *Questioning the Auth*or, previously described, was a method of collaboratively identifying the types of questions a reader has and the textual sources for the answers. This helped students realize that the deeper questions and answers require accessing their own background knowledge and reasoning, as well as the text (Beck, et al., 1997). Last, *Junior Great Books* involved reading a text together and engaging in a discussion method called Shared Inquiry in which the teacher only asks questions of students and those questions led students deeper into the meaning of the text and requires them to listen to each other's ideas and build upon them in discussion (Criscuola, 1994; Sotor, et al., 2008).

Critical-analysis stance discussion approaches. The discussions that used a *Critical-analysis stance* (teachers and students share control) were *Collaborative Reasoning* (described more fully Argumentation section), *Paideia Seminars*, and *Philosophy for Children*. First, the primary goals of *Collaborative Reasoning* discussions are to provide students with opportunities to acquire the discourse of reasoned

argumentation and transfer reasoning skills to improve their reading comprehension. Small groups of teachers and students discuss texts read before the discussion and then begin to answer a central question. Students are asked to indicate their initial positions on the question before discussion actually begins. Teachers take on the role of coach and offer the initial central question to begin the discussion; then they model, prompt, and encourage students to use the specific vocabulary of critical and reflective thinking, and to provide reasons, evidence, argument and counterargument (Waggoner, Chinn, Yi, & Anderson, 1995; Sotor, et al., 2008).

Next, *Paideia Seminars* (Billings & Fitzgerald, 2002) include several features: instruction for increasing recall of information from texts; cognitive coaching for the development of literacy skills; and seminar dialoguing which has the goal of developing students' conceptual understanding of information. The goals are to develop interpretive abilities, identify mistakes in logic, and identify errors of interpretation of texts. The whole group makes decisions about what counts as important material or topics. Teachers give up some authority to facilitate the content and form of discussions (Billings & Fitzgerald, 2002, Sotor et al., 2008).

Last, *Philosophy for Children* is an approach where the primary goal is to foster strong reasoning skills in children, help them tell the difference between good and poor reasoning, and help them develop the ability to bring their thoughts and actions together. The inquiry is aimed at compelling students to reflect, concentrate, listen closely to others, and assess and evaluate ways of examining an issue that have previously never occurred to them (Wilkinson et al., 2003). Children read age-appropriate books on

ethical and enduring human-issue topics, discuss them, and make their own interpretations. The teacher begins the discussion with an open-ended question (Lipman, 1975; Sotor, et al., 2008)

Results. Results from the Sotor, et al. (2008) study indicated students showed the greatest control over discussions in the *expressive stance*; teachers showed the greatest control over discussions that gave focus to the *efferent stance*; and teachers and students showed shared control over discussions with the *critical-analytic stance*. Most importantly, students seemed to engage in higher-level thinking and reasoning with the *critical-analytic* and *expressive stance* approaches. Additionally, productive discussions were the most structured and focused, but not dominated by the teacher. The discussions were most productive when students held the floor for extended periods of time, when students were prompted to discuss texts through open-ended or authentic questions, and where discussion incorporated a high degree of uptake (i.e., a question following up something someone else has said) of information (Sotor, et al., 2008).

Authentic questions (open-ended questions intended to elicit personal knowledge and beliefs) were the most conducive for producing longer episodes of student talk, which then led to higher-level reasoning. Some modeling and scaffolding by the teacher was necessary to prompt elaborated reasoning from students, and those types of supports occurred more in the critical-analytic discussions (Sotor, et al., 2008).

The three most commonly assessed constructs in the nine discussion studies were (1) the amount of teacher talk, student talk, student–student talk, (2) the incidence of shared predicates (information previously learned in discussion), and (3) the incidence of uptake (questions prompted by something someone said). The researchers who analyzed

the transcripts of discussions interpreted changes in the patterns of discourse among the groups as evidence of the success of the approach, and from this evidence, made inferences about the quality of students' thinking.

This study (Sotor, et al., 2008) illuminates the effectiveness of critical-analytic and expressive stance discussions; however, the authors did not correlate the discourses with reading comprehension. The results pointed other researchers in the direction of studying reading comprehension instruction where the teachers and students share the control of discourse (Wilkerson and Son, 2010).

Four Dialogic Approaches to Comprehension Instruction

Recent research, according to Wilkerson and Son (2010), has taken a new turn to a more dialogic approach to teaching comprehension due, in part to the already-mentioned concerns about teaching strategies and also to the concept that comprehension is a "fluid, context-sensitive process that requires a more dynamic and flexible approach" (Wilkinson & Son, 2010, p. 361). The meta-analysis reviewed four approaches: *content-rich instruction, discussion, intertextuality, and argumentation.* The authors looked at some of the same discussion approaches that Sotor, et al. (2008) examined in his research.

Content-rich instruction. *Content-rich* instruction made use of embedding comprehension strategy instruction within content area subjects such as science or social studies with the comprehension strategies used as tools to understand the content and the content used to give purpose to the strategies. Instructional programs, such as *Concept-Oriented Reading Instruction* (CORI), *In-depth Expanded Application of Science* (IDEAS), and *Reading Apprenticeship* are examples of *content-rich* instruction.

The *CORI or Concept-Oriented Reading Instruction* (Guthrie, Wigfield, & Perencevich, 2004) focuses on using the comprehension strategies of activating prior knowledge, questioning, searching for information, summarizing, and using graphic organizers within a rich context of inquiry with a collaborative group of peers. Since 2004, Guthrie and colleagues have produced 11 quasi-experimental studies comparing the effects of CORI with the effects of traditional instruction and conventional strategy instruction with students in grades 3-5. A meta-analysis (Guthrie, McRae, & Klauda, 2007) of these studies reported CORI mean effects sizes ranging from 0.65 to 0.93 on researcher-developed tests of comprehension and 0.91 on standardized tests of comprehension. The meta-analysis also showed positive effect sizes on measures of students' science knowledge and student motivation for reading.

In 2012, Guthrie and colleagues examined the effects of CORI on information text comprehension and motivation for reading with middle school students in a six-week study in one school district (Guthrie, Mason-Singh, & Coddington, 2012). This quasi-experimental study used an interrupted time series design, whereas the teachers provided traditional instruction from time 1 to time 2 and CORI from time 2 to time 3. Researcher-designed cognitive measures of reading comprehension processes on information text were administered. These measures examined three areas: (1) knowledge construction from information text (which required higher order processes of synthesis and integration), (2) literal text comprehension (which measured propositional comprehension and encoding), and (3) inferring (which measured competencies to detect connections within text structure). The teachers received training, and the students and teachers completed questionnaires that were also analyzed. The students also completed

the *Gates-MacGinitie Comprehension* test and the *Woodcock-Johnson Fluency* test as standardized measures (Guthrie, Mason-Singh, & Coddington, 2012).

From a complex series of multiple-regressions, the results showed the CORI instruction increased information text comprehension more than traditional instruction. CORI increased four affirming motivations that contribute to achievement (intrinsic motivation, self-efficacy, valuing, and peer value); and CORI decreased four undermining motivations that detract from achievement: avoidance, perceived difficulty, devaluing, and peer devalue (Guthrie, Mason-Singh, & Coddington, 2012).

Another example of content-rich instruction is *IDEAS* or *In-depth Expanded Application of Science* (Romance & Vitale, 2001). This model puts reading and writing together each day in a two-hour block of in-depth science instruction, placing the strategies used (e.g., using graphic organizers, connecting to prior knowledge) within the content-rich science learning and giving the learning of the strategies more meaning and purpose. In four quasi-experimental studies, the students in the IDEAS groups out-performed their peers in grades 2-5 traditional science classes on comprehension and science achievement measures (Romance & Vitale, 2001; Wilkerson & Son, 2011).

Reading Apprenticeship is a content-rich reading instruction that shows promise. Greenleaf, Schoenbach, Cziko, and Mueller (2001) designed *Reading Apprenticeship* as an instructional framework based on a socially and cognitively complex conception of literacy. The teacher serves as a "master" reader of subject-area texts to student apprentices; paralleling the role of more proficient "expert" in descriptions of socially mediated cognitive (Rogoff, 1990, 1995; Diaz, Neal, and Amaya-Williams, 1990; Vygotsky, 1978). This instruction in *Reading Apprenticeship* involves teachers and their

students as partners in a collaborative inquiry into reading and reading processes as they engage with subject-area texts (Schoenbach et. al., 1999). The teachers and students work collaboratively to make sense of texts, while engaging in conversations about what constitutes reading in specific academic disciplines and how they are going about it. The metacognitive conversation goes on both internally, as the teachers and students reflect on their own mental processes, and respond externally to texts. The students and teachers share their reading processes, strategies, knowledge resources, motivations, affective responses and interactions with texts. These conversations and reflections, if they become routine, give students opportunities to consider what they are doing as they read, how they are trying to make sense of texts, and how well their strategies and approaches are working for them (Schoenbach et. al., 1999).

Greenleaf, et al. (2001), in collaboration with the teachers at an urban high school, developed a course that would provide students with this intensive experience of *Reading Apprenticeship* called Academic Literacy. Teachers recruited typical ninth graders who represented the diversity of students in their classes to participate in the course, and eight students were selected as case studies.

To evaluate the effect of the course on student learning, Greenleaf, et al (2001) collected a variety of data, including both standardized test scores and qualitative data, to measure student thinking and learning. Standardized measures included pre- and post-tests of reading proficiency using the *Degrees of Reading Power* test. Qualitative measures included pre- and post-course reading surveys and course evaluations; focus group interviews; classroom observations; and samples of course work for thirty students selected randomly from the class rosters of two of the Academic Literacy teachers. In

addition, the researchers conducted intensive case studies of eight of the thirty students, videotaping interviews with them three times during the year as they completed reading assignments for the course (Greenleaf, et al., 2001).

The authors demonstrated that academically underperforming students became more strategic, confident, and knowledgeable readers in the Academic Literacy course. Students in the course gained on average two years of reading growth within one academic year on the standardized test (Greenleaf, et al., 2001). The authors suggested through inquiry, social mediation, and ongoing practice, *Reading Apprenticeship* can involve students in building more complex high-level literacy practices, increased fluency, and create broader repertoires of problem-solving strategies and approaches (Greenleaf, et al., 2001; Wilkinson & Son, 2010).

Discussion. Large studies on discussion approaches by Nystrand and Gamoran (1991, 1997) found positive correlations related to features of whole class discussion and student comprehension. As previously described, the meta-analysis by Sotor, et al. (2010) indicated that differences in the discussion approaches were based on the stance of the teacher or student. The *aesthetic or expressive stance* used a more reader-focused response to text, as characterized by discussion approaches in *Book Club*, *Literature Circles*, and *Grand Conversations*. The *efferent stance* used a more teacher-focused and text-focused method with students reading to acquire information, as evidenced by discussion approaches in *Instructional Conversations*, *Questioning the Author*, and *Junior Great Books*. The *critical-analysis stance* used an approach where teachers and students share control, as observed in discussion approaches in *Collaborative Reasoning*, *Paideia Seminars*, and *Philosophy for Children*.

Another comparison of the results of different discussion approaches was reported by Murphy, Wilkinson, Sotor, Hennessey, and Alexander (2009), who did a meta-analysis of 42 single and multiple-group studies of the approaches to text discussion with measures of teacher and student talk and individual student comprehension. The researchers found that increases in the amount of student talk did not always result in similar increases in comprehension. Instead, a particular type of high quality talk enhanced comprehension. This finding, which is consistent with an earlier analysis by Wells (1989), supports that different approaches improve comprehension in different ways. Murphy, et al (2009) concluded there is evidence that high-quality discussions can improve student comprehension, but they strongly suggested that more research is needed in this area.

What seems to be missing, but very important for research in reading comprehension, is for researchers to assess students' comprehension of texts outside of discussions to know whether the students have acquired the ability to transfer what they have learned to a novel situation with a text (Wilkinson & Son, 2011). Almost all studies have focused on discussions of literary texts, and more research is needed on the effects of high quality discussions with expository texts (Wilkinson & Son, 2011).

Inter-texuality: Comprehension Across Multiple Texts

Inter-textuality approaches involve the juxtaposition of texts to other texts. Most studies have focused on children reading of multiple texts and comparing them only for research assignments in the content areas, but not across the literature (Wilkinson & Son, 2010). Multiple text comprehension places additional demands on the reader. Readers must not only comprehend the information within a text, but they must also make

connections to information across texts to develop a general understanding of the situation being described by the texts. The same active processes that are critical with single-text processing are also important in processing multiple texts (Wolfe & Goldman, 2005). Some studies have indicated when learning from multiple texts, students rarely integrate information across texts without training (Wolfe & Goldman, 2005; Greene, 1994; VanSledright, 2002a; Van Sledright & Kelly, 1998).

Wolfe and Goldman (2005) conducted a qualitative study examining adolescents' processing and reasoning from multiple texts by presenting conflicting accounts of the same historical event, the Fall of Rome. Forty-four 6th grade students from five different public schools in an urban school district participated in the study. All students had completed a 6- to 8-week unit on the Roman Empire two months before participating in the study.

There were seven phases of student participation: (1) prior knowledge elicitation, (2) think-aloud instruction and getting familiar again with basic content on the Roman Empire (through a time line and map), (3) reading the historical accounts while doing a think-aloud, (4) post-reading interview about similarities and differences between the historical accounts, (5) reading the fact list that contained additional information about the Roman Empire, (6) generation of questions to ask each historian, and (7) explaining why Rome fell. The third and seventh sessions (think-aloud and explaining why Rome fell) were conducted individually in sessions ranging from 20 to 45 min in length. All sessions were audio taped and transcribed.

Wolfe and Goldman (2005) examined in detail the processing strategies the adolescents used to make sense of the conflicting accounts of a historical event and they

related the students' processing to subsequent efforts to construct their own explanations. Connections across texts that explain why and how various ideas in the text are related are called "self-explanation" inferences (Chi, 2000). Generating self-explanations during reading results in a representation of the text that produces proficiency on memory tasks and better performance on learning tasks compared to paraphrasing the text (Chi, et al., 1994; Coté & Goldman, 1999; McNamara & Kintsch, 1996).

The think-aloud comments fell into five categories reflecting different kinds of processing of the text: paraphrases, evaluations, comprehension problems, comprehension successes, and elaborations (self-explanations, surface text connections, irrelevant associations, or predictions). Explanations for why the Romans could not defend themselves against the Barbarian invasion were coded in three categories: number of causes generated, complexity of the students' reasoning, and integration of causes.

Using these variables, multiple regression analysis predicted the students' reasoning scores. The pattern of correlations indicated students who made an effort to identify connections within and across texts and explain those connections produced more complex explanations of the historical event, which provided evidence of higher level thinking, thus, indicating comprehension.

Wilkinson and Son (2010) commented that not many studies have looked at changes over time in text-to-text connections or how they have affected student comprehension, but Pappas, et al. (2003) and Verelas and Pappas, (2006) noticed that inter-textual connections seem to support second grade students' comprehension. Because of the design of the studies, there is no way to tell if the inter-textual connections played a causal role in supporting students' comprehension, but the studies are

compelling and indicated inter-textuality might have a relationship with comprehension. One challenge for researchers is that all of the published studies of inter-textuality have been with young school students and not with adolescents (Wilkinson & Son, 2011).

Studies have found that reading across multiple texts on the same topic, particularly with differing viewpoints, develops students' critical thinking (Hartman & Hartman, 1993; Levy, et al., 1995). Reading the second text is easier when the content or theme is continuous from the first text (Levy, et al., 1995). Wolfe and Goldman (2005) noted that helping students to understand different points of view and provide logical evidence behind each viewpoint opens their thinking to multiple perspectives and heightens their critical literacy.

A Closer Look at Argumentation

Argumentation is another dialogic approach reviewed in the comprehension meta-analysis by Wilkerson and Son (2010). The researchers found strong evidence that children can learn skills of argumentation: take a position, support it with evidence, challenge other students with counterarguments and rebuttals, and possibly improve their comprehension. Some examples of this approach include *Collaborative Reasoning* (Reznitskaya & Anderson, 2002), *Accountable Talk* (Wolf, Crosson, & Resnick, 2004; Michaels, O'Connor, & Resnick, 2008), and *Discussion Web* (Alvermann, Hynd, & Qian, 1995). Each approach is described in greater detail in this section.

The terms *argument* and *argumentation* reflect the two ways in which the term argument is used, as both product and process. A person constructs an argument to support a claim. The dialogic process in which two or more people engage in debate of

opposing claims can be referred to as argumentation or argumentative discourse, distinguishing it from argument as product (Kuhn & Udell, 2003).

Adolescents show weakness in argument construction. Two serious weaknesses that have been observed in the arguments of adolescents and young adults are (1) they are unlikely to construct two-sided arguments and (2) they have difficulty distinguishing the differences between evidence and explanation in support of their claims (Brem & Rips, 2000; Kuhn, Shaw & Felton, 1997; Voss & Means, 1991). However, extended engagement in argumentative discourse, without any additional instruction, can be a sufficient condition for enhancing the quality of written arguments produced by individuals following discourse; moreover, students learn from each other's arguments (Lao and Kuhn, 2002). The extended experience of argumentation brings benefits.

Kuhn and Udell's (2003) experimental study examined the effects of oral argumentation with academically at-risk 8th grade students from two low-performing inner city public middle schools. The students participated in 16 sessions that provided dense exercises of argumentative thinking. One experimental group included peer dialogues; another group did not. The former was the more effective, although both groups progressed. Students showed increased frequency in the use of powerful argumentative discourse strategies, such as counter-argument, and they decreased in the frequency of less effective strategies. The quality of arguments (for or against) also improved, supporting the concept of a close relation between the two kinds of argument skills. Kuhn and Udell (2003) concluded that engagement in an argumentative discourse activity enhances the development of argumentative skills.

Teacher modeling and prompting needed to learn argumentation. In a study focused on argumentation, Chinn and Anderson (1998) analyzed two fourth grade classrooms where children discussed stories that they read in class. During these discussions, students took positions on important issues, based on evidence from the stories, and invited others to argue their opposing positions (which the authors referred to as interactive argumentation). These discussions were more like classroom conversations than formal debates. The objective of this research was to look closely at the discussions in order to help teachers plan discussions more carefully and help promote students' reasoning abilities.

The teachers created concept maps of interactive argumentation among the children in the groups and then mapped them both ways, with the *argument* and *causal* networks (Resnick, Salmon, Zeitz, Wathen, & Holowchak (1993). They found many arguments were causal (Character A felt sorry for Character B so he let him win) and most of the causes given were inferences about characters drawn from facts from the text. Teachers tended to prompt students to give reasons, evidence, and challenges and students responded by using similar words and ideas. Chinn and Anderson (1998) discovered that classroom discussions lacked the organization that written texts have. They also found students maintain arguments at surface levels, without teacher prompting.

By examining the structure of classroom discussions and interactive argumentation, teachers and researchers were able to see where classroom discussions were simply surface level, so by conducting similar classroom discussions including teacher prompting, students were able to further analyze and discuss texts by challenging

one another's positions, leading to deeper discussion. The researchers, Chinn and Anderson (1998), suggested argumentation or debate could be an effective structure for prompting response to reading, but that students will need teacher support to learn how to challenge one another's positions.

Just knowing argumentation principles is not enough for transfer. Reznitskaya, Anderson and Kuo (2007) used a quasi-experimental design to analyze the social and cognitive processes that support the development of argumentative knowledge. Teachers led group discussions of controversial issues and explicit instruction in argumentation was discussed to help students acquire a sense of the overall structure of an argument (or argument schema). A total of 128 fourth- and fifth-grade students from two schools completed the same argument-related tasks, but received different instructional treatments. In the first group, students engaged in discussions of moral and social issues raised in their readings. In the second group, teachers supported discussions with explicit instruction in principles of argumentation. Students in the third group received their regular reading instruction. Post intervention tasks included responding to an interview designed to assess the students' awareness of the criteria for a satisfactory argument, writing a reflective composition, and recalling an argumentative text.

In the second group, the teacher's role was to provide support for the development of argumentative skills. During discussions, teachers employed different strategies, such as prompting students for supporting reasons, modeling the use of evidence, or challenging students with counterarguments. The amount and type of teacher involvement depended on the cognitive and social competence in argumentation students displayed.

The findings indicated that awareness of the principles of argumentation does not ensure proficient application of these principles. Group Two students (who received argumentation instruction) displayed significantly better knowledge of argument principles than students from the two other groups; however, their reflective essays and text recalls were generally not better than those of other children.

Oral argumentation is more effective than simply constructing arguments. A study by Kuhn and Udell (2003) examined the effects of the role of argumentative discourse in the improvement observed in argument skills. An intervention was designed to scaffold components of argumentative discourse skill. In the two-phase intervention, the first phase had teams of students collaborating to develop their own argument to justify their chosen (pro or con) position. In the second phase, teams engaged with the opposing team. The students were inner-city minority and considered at-risk for academic failure in two low-performing public middle schools in New York City. Students randomly assigned to one group engaged in the entire intervention, while students randomly assigned to a comparison group engaged only in the first phase (developing and argument). It was hypothesized if engagement in discourse with an opposing side is important to progress; advancements in discourse skill should be concentrated in the second group.

Kuhn and Udell (2003) found argument skills do develop and that engagement in an argumentative discourse activity enhances that development. It was not the involvement in an argument-constructing activity itself that improved argument skill. If it were, participants in the comparison condition would have shown greater gain. The findings showed the argument discourse activity itself was the important element needed

to develop argument skills. The exercise in argumentative discourse provided in the experimental condition, rather than simply time devoted to topic-related argument construction, appeared necessary for advancing skill development.

Visual representations of arguments enhance argumentation. Brooks and Jeong (2006) examined the effects of pre-structuring discussion threads for group interactions in computer supported argumentation. They compared a group of students who visually labeled their argument strategies as arguments, challenges, supporting evidence, and explanations to a group of students who did not label argument strategies. The authors found that the group who labeled their parts of an argument was more likely to formulate challenges in counter arguments and rebuttals than the other group (Brooks & Jeong, 2006; Newell, Beach, Smith & VanDerHeide, 2011).

In another experimental study Easterday, Aleven, and Scheines (2007) examined the effects of visual supports by having students analyze public policy problems in three different groups: (1) only as text, (2) as a causal diagram, (3) or through use of diagramming tools for constructing their own diagram. Based on students' previous experience with the analyses of a textual argument, the group who engaged in using the causal diagram was better able to organize their perceptions of the arguments than were students in the text-only treatment. Students using the diagramming tool, however, learned more about constructing causal arguments than students with the text or causal diagrams, because the students with the tool were actively engaged in using it to construct their own arguments Easterday, Aleven, and Scheines, 2007; Newell, Beach, Smith & VanDerHeide, 2011).

Oral argumentation eases students into written argumentation. Anderson, Nguyen-Jahiel, McNurlen, Archodidou, Kim, Reznitskaya, Tillmanns, & Gilbert (2001) showed that once students learned argumentation orally, they easily transferred what they knew into written form. Reznitskaya, Anderson and Kuo (2007) noticed that student writing was improved with participating in oral argumentation. The *Writing to Read: Evidence for how Writing can Improve Reading* report provides significant evidence that writing has a positive effect on reading achievement. Graham and Hebert (2010) reported writing is effective used in tandem with oral discourse.

Even researchers and teachers from a content area other than English Language Arts have noticed the effects of argumentation and writing on learning. Cross (2009) conducted a quasi-experimental study of the effects of argumentation and writing on mathematical achievement. Five teachers and 211 9th grade students participated in a multi method study that investigated the effects of four treatment conditions. These conditions were (1) writing alone, (2) argumentation alone, (3) writing and argumentation combined, and finally, (4) a control group receiving no argumentation or writing instruction. Two groups of students (in groups of four) were randomly selected from both the argumentation and writing (AW) group and the argumentation only (A-only) group for video-taping in order to provide a more in-depth analysis and to explain the quantitative results. All teachers and students were observed twice per week for the 10-week study.

The measures for the quantitative analysis were a pre-post assessment: a 19-item multiple-choice test to measure the students' learning of the content covered over the 10-week period of the intervention. Analysis of covariance revealed significant differences

between the groups, and tests of the contrasts showed that students who participated in both argumentation and writing had greater knowledge gains than students who engaged in argumentation alone or neither activity (Cross, 2009).

The qualitative analyses of data from the transcripts indicated that argumentation was a useful strategy for generating and sharing ideas. In some cases it produced a necessary conflict with the student's own understandings and in attempting to resolve this conflict the student was able to enhance his knowledge of the concept. In some instances, being presented with opposing views led to opportunities for the students to generate new knowledge (Cross, 2009). The author noted that the writing activities appeared to have helped students by providing the opportunity to makes sense of the questions, reflect on and organize their thoughts about the concepts, and structure their ideas to produce a meaningful response (Cross, 2009).

Examples of Argumentation

Collaborative Reasoning. One example of an instructional approach that attempts to expose elementary school children to argumentative discourse is *Collaborative Reasoning* or CR (Waggoner, Chinn, Yi, & Anderson, 1995). Typically, during CR discussions, students gather in small groups to discuss a central question from the story they have read. Stories are selected to contain moral, social, or scientific dilemmas that are engaging and interesting for young children and can stimulate a meaningful dialogue.

During the CR discussions, students are expected to take a public position on the issue, support it with reasons and evidence from the story, and challenge other discussion participants with counterarguments and rebuttals. The students decide when to talk and

what to discuss. The teacher' role is to provide scaffolding for the development of argumentation and student turn taking. The emphasis in CR discussions is not on reaching a consensus on the issue. Rather, students are to experience the process of rational judgment. "The ultimate goal of CR includes "inculcating the values and habits of mind to use reasoned discourse as means for choosing among competing ideas" (Anderson, et al., 1998, p. 172).

The research behind *Collaborative Reasoning* (Resnick, et al., 1993) aimed to understand reasoning as a form of social practice. Resnick, et al. (1993) studied the effects of Collaborative Reasoning with university students who were arranged in two groups with one or two in each group needed for agreement with or opposition to the use and development of nuclear power. The group instructions were to discuss the issue for 20 minutes with the idea that they would come to a consensus. Sessions were videotaped. The study found that both groups produced idea units at about the same rate. Both conversations were highly coherent with only a few statements unconnected to previous ones. In analyzing the conversations for reasoning, the researchers discovered other components beyond *premises* and *conclusions*.

Resnick, et al. (1993) hypothesized that people try to support the positions they claim and they respond to others in a sensitive way when organizing their arguments. The university students appeared to build complex argument and attack structures. Others appeared to be capable of recognizing the structures and effectively attacked the components of the structures, as well as the argument as a whole.

The *Collaborative Reasoning* model is derived from a theoretical framework, called *Argument Schema Theory,* AST, (Reznitskaya & Anderson, 2002). To explain the

acquisition of an argument schema, Reznitskaya and Anderson drew upon social theories of learning (e.g., Mead & Strauss, 1962; Rogoff, 1990; Vygotsky, 1962; Wertsch, 1985). These theories emphasize the priority of social interaction in individual learning. The potential of social activity for education comes from its dialogic organization and experience (Bakhtin, 1986; Kuhn, 1992; Mead & Strauss, 1962; Vygotsky, 1981). Bakhtin wrote "…our thought itself…is born and shaped in interaction and struggle with other's thought, and this cannot but be reflected in the forms that verbally express our thoughts as well" (Bakhtin, 1986, p. 92). In a similar way, Mead viewed individual reasoning as a process of internal argumentation, a dialog with a "generalized other" (Mead & Strauss, 1962, p. 156). The ability to incorporate the voices of "others" into one's own thinking comes from engagement in social settings.

Anderson, Nguyen-Jahiel, McNurlen, Archodidou, Kim, Reznitskaya, Tillmanns, and Gilbert (2001) proposed that argument schema could be broken down into verbal patterns, or *argument stratagems*. Argument stratagems are rhetorical and reasoning moves used in argumentation. They serve several cognitive and social functions and are the building blocks of *argument schema* (Wertsch, J. V. (1985). An argument schema is structure that represents extended stretches of argumentative discourse. Students with the developed argument schema should be able to interact with an argumentative text. Once the text is recognized as an argument, readers should be able to use their activated schema, looking for claims, supporting evidence, counterarguments, and rebuttals. This theory is referred to as the "Snowball Hypothesis" (Anderson, et al., 2001).

An argument schema, Anderson, et al. (2001) hypothesized, (a) enables participants in a discussion to organize argument-relevant information, (b) allows and enables retrieval of argument- relevant information from memory, (c) shapes argument invention and argument repair, (d) creates the basis for anticipating objections, and (e) helps in finding flaws in one's own arguments and the arguments of others. An argument schema is abstract, so it enables generalization among situations. Evidence that people possess an abstract schema includes (a) appropriate use, (b) variation in form while preserving deep structure, (c) repeated use over an extended period of time, and (d) use in a variety of contexts.

Anderson, et al. (2001) postulated that argument stratagems are appropriated from experiences with others and later internalized. According to the *snowball hypothesis,* once a child has employed a useful argument stratagem, it will spread to other children participating in the same discussion and occur with increasing frequency. According to *Argument Schema Theory* and the *Snowball Hypothesis*, argument schemas are developed in social settings where children pick up and use argument stratagems introduced by more advanced discussion participants. When internalized, the knowledge of argumentation can be transferred to different situations, including reading or writing.

The study by Anderson, et al. (2001) focused on an analysis of 48 Collaborative Reasoning discussions with 104 fourth grade students of socio-economic and ethnic diversity. Some students took part in a series of discussions with conventional, teacher-controlled participation in which the students waited for turns by

raising their hands and waiting for the teacher to call upon them. Other students also took part in a series of discussions with open participation in which they spoke freely without teacher control.

Analyzing the transcripts of these discussions, the researchers noted the use of thirteen argument stratagems and used software to process the video digital recordings and to further examine discussion transcripts. The results of the study indicated strong confirmation of the *snowball hypothesis*: Once an argument stratagem develops in a discussion, it tends to spread to other children and repeat with increasing frequency. After the first appearance of a stratagem, the probability that it will appear again remains high and there are fewer lines of discussion between appearances of a stratagem. Anderson, et al. (2001) stated the findings bring serious attention to the concept that social propagation of ideas could be a fundamental process in children's development of language and thought.

Reznitskaya, Anderson and Kuo, L. (2007) conducted quasi-experimental studies with fourth and fifth grade students. They reported that after students participated in four to ten *Collaborative Reasoning* discussions, they wrote persuasive essays that included many more arguments, counterarguments, and rebuttals than the control groups who received regular classroom reading instruction. In the end, the correlation with better oral arguing and writing argumentative essays was clear, but its impact on reading comprehension was unclear (Wilkerson & Son, 2010).

Accountable Talk. Wolf, Crosson, & Resnick, (2004) developed an approach to oral discourse in the classroom that incorporates argumentation as a means for learning content and increasing reading comprehension. For learning to take place in a

discussion-based classroom, it is critical for students to have the right to speak and the obligation to explain their reasoning, providing reasonable evidence for their claims so that others can understand and in turn, critique their arguments. This type of classroom culture provides students with equal access to the floor to speak and the right to engage in similar discourse experiences to make their voices heard. Talk in the classroom must build on what others have said, be supported with evidence, and follow the norms of good reasoning (Michaels, O'Connor, & Resnick, 2008).

Accountable Talk requires certain oral discourse principles to be observed: (a) evidence of participation, (b) linking ideas (from both students and teachers), (c) asking and providing knowledge, and (d) asking for and modeling rigorous thinking (Lawrence & Snow, 2011). Teachers employ certain talk moves as a means of orchestrating the classroom discussion. When students engage in this model, they listen, consider each other's ideas, and explore a topic as a group. They challenge the ideas and opinions generated by peers and the teacher, and they provide reasons and evidence to support their claims and positions (Wilkerson & Son, 2011).

Wolf, Crosson, and Resnick (2004) looked closely at the relationship between classroom talk and the level of academic rigor in the reading comprehension lessons. Wolf and colleagues examined these classroom discussions from observational data in 21 elementary and middle school classrooms. The researchers rated the classroom talk by the degree to which the discourse was accountable to the learning community, accountable to content knowledge, and accountable to standard reasoning (Michaels, O'Connor, & Resnick, 2008), as well as the teachers' talk moves and the patterns of interaction among students and teachers. They found that two of the principles, also

rubric categories (providing knowledge and showing rigorous thinking), were significant predictors of academic rigor. They accounted for 81% of the variation in a stepwise regression analysis (Lawrence & Snow, 2011). The *Accountable Talk* model shows promise; however, no studies have provided strong correlations or impact on individual students' reading comprehension (Wilkerson & Son, 2010).

Discussion Web. Alvermann, Hynd, & Qian (1995) developed an argumentation discussion approach where students use a graphic organizer, choose a position on an issue, list reasons for that choice, and support their opinions with evidence. The research focused on production of written text, not reading comprehension (Wilkerson & Son, 2011).

Why Include Argumentative Writing?

Skill with thesis-support strategies of argumentation seems to be important for adult employment advancement with employers hiring workers with strong analytical, argumentative, thesis-support writing skills. Writing done by analysts and economists is mostly analytic, argues a case, poses and defends debatable ideas, and evaluates other people's ideas (MacKinnon, 1993). The skill to use thesis-support argumentation is also important across academic fields such as science, history, and literary criticism (Myers, 1991).

Written arguments result in better inferences and subject matter understanding. Another study, with two separate experiments, incorporated argumentation in written form. Wiley and Voss (1999) provided students with information from a website with multiple sources, instead of a textbook chapter, and instructed them to *write arguments* instead of narratives, summaries, or explanations.

The approach produced the most integrated and causal essays with the synthesis mostly based on the original sources (Wiley & Voss, 1999).

Sixty-four undergraduates were assigned randomly to two groups. One half of the participants received information about Ireland from 1800 to 1850 in a web-like environment with eight separate source documents: a map, biographical accounts of King George III and Daniel O'Connell, brief descriptions of the Act of Union, the Act of Emancipation, and the Great Famine, census population data, and economic statistics between 1800 and 1850. The other half of the participants received the same content about Ireland between 1800 and 1850, but in a textbook-like article with the information presented sequentially. Both had exactly the same information, but the first group's information was divided up and presented in random sequence.

In both groups, students were further divided into four groups and given a writing instruction page explained historians' work from sources including newspaper articles, autobiographies and government documents, such as census reports to create histories. The task was to take the role of historian and develop a *narrative* about what produced the significant changes in Ireland's population between 1846 and 1850 (Wiley & Voss, 1999). For the other three writing assignments, the underlined phrase was replaced with "a summary," "an explanation" or "an argument". The data were compared in a 2 x 4 design with an eighth of the students in each category.

The results from the first experiment revealed that students who wrote arguments produced essays with significantly more causality, text integration, and transfer than students who wrote narratives. Writing from multiple sources proved to be beneficial to students who wrote arguments. This condition brought about the most transformed

essays, as well as the highest performance. Wiley and Voss (1999) concluded that in order for students to gain a deeper understanding of the subject matter, the writing tasks must require knowledge-transformation, not just knowledge-telling.

In the second experiment, Wiley and Voss (1999) presented a single source of content in the form of an argument. Using the first and last paragraphs of the textbook article as a frame, they constructed the middle section by using the same information about Ireland that was presented from the sources in the first experiment. This information was presented either on paper as a newspaper article or on a computer in a single-document website.

Twenty-four undergraduates were randomly assigned to two groups. One half of the participants read the newspaper article containing information about Ireland between 1800 and 1850 on paper, and the other half read from a single-document web site. Again, the students responded in writing with an argument, summary, narrative, or explanation.

The results indicated even with the presentation of information in the form of a single newspaper article, the writing assignment manipulation replicated the results found in the first experiment. Therefore, the researchers concluded that although narrative writing tasks generally produced good retention of information, argument-writing tasks were found to produce better recognition of inferences and underlying principles of the subject matter (Wiley & Voss, 1999). Unlike discourse where the individual can get cues from other speakers, writing requires that the students use their own cognitive resources to generate information. Although narrative writing tasks generally produced good retention of information, argument-writing tasks produce better recognition of inferences and underlying principles of the subject matter (Cross, 2009).

Immersion into argumentation discourse and argumentative writing. Writing about previously read texts was also an effective activity for struggling readers and writers. In 12 studies involving low achieving students, the average effect size for writing about a text was 0.63, however the average effect size for writing about text activities was zero or less when lower-achieving students were not explicitly taught how to do them. When instruction was provided, that was not the case.

Visual models of argumentation: heuristics. Yeh (1998) designed a quasi-experimental and case study methods investigation into the effectiveness of two heuristics, direct instruction or indirect of argumentation, based on Toulmin's (1958) model of argument and classical rhetoric for helping middle-school students in two different schools to write argumentative essays. The experimental group had explicit instruction in two pre-writing argumentation models - a pyramid or bridge - and immersion into argumentative discourse and a writing process commonly shared with the control group. The experimental group had larger pre to posttest gains in essay development and voice than the control group, who did not have the explicit pre-writing instruction, but had immersion in argumentative discourse and the same writing process. Positive effects were especially strong for cultural minority students. The experimental group students applied the heuristics flexibly, indicating they learned the principles, rather than the rote procedures for argumentation and transferred their knowledge to a range of topics.

The results supported the hypothesis that knowledge of argument structure sharpens students' judgment regarding the content and organization needed to generate logically connected arguments. It was suggested by Yeh (1998) that clarifying the

requirements for writing persuasive argumentation essays the heuristics tested (pyramid and bridge), may improve conventionally underprepared students' ability to write academic essays. A major concern expressed about argumentation research was that the product was usually text production, not text comprehension (Wilkinson & Son, 2010) and the researchers indicated the need for more studies relating argumentation to reading comprehension.

In this fourth movement or wave of dialogic comprehension research, which includes *content-rich instruction, discussion, intertextuality, and argumentation,* Wilkerson and Son (2010) expressed a compelling need for further research into dialogic approaches that are effective in advancing reading comprehension.

Writing Influences Reading

To be able to write about what one has read requires active processing to understand the main point of the text, to be able to understand how a series of texts on the same subject relate to one another, and how all of this information relates to other prior information (Caccamise, 2011). This active processing is the construction-integration activity necessary to create a situation model and instantiate or solidify this newly knowledge into long term memory. Once information is comprehended deeply enough to be stored in long term memory, then it can be retrieved later under different circumstances, becoming flexible, usable information that helps build additional knowledge and expertise on a topic (Caccamise, 2011).

Writing to Read Report, 2010. Adding to the premise that writing enhances comprehension, The *Writing to Read* report, authored by Graham and Hebert (2010), contributed the first meta-analysis examining the effects of different writing practices on

students' reading performance. Studies reviewed in the meta-analysis were conducted with students in grades 2-12 and in content classes of science and social studies, as well as English. Graham and Hebert identified closely related instructional writing practices shown to be effective in improving students' reading comprehension, and they summarized these practices in three core recommendations, which are listed below in order of the strength of their supporting evidence.

Recommendations 1: Have students write about the texts they read. Graham and Hebert (2010) reported students' comprehension improves when they write about what they read, specifically, when they *respond to a text in writing* (e.g. writing personal reactions, analyzing and interpreting the text). Of 61 studies, 57 found a positive effect on reading comprehension. The average weighted effect size on published standardized norm-referenced tests (11 studies) was 0.40 and on researcher-designed tests was 0.51 (50 studies). The researchers identified three effective activities: *writing summaries of a text* (an overall effect size of 0.52), *writing notes about a text* (average affect size of 0.47. and (c) *answering questions about a text in writing* or *creating and answering written questions about a text* (overall positive affect on reading comprehension was 0.27).

Writing effects are as strong as many reading effects. Graham and Hebert (2010) looked closely at effects obtained by other researchers examining the impact of specific reading approaches, such as reading programs at the secondary level, *Reciprocal Teaching* (a popular method for teaching comprehension) and vocabulary instruction, and found the effect sizes for the writing and reading studies compared favorably. The overall effect size for writing about text (0.40) was higher than each of the effects

concerning other programs, providing additional validation of its effectiveness as a tool for improving students' reading comprehension (Graham & Hebert, 2010).

In the comparisons to the control groups, the authors reported that writing about a previously read text proved to be better than the following five common reading instructional activities: (a) just reading it, (b) reading and rereading it, (c) reading and studying it, (d) reading and discussing it, and (e) receiving reading instruction. These listed reading activities were undertaken 87 percent of the time by students in the control conditions. The average weighted effect sizes for writing about text read versus these control conditions was positive and significant (0.35 for published standardized norm-referenced tests in nine studies and 0.49 for researcher-designed ones in forty-four studies).

Recommendation 2: Teach students the writing skills and processes that go into creating text. Students' reading skills and comprehension improves by learning the skills and processes that go into creating text. Though the effect sizes were relatively small, 0.18 on 12 studies and 0.27 on 5 other studies, they were still positive compared to the control groups. The practice of putting smaller units of writing together to create ones that are more complex can result in greater skill in understanding such units in reading (Neville and Searls, 1991). This is the premise behind the instructional strategy known as sentence combining (Saddler and Graham, 2005). For even larger units of text, students should be taught basic structures for writing paragraphs, or common elements included in specific genres of writing, such as persuasive essays (Graham & Hebert, 2010).

Recommendation 3: Increase how frequently students write. Students' reading comprehension improves by increasing how often they produce their own texts. Six

studies were conducted in first through sixth grades, so the results cannot be generalized to older students, but they indicate positive effects. The average effect size on published standardized norm-referenced tests was small, but still consistently positive at 0.30 on the six studies (Graham & Hebert, 2010).

Problems implementing the recommendations for adolescents. A national survey of writing instruction and practices at the high school level (Kiuhara, Graham, and Hawken, 2009) found that students were rarely asked to complete writing assignments requiring analysis and interpretation. In fact, assignments that demanded writing more than a single paragraph occurred less than once a month in 50 percent of classes. Applebee and Langer (2006) reported similar results, based on data from the National Assessment of Educational Progress. Educators should make these and other effective writing practices an important part of their literacy programs (Graham & Hebert, 2010).

Interventions for Struggling Readers and Writers

The education system in the United States expects that secondary students will be able to decode text fluently and comprehend material with challenging content (Alvermann, 2002); however many struggling secondary readers lack adequate advanced decoding, fluency, vocabulary, and comprehension skills to master the complex content (Kamil, 2003). Many secondary teachers assume that students who can accurately read words can also comprehend and learn from text simply by reading it; therefore, they often neglect to teach students how to approach new text and may emphasize the content while neglecting to instruct students on how to read for learning and understanding (Pressley, 2000; RAND Reading Study Group, 2002). It does not help that the readability level of some texts used in secondary classrooms is too high for struggling readers and the lack of

user-friendliness of some textbooks can result in serious comprehension challenges for many students (Mastropieri, Scruggs, & Graetz, 2003). Content textbooks are often written in such a way that important connections and relationships are not made explicit (Armbruster & Anderson, 1988; Beck, McKeown, Hamilton, & Kucan, 1998).

Adolescent struggling readers have often received poor early reading instruction (Torgesen, 2005). They may have been insufficiently taught the basic skills necessary for fluent reading and deep processing for comprehension of text. Other adolescent readers may have experienced relatively effective instruction during their early school years, but have continued to have difficulty with reading fluency or comprehension. Some students are able to catch up if provided with additional, sustained instruction in small, focused instructional groups (Torgesen, 2005).

Several problems can contribute to students' not being able to comprehend text. Comprehension can fall apart when students have difficulty with one or more of the following: (a) decoding words, including structural analysis or understanding how words are constructed; (b) reading text with adequate rate of speed and/or accuracy (fluency); (c) understanding word meanings; (d) connecting new content to prior knowledge; (e) knowing how to use comprehension strategies; and (f) monitoring their understanding as they read. (National Institute for Literacy, 2001; RAND Reading Study Group, 2002). Comprehension problems are complex and may relate to inadequate vocabulary or conceptual knowledge, weak reasoning or inferential skills, or an inability to apply active processing and comprehension strategies (Roberts, Torgesen, Boardman, & Scammacca, 2008).

Studies also suggest low achievers, children of poverty, and second language learners perform poorly in classrooms with traditional instructional approaches, which are structured in ways that ignore these students' strengths and instead tend to magnify their weaknesses (Gutierrez, 1994; Heath, 1983; Hynds, 1997; Marshall, Smagorinksy, & Smith, 1995). Such students will typically do much better when instruction (a) builds on prior knowledge and experiences, (b) lets students voice their understandings and refine them through discussion with others, and (c) explicitly provides the new knowledge and strategies that students need to participate successfully in the academic discussion (Applebee, et al, 2003).

How can school district administrators and teachers decide what course of action is appropriate in providing interventions for struggling adolescent readers? If struggling readers are provided with appropriate instruction only 10–20 percent of the school day, " …it doesn't take a consultant to figure out why struggling readers fail to show the accelerated reading growth that is necessary for them to catch up with their better reading peers and fail to meet goals for adequate yearly progress" (Allington, 2007, p. 8). Allington (2007) proposed that in most middle schools and high schools, students who struggle to read are lugging around backpacks full of textbooks they can't read and which do not help them to read. Educators across the content areas and language arts have to take responsibility for teaching reading so that struggling students have intervention available to them all day long (Allington, 2007).

Principles for Evaluating Literacy Interventions

In designing and testing any new intervention model for reading comprehension, there are some important principles to consider. The long-range purpose of any new

intervention model is to be implemented in schools for improving reading achievement. Since that is the case, it is prudent to consider intervention principles that have been tested and proven.

School-wide buy-in about effective literacy instruction and intervention requires collaborative commitment. Research-based principles for developing and evaluating instructional strategies for literacy interventions have been established and should be used by literacy educators and secondary-level administrators desiring to make effective decisions about how to help students who are struggling (Fisher & Ivey, 2006). Before reviewing and adopting those principles, Fisher and Ivey (2006) recommend two assumptions should be met in schools looking at reading interventions.

"First: *we assume that schools looking for intervention programs to supplement their efforts, already provide students with significant opportunities for wide reading*" (Fisher & Ivey, 2006, p. 181). Students should have access to a large number of readable, interesting books that are related to the content being studied and they should also be provided the opportunity to freely read books of their own choosing (Fisher, 2004; Brozo & Hargis, 2003; Worthy, Broaddus, & Ivey, 2001). "Second: *we assume the entire school is focused on literacy achievement and that teachers use content literacy approaches to ensure that their students are engaged in meaningful curriculum"* (Fisher & Ivey, 2006, p. 181). History, science, math, English, art, music, and other teachers should be intentionally making sure that students are developing strategic reading skills in their content areas as they read informational texts (Fisher & Frey, 2004; Ivey, 2004; Fisher, 2001). Without these two nonnegotiable attributes of the learning environment (access to high-quality, readable texts and instruction in strategies to read and write

across the curriculum), it is doubtful that a specific, limited intervention will make much difference (Fisher & Ivey, 2006). The concept that supplemental reading interventions alone are the solution to the problems of struggling readers must be reconsidered. It is not that the interventions are unnecessary, but instead they are insufficient (Allington, 2007).

Principle 1: The teacher should play a critical role in assessment and instruction (Fisher & Ivey, 2006). Teachers can accurately evaluate a student's strengths and weaknesses and pay attention to the adolescents' complex motivations for reading and writing where computers cannot (Alvermann & Rush, 2004). Only strong teachers can make split-second decisions that facilitate students' understandings from text and connect it to prior knowledge (Johnston, 1987).

Principle 2: The intervention should reflect a comprehensive approach to reading and writing (Fisher & Ivey, 2006). For deeper comprehension, older students need to see beyond the words when it comes to reading and writing, and effective interventions should begin with listening to, and thinking about, reading, and talking and writing about meaningful texts. Instruction in the processes of reading and writing (e.g., word recognition, comprehension strategies, vocabulary, and fluency) ought to help facilitate student comprehension with real texts (Fisher & Ivey, 2006).

Principle 3: Reading and writing in the intervention should be engaging (Fisher & Ivey, 2006). In order to see gains in achievement and motivation transfer outside of the intervention, instruction and materials need to be engaging (Guthrie, 1996). Effective instruction for adolescents takes into account their personal interests and includes a variety of reading materials such as trade books and electronic texts (Alvermann, 2002).

Students should not be required to engage with "superficial and lifeless reading and writing tasks that bear no resemblance to the reading and writing they encounter in the real world" (Fisher & Ivey, 2006, p. 183).

Principle 4: Interventions should be driven by useful and relevant assessments (Fisher & Ivey, 2006). Besides good initial assessments (e.g., an informal reading inventory, spelling inventory, writing samples, interviews, observations), ongoing formative assessments are also necessary to check on students' reading and writing; what they already do well, and what they need help with. Adolescent struggling readers are extremely complex, and to meet their needs teachers must take a closer look at their strengths, needs, and preferences (Fisher & Ivey, 2006).

Principle 5: The intervention should include significant opportunities for authentic reading and writing. There is strong evidence to suggest that time spent reading separates good readers from poor readers (Allington, 2001). For low-achieving readers to become more proficient readers, an intervention ought to provide substantial opportunities for students to actually read and write. In an intervention, the amount of time students spend engaged in reading and writing ought to substantially outweigh the amount of time students spend considering skills and strategies related to literacy (Fisher & Ivey, 2006).

Even when these principles are followed, it is possible that interventions for adolescents will still be ineffective if the teachers have not received professional development to enhance their skills and apply them consistently. When it comes to improving literacy, teachers - not methods or materials - make the most difference (Duffy

& Hoffman, 1999). “Building teacher expertise is our most formidable long-term challenge, and that should be an ongoing process for schools” (Fisher & Ivey, 2006, p.187).

Intervention Reviews

Keeping these principles in mind, this section will take a closer look at the interventions that have been reviewed in previous sections. Afflerbach, Pearson and Scott (2008) described *reading strategies* as being deliberate, goal-directed attempts to control and modify the reader's efforts to decode text, understand words, and construct meanings of text. *Reading skills*, on the other hand, are viewed as automatic actions that result in decoding and comprehension with speed, efficiency, and fluency and usually without awareness of the components or control involved (Afflerbach, et al, 2008).

Several reading comprehension interventions included references in the reports to reading comprehension *skills* and *strategies*. What is the difference between reading *skills* and reading *strategies*? Research has found that explicit strategy instruction yields strong effects for comprehension for students with learning difficulties and disabilities (Biancarosa & Snow, 2004; National Reading Panel [NRP], 2000; RAND Reading Study Group, 2002). In light of the conflicting reports of the effects of single and multiple-strategies instruction on comprehension (as described in previous sections of the literature review), the research on comprehension intervention approaches adds to the debate.

Meta-analysis of 31 Literacy Interventions. Scammacca, Roberts, Vaughn, Edmonds, Wexler, Reutebuch, and Torgesen (2007) conducted a meta-analysis of 31 reading interventions with middle grades and high school students, which included

students with learning disabilities. The interventions focused on comprehension strategies, word study, fluency, vocabulary, and multi-component approaches. The overall estimate of the effect size across all 31 studies was 0.95, meaning that all of the interventions helped students do better than the control groups of no reading instruction or traditional instruction. In addition, a separate meta-analysis was conducted on the 23 intervention studies that included one or more measures of reading comprehension. The estimate of effect size across all 23 studies was 0.97 and was similar to the effect size for all of the interventions. There was no significant statistical difference between the results of the LD students and the others, indicating that interventions make a difference. Older students can be helped to improve their literacy skills and strategies however, it is important to note for older readers, average gains in reading comprehension were smaller than gains in other reading-related areas.

Self-questioning for main ideas intervention. In a quantitative study by Chan (1991), 60 students were taught to use a self-questioning strategy for identifying main ideas in paragraphs. Twenty Grade 5 and 6 students with reading disabilities, 20 average readers in Grade 3, and 20 average readers in Grades 5 and 6 participated. They came from three different schools in Australia and were from low-income families. The students were randomly assigned to either a standard instruction or a generalization induction condition. A 3 x 2 repeated-measures design was used.

The instruction program for both groups involved five topics: (1) deleting redundant information, (2) deleting trivial information, (3) rating sentences in order of importance, (4) identifying explicit main ideas, and (5) identifying implicit main ideas. Instruction was conducted in small groups of five or six similar age students. In the

standard instruction condition, students were provided with a demonstration of how to ask themselves the pre-designed set of questions while reading a paragraph, and how to look for the answers to the questions. They were then allowed to practice the strategy on their own.

In the generalization induction groups, self-instructional training methods were used. The procedures involved the teacher's explanation of how, why, and when the self-questioning strategy could be used, followed by these five stages:

1) *Cognitive modeling* - the teacher modeled the self-questioning routine by "thinking aloud" while reading through a text
2) *Overt external guidance* - the students imitated the teacher's self-questioning routine; that is, teacher and students read through the given text together, using overt self-questions and answers
3) *Overt self-guidance* - the students read through the text by themselves while verbalizing the self-questions and answers aloud
4) *Faded self-guidance* - the students read the text while whispering the self-questions
5) *Covert self-guidance* - the students read the text using covert self-questions

Results. The study measures included researcher-designed pre- and post- main idea tests, a sentence rating test (rating sentences in order of importance), and a 12-item multiple choice reading comprehension test. In general, for all three categories of students, the generalization induction techniques were more effective (higher mean scores) than the demonstration-practice techniques (standard instruction) for improving students' performance on identification of main ideas. Further, the generalization

induction instruction was more successful than standard instruction in promoting unprompted generalization of the newly acquired strategy across settings among students with reading disabilities. However, when it came to the comprehension test, there were no differential effects observed. Chan (1991) stated that it appeared the positive effects of self-instructional training were restricted to identification of main ideas and rating sentences in order of importance. Such effects failed to transfer to the more general reading comprehension measure.

Jitendra, Hoppes, and Xin (2000) explored teaching procedures to help learn main ideas from texts and compared an experimental group who were taught a strategy that involved using prompt cards and self-monitoring for discerning main ideas to a control group continuing in the school's typical reading instruction. Measures were researcher-designed passage tests. The experimental group performed better, and the effect sizes on the measures ranged from 2.18 to 2.51.

Cognitive mapping or graphic organizer interventions. Boyle (1996) conducted an experimental group-control group, matched-subjects design study that examined the effects of a cognitive mapping strategy on the literal and inferential reading comprehension of 30 middle students with mild disabilities. The students were randomly assigned to either an experimental or a control group. Through a strategy format, students in the experimental group were taught to independently create cognitive maps from reading passages. According to Darch and Eaves (1986), cognitive mapping is the "use of lines, arrows, and spatial arrangements to describe text content, structure, and key conceptual relationships" (p.310). Cognitive maps are also referred to as "cognitive

organizers" or "graphic organizers," and allow students to visually arrange the ideas and details from text so that the relationships between ideas and details are made explicit.

In the first phase of instruction with the experimental group, the students learned a mnemonic "TRAVEL" which stands for (1) Topic: Write down the topic and circle it; (2) Read a paragraph; (3) Ask what the main idea and three details are and write them down; (4) Verify the main idea by circling it and linking its details; (5) Examine the next paragraph and Ask and Verify again; (6) Link: When finished with the story, link all circles. Next, after some demonstration and feedback, they began mapping passages that were one grade level below their current grade level and then moved to mapping out passages on their current grade level. Students in the control group remained in their classes and worked on separate reading assignments provided by their teachers. The students in the experimental group worked on identical below- and on-grade level passages and took notes or created outlines as they read (Boyle, 1996).

The measures used to assess students included a pretest and a posttest of the Formal Reading Inventory; the Stanford Diagnostic Reading Test; curriculum-based reading question; and a metacognitive awareness measure (Paris, Cross, & Lipson, 1984). Two other dependent variables included a review of students' cognitive maps to determine the accuracy with which students followed the strategy and a posttest of attitudes from the Rhody Reading Attitude Assessment (Rhody & Alexander, 1980). A matched pairs multivariate analysis of variance (matched pairs MANOVA) was the preferred data analysis technique (Boyle, 1996).

Results. Boyle (1996) reported students who were taught the cognitive mapping strategy demonstrated substantial gains in both literal and inferential comprehension

measures with below-grade level reading passages as well as on-grade level reading passages. However, the scores on the *Stanford Diagnostic Reading Test* indicated there were no significant differences between pre- and post-testing after the intervention was taught. It appears that they did not attempt to map out the passages. This observation is in line with other research that demonstrates students with learning disabilities often fail to generalize or transfer newly learned skills to novel situations (Borkowski, Estrada, Milstead, & Hale, 1989; Wong, 1994).

DiCecco and Gleason (2002) conducted a pre-test, post-test, control group experimental study with middle school students with learning disabilities to examine the effects of direct instruction plus graphic organizers to convey and cue relational knowledge from text. Twenty-four students from two middle schools (one in a low-economic area and one in a middle class location) were randomly assigned to control (n=11) and experimental groups with the experimental group being instructed with graphic organizers.

The experimental group (n=11) was presented with five different graphic organizers that corresponded with an informational history text that both conditions used over the course of four weeks. Scripted lessons were identical for both groups with the exception of the wording for graphic organizer instruction. Because of weak pre-test writing samples, both control and experimental groups were taught to write summaries.

Intervention effects were determined by the use of three measures: (1) Content knowledge (multiple-choice test -pre- and post-tests), (2) Eight content knowledge fact quizzes, and (3) two domain knowledge essays. The authors wanted to determine the extent graphic organizers facilitated recall and retention of content knowledge or the

students' application of relational knowledge they learned from the texts and teacher presentations by visually cueing that relational knowledge. The results were analyzed comparing the two conditions (content and domain knowledge) on each measure.

Results. The results positively supported the use of graphic organizers for students with learning disabilities to help them with recall of relational knowledge, but when general knowledge was assessed, no differences were found between conditions. However, when students were asked to write essays to assess their domain knowledge, the two groups responded differently. The graphic organizer groups were able to recall significantly more relational knowledge and apply it by responding with more relevant statements. The researchers (DiCecco & Gleason, 2002) noted that this would not have occurred if assessments had only been multiple-choice tests, fact quizzes, and general writing samples. Scammacca, et al., (2007) reported the meta-analysis effect size for the graphic organizers and the written essays as 1.62.

Reciprocal Teaching interventions. Alfassi (1998) examined whether *Reciprocal Teaching* was more effective than traditional instruction for poor comprehenders. Freshman high school students enrolled in remedial reading classes were selected from two high schools in a suburban school district composed of mostly middle-class families. The students were mainstreamed into regular education, were of average intellectual ability, and were considered poor comprehenders but adequate decoders. All students were at least two years below grade level in reading comprehension. Group 1 (n=53): experimental group (strategy instruction, reciprocal teaching) was divided into

five reading classes. Group 2 (n=22): control group (skill acquisition) was divided into three reading classes. The *Gates-MacGinitie Reading Tests* and four reading passage tests were given as pre-tests.

Each of the groups received 20 days of instruction with the five experimental groups using the method of *Reciprocal Teaching*. A new passage was systematically introduced each day. During the intervention, the students were told that these activities were general strategies designed to help them better understand how to read and that they should try to use them in other silent reading assignments. The three control-group classes continued their regular curriculum of skill acquisition remedial reading.

Results. Eight weeks after the four weeks of intervention instruction, all students read two reading assessment passages and answered questions related to the readings. Several weeks later the *Gates-MacGinitie Reading* tests were given to all students. Data on two dependent variables (strategy instruction and skill acquisition) were collected. A 2 X 2 repeated measures ANOVA (method of instruction x phases of instruction) did not find a significant interaction effect of Group x Time on the standard comprehension test. There was no significant difference between groups over time on the dependent variable of standardized measures. However, after a Pearson correlation was made between the standardized test and the four reading passage tests, significant positive correlations were found between the reading assessment passages and the vocabulary and comprehension subtests of the *Gates-MacGinitie* test administered before the intervention. The reading assessment passages administered after the intervention also correlated positively and significantly with the vocabulary and comprehension subtests of the Gates-MacGinitie

tests. The findings support using *Reciprocal Teaching* as a viable method for remedial high school students (Alfassi, 1998; Scammacca et al., 2007).

Klinger and Vaughn (1996) also studied the use of *Reciprocal Teaching* with experimental groups. They compared two treatment groups: (1) *Reciprocal Teaching* plus peer tutoring, and (2) *Reciprocal Teaching* plus strategy practice in cooperative learning groups. The measures were the *Gates MacGinitie* Reading Comprehension subtest and a passage comprehension test. The group with Reciprocal Teaching plus peer tutoring outperformed the other. Effect size on the standardized reading test was 1.38 and on the passage test, it was .34 (Scammacca, et al., 2007)

Advanced outline intervention. Darch and Gersten's (1986) study contrasted two experimental groups (1) with pre-reading activities of developing student interest and motivation; connecting relevance of the reading passage to the students' past experience, and offering a general introductory discussion before reading and (2) preparing a text outline designed to help students' process text information. The measures were three multiple choice content knowledge tests and a multiple choice content posttest. The effect size (1.66) was highest in the advanced organizer group (Scammacca, et al., 2007).

Summarization interventions. Gajria and Salvia (1992) examined the effects of teaching a summarization procedure to students with learning disabilities in resource classes. They compared an experimental group (n 15) that was taught five rules of summarization, with demonstration and practice and a control group that continued with the school's typical reading instruction for learning disabilities in the resource room. Measured with researcher-designed multiple-choice expository passage tests and five

comprehension questions and five factual questions, the students in the experimental group performed better, 5.98, and 2.68, respectively (Scammacca, et al., 2007).

Moore and Scevack (1995) compared an experimental group learning a strategy called SLIC or Summarize, Link, Image, and Check to a control group participating in the school's regular reading instruction. The experimental group had explicit instruction in the following set of strategies: summarize text, link text and visual aids, visually depict the relationships, and check for understanding. Measures were researcher-designed free recall, multiple choice comprehension test, and transfer tests of free recall and multiple-choice. The experimental group out-performed the control group with effect sizes ranging from .07 to .55 (Scammacca, et al., 2007).

Story themes and relevance interventions. Williams, Brown, Silverstein (1994) looked at teaching students story themes and relating them to real life as a way to help improve comprehension. The treatment groups (n=53) were given scaffolded instruction in pre-reading discussion, then read the story, participated in discussions guided by organizing questions, identified the story themes and related it to real life. The control groups (n=40) were give instruction on the same content using a basal reader series adapted to the structure of pre-reading discussion, story reading, and post-reading discussion. Researcher-designed measures were of theme concept, theme identification, and theme application. The experimental groups outperformed the control groups with effect sizes ranging from 1.40 to 2.93.

Direct teaching of informational concepts and vocabulary. Snider (1989) experimented with direct teaching of informational and vocabulary concepts, applying it as a group, and providing written practice of the newly learned material. The

experimental group consisted of students (n=13) with learning disabilities had 13 sessions, 50 minutes each participating in small group practice with the strategy. The control group (n=13) consisted of students with learning disabilities who were given the school's typical reading instruction. The researcher-designed measure was a test of passage comprehension. The experimental group outscored the control group with and effect size for the treatment of 1.36.

Examples of Multi-Component Interventions

Semantic mapping, semantic feature analysis. Bos and Anders (1990) studied four different interventions for students with learning disabilities. The four instructional groups of students were taught to use one of the following strategies:

1) A definitional instruction activity of vocabulary terms (directly teaching and memorizing vocabulary terms from the content area with an emphasis on oral recitation in class
2) A semantic map of vocabulary words (constructing hierarchical relationship maps from the vocabulary list related to important ideas in the passage)
3) A semantic feature analysis (predicting relationships among concepts using a matrix of important ideas and vocabulary)
4) A semantic/syntactic feature analysis predicting relationships among concepts using a relationship matrix and a cloze-type sentence using the matrix as a guide

These strategies were part of discussion-oriented framework to improve vocabulary knowledge and reading comprehension. Following each reading assignment, the students and teacher discussed the passage while trying to activate prior and solidify knowledge through making predictions and determining relationships between and

among ideas. Measures were researcher-designed multiple-choice vocabulary tests, written recall tests, and scriptal knowledge recall tests.

Results. After analysis, students who used mapping or a feature analysis scored higher on vocabulary and reading comprehension measures than those students who were taught using definitional instruction. While this study shows promise for interactive mapping or feature analyses over definitional instruction, certain questions remain about what role activation of prior knowledge, solidification of knowledge, or predicting outcomes had on outcomes (Bos & Anders, 1990; Boyle, 1996; Scammacca et, al., 2007).

Peer Assisted Learning Strategies. Fuchs, Fuchs, and Kazdan (1999) worked with ninth graders, some with learning disabilities, in an experimental study examining the effects of Peer Assisted Learning Strategies or PALS. The experimental group (n=52) participated in partner reading, paragraph shrinking, and predicting using a dyadic structure. The control group (n=50) had the school's typical reading instruction. The measures were *Comprehensive Reading Assessment Battery*: Oral reading fluency subtest and the comprehension question subtest. The results show a very small effect size of .05 for the oral reading fluency test and a more moderate effect size for the comprehension question subtest of .31 in favor of the experimental group (Fuchs, Fuchs, & Kazdan, 1999; Scammacca, et al., 2007).

Hasselbring and Goin (2004) conducted an experimental study looking at the effects of instruction in three lab settings: *Peabody Reading Lab* with videos to support students in building mental models from text, *Word Lab* for reading words on timed activities, and *Spelling Lab* for typing a pronounced word and using it in a sentence. The experimental group (n=63) participated in the activities already described, while the

control group (n=62) participated in the school's typical reading instruction. The measures were standardized subtests from the *Stanford Diagnostic Reading Test*: Comprehension, auditory vocabulary, phonetic analysis, and structural analysis. The experimental groups outperformed the control groups on all measures. The effect size for the comprehension measure (.99) was very large in favor of the experimental groups with .75 for the auditory vocabulary, .44 for the phonetic analysis, and .44 on structural analysis (Hasselbring & Goin, 2004; Scammacca, et al., 2007). The students were engaged and motivated as they participated in the computer-based learning and the researchers were cautiously optimistic that multi-media approaches to reading instruction can be effective (Hasselbring & Goin, 2004).

Peer tutoring. Mastropieri, Scruggs, Mohler, Beranek, Spencer, Boon and Talbott (2001) looked at the effects of peer tutoring on comprehension. The experimental group (n=11) of 7^{th}-9^{th} graders with learning disabilities participated in partner reading with error correction, a passage summarization activity called "Get the Gist", and questioning strategies for during, and after reading implemented using same age peer tutoring sessions. The control group (n=11) of similar age students with learning disabilities participated in the school's typical reading instruction. The measure was a researcher-designed comprehension test. The experimental group scored higher and the effect size of this intervention was 1.66 (Mastropieri, et al., 2001; Scammacca, et al., 2007).

Remedial reading, spelling instruction, plus Lindamood auditory discrimination. Kennedy and Backman (1993) conducted a study focused on the effects of typical remedial reading, spelling instruction, and an added feature of Lindamood

auditory discrimination in depth instruction. The experimental group (n=10) of 11-17 year olds with learning disabilities experienced individual tutoring in reading and spelling and Lindamood instruction. The control group (n=10) of similar age students with LD received the same instruction, but without the additional Lindamood lessons. Measures were standardized tests and the experimental group did better than the control group on all measures that included the May versions of LAC (ES=1.55), SORT (ES=.13), and SAT (ES=.57) (Kennedy & Backman, 1993).

Meta-analysis of Interventions for Older Struggling Students

Edmonds, Vaughn, Wexler, Reutebach, Cable, Klingler-Tackett & Schnakenberg (2009) produced a synthesis of intervention studies conducted between 1994 and 2004 with older students (Grades 6–12) with reading difficulties and some with learning disabilities. Interventions focused on strategies for fluency, vocabulary, word study, and comprehension (or were multi-component interventions) were included in the analysis if they measured the effects on reading comprehension. Twenty-nine studies were synthesized, and thirteen of those studies met criteria for a meta-analysis, producing an effect size of 0.89 for the weighted average of the difference in comprehension outcomes between treatment and comparison students. Unlike many of the earlier syntheses that focused only on younger students with learning disabilities, Edmonds, et al. (2009) extended the synthesis to include all older struggling readers, not just those with identified learning disabilities. The question under study was how does intervention research on decoding, fluency, vocabulary, and comprehension, influence comprehension outcomes for older students (Grades 6 through 12) with reading difficulties or disabilities.

Some of the Edmonds, et al. (2009) studies reviewed were also reported in the Scammacca et al. (2007) review with identical results. These were *Reciprocal Teaching* (Alfassi, 1998; Klinger & Vaughn, 1996); getting the main idea (Jitendra, Hoppes & Xin, 2000), summarizing (Moore & Scevack, 1995), graphic organizers (DiCecco & Gleason, 2002), story theme and relevance (Wilder & Williams, 2001), story theme instruction (Williams, Brown, Silverstein & deCani, 1994), and multi-components (Fuchs, Fuchs & Kazdan, 1999; Hasslebring & Goin, 2004; Mastropieri, et al., 2001). In addition to these recently described comprehension studies, there were others which focused on strategy instruction, advanced story mapping, "Read, Ask, Paraphrase" strategy, and reading strategy plus attributional training. Branching out from comprehension studies were reviews of fluency interventions, such as self-monitoring, repeated reading, and subject passage preview. Word Study interventions that linked to comprehension measures such as structural analysis, Great Leaps program, syllable chunking, and phonemic decoding.

Comprehension interventions. Anderson, Chan and Henne (1995) conducted a study with an experimental group (n=10) of the effects of a four-phase instructional cycle that included (a) previewing, text reading, and self-monitoring for comprehension; (b) analyzing text structure; (c) writing about reading using text structure; and (d) generating questions and finding answers to enhance writing. The control group (n=7) received the school's typical reading instruction. Measures were the SAT Comprehension subtest, and researcher-designed summary and complexity of questions generated assessments. The experimental group did better on the SAT Comprehension test with an effect size of 1.16 and higher scores on the researcher-designed assessments (Anderson, Chan, & Henne, 1995; Edmonds, et al., 2009).

Clustering-rehearsal, self-questioning, and attributional training. Chan (1996) studied four treatment groups:

1) Reading strategy, plus successive attributional training group (n=11) received training in a clustering-rehearsal strategy on a sort-recall task before combining self-questioning and attributional training on reading
2) Reading strategy plus simultaneous attributional training (n=9) received training in a sort-recall task with no clustering-rehearsal strategy followed by combining self-questioning with attributional training on reading
3) Attributional training only (n=11) received training in a clustering-rehearsal strategy on the sort-recall task
4) Strategy training only (n=9) received training in both clustering-rehearsal and self-questioning without attributional training.

The measure was a short answer comprehension test. The first experimental group performed best on the measure with an effect size of 1.34 as compared to the second group, 1.68 compared to the third group, and 1.50 compared to the last group.

Computer-based word recognition, vocabulary, and comprehension of expository text. MacArthur and Haynes (1995) studied a computer program, *Student Assistance for Learning from Text* or SALT with one group that tried hypermedia versions of textbooks that provided basic word recognition and decoding and vocabulary support or an enhanced version with additional support (question windows, glossary, teacher comments, and speech synthesis) for comprehending expository texts. The measure was a short-answer and matching comprehension test. The enhanced version results had a larger effect size of .88.

Advanced story mapping. Gardhill and Jitendra (1999) studied the effects of advanced story map construction with one group of students (n=6). They received explicit instruction in story grammar elements with modeling, guided practice, and independent practice. The measures were a story retelling and a basal comprehension test. All of the students scored 100 on the story retelling, but only one student scored 100 on the basal test. Besides that student's score, the other scores ranged from 13 to 88, indicating that story mapping may not be sufficient to improve overall comprehension.

Story mapping. Vallecorsa and deBettencourt (1997) studied a small group of students (n=3) and the effects of explicit instruction in eight story elements and depicting those elements on a story map. The measure was a retelling, counting the number of story elements included. One student scored 100 while the other two scored 83 and 67.

Read, ask, paraphrase strategy. Lauterbach and Bender (1995) studied one small group of students (n=3) and the effects of the "Read, Ask, Paraphrase" strategy to identify the main idea in a passage. The students were taught the strategy and then asked to identify the main idea and two details in passages and then rewrite them in their own words. The measures were three separate paraphrasing assessments and three multiple-choice comprehension tests at 7^{th}, 8^{th}, and 9^{th} grade reading levels. The students made scores of 91 – 100 on the passage paraphrasing assessments, but only one student scored well on the comprehension tests, the others scoring from 0 to 33. Paraphrasing may not be directly linked to overall comprehension.

Fluency does not automatically mean comprehension. The fluency studies reviewed involved instruction in fluency strategies of reading with inflection, self-monitoring, appropriate pace, finger tracking (Allinder, Dunse, Brunken, & Obermiller-

Krolikowski , 2001); sight word phrases and oral rereading with the *Great Leaps* program (Mercer, Campbell, Miller, Mercer & Lane, 2000); and repeated oral reading with teacher and audio-tape feedback (Daly & Martens, 1994); and repeated readings over time (Valleley & Shriver, 2003). However, the data from the studies of fluency indicated that increased reading rate and accuracy did not always result in improved comprehension. Fluency instruction improves the processing skills that facilitate comprehension, but few fluency interventions create better general comprehension (Kuhn & Stahl, 2003). In a separate review of interventions, it was found for students who have reading difficulties or learning disabilities, wide reading or repeated reading by itself should never substitute for systematic, explicit instruction in word study and comprehension strategy use (Roberts, et al., 2008).

Word Study shows small effects for comprehension. The studies reviewed by Edmonds, et al. (2009) that focused on word study strategies and skills and linked them to comprehension measures were strategies such as structural analysis (Abbott & Berninger, 1999), *Great Leaps* reading and phonemic awareness (Bhat, Griffin, & Sindelair, 2003), syllable chunking (Bhattacharya & Ehri, 2004), and phonemic decoding (Penney, 2002). These had small to moderate effects related to comprehension. For students who are deficient in word-reading skills, these findings indicate it is necessary to build these word-level skills in tandem with teaching comprehension so that the students will be able to gain access to increasingly difficult levels of text (Edmonds, et al., 2009).

Comprehension had the largest effects. For single-strategy comprehension interventions (e.g., identifying the main idea after explicit main idea instruction; Jitendra et al., 2000), students were successful on measures related to the targeted strategy, but on

broader measures of comprehension, effects were lower and less consistent (Edmonds et al., 2009). These findings indicate that older struggling readers may need more transfer opportunities to apply newly learned strategies in novel reading tasks and perhaps may need to learn other practices related to text reflection, self-questioning, and engagement.

An important finding from this synthesis (Edmonds, et al., 2009) is that struggling readers can improve in their reading comprehension when taught reading comprehension practices. This information is significant because many struggling readers in grades 6 through 12 are not provided effective instruction in reading comprehension. Results from the meta-analysis indicated that students who struggle with reading difficulties or disabilities can improve their comprehension when provided with a targeted reading intervention in comprehension, multiple reading components (for example, comprehension and fluency), or, to a lesser extent, word reading strategies. The largest effects were observed with interventions that developed students' strategy knowledge and use and the relatively lower effects of other types of interventions on comprehension support these findings. A diminishing relationship between accuracy (e.g., word recognition and fluent reading) and comprehension with secondary students (Edmonds et al., 2009) was noted. Moreover, when students reached the upper elementary grades, other factors, such as background knowledge, word knowledge, and strategies, became more critical for comprehension (Kintsch & Kintsch, 2004; Edmonds, et al., 2009).

Two strong implications have come from the Edmonds et al. (2009) meta-analysis: (1) Comprehension practices that engage students in thinking about text, learning from text, and discussing are likely to be associated with improved comprehension outcomes for students with reading difficulties or disabilities, and (2) The

comprehension practices used were more effective for narrative text than expository text. Teachers might want to consider the use of additional supports, such as graphic organizers and attention to text structures when students are reading expository texts.

Review of Six Syntheses of Comprehension Interventions

Faggella-Luby and Deshler (2008) published a review of six syntheses of comprehension interventions that included students with learning disabilities, between 2000 and 2008 (Edmonds, et al., 2009; Gerten, Fuchs, Williams & Baker, 2001; Mastropieri, Scruggs, & Graetz, 2003; Swanson, 1999; Swanson & Hoskyn, 2001; and Vaughn, Gerten, & Chard, 2000). The results of the review indicated reading comprehension, for students with learning disabilities and those at identified at risk for failure improved with targeted instruction on what good readers do. Comprehension improved when students learned narrative and expository text structures, discovered word meanings, activated prior knowledge, used cognitive strategies (e.g., self-monitoring and self-questioning), included cooperative learning to increase engagement, and blended components of each of these. Results of these findings showed moderate to large effect sizes (Faggella-Luby & Deshler, 2008).

After looking at several studies of intervention with adolescents who struggle with reading, it seems likely that the intensity and amounts of instruction necessary to close the gap for many older students with serious reading difficulties will be considerably beyond what is currently being provided in most middle and high schools (Roberts, et al., 2008).

Caution: Intensity and Consistency Required

In a recent study, Fagella-Luby and Wardwell (2011) investigated the effects of three treatment conditions of instruction as potential models of Tier 2 interventions: Story Structure (SS), Typical Practice (TP), and Sustained Silent Reading (SSR), by randomly assigning at-risk 5th and 6th grade students in an urban middle school to each condition. With Story Structure (SS) students first learned to ask themselves story-structure-related questions (self-questioning) based on story-structure elements including main character, initiating event, time, place, central conflict, climax/ turning point, resolution, and theme. Second, students engaged in story-structure analysis by identifying and labeling specific elements from the narrative on a graphic organizer entitled Story-Structure Diagram after they had read the text and answered the self-questions. Third, students learned to use a five-sentence summary writing formula to produce a written summary of the narrative that included the critical components.

The Typical Practice (TP) group allowed interventionists to teach according to their regular practice which consisted of instruction focused on mini-lessons on the components of active reading including: previewing, predicting, identifying characters, summarizing, visualizing, and questioning. Each mini-lesson contained a brief introduction of the term by the teacher followed by a guided reading activity in which the teacher prompted the students to use the new skill. Students were given an Active Reader Card to help remember the components. The card had a list of the strategies covered in the mini-lessons to prompt student to use. Second, students were taught vocabulary that related to the story they were reading with definitions and examples. Third, students were regularly engaged in guided reading through the use of Literature Circles (Daniels,

1994) or independent reading to practice the Active Reading skills. Finally, the students spent time on journal writing, which took the form of reader response to text or answering teacher-initiated questions.

The Sustained Silent Reading (SSR) group engaged students daily for 30 minutes of intervention. At the start of SSR time, the students put all other work away. Students sat alone or at small tables of two to four students reading silently. If students became distracted, they were coached to return to silent reading. The results were mixed. The 6th grade mean scores on two standardized measures were higher in SS and TP than SSR, but the 5th grade mean scores were not significantly different between the three groups. The authors (Faggella-Luby & Wardwell, 2011) related some additional findings to shed light on this puzzle. First, there was evidence to support the nature of instruction in the behaviors associated with successful reading (i.e., SS and TP conditions) as being necessary to affect comprehension, in addition to continued practice (i.e., SSR).

Second, even though the content of instruction related to successful reading may have been established, Tier 2 interventions likely required substantial intensity of instruction to improve outcomes for struggling readers. Teachers in SS and TP failed to consistently implement components of direct and explicit instruction. Practices such as providing individual and corrective feedback, providing models (think-alouds) when introducing a strategy, and using formative assessment to drive instruction, were observed in fewer than 21% of instructional sessions. The authors postulated this inconsistency might have contributed to the overall limited response of 35 of 37 students scoring below the 50th percentile on both standardized measures after 18 weeks of instruction, along with five students continuing to score below the 30th percentile.

Third, story-structure knowledge remained limited for the struggling students. Data from the standardized strategy-use measure across groups clearly revealed that story-structure knowledge was not part of the students' prior knowledge. In fact, even after instruction, students had not achieved mastery of this material. Fourth, results showed that it is not too late to provide intervention in the middle grades for struggling readers in that even though the students were low performing, their reading achievement had not stopped, but rather moved forward.

Effect Sizes and "Closing the Gap"

The meta-analysis authors, Scammacca, et al. (2007) brought up an important issue in their review. In the 11 studies that used standardized, norm-referenced measures in the meta-analysis, the average effect was 0.42 compared to control groups. The explanation for the different effect sizes is that when measures that are more rigorous are used (i.e., standardized tests that are not as closely aligned with the instructional goals of the specific intervention); the results tend to yield smaller-sized effects.

Although the analysis of effect sizes provides reliable results of the extent to which an intervention has a greater impact on student performance than the compared control condition, it does not provide information about the degree to which students' reading skills have improved related to grade-level standards. The authors stated there is little evidence that the instructional conditions in these studies were sufficient to bring struggling readers into the average range (Scammacca, et al., 2007). In order to provide better information about the instructional conditions necessary to close the reading gap for struggling readers, the authors recommended that researchers need to invest and produce studies that provide instruction over longer periods of time and assess outcomes

with measures that are more similar to those used by schools to monitor the reading progress of all students. None of the interventions studied in the Scammacca, et al. (2007) report contained dialogic models that included discussion, argumentation, content-rich, or inter-texuality or writing.

Alignment of assessment and instruction. If assessments are not aligned with learning objectives or instructional strategies, it can undermine both student motivation and learning (Webb, 1997). Webb went on to say determining alignment between expectations and assessments is difficult because both expectations and assessments frequently are expressed in several pieces or documents, making it difficult to assemble a complete picture. However, when assessment is aligned with instruction, students are more likely to learn because instruction is focused and because they are assessed on what they are taught (Taylor & Collins, 2003). It is important to make sure the assessment tasks mirror what you intended them to learn (Biggs, 2003).

Implementation fidelity. A lack of student gains may be due to student characteristics, but it is important to realize that it may also be due to how the instruction was implemented (Mallard, 2010). Results can be ambiguous about the program's effectiveness if there is uncertainty whether poor results are due to an ineffective program or poor implementation (Sanetti, Hagermoser; Gritter, Dobey, 2011). Reading results seem to vary significantly according to how well the intervention was implemented and the degree to which the structure of lessons was followed (Benner, Nelson, Stage, & Ralston, 2010). Benner and colleagues (2010) also concluded that middle school students with reading problems require intensive supplemental reading instruction implemented with high levels of fidelity.

Duration is important. Slavin, Cheung, Groff, & Lake (2008), in their meta-analysis of interventions for middle and high school students, established criteria for admitting studies into the analysis. They required studies of at least 12 weeks, but commented that studies of shorter duration than one year may not allow programs to show their full effect. Research indicates that a "quick fix" mentality for intervention does not work.

Summary

A brief history of comprehension instruction: Four movements or "waves." First, the research on single comprehension strategy instruction indicated that teaching comprehension strategies in isolation is not as effective as teaching strategies in combinations. Second, the research supports that instruction in multiple-strategies helps students to think metacognitively and flexibly about strategy usage. Third, research indicated that using multiple strategies in more collaborative situations and considering transactions between readers and text and teachers resulted in joint construction of understanding. Teaching comprehension strategies as they emerge in the study of content or literature seems to be effective. The model of direct instruction improved literacy pedagogy. Reading instruction became more focused on self-regulation and constructing meaning collaboratively.

An extensive review of the research found that strategy instruction by itself was limited. Teaching and practicing of strategies did not produce student achievement at high levels in content areas such as science where background knowledge and vocabulary seemed as critical.

Fourth, high quality classroom discussions with peers and teachers were found to be critical for comprehension; and different kinds of discussion produced different outcomes. Discussions in which students and teachers shared the control, the *critical-analytic stance*, seemed to be the most conducive to deeper critical thinking. The research found that discussion improves motivation and comprehension and is most productive when students hold the floor for extended periods of time, when students are prompted to discuss texts through open-ended or authentic questions, and when discussion incorporates a high degree of uptake (a question following up something someone else has said) of information.

Increases in the amount of student talk did not always result in similar increases in comprehension. Some researchers noted the need to assess students' comprehension of texts outside of discussions to know whether the students have acquired the ability to transfer what they have learned.

Four types of dialogic approaches were reviewed: *Content-rich*, *Discussion*, *Inter-textuality*, and *Argumentation:* each approach found positive results. Currently, the research on Intertextuality is limited; but some researchers have hypothesized that reading across multiple texts on the same topic, particularly with differing viewpoints, will develop students' critical thinking. Reading the second text is easier when the content or theme is continuous from the first text.

Argumentation approaches. Based on the research on argumentation as a *critical-analytic stance* discussion format, educators should consider six factors.

a) Adolescents are weak in argument construction, but can learn

b) Engagement in argumentation discourse is effective for developing argumentative skills

c) Teacher modeling and prompting is necessary to learn argumentation discourse

d) Just knowing argumentation principles is not enough for transfer

e) Oral argumentation is more effective than simply constructing arguments

e) Argument schema relates to reasoning and is learned in meaningful contexts

f) Argumentative writing should be included because written arguments result in better inferences and subject matter understanding

g) Explicit instruction includes immersion into argumentation discourse and argumentative writing

In addition, a major concern expressed about argumentation research was that the product in the studies was usually text production, not text comprehension.

Writing Impacts Reading

Reading instruction with *Reciprocal Teaching* compared to instruction in writing resulted in similar positive effects on comprehension. However, an issue for implementation of writing with reading was reported in a 2009 national survey where it was revealed that students are rarely asked to complete writing assignments requiring analysis and interpretation.

Interventions for struggling adolescent readers and writers. Some research-based principles for evaluating reading intervention programs have been recommended and should be considered when designing interventions or choosing to implement (Fisher & Ivey, 2006). Highest priority goes to two principles that should be evident in the school-wide culture: (1) substantial opportunities for students to do wide reading and, (2)

teachers use content literacy approaches to ensure students are engaged in meaningful curriculum. If these priorities are not in place, attempts at intervention will not produce results. Effective interventions incorporate five principles:

1) The teacher plays a critical role in assessment and instruction

2) The intervention reflects a comprehensive approach to reading and writing

3) Reading and writing in the intervention is engaging

4) Intervention uses meaningful and relevant assessments

5) Intervention includes significant opportunities for authentic reading and writing.

Fisher and Ivy (2006) particularly noted need for adequate professional development in implementation for teachers, without which, the interventions would not be effective.

Reviews of Interventions. Explicit strategy instruction yielded strong effects on comprehension. The interventions reviewed by Scammacca, et al. (2007) were of vocabulary, strategy instruction, word study and multiple-components. The estimate of effect size across all 23 studies with a comprehension measure was 0.97, a strong effect compared to control groups of similar at-risk students who were given typical instruction. Although the results showed improvement compared to control groups, the results do not provide information about the degree to which students' reading skills have improved related to grade-level standards.

Faggella-Luby and Deshler (2008) reported moderate to large effect sizes on comprehension in a meta-analysis of six intervention syntheses with at-risk and LD students. Students learned text structure, word meanings, activated prior knowledge,

used cognitive strategies (e.g., self-monitoring and self-questioning), and participated in cooperative learning to increase engagement, and in blended components of each of these.

Edmonds et al. (2009) related similar large effect sizes in a meta-analysis of interventions with older at-risk and LD students with comprehension measures. The interventions included: (a) *Reciprocal Teaching*, (b) multi-component interventions focused on previewing, text structure, and summarizing, and (c) one intervention using graphic organizers. Much smaller effect sizes on comprehension were noticed in interventions that combined word learning, word reading, comprehension strategies, and fluency practice. Computer-based interventions that provided word reading, spelling, and comprehension support also showed small effects.

The authors (Edmonds, et al., 2009) reported comprehension practices that engage students in thinking about text, learning from text, and discussing are likely to be associated with improved comprehension outcomes for students with reading difficulties or disabilities. They also noted comprehension practices used were more effective for narrative text than expository text and suggested teachers use graphic organizers to support students' comprehension of expository text. Fluency interventions had small effects on comprehension. For single-strategy comprehension interventions, students were successful on measures related to the targeted strategy, but on broader measures of comprehension, effects were lower and less consistent, so these findings suggest older struggling readers need additional transfer opportunities.

Fagella-Luby and Wardwell (2011) investigated interventions with at-risk 5th and 6th graders and reported Tier 2 interventions require substantial intensity of instruction to

improve outcomes for struggling readers and noted that teachers they studied were inconsistent with explicit instruction. It seems likely that the intensity and amounts of instruction necessary to close the gap for many older students with serious reading difficulties will be considerably beyond what is currently being provided in most middle and high schools (Roberts, et al., 2008).

Inferences for Forthcoming Study

Based on the review of the research, no interventions were found that included reading across multiple texts, engaging in argumentative discourse, and writing an argumentative essay as a means of improving comprehension of expository text. Separate studies were reviewed that reported critical-analytic discussion stance improving critical thinking, oral argumentation improving critical thinking, oral argumentation enhancing written argumentative essays, reading across multiple texts increasing critical thinking, and writing enhancing the understanding of text.

CHAPTER THREE

Research Design and Methodology

The need for more effective reading interventions for struggling adolescents has been evident from the national reading achievement scores (NAEP 2011) and the reality that reading scores have been stagnant for at least 20 years for middle school and secondary students. The urgency of the problem is further enhanced by the adoption of the Common Core State Standards (CCSS) (National Governors' Association and Council of Chief State School Officers, 2010). In order to meet the rigor of the CCSS, students must be able to read more complex texts and engage in intellectually challenging work, which means they must acquire high-level strategies for analyzing, evaluating, and producing information. Specifically, they must learn to comprehend more complex texts and apply strategies for synthesizing information across texts, critiquing arguments, and building stances from which to reason and argue (Goodin, Weber, Pearson, & Raphael, 2009). With low reading achievement scores, the current need for more demanding literacy skills seems overwhelming.

Statement of the Problem

Teachers of struggling adolescent readers need to provide research-based literacy interventions that significantly improve students' reading comprehension. Yet, more research is needed to determine what works best and how these approaches can be implemented effectively and with fidelity. Several meta-analyses have been conducted to compare adolescent reading interventions and to determine their effectiveness: the conclusions of which call for more research (Scammacca, et al., 2007; Faggella & Deshler, 2008; Edmonds, 2009).

Purpose of the Study

In an effort to provide additional knowledge to the field about effective reading comprehension intervention, this study attempted to bring the most recent comprehension research to bear on the development of an innovative intervention approach. It provided an opportunity to closely follow the collaborative interactions of a teacher and researcher during the implementation of the reading intervention. Collaboration provided the environment for testing the intervention, as well as an opportunity to study the influence of the intervention on the students' reading comprehension and essay writing.

Chapter 1 presented an overview of the proposed study and Chapter 2 presented a review of the literature. Chapter 3 presents the methodology of the research study including the (a) research questions which guided the study, (b) the research design, (c) the rationale for design, (d) the setting and selection of the participants, (e) the role of the researcher, (f) assessment and instrumentation, (g) procedures, (h) data collection, (i) data analysis, (j) data interpretation, (k) validity and reliability, (l) limitations, and (m) ethical precautions.

To determine if teacher collaboration made a difference in the implementation of the intervention model, student achievement outcomes from Group 1 were compared to student achievement outcomes from Group 2. The results from a Control Group, in which the teacher provided the school's typical instructional methods, were also compared to the student achievement outcomes of Group 1 and Group 2.

Research Questions

The research questions provided a framework for studying the dynamics of teacher collaboration, teacher-student interactions, and change over time in the written essays and reading comprehension of struggling adolescent readers.

1). Does the students' participation in the reading intervention influence their reading comprehension?

2). Does the students' participation in the reading intervention influence their essay writing?

3). How does the teacher's collaboration influence the implementation of the reading intervention?

Research Design

A Convergent Mixed Method design was applied to answer the research questions. A qualitative approach allowed for the close examination of interactions at two levels: (1) teacher and researcher interactions during the implementation of the reading intervention, and (2) teacher and student interactions during the implementation of the reading intervention. The qualitative information was collected and examined from the teacher and students of Group 1. A quantitative approach was used to examine the students' written essays and reading comprehension scores to determine the influence of the intervention on student outcomes. This quantitative approach compared Group 1 student achievement outcomes to the student achievement outcomes from Group 2, the group with no teacher collaboration, but similar intervention lessons, and Group 3, the Control group, which received the school's typical language arts instruction. After the data were collected and analyzed in both strands, qualitative and quantitative, the results

were triangulated and integrated to present a fuller explanation of the study's results. The quantitative measures were converged with the qualitative measures to provide an in-depth explanation of the relationship between teacher reflection and student learning during the implementation of the reading intervention.

Research on (a) intertextuality or reading across multiple texts (Wolfane & Goldman, 2005; Verelas and Pappas, 2006; Hartman & Hartman, 1993; Levy, et al.,1995), (b) argumentation (Reznitskaya & Anderson, 2002; Wolf, Crosson, & Resnick, 2004; Alvermann, Hynd, & Qian, 1995), and (c) argumentative writing (Yeh, 1998; Wiley & Voss, 1999) showed previous positive effects, but these components had not been used together as a multiple component intervention approach, nor had they been studied as to their influence on reading comprehension. The current study contributed to the reading field by examining the impact of a multiple component intervention on the reading comprehension and essay writing of struggling adolescent readers. Furthermore, the study provided insights into the role of teacher and researcher collaboration during the implementation of the intervention. The Mixed Methods design provided a structure for examining complex phenomena through multiple sources.

Rationale for a Convergent Mixed Method Research Design

Convergent Mixed Methods is a research design with philosophical assumptions that guide the direction of the collection and analysis of data, the mix of quantitative and qualitative methods, and enables a better understanding than either approach would deliver alone (Creswell & Plano Clark, 2011). A mixed method approach provides strengths that neutralize the weaknesses of both qualitative and quantitative research. Quantitative research can be weak in understanding the context and setting in which

people talk and learn. On the other hand, qualitative research makes it possible for researcher bias and personal interpretations to be misleading and it is difficult to generalize to a larger population due to the limited number of participants. A Convergent Mixed Method design is a good way to determine if the data sets converge or depart in answering the research questions (Creswell & Plano Clark, 2011).

Because the need for effective reading intervention for struggling adolescent readers is so great, the study presented an opportunity to develop and test a new multi-component reading intervention based on components that are separately supported by existing research. A convergent mixed methods case study was the appropriate design for a close examination of the interactions between teacher/researcher and teacher/students and how those interactions may influence student achievement on literacy measures. The qualitative data analysis provided rich descriptions of interactions between participants and the quantitative data analysis helped to explain the results.

A qualitative single case study is referred to as a phenomenon occurring in a bounded context and a unit of analysis with a focus (Huberman & Miles, 2002). This case study is bounded by: (a) time – over the course of 10 weeks with videotaped observations; (b) sample size – one small group of six students and one teacher; and (c) specific research questions that discourages study-boundary distractions. Even though the sample is small, there is documented variation of viewpoints within the sample group. Furthermore, the case study produced enough data to analyze, triangulate, and interpret patterns to better understand the critical thinking and reading development of struggling adolescent readers.

The data from the written essays, written sequentially over time and scored with a rubric, presents evidence as to the effectiveness of the intervention model and to the effectiveness of teacher collaboration on the development of that model. Mixing the data sets provided a better understanding of the problem than if either data set had been used alone (Creswell & Plano Clark, 2011). The quantitative data together with the qualitative data provides an in-depth explanation of the relationship between the teacher's reflections and the students' learning during the development and implementation of the reading intervention.

The intervention model contained important components that have proven effective in other studies and were described in the previous chapter: (1) reading across multiple non-fiction texts, (2) high-quality discussion in a *critical-analytic* stance, (3) oral argumentation, (4) use of graphic organizer/ heuristic for scaffolding, and (5) argumentative writing. With several cycles of those components, in tandem with the social setting of the small group with a teacher, students can be more self-regulated and flexible in their use of critical thinking and comprehension (see Figure 2).

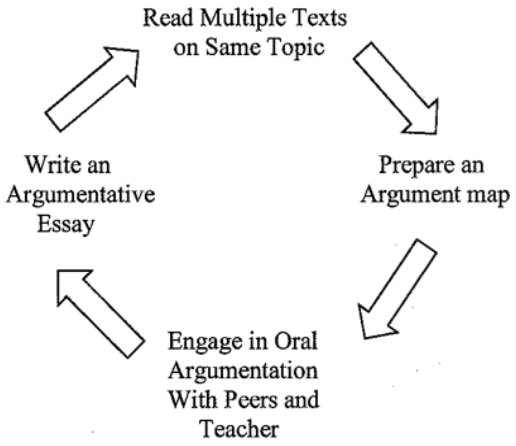


Figure 2. Cycle of Intervention Components

It is necessary to closely examine the relationship between the teacher/student interactions and the students' written products during the study. The data provides evidence for understanding what was working within the intervention and allowed for adjustments. The post-reading comprehension assessment and final written essay presented further information as to whether student participation in the intervention was helpful in improving their performance. A mixed methods case study inquiry was an appropriate methodology for this type of data analysis. See descriptions below and Table 1 for Intervention groups design.

Intervention Groups

To more fully understand the research design, it is important to describe the three groups and their expected levels of participation:

1. Group 1 was a small group of low-achieving readers within a regular Language Arts/ Social Studies whole-class setting. The teacher, Laura, implemented the argumentative unit on the American Revolutionary War with the whole class and followed the small group of intervention students as they participated in whole class instruction. The teacher provided individual scaffolding for the intervention students, as well as for other students in the class. The whole class setting was similar to the typical structure in which middle school teachers deliver differentiated instruction. The teacher collaborated with the researcher throughout the study. The teacher's tag for Group 1 includes "IC" for implementation and collaboration.
2. Group 2 was a small group of low-achieving students who were pulled-out of a regular Language Arts/Social Studies classroom into an intervention classroom.

The teacher, Kelly, implemented the argumentative unit on the American Revolutionary War with the small intervention group. The teacher's tag includes "IO" for implementation only.

3. Group 3 was a small group of low-achieving readers within a regular Language Arts/Social Studies classroom. The teacher, Anne, delivered the routine curriculum on the American Revolutionary War, but the struggling readers did not receive instruction in argumentation nor argumentative essays. The teacher's tag includes "CG" for Control Group.

Table 1

Intervention Study Groups: Settings, Group Sizes, Curriculum, and Assessment

Group 1, Laura (IC) Implementation and collaboration	**Group 2, Kelly (IO)** Implementation Only	**Group 3, Anne (CG)** Control Group
26 students	6 students	27 students
Intervention within Language Arts/ Social Studies whole class, Study students followed	Pull-out intervention, Study students from another Language Arts classroom	Regular Language Arts Social Studies curriculum, No argumentation or essay taught
Assessed with reading tests, essays	Assessed with reading tests, essays	Assessed with reading tests only

Setting

The study was conducted in a middle school containing fourth, fifth, and sixth grades in a southern state in the United States. The school was located in a town of approximately 35,000 and 45 miles from a major metropolitan city. The demographics of the school of 1000 students included a racial composite of 80 percent Caucasian, 8

percent African-American, 6 percent Hispanic, and 5 percent mixed races, as well as less than 1 percent Asian or Indian. The percentage of students eligible for free and reduced lunch was 45 percent. During the year of the study, the school was recognized as one of the top 25 schools in the state based on standardized achievement scores. The teachers in the school were open to innovations and continued learning, and the mission of the school focused on excellence. The school was located in a university town, and the teachers partnered with university faculty to allow graduate students in the classrooms for various tutoring and teaching experiences.

Teachers. Three teachers volunteered for the study. They each agreed to work with a small group of students whom they identified as struggling with reading and writing. Two were fifth-grade Language Arts/Social Studies teachers and one was the Literacy Intervention teacher for the fifth grade.

The teacher for Group 1, Laura (a pseudo-name), was trained in the reading intervention, and she engaged in weekly collaboration with me during the course of the study. She was a Caucasian woman in her thirties who was enthusiastic about the project and willing to share her thoughts and ideas with me. Laura was an experienced elementary classroom teacher and a literacy specialist of 18 years with a master's degree in Reading. Laura had presented professional development in literacy to teachers in the school districts where she was previously assigned, and she was involved in the international, state and local reading associations.

Group 2 teacher, Kelly (a pseudo-name), was a Caucasian woman in her mid-twenties. She implemented the intervention model, but did not collaborate with me. Kelly was a first-year teacher assigned as the literacy intervention specialist for a class of

fifth grade low-achieving students. She had recently completed a master's degree with an endorsement as a Reading Specialist, and she had substantial field experience in teaching struggling readers and writers. Kelly was highly recommended by her former university supervisors as a teacher with good judgment and knowledge of literacy best practices.

Group 3 teacher, Anne (also a pseudo-name), taught the Control Group. Anne was a veteran teacher with 24 years of experience in elementary grades and a master's degree. She was a Caucasian woman in her fifties who appeared willing and earnest about her part in the study. She was a fifth-grade Language Arts/Social Studies teacher. Her reputation as a solid and expert teacher was well known throughout the district. During the 10-week study, Anne implemented the unit on the American Revolutionary War, as did Laura and Kelly, within the typical structure of her Language Arts program. She did not require her students to write the argumentative essays.

The students in the study had no contact with me, as the researcher. This was important as it enabled the students to engage in the intervention within their normal instructional setting. In addition, I had no contact with Kelly and Anne during the course of the study.

Student Selection. The students were selected by their teachers, based on their low scores on the STAR Reading test (Renaissance Learning, 2014), an online reading test given at the beginning of the year to all students in the school. The teachers also looked at the students' previous year achievement test reading levels and their classroom performance from the beginning of the school year. Before the study, the teachers had approximately one month to observe the students and notice which ones seemed to struggle with reading and writing and completing assignments. According to the

teachers' selection criteria, the students seemed evenly matched across the groups. Each intervention group was composed of six or seven students.

Students. The adolescents involved in the study were all in the fifth grade and consisted of 8 boys, 1 African-American and 7 Caucasian, and 12 girls, three African-American and nine Caucasian. These students varied slightly in age. A total of 20 students participated in the study, with 15 students that were ten years old and 5 that were 11 years old. None of the students was English Language Learners; none was identified as qualifying for Special Education; and one was medicated for Attention Deficit Disorder, but received no special services.

Some descriptors of the students, offered by the teachers, were similar across the groups, such as, "slow completing work", "reading seems hard", "low self-confidence", "has a hard time staying on-task", "has to talk things out to understand", "doesn't like reading", "struggles with comprehension", "little work stamina", "may have an unidentified learning disability", "listening comprehension is good", "has to be interested to participate", and "seems to have attention issues."

Group 1 (IC) students participated in the intervention model with their peers in the whole classroom setting of their Language Arts/Social Studies course. The teacher, Laura, specifically followed and individually coached these students. Group 2 (IO) students were pulled out of the classroom into Kelly's intervention classroom and engaged in the intervention within a small group. Group 3 (CG), the control group, participated in the normal activities in their Language Arts/Social Studies classroom with their classroom teacher, Anne, and did not engage in the intervention model. All groups were involved in the study of the American Revolutionary War.

The Role of the Researcher. As the researcher, I had five primary roles:

1) Training Groups 1 and 2 teachers in the implementation of the components of the intervention.
2) Collaborating with Group 1 teacher on the implementation of the intervention.
3) Collecting and analyzing student data in collaboration with Group 1 teacher.
4) Collecting and analyzing the pre- and post- reading comprehension tests from all student groups.
5) Collecting and analyzing the written essays from student Groups 1 and 2. I was not present in the classrooms during the intervention sessions with the students.

Data Collection

The study required the collection of a variety of quantitative and qualitative data at multiple points throughout the study (see Table 1. *Data Collection*). The emphasis was on understanding the qualitative data, while also examining the quantitative data (pre- and post- reading comprehension assessments and pre- and post-written essays) to inform and explain the information gathered from the qualitative data.

Pre- and Post-*Flynt-Cooter Reading Inventory for the Classroom*. The graduate assistant from the local university administered the pre- and post-*Flynt-Cooter Reading Inventory for the Classroom* to each of the participating students before the intervention began and after the 10th week of intervention. She submitted the actual score sheets and results to me, organized sequentially by the students' numbers. I compiled the graduate assistant's anecdotal notes and the students' responses and scores from the

reading accuracy, fluency, and comprehension levels for examination and recording. The initial and final *Flynt-Cooter* assessment results from all three groups were compared and analyzed for change over time.

Videos. During the ten weeks of the study, the students in Group 1 (IC) were videotaped four times: the first being the pre-assessment argumentation and the last three video clips were taken during the intervention. The teacher and I simultaneously viewed the videos, so that reflections and collaboration could be in real time and more effective. Reflection centered on the student behaviors and the teacher-student interactions. I took notes on the collaborative conversations for later comparisons.

Teacher anecdotal notes. The teacher's notes about the students' responses to the intervention were collected and shared frequently, usually over the phone. These anecdotal notes included, but were not limited to, the teacher's impressions of the strengths and weaknesses of the sessions, the students' progress, and plans for improvement.

Researcher-teacher collaboration notes. The teacher/researcher collaborative notes, which were gathered through frequent email or phone calls, were compiled and referred to as supplemental evidence of the impact of collaboration on the implementation of the model and student behaviors and written products. These conversations drew upon the teacher's reflective notes on the sessions and on the videos and presented opportunities for thinking about how the students were responding and how the intervention could be more effective.

Student-written essays. Each cycle of the intervention ended with a student-written argumentative essay about the current topic's reading, thinking and

argumentation. These essays were rough drafts and scored for content and style with the essay rubric and analyzed for change over time (see Appendix B). The students were not expected to write final draft essays. See Table 2 for a description of the data type, purpose, and the timeline for data collection.

Table 2. *Data Collection*

Data Type	**Source**	**Purpose**	**Timetable**
Quantitative	*Flynt-Cooter* Reading Test	Assessed growth in comprehension	Pre-test (week 1) Post-test (week 10)
Quantitative	Student-written Essays	Assessed growth in written expression	Pre-test (week 1) Post-test (week 10)
Quantitative	Student-written Essays	Assessed growth in written expression	Weekly (weeks 2-9)
Qualitative	Videotapes of argumentation interactions	Analyzed oral argumentation	Bi-weekly (weeks 1, 3, 5, 7)
Qualitative	Teacher/researcher Video reflections	Analyzed reflections	Bi-weekly (weeks 1, 3, 5, 7)
Qualitative	Teacher Notes	Provided descriptive supplemental data	Ongoing
Qualitative	Researcher Notes	Recorded notes and analyze patterns	Ongoing

Assessment and Instrumentation

Pre-assessment. Pre-assessments included (1) baseline instructional reading levels resulting from the administration of an informal reading inventory*, Flynt-Cooter Reading Inventory for the Classroom* (Flynt & Cooter, 2004), for students in Group 1,

Group 2, and the Control Group, and (2) an analysis of the initial written argumentative essays from Groups 1 and 2. Before the study, a graduate assistant administered the *Flynt-Cooter Reading Inventory for the Classroom* to all participating students for the purpose of establishing pre-intervention instructional reading levels, as well as notations about reading fluency. An independent reading level is commonly considered to be reading with 95 percent accuracy and adequate comprehension. Instructional reading level is considered to be 90 percent to 94 percent accurate reading. Frustration level is 89 percent and below. The *Flynt-Cooter Reading Inventory for the Classroom* presents these levels as hard, adequate, and easy. The students' instructional reading levels were considered when selecting the reading materials for the intervention.

Because of a previous state-wide literacy professional development, Reading Specialists and classroom teachers, across the state and in the school, were familiar with the *Flynt-Cooter Reading Inventory for the Classroom* (Flynt & Cooter, 2004), an informal reading inventory which measures oral reading accuracy, fluency, and comprehension. Laura, Kelly, and Anne were among those teachers who recognized and used the *Flynt-Cooter* instrument. Reading level results are reported in grade levels. The reliability and validity of the *Flynt-Cooter* are reported in the assessment user manual. Analyses of content-related validity, criterion-related validity, and construct validity indicate that the measure is a valid test of oral reading accuracy, fluency, and comprehension. The triangulation of multiple forms of reliability analyses over time with different raters and with different samples of content has demonstrated consistent results. The measure demonstrates moderate to high internal consistency reliability, parallel equivalency reliability, test-retest reliability, and inter-rater reliability.

The other student pre-assessment was the initial written argumentative essay written by the students in Groups 1 and 2 and which was completed at the beginning of the intervention and later scored with the essay rubric (see Appendix B). This instrument provides for evaluation of student writing in five categories: (1) Introduction; (2) Argument; (3) Organization; (4) Conventions and Style; and (5) Sources.

In the *Introduction* category of rubric evaluation, a proficient writer with a score of 3 would be able have the introduction create interest and contain background information. The thesis would clearly state a problem and the writer's position would be clear. A writer who scores Proficient, a score of 3, in *Argument* makes sure that most of the argumentative points are related to the thesis, with one perhaps lacking in sufficient support or one may deviate from the thesis. Refutation acknowledges opposing viewpoints with some logic and clarity. Conclusions summarize the thesis and key points with some "fresh commentary." To score a Proficient, a score of 3, in the *Organization* category on the rubric, a writer must present a logical progression of ideas. Transitions should be present throughout the essay and the writer must provide adequate coherence between and among ideas. To be Proficient, a score of 3, in *Conventions and Style*, the writing must be clear and the sentences varied. Diction needs to be appropriate and tone needs to be generally consistent with the writer's position. Punctuation, spelling, and capitalization are generally accurate, with some errors. Finally, Proficient, a score of 3, in the use of *Sources* means writers must show that their evidence is from sources and integrated into the text. Most sources would be cited accurately and are generally relevant and reliable.

Formative assessment. After the first week, and during the following eight weeks of the ten-week intervention, formative assessment of Group 1 was conducted by (1) analysis and collaborative discussions of the videotapes of four recorded sessions with the teacher and students from Group 1, (2) analysis of students' written essays at the end of each cycle, and (3) examining closely at the Group 1 teacher's anecdotal notes and documented collaborative conversations between the teacher and researcher that occurred on a bi-weekly basis through email or phone calls.

Post-assessment. In Week 10, the last student-written argumentative essays from Groups 1 and 2 were scored with the essay rubric for comparison with the previous essays. The teacher and I both scored the essays. In addition, the same graduate assistant administered to the students in all three groups the post-assessment of the *Flynt-Cooter Reading Inventory for the Classroom, again* using non-fiction passages. The students' post-assessment reading scores were compared to the initial assessment scores.

Training the Teachers

Training of the teachers of Groups 1 and 2 in the implementation of the intervention model took place in the first week of September and entailed 2.5 hours after school in professional development. During this session, I presented (a) the overview of the intervention model, (b) student choice as a motivating factor, (c) modeling and guiding the identification of claims or positions from the texts, (d) modeling and guiding the creation of an argument map from those positions and the texts, (e) facilitating civil student argumentation, and (f) modeling and guiding written argumentative essays. The

teachers and I discussed the importance of providing the students with interesting choices of topics and texts because of the issues of *choice* and *interest* related to motivation and referred to in Chapter 1.

The topic of study for all three groups was the American Revolutionary War because it was the curriculum expectation. The topic was one that needed to have interesting texts for their students to read. The texts chosen would supplement their instructional textbook. It was challenging to find high-interest articles for students about the Revolutionary War, but I was able to find some online.

Both teachers agreed to start the intervention process with a different and off-topic, high-interest series of texts on the question I provided, "Should Students Have Cell Phones in School." The purpose of using this series of articles was to teach the intervention model process. In addition, I supplied all three teachers with additional classroom library books about the American Revolutionary War for children to keep and enhance their classroom collections. Both Group 1 and 2 teachers were furnished with an intervention planning guide to assist them in preparing for instruction (see Appendix C for the teacher's Intervention Planning Guide).

The teacher for Group 1 (IC), Laura, was fully informed about keeping anecdotal records of student observations during the process of learning the intervention model and engaging in the reading, oral argumentation, and writing. Additional observations were recorded on video at the intervals described earlier and weekly or bi-weekly contact with me was arranged for collaborative conversations.

The teacher for Group 2 (IO), Kelly, was assured that I would check with her as support, but would not offer any collaboration on the process and did not require

anecdotal notes or videos. The teachers seemed comfortable with the intervention process and were happy with the reading materials and the argument maps and essay rubric. After the training, the teachers began the process a week later and the study ensued for the following 10 weeks.

Procedures

The intervention study was designed to be delivered for 30 minutes daily, five days a week for a period of ten weeks. After a few days, the teachers found the intended schedule was ambitious and difficult to maintain. Their alternative instructional sessions are described in Chapter 4. The interventions took place during the school day in the regularly scheduled Language Arts/Social Studies class or the reading intervention class period. The teachers of both Group 1 and Group 2 implemented the intervention model using the intervention cycle framework, argument map, and reading materials. The teacher of the control group implemented the school's typical fifth grade Language Arts/Social Studies instruction on the American Revolutionary War topic.

Intervention: Week 1. During the pre-assessment cycle of the study, the students in Groups 1 and 2 were required to read three short non-fiction texts on the same topic, argue about them with minimal teacher guidance, and then individually complete a written argumentative essay, based on responses to the reading material and their unguided argumentation. The students in Groups 1 and 2 were expected to write their first argumentative essay from that original discussion.

Intervention: Week 2 to Week 9. In the second and following cycles, the teachers in Groups 1 and 2 were required to present three choices of short non-fiction texts on the curriculum topic. The students were to select the first article. Based on the

first article chosen, the teachers were to model how to create a heuristic (an argument map) of a possible argument. The teachers were to present possible positions that could be taken from the information in the text. The students and teachers were to discuss reasons for the position and the evidence for and against the positions from the text and record them in the appropriate places on the map.

The students were required to read another short non-fiction text on the same topic as the first, then engage in guided argumentative discourse and contrast the second text with the first text, following that with another argument map completed from this second text. A third related non-fiction text was to be presented with the same procedure followed, comparing and contrasting the three texts and completing an argument map for the positions that the students took from information across the three texts. The teachers modeled writing a formal argumentative essay using the last argument map that synthesized the information from the three articles with the argument, reasons, and explanations. The students then wrote individual argumentation essays based on their student-made argument maps. The students completed several cycles of multiple text readings, argumentation, and writing for three written arguments for analysis. As the students took more and more responsibility for their oral argumentation process, the teacher withdrew the scaffolding of support, as needed.

Intervention: Week 10. The final written argumentative essay was the cumulative product for students in Groups 1 and 2. The same graduate assistant from the university again administered the *Flynt-Cooter Reading Inventory for the Classroom* to

the students in Groups 1 and 2 and the Control Group to determine the post-intervention reading comprehension levels. The final essay and the final reading comprehension level scores were the post-assessment data collected.

Post Intervention. Following the ten weeks of intervention, I completed the compilation and analysis of all data and looked for possible relationships between them. Consultation with the teachers of Group 1 and 2 occurred as interpretations were formulated about the findings. Finally, the findings, interpretations, and discussion of implications were completed.

Data Analysis

The mixed methods approach for analysis of data from Group 1 utilized the following qualitative and quantitative data: (a) the videotaped sessions with students and teacher, (b) the anecdotal teacher observations, (c) the teacher and researcher video reflections, (d) the documented collaboration conversations between the researcher and teacher, (e) the student-written argumentative essays from Weeks 2 - 9, (f) the pre- and post- *Flynt-Cooter Reading Inventory for the Classroom* results, and (g) the pre- and post-student written essay results. The quantitative data were collected and analyzed from Group 2 and included the pre- and post- written essays and the pre- and post- *Flynt-Cooter Reading Inventory for the Classroom*. Only the pre-and post- *Flynt-Cooter* reading test results from Group 3 were analyzed and compared to the results from Groups 1 and 2. Group 3, the control group, did not engage in written argumentative essays.

The videotaped sessions with Laura and Group 1 (IC) students were recorded on the teacher's Smart Phone and transferred to computer and projector, so the sessions could be viewed together. The videoed interactions between students and students and

between students and teacher were reflected upon and notes were made about emerging patterns of observable behaviors and then later, analyzed for changes over time. Comparisons of the initial videotaped session and the following recorded sessions were important in examining the development of critical thinking and comprehension.

The information from Laura's Group 1 (IC) anecdotal records and reflections were used as supplementary data. Notes were reviewed from collaborative conversations, on topics such as (a) conversations about changes in observable student behaviors during argumentative discourse, (b) the completion of student-made argument maps, and (c) changes in written essays of the students. Themes emerged from these notes and the supplemental information was important in considering how the intervention model developed and helped in the analysis of the effectiveness of the implementation process of the intervention model.

The pre-study through post-study written argumentative essay results from Groups 1 and 2 were compared and analyzed for features and changes over time, based on rubric scores. The teachers and I looked for evidence of students' taking on the argument structure of presenting a position, giving reasons for it, and then backing it with evidence from the text in their essays. Later, the students began to practice thinking of a counter-position and their rebuttal to it.

The teachers and I rated the written essays with the rubric. There was no wide disparity between our ratings and when a few times our scores differed, it was not more than one category off, and I opted to agree and use the teacher's score. The essay rubric scores illuminated changes over time in content and reflected potential changes in critical thinking.

The pre- and post- *Flynt-Cooter Inventory for the Classroom* reports reading levels as grade levels, so after a 10-week study, if a student scores at a higher grade it would indicate that the intervention might have influenced reading comprehension in some way. The quantitative results of the reading inventory and the pre- and post-student written essay results were compared to the changes over time from the qualitative observational data, teacher notes and reflections, teacher-researcher collaborations, and the student written essays from Weeks 2-9. All the data were important to inform about the usefulness of the developed intervention and the teacher collaboration, and as this was a preliminary study, what might need to be changed in the future.

The analyses, together, generated answers to the research questions. Triangulation of data is a concept based on the assumption that bias, which may be inherent in data sources, the researcher, or the method, can be neutralized when used in conjunction with other data sources, researchers, or methods (Creswell, 2007). Triangulation can be a way to wash out bias and a way to enable a powerful sense of convergence when the data come together. The seven forms of data previously described for collection and analysis were more than adequate to provide informative answers to the research questions.

General strategy for the qualitative data analysis. After all of the output from the coding and categorization was initially completed, a deeper study commenced to determine whether there were any meaningful patterns emerging, such as the frequency of codes or code combinations. The reasons that supported definitions of the initial codes and subsequent codes and their connections to the original research design were

explained. An examination of the ways the codes accurately reflected the meaning of the words and phrases taken from the data collected was important in keeping the analysis true to the data (Yin, 2009).

Some preliminary manipulation of the data was explored, such as, making a matrix of the categories with evidence and tabulating frequencies of events. Creating a data display (Miles & Huberman, 1994) organized the evidence in an initial order and allowed a general strategy to emerge to further analyze the study (Yin, 2009). The general strategy pursued relied on the theoretical propositions or explicit theories which represented the foundation of the study: (a) socio-cultural learning, (b) apprenticeship learning, (c) self-regulation, (d) engagement and motivation, and (e) teacher collaboration and reflection. These propositions were useful in guiding the case study analysis and keeping the focus on answering the research questions. It meant that a chronological event display was called for, where one critical incident led to another and so forth, in a time-ordered matrix which is a more general form of event listing (Miles & Huberman, 1994). Attention was given to all evidence, as to how it answered the research questions. Rival explanations for the evidence were explored, as well.

Making sense of the qualitative data. After analyzing the data displays and matching patterns of evidence that supported the theoretical propositions, another step was taken toward further analysis. It was an initial written summary of the data display. Writing that summary was a means of re-analysis, which could have suggested different relationships (Huberman & Miles, 2002). As a second step in studying the influence of teacher collaboration with the researcher on the subsequent development of the intervention, an explanatory effects matrix was constructed in an attempt to explain how

and why some effects were achieved. A review by the teacher was helpful at this point to notice what might have been excluded and what alternative assumptions might be made. Writing the next analytic text with conclusions, linking the conclusions with the data excerpts that led to them was a way of keeping the inductive reasoning on track. The end goal was to move from the constructs of the explanatory matrix to theories that were across-more-than-one-study propositions (Huberman & Miles, 2002) and to build a logical chain of evidence that could be confirmed, and thus be valid.

General strategy for analyzing the quantitative data. Quantitative data analysis focused on (1) the pre- and post-reading inventory results, which were scored using standard procedures from the manual and (2) the pre- and post-student written essays, which were scored with a rubric. The results from the *Flynt-Cooter Reading Inventory for the Classroom* were reported in numbers that reflected grade levels. The student scores were entered in the SPSS software in a similar way as the written essay scores, but instead, the variables were the sections of the inventory: (1) reading accuracy percentages, (2) reading comprehension scores, and (3) grade level of reader's performance on both the pre- and post-tests. Those scores were processed through the software to determine frequencies and represented in a visual bar graph, also followed with comparisons, factor deductions, and regression analyses.

The written essay results were reported in numbers from the different sections of the rubric: (1) Introduction and Thesis, (2) Argumentative Points, (3) Organization, (4) Style and Conventions, and (5) Sources and then added together for a Summative Score. The data were entered in SPSS software and each of those sections became a variable, as well as the pre- and post-Essay Summative Scores. Individual student scores were

entered and then, after a check for outliers was completed, frequencies tables were run, followed by comparisons, factor deductions, and regression analyses.

Mixing the qualitative and quantitative methods

In this Convergent Mixed Method Design, the qualitative and quantitative data sets were collected and analyzed separately, but conducted side-by-side. Only after the data were analyzed could the two strands be integrated to more fully inform and explain the study results (Creswell & Plano Clark, 2011). In other words, the data converged to enable more accurate answers to the research questions. The qualitative strand was the dominant one because the focus was on the development of a new intervention model with teacher collaboration, but the quantitative strand was necessary for evidence of the effects of the intervention and comparisons to the intervention model implemented with no teacher collaboration and a Control Group.

Validity

There are three possible areas that present threats to validity in qualitative research (Maxwell, 1996): (1) description, (2) interpretation, and (3) theory (p. 89). This study was protected from these threats, using Maxwell's admonishments to guide it. To keep from missing the description of the environment, student behaviors, and other interesting subtleties that accompany the dialogue, the use of videotaping was necessary and prudent. The descriptive capabilities were enhanced by the use of the teacher's anecdotal and reflective notes and the use of videos to crosscheck other forms of data.

Reactivity is another factor that might influence how students behave and how they are described. For example, if there were someone new in the environment, such as the researcher, students could have behaved differently. However, in this study, the

students were used to frequently seeing the teachers in the halls and classrooms of the school. Videotaping of classroom activities was a familiar situation to the students.

Triangulation from the five data sources of pre- and post-*Flynt-Cooter* scores, videotaped sessions, teacher reflective anecdotal notes, researcher-teacher collaboration conversations, and student-written essays also increased the validity of the interpretation of the results. Beyond that, consulting with the teacher throughout the entire study added to the validity of the results and interpretation.

Laura (IC), the teacher of Group 1, was expected to (a) view each videotaped session and record reflections about it, (b) read and score each essay with the essay rubric, and (c) write anecdotal notes after the sessions. My role was to (a) view each videotaped session with the teacher, (b) read and score each essay, and (c) discuss the essay scores with the teacher, the reflections on the videotapes, and ideas for making the intervention more effective, all on a bi-weekly basis. Before completing the final results and interpretation of the study, I consulted with Laura and welcomed her contributions to the discussion. Thus, the study was less likely to be the result of one person's interpretational view of the intervention process, making it a valid research inquiry.

The common problems for validity in quantitative methods lie in (1) history - events that happen to change the intervention, (2) testing itself may add knowledge to the participants and become part of the intervention, (3) instrumentation – data collectors may get better or worse at what they do or the instrument of measure may be changed, (4) statistical regression - high or low scorers tend to regress toward the middle. In small groups, a high or low score can skew the effect on the mean, (5) selection – there may be

pre-existing differences between participants who are selected or volunteer. Random selection or using other groups to compare to can help, and (6) attrition – participants can drop out (Winter, 2000).

In order to prevent errors in validity, several things were in place: (1) the same reading inventory, the *Flynt-Cooter Reading Inventory for the Classroom,* was administered as the pre- and post-test for comprehension and the same person administered it; (2) the study was only 10 weeks long and not long enough for participants to mature; (3) the written essay rubric became part of the intervention itself, as teachers used it to shape student writing, but because it wasn't used on a frequent basis, the instrument itself could be standard; and (4) the daily instructional routine stayed the same throughout the study and that predictable routine lent itself to students' focusing on the active learning.

Reliability

The number of different data items collected and analyzed guarded against some of the dangers inherent in qualitative research, namely that of subjectivity and reliability. Guarding against personal bias was in the forefront of attention, on the part of the researcher, while collecting and analyzing data. Consulting with the participating teacher on a bi-weekly basis assured a less subjective view on my part. After the data were initially coded, the teacher was invited to review the coding and make suggestions, if other categories came to mind. Collaborating on this assured that there was inter-coder reliability and reduced the amount of skewing because of subjectivity on the part of the researcher.

Reliability issues in quantitative research methods center around (1) researcher or observer error, (2) environmental changes, and (3) participant changes (Creswell, 2003). Researcher or observer error was addressed by having more than rater to score and review the written essays to promote inter-rater reliability. It also helped to have a trained graduate assistant administer the reading inventory. Environmental changes were addressed by making sure the essays were scored in the same way every time, as well, as having the reading inventory administered in the same way each time. Participant changes were reduced by making sure there was a relatively short time in between testing events. The study was reasonably planned for as little threat to validity and reliability as possible.

Human Participants and Ethics Precautions

The study posed no ethical problems for students, teachers, school, or school district for no names or locations were reported and the study took place during the normal school day, in regularly scheduled class periods. Parents were fully informed and no students participated without parent permission. Students could have participated and not had their work included in the study, according to their parents' wishes, but no one asked for that exemption. Assurances to the school administrator, teacher, students, and parents about the security of the videotapes and documents were given. The data collected were stored in a locked and secured location in my office and will be destroyed three years after the final report is completed. The study commenced after procuring written permission from the school personnel, parents, and the IRB board of the University of Arkansas at Little Rock.

Limitations

The boundaries of this qualitative case study required small groups of middle school students to participate. It was possible that these students may have had additional barriers to their learning, such as emotional and behavioral issues, undiagnosed learning disabilities, or excessive absences that could have had an adverse effect on their satisfactory participation. The teacher might not have implemented the intervention model with fidelity during the sessions when I was not present. Intervention should be intensive and consistent and even the best intervention models can be prevented from bringing about positive results if those conditions are not in place. It may be that the implementation training for the teacher needed to be lengthier and more intense, as well.

Other limitations could be (1) the reading materials may not have generated enough student interest for robust argumentation; (2) there could have been additional questions that arose that should have been examined in tandem with the original research questions established; and (3) the videoed data collection could have needed to be more frequent than the schedule required, or possibly transcribed; (4) the rubric for the written essays could have been to be too complex for scoring essays written at the fifth grade level, and (5) the reading inventory might not have picked up on changes in reading comprehension that were noticeable in less-than-a-grade-level score.

CHAPTER FOUR

Findings

Introduction

There were three goals of this research study. One goal was to determine if participation in the reading intervention would make a significant difference in the students' reading comprehension. The second goal was to determine if participation in the reading intervention would make a significant difference in the students' written argumentative essays. The third goal was to explore and understand the influence of teacher collaboration on the development and implementation of the reading intervention. A convergent parallel mixed method design was utilized with quantitative and qualitative data being conducted separately and concurrently, and then merged at the point of interpretation (Creswell & Clark, 2011). This method allowed for a more complete understanding of possible factors that could affect the implementation of a new reading intervention and the students' reading and writing achievement scores.

The teacher participants were three fifth grade teachers in one school. Group 1 (IC) teacher taught the reading intervention to a small group of struggling readers, along with the rest of her class, within a whole-classroom setting. She collaborated with me, the researcher, throughout the 10-week study. Group 2 (IO) teacher, Kelly, implemented the intervention outside the whole classroom setting with a small group of six students and in a small pullout situation in an empty classroom. Group 3 (CG) teacher, Anne, did not implement the intervention; instead, she taught her struggling readers using the "business as usual" language arts program. Of the 20 students from the three groups who began the study, 18 were available for both pre and post reading assessments.

Research Question 1: Does the students' participation in the reading intervention influence their reading comprehension?

The pre and post-test for reading comprehension was the *Flynt-Cooter Reading Inventory for the Classroom* (Flynt & Cooter, 2004). The final score for the test was reported as a grade level (or reading level) and reflected oral reading accuracy and comprehension. Comprehension was reported at three levels: (1) Hard (three or more questions missed), (2) Adequate (two questions missed), and (3) Easy (0-one question missed). Oral reading accuracy was reported at three levels: (1) Hard (six or more oral errors). (2) Adequate (two to five oral errors), and (3) Easy (0 – one error).

The respective student numbers, 1 to 20, organized the students' scored pages in sequence. Two students' data were missing. Student 1 moved away during the study and Student 17 was missing the post-test score. There were 18 students with enough data to analyze. A table was made to summarize the scoring results from the *Flynt-Cooter Reading Inventory for the Classroom* (see Table 3) for reading grade level, comprehension, and oral reading.

Pre and post reading levels. It is noteworthy that the oral reading levels for all students fell in the "adequate" to "easy" reading range on the *Flynt-Cooter Reading Inventory for the Classroom* pre- and post-tests. Furthermore, an analysis of the students' miscues on the reading test revealed that they did not stumble over words or read disfluently, as might have been expected for struggling readers. Additionally, the test administrator reported that students were comfortable and at ease when tested. They struggled, however, when attempting to answer the comprehension questions about the

passages, as indicated by their low comprehension scores (see Table 3). The statistical tests revealed there were no significant gains in comprehension by the end of the study.

Table 3

Flynt-Cooter Reading Inventory for the Classroom: Pre and Post Test

	Pre-test			**Post-test**		
Student	Grade Level	Comp. Questions	Oral Reading	Grade Level	Comp. Question	Oral Reading
Group 1						
1	5th	6/8 Adq.	Adq.	Moved		
2	5th	3/8 Hard	Adq.	5th	4/8 Hard	Adq.
3	4th	4/8 Hard	Adq.	5th	4/8 Hard	Adq.
4	4th	4/8 Hard	Adq.	4th	4/8 Hard	Adq.
5	5th	5/8 Hard	Easy	5th	5/8 Hard	Adq.
6	5th	5/8 Hard	Easy	5th	3/8 Hard	Easy
7	4th	5/8 Hard	Adq.	4th	4/8 Hard	Easy
Group 2						
8	5th	3/8 Hard	Adq.	5th	3/8 Hard	Easy
9	4th	3/8 Hard	Adq.	4th	0/8 Hard	Adq.
10	4th	3/8 Hard	Adq.	4th	4/8 Hard	Adq.
11	4th	6/8 Adq.	Easy	4th	3/8 Hard	Adq.
12	5th	3/8 Hard	Adq.	5th	4/8 Hard	Easy
13	4th	4/8 Hard	Adq.	4th	5/8 Hard	Adq.
14	4th	3/8 Hard	Hard	4th	3/8 Hard	Adq.
Group 3						
15	5th	4/8 Hard	Adq.	5th	2/8 Hard	Adq.
16	5th	3/8 Hard	Easy	5th	3/8 Hard	Adq.

Table 3

Flynt-Cooter Reading Inventory for the Classroom: Pre and Post Test

17	5th	5/8 Hard	Adq.	Missing		
18	5th	4/8 Hard	Easy	5th	4/8 Hard	Easy
19	5th	5/8 Hard	Easy	5th	6/8 Adq.	Easy
20	5th	7/8 Easy	Easy	5th	6/8 Adq.	Easy

No gains on paired samples t test. A paired-samples *t* test evaluated statistically whether the pre-test and post-test reading comprehension scores from the *Flynt-Cooter Reading Inventory for the Classroom* (Flynt & Cooter, 2004) differed significantly. Out of 20 students, one student moved away and another student did not have a post-test score, thus n = 18 students. Results indicated the mean for the post-test reading comprehension scores ($M = 4.61$, $SD = .50$) was not significantly greater than the mean for the pre-test scores ($M = 4.56$, $SD = .50$), $t\ (17) = -1.00$, $p = .33$ ($p < .01$). Standard effect size index, *d,* was – 4.24, extremely small. The 95% confidence interval for the mean difference between the two tests was -.17 to .06. Students' participation in the intervention model showed an extremely small effect on their reading comprehension, as measured on the *Flynt-Cooter* reading inventory. Means and standard deviations for the statistical test are displayed in Table 4.

Table 4

Means and Standard Deviations of Pre and Post Reading Test Scores

	n	Mean	SD
Pre-test Reading Scores	18	4.56	.51
Post-test Reading Scores	18	4.61	.50

A bar graph (see *Figure 3*) shows the pre and post reading test scores. It further illustrates the results of the analysis. Any differences between the beginning reading scores and the scores at the end of the study are extremely small.

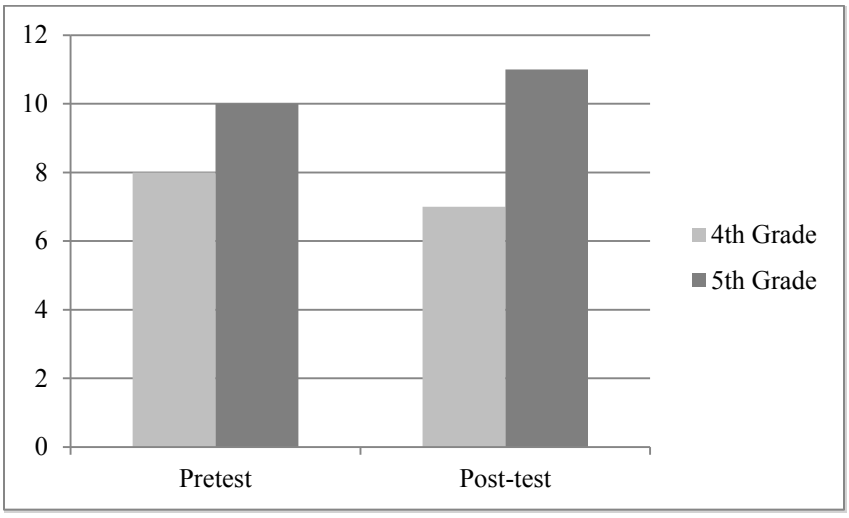


Figure 3. Differences between pre and post reading tests scores.

No significant differences found in reading results between the three groups. A discriminant analysis test was conducted to examine whether the two variables, the pre-test and the post-test reading comprehension scores, could predict and distinguish participants who were members of Groups One, Two, or Three. The assumptions that the relationships between the pairs must be linear, multivariate normality must exist within groups, and the population covariance matrices for predictor variables must be equal across groups were checked and met. Wilks' Lambda was not significant for Functions 1 through 2, Λ =.56, , χ^2 =.8.32, df =4, n=18, p =.08 (p <.05) or for Function 2, , Λ = .88, χ^2 = 1.81, df = 1, n = 18, p =.18 (p <.05). The variables tested were not predictive as to group membership.

Several tables follow which detail the summary of the Canonical Discriminant Functions. The Eigenvalues (Table 5) reports there was 81 percent of variance in

Function 1, while in Function 2, only 19 percent of variance, which represents the correlation between the discriminant function and the dependent variables, in this case the groups. The Canonical Correlation explains 60 percent of the variation in the grouping variable in Function 1 and 34 percent of the variation in Function 2. The effect size is obtained by squaring the canonical correlation in each function, which in this test was .36 (small effect size) for Function 1 and .12 (extremely small) for Function 2.

Table 5

Canonical Discriminant Function: Eigenvalues for Pre and Post Reading Tests Scores and Groups

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.57	81.0	81.0	.60
2	.13	19.0	100.0	.34

The Wilks' Lambda table (Table 6) provides chi-square tests of significance for each function. These represent the degree to which there are significant group differences in the independent variables, after the effects of the previous functions have been removed. If either function were significant, those functions would be interpreted. In this case, neither function was significant. The function of predictors (reading scores) did not significantly differentiate between the study groups.

Table 6

Canonical Discriminant Function: Wilks' Lambda for Pre and Post Reading Tests Scores and Groups

Test of Functions	Wilks' Lambda	Chi-square	df	Sig.
1	.56	8.32	4	.08
2	.88	1.81	1	.18

The Standardized Canonical Discriminant Functions (Table 7) presents the standardized discriminant function coefficients, which represent the degree to which each variable contributes to each function. The Structure Matrix (Table 8) presents the correlation coefficients between the variables and functions. The results indicate both predictors loaded on one function. The two tables were not highly correlated.

Table 7

Standardized Canonical Discriminant Functions Coefficients for Pre and Post Reading Tests Scores and Groups

	Function	
	1	2
Pre-test Grade Level	.39	1.88
Post-test Grade Level	.65	-1.81

Table 8

Structure Matrix for Pre and Post Reading Tests Scores and Groups

	Function	
	1	2
Post-test Grade Level	.98	-.20
Pre-test Grade Level	.94	.34

An additional way of interpreting discriminant analysis results is to describe each group using the group means of the predictor variables. The group means are called centroids. The table shows the average discriminant scores for each group on each function. These means are displayed in Table 9.

Table 9

Function at Group Centroids for Pre and Post Reading Tests Scores and Groups

	Function	
Group	1	2
Group 1	.04	-.47
Group 2	-.73	.22
Group 3	.98	.25

The Classification Results table (see Table 10) shows predicted versus actual group membership. Rows show the actual group membership, columns show predicted. 61 percent of original grouped cases correctly classified, which is not a high 'hit ratio'. The analysis did not accurately predict group membership from reading scores.

Table 10

Classification Results for Pre and Post Reading Test Scores

	Predicted Group Membership		
	Group 1	Group 2	Control
Original			
Group 1	16.7	33.0	50.0
Group 2	.0	71.4	28.6
Control	.0	.0	100.0
Cross-validation			
Group 1	0	3	3
Group 2	0	5	5
Control	0	0	5

Note. a. Numbers represent 61.1 percent of original grouped cases correctly classified.
b. 55.6 percent of cross-validated grouped cases correctly classified.

Quantitative question 2: Does the students' participation in the reading intervention influence their essay writing?

The second quantitative question examined data to investigate whether the students' participation in the intervention influenced their essay writing**.** The students in Group 1 and Group 2 wrote a series of argumentative essays over the course of the 10-weeks study. Group 3 students, in the control group, did not write essays during the 10 weeks. Two members of Group 2 had missing data, thus the number of students' scores analyzed was reduced to n = 11. The teachers and I scored each essay with the essay rubric (see Appendix B) that included five categories: (a) Introduction and Thesis, (b) Argumentative Points, (c) Organization, (d) Style and Conventions, and (e) Sources. Each category had possible rankings of 1 to 4, with 1 being the lowest possible and 4, the highest. A summative score for each essay is figured by adding the category scores together. Summative scores were then compared to determine whether improvement had been made. Table 11 details the pre- and post-test summative essay scores. From a visual observation, the scores indicate improvement for every student.

Table 11

Pre and post summative essay scores

Group 1 Student #	Pre-test Essay	Post-test Essay	**Group 2** Student #	Pre-test Essay	Post-test Essay
1	moved		8	5	10
2	5	8	9	5	11
3	9	13	10	Missing	9
4	7	11	11	10	12
5	7	8	12	8	12
6	10	15	13	6	10
7	9	14	14	Missing	9

Significant gains on paired - samples t test. A paired samples *t* test was conducted to evaluate whether the pre-test and post-test summative essay scores differed significantly. The results indicated that the mean for the post-test summative essay scores (M =11.27, SD = 2.24) was significantly greater than the mean for the pre-test summative essay scores (M = 7.36, SD = 2.24), n = 11, t (10) = - 8.97, p = .000 ($p < .01$). The standard effect size index, *d,* was .37, small. The 95% confidence interval for the mean difference between the two tests was -4.88 to -2.94. Table 8 illustrates the means and standard deviations for the pre and post summative essay scores. Even though the effect size was small, .37, the improvement is obvious. There was a possible summative score of 20 from the five categories. The pre-test essay bottom score was five and the highest score was 10. The post-test essay bottom score was eight and the highest score was 15, evidence of improvement.

Table 12

Means and Standard Deviations for Summative Essay Scores and Groups

	n	Mean	SD
Pre-test Essay Scores	11	4.56	.51
Post-test Essay Scores	18	4.61	.50

Improvement in each essay rubric category. In addition to the significant statistical difference between the means of the summative scores, there was also noticeable improvement in each of the categories of the rubric. An examination of the following bar charts and examples illustrate the improvements. These findings can also be linked to the students' oral argumentation video clips and teacher records. *Figures 4* through *8* display the results.

Essay Introductions. *Figure 4* illustrates the differences in the pre and post essay scores for Introduction. Most of the students were in the Emerging rating and some in the Proficient. For example, Student 6 had an introduction that scored Proficient (3 points). He began his final essay with a question explaining his position:

> Have you ever thought of women in the Revolutionary War? I think women should have been aloud (allowed) to fight and be soldiers in the war. In my opinion, I think women are as strong as men and can do the same things as men. No one is perfect. (p. 1)

None of the students was able to compose more of an introduction than Student 6's. The others began with a statement of their position and no additional information. However, Laura and Kelly did not put an emphasis on introductions with their modeling or coaching; instead, they were focused on teaching the students to state their position.

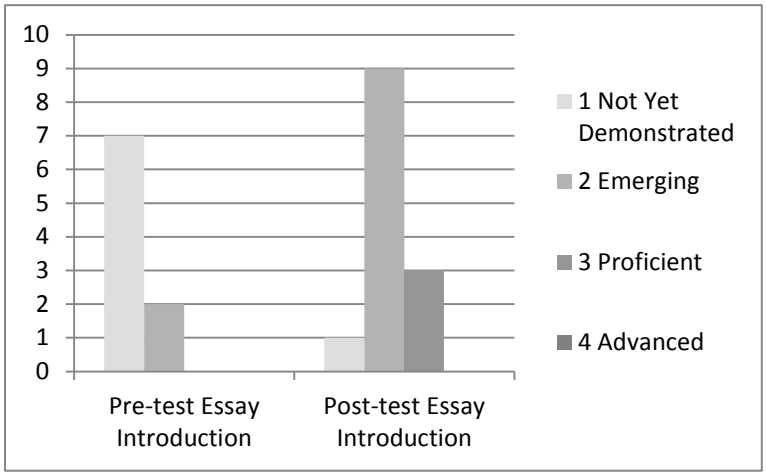


Figure 4. Pre and post essay Introduction scores.

Essay arguments. The bar graph in *Figure 5* illustrates students' growth in argument construction. For example, Student 7 scored a 3, Proficient, on her final essay. Her argument points, taken from her four-page essay, are outlined as follows: (1) Position: Women should be able to fight in the war; (2) Reasons: They can fight like

men, they can shoot a gun and kill, and they can hide easier than men; (3) Evidence: They have strength and courage. Both men and women fought on the battlefield. Some of the women were farmers and killed animals to butcher. They are smaller than men and would not be shot at so easily. Hundreds of women served as nurses, laundresses, cooks, and friends to the men in the army. One woman took her husband's place when he collapsed in the heat of the battle, and fired the cannon; (4) Evidence: My evidence comes from the Social Studies book, "American Athenas", "Women in the Revolutionary Army" and "Deborah Sampson"; (5) Counter-position: Things were going good until she was wounded in the battle; (6) Rebuttal: She removed the bullet from her own leg and got back up to fight; and (7) Conclusion: Women should be allowed to fight in the Revolutionary War. Student 7's essay argument was logically constructed and she stayed consistent throughout the argument to the conclusion. All components of the argument map were apparent in her writing.

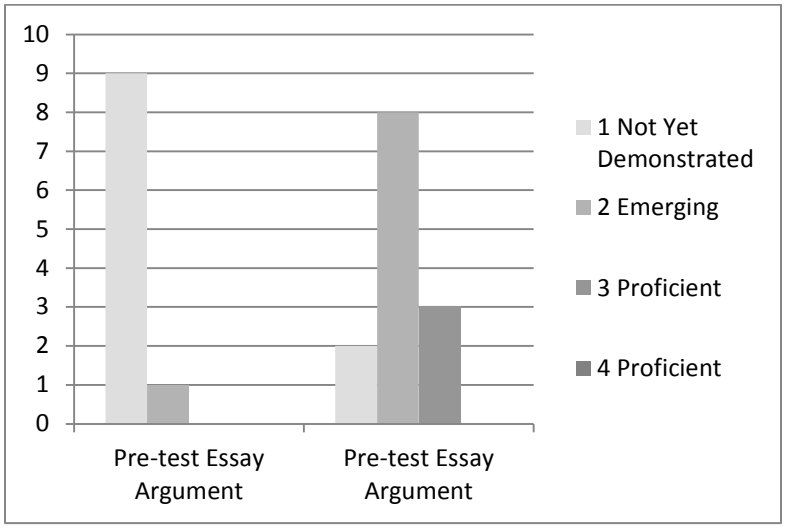


Figure 5. Pre- and post-essay Argument scores.

Essay Organization, Conventions and Style, and Sources. Improvement in Organization is noticeable among all the writers (see Figure 6). The bar graph in *Figure 7* illustrates steady growth in Conventions and Style. An examination of *Figure 8* indicates that the students made progress using *Sources* in writing.

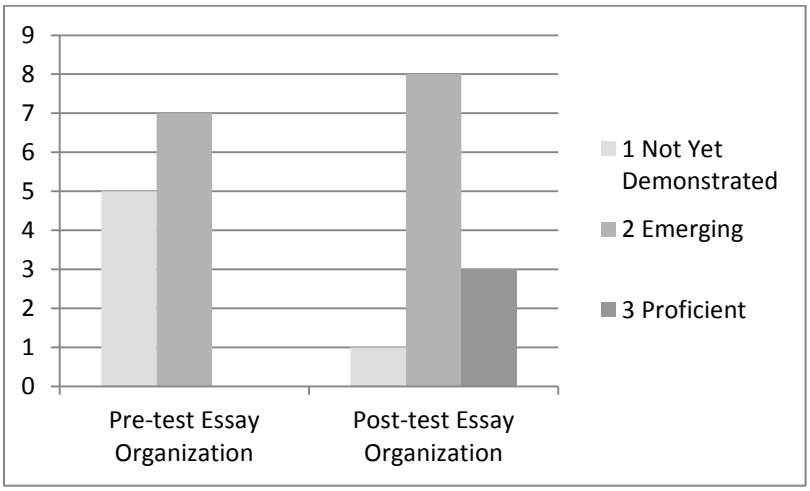


Figure 6. Pre and post essay Organization scores

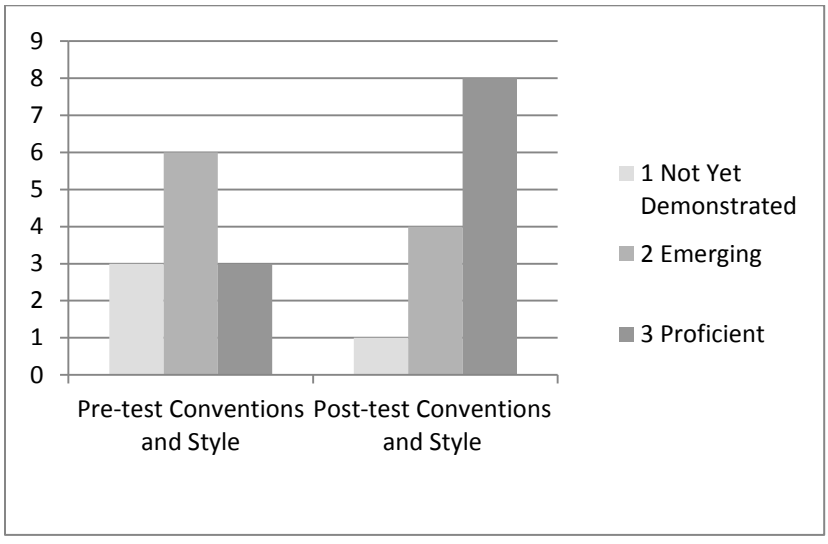


Figure 7. Pre and post essay conventions and style.

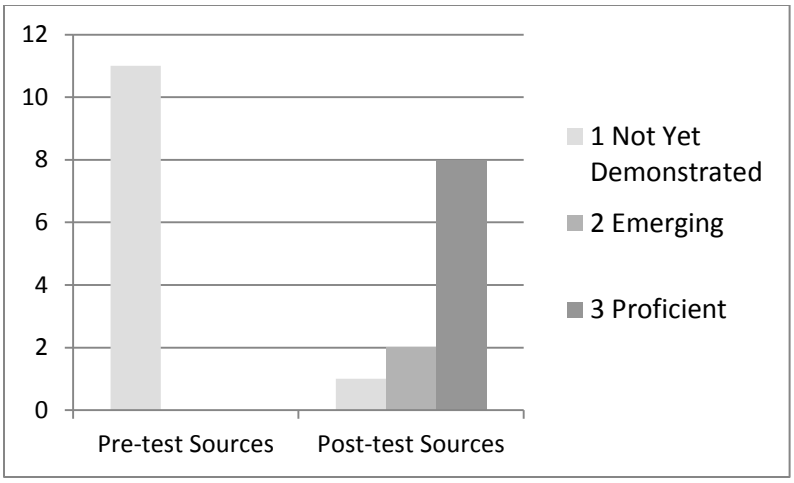


Figure 8. Pre and post essay use of sources.

No significant differences found between the two groups with essay scores. After examining the bar graphs and the paired-samples t test, another statistical test, Discriminant Analysis, was then conducted to assess whether the two variables, the pre-test summative essay scores and the post-test essay summative scores could predict and distinguish participants' membership in Group 1 or Group 2. The means and standard deviations of the two independent variables, pre-test and post-test essay scores are reported in Table 13.

Table 13

Means and Standard Deviations of Pre and Post Summative Essay Scores

	Pre-test			**Post-test**	
	N	Mean	SD	Mean	SD
Group 1	6	7.83	1.84	11.50	3.02
Group 2	5	6.80	2.17	11.00	2.50

An examination of this table revealed both groups' post-test essays had a higher mean than the pre-test scores for both Group 1 and Group 2. Assumptions that the relationships between the pairs must be linear, multivariate normality must exist within groups, and the population covariance matrices for predictor variables must be equal across groups were checked and met. Wilks' Lambda was not significant, Λ =.90, χ^2=.83, df=2, n =11, p =.66 (p <.05). The function of predictors did not differentiate between the groups.

The Eigenvalues are displayed in Table 14. The canonical correlation is the multiple correlation between the predictors (pre and post essay scores) and the discriminant function. With only one function, it provides a measure of overall model fit that is interpreted as being the proportion of variance explained. Table 14 indicates that 100 percent of the variance was explained by the first function. The Canonical Correlation of .31 tells us that there is not a strong relationship between the essay scores and groups. When that correlation is squared, the result is .10, an extremely small effect size.

Table 14

Canonical Discriminant Function: Eigenvalues for Pre and Post Essay Scores and Groups

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.11	100.0	100.0	.31

The Wilks' Lambda table (Table 15) provides chi-square tests of significance for each function. These represent the degree to which there are significant group differences in the independent variables, after the effects of the previous functions have

been removed. If a function were significant, it would be interpreted. In this case, the function was not significant. The function of predictors (essay scores) did not significantly differentiate between the study groups.

Table 15
Canonical Discriminant Function: Wilks' Lambda for Pre and Post Essay Scores and Groups

Test of Functions	Wilks' Lambda	Chi-square	df	Sig.
1	.90	.83	2	.66

The Standardized Canonical Discriminant Functions (Table 16) presents the standardized discriminant function coefficients, which represent the degree to which each variable contributes to each function. The Structure Matrix (Table 17) presents the correlation coefficients between the variables and functions. The results indicate that the scores from the two tables were not highly correlated.

Table 16
Standardized Canonical Discriminant Functions Coefficients for Pre and Post Reading Tests Scores and Groups

	Function
	1
Pre-test Essay Scores	1.48
Post-test Essay Scores	-.79

Table 17

Structure Matrix for Pre and Post Reading Essay Scores and Groups

	Function
	1
Post-test Essay Scores	.87
Pre-test Essay Scores	.36

A further way of interpreting discriminant analysis results is to describe each group using the group means of the predictor variables. The group means are called centroids. The table shows the average discriminant scores or each group on each function. These means are displayed in Table 18 and are not significantly different.

Table 18

Function at Group Centroids for Pre and Post Essay Scores and Groups

	Function
Group	1
Group 1	.27
Group 2	-.33

The Classification Results table (Table 19) shows predicted versus actual group membership. Rows show the actual group membership, columns show predicted. 73 percent of original grouped cases were correctly classified and 64 percent of cross-validated grouped cases were correctly classified. The analysis did not accurately predict group membership from essay scores.

Table 19

Classification Results for Pre and Post Summative Essay Scores

		Predicted Group Membership	
		Group 1	Group 2
Original	Group 1	83.0	17.0
	Group 2	40.0	60.0
Cross-validation	Group 1	67.0	33.0
	Group 2	40.0	60.0

Note. a.73 percent of original groups' cases correctly classified.
b. 64 percent of cross-validated groups cases correctly classified

Significant improvement found for essays, but no significant differences between groups. In other words, on the paired-samples *t* test, there were significant differences between the pre- and post-essay scores for both Group 1 and Group 2, showing that progress was made by the students in each group during the 10-week study, though the effect size was small: .37. It seems student participation in the intervention model improved their written argumentative essays; however, it was interesting to note there were no significant differences between the two groups' pre- and post-essay scores on the Discriminant Analysis. Student-written essays in Group 1 looked similar to those written by students in Group 2.

Conclusion from the quantitative findings. The reading comprehension pre- and post-tests indicate no improvement was made in comprehension during the study. The pre- and post-test summative essay scores revealed significant improvement in written argumentative writing, but no significant differences between Groups 1 and 2. The effect size was small, .37, for the improvement in the pre and post essays.

Qualitative Research Question: How does teacher collaboration influence the development and implementation of the reading intervention?

Since the quantitative data revealed no significant reading differences between the three groups, the qualitative data analysis focused on potential factors that may have influenced student reading achievement. Groups 1 and 2 teachers participated in two and one half hours of professional development on the intervention framework and the specialized procedures; however, Group 1 teacher, Laura, received an additional six hours of collaborative support with the researcher about specific instructional issues. During all collaborative sessions, collection of extensive data enabled exploration of the impact of collaboration on the development and implementation of the new reading intervention. A detailed account of the qualitative data analysis, accompanied by a description of the collaborative process, and exploratory results follow.

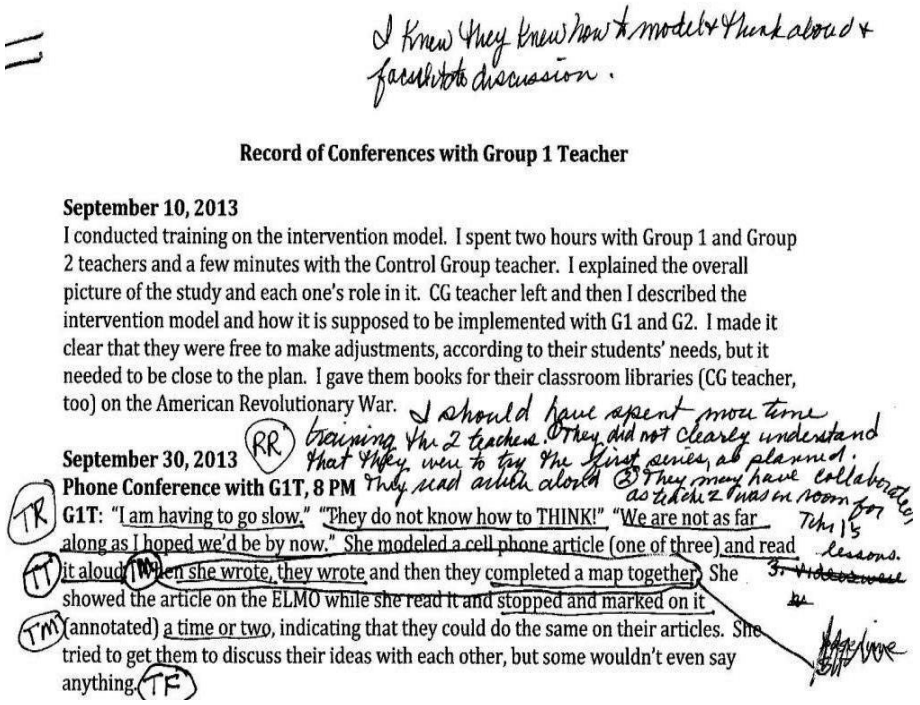
Qualitative data analysis. The qualitative data from Group 1 (IC) included a variety of sources: field notes, teacher records, video reflections, and personal communications, collected on a weekly or bi-weekly basis. These sources were entered in word processing in the sequence in which they occurred. The purpose of compiling them on computer was to have them in digital form to manipulate and analyze. The typed manuscripts of the raw notes helped keep the information in one place and made it easier to read.

After reading and rereading through the manuscript of collected data, I noticed that the teacher comments and student behaviors had changed. Three notable patterns emerged: (a) there were fewer teacher comments about how slowly the children were learning; (b) the students were creating better quality and faster constructions of

arguments on the graphic organizer; and (c) the student participation in oral argumentation was more fluent and expressive. To further explore the impact of the intervention on student learning, I developed a *start list* (Miles & Huberman, 1994) of possible codes for the initial marking of the qualitative data. The manuscripts of digital notes were combed through and marked with initials and in different colors to reflect dominant codes. The initial list of the *start codes* for teacher behavior included five patterns: (1) TM for teacher modeling; (2) TF for teacher facilitating; (3) TC for teacher collaboration; (4) TR for teacher reflection; and (5) TT for teacher transformations or changes.

The second time through the manuscripts, I coded the comments and behaviors of the students. *Start codes* for student behaviors included four patterns: (1) SPC for student positive comments; (2) SNC for student negative comments; (3) SPA for student positive actions; and (4) SCA for student confused actions. Later, ST for student transformations was added as a code, but eventually discarded because it was marked on the same information as SPA, Student Positive Actions.

Finally, I read through the manuscript for any signs that the intervention was being changed in any way or if there were unplanned activities that came up. Information that indicated a change in the development and implementation of the intervention was coded DRI for Development of the Reading Intervention. A sample of that first coding is illustrated in *Figure 9*. Words are underlined and initials are written for the different coding categories and are accompanied by notes in the margins. The whole collection of compiled notes was first coded in this manner.



I knew they knew how to model + think aloud + facilitate discussion.

Record of Conferences with Group 1 Teacher

September 10, 2013
I conducted training on the intervention model. I spent two hours with Group 1 and Group 2 teachers and a few minutes with the Control Group teacher. I explained the overall picture of the study and each one's role in it. CG teacher left and then I described the intervention model and how it is supposed to be implemented with G1 and G2. I made it clear that they were free to make adjustments, according to their students' needs, but it needed to be close to the plan. I gave them books for their classroom libraries (CG teacher, too) on the American Revolutionary War.

I should have spent more time training the 2 teachers. They did not clearly understand that they were to try the first series as planned. They may have collaborated as there was no room for this.

RR

September 30, 2013
Phone Conference with G1T, 8 PM They read article aloud 2)

TR

G1T: "I am having to go slow." "They do not know how to THINK!" "We are not as far along as I hoped we'd be by now." She modeled a cell phone article (one of three) and read it aloud. When she wrote, they wrote and then they completed a map together. She showed the article on the ELMO while she read it and stopped and marked on it (annotated) a time or two, indicating that they could do the same on their articles. She tried to get them to discuss their ideas with each other, but some wouldn't even say anything.

TT TW TM TF

lessons.

Figure 9. A sample of initial coding of compiled notes from collaborative conversations, teacher records, video clips, and essays.

Each coded item was then grouped together in large categories of "Teacher", "Students", and "Intervention Development". Notice was given to any patterns or trends in behavior or comments that were apparent. It became more evident from the coding that changes were happening in the intervention model, as well changes in the teacher and student behaviors.

Intervention development. To understand these trends, a time-ordered display (Huberman & Miles, 2002) helped reconstruct the events. I divided the display into four columns labeled: Cycle Activities (for clarity), Teacher, Students, and Intervention Development, the categories into which the comments and observations generally fell. A document of five pages was completed, as the time-ordered display, which summarized the sequence of events in each of the categories (see Appendix D). A partial sample of that five-page document is illustrated in Figure 10. When the teacher and students'

behaviors were laid out visually, side-by-side, with the decisions and reflections concerning these behaviors, it was easier to understand what happened.

Reading, Arguing, Writing Study - Time-Ordered Data Display

Teacher	Students	Intervention Development
Assigned Task Brief directions	Wrote opinions with reason Writing length was mostly about a paragraph	Teacher chose different topic, no article to read, no discussion No video. Many class interruptions pictures, assemblies, etc.
Scaffolded students by: Read article aloud Modeled identifying position Modeled identifying reasons Modeled identifying evidence Modeled marking on text and (annotating) Modeled map construction Explained how to read maps to peers and discuss them Observed discussion attempts Facilitated discussion	Listened and observed Wrote on map when teacher wrote Attempted discussion of ideas with peers Maps read with no eye contact Little response from listeners Acted like they didn't know what to do. Some wouldn't say anything	Teacher chose to do only this cell phone article for interruptions and needing to match articles to Rev. war study in Social Studies Teacher saw "immediately" they had difficulty with reading comp. identifying supporting evidence. *Researcher thinks that modeling all the steps in the process was too much and should have been broken up into parts, over time

Figure 10. Sample of partial *time-ordered display* of qualitative data.

A graphic representation of the data illustrates the important features of the *time-ordered display* (see *Figure 10*). Each category included a summary of the most frequent statements for Teacher, Students, and Intervention Development. For example, many concluding statements from our collaborations ended with "continue with modeling and coaching" because when Laura modeled, confusions were cleared up and when she coached individuals or partners, she provided the needed scaffolding for the struggling students. These actions appeared to be working, so after brainstorming other strategies, we often came back to "model and coach."

From that chart, a narrative was written to consolidate the most important information to provide insights on the influence of teacher collaboration in the development and implementation of the new reading intervention. *Figure 11* gives a

condensed version of the sequence of events in the study, the progress the students made, and the discoveries as the intervention was developed and implemented. It was when this chart was constructed that I began to see more clearly how the intervention was being developed and changed by our collaboration and decision-making and Laura's innovative ideas.

In the box labeled "Teacher" (see Figure 11), every step in the intervention process was modeled by the teacher because the students' needs required it. She provided guided practice with each of the modeled components and it was in those guided practice sessions that she coached readers and writers through analyzing texts, annotating text, constructing arguments, orally arguing, and finally the writing argumentative essays.

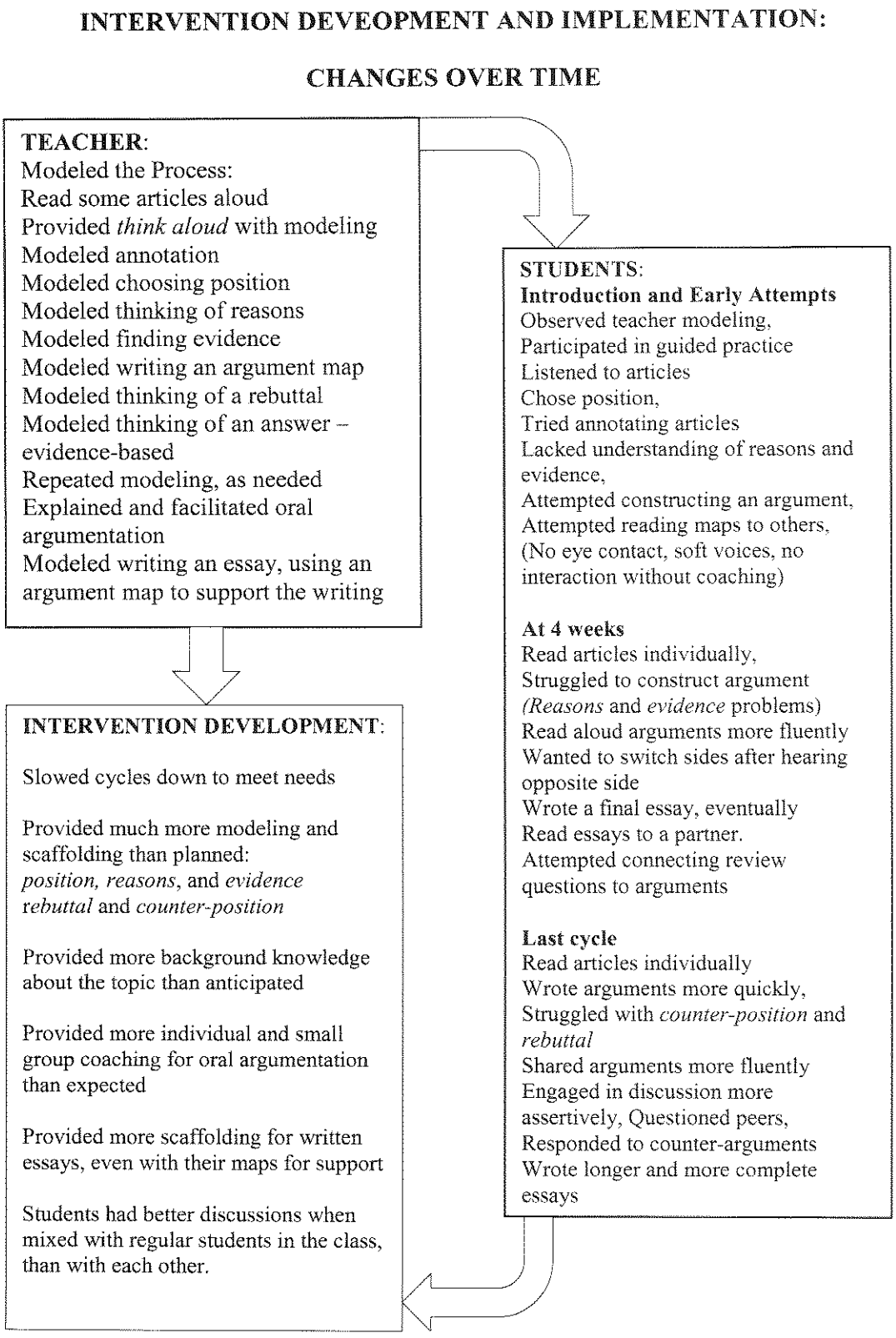


Figure 11. Intervention development and implementation: Changes over time.

Figure 11 reduces the total volume of notes to a digestible amount of information to focus on when describing the problems that arose and the collaborative decision-making that occurred. It illustrates the influence of our collaboration on Laura's revisions to the original intervention and her response to the needs of the students. In the Intervention Development section of Figure 11, the list of findings was drawn from the students' participation, the teachers' flexible instruction, and our collaboration. During collaborative discussions, Laura discussed the need to make specific adjustments to the intervention. Her comments indicated that the intervention was challenging for two reasons: (1) More time was needed for the intervention cycle; (2) Argumentation was more complex for struggling adolescents than we had anticipated.

More time was needed for intervention cycles. Within a matter of two weeks, the intervention teachers expressed their difficulty with adhering to the intervention schedule. They claimed the planned schedule for cycles of intervention was too accelerated for their students at this time in the school year. Based on this information, the intervention was modified to one cycle per two weeks. That would have provided at least four cycles of the intervention completed in the 10 weeks.

The original intervention plan called for 30 minutes per day, five days per week for 10 weeks. This structure would have provided the students with 25 hours of instructional time in the intervention. However, due to numerous interruptions in the school schedule, the intervention was implemented for less than 17 hours, resulting in over 8 hours of lost instructional time.

Argumentation involves complex learning. The complexity of the argumentation task was more of a challenge that we had anticipated. The video data

revealed that argument construction did not come easily for the students. For instance, they struggled with understanding the difference between "reasons" and "evidence." During our collaborative conversations, we discussed the complexity of argument concepts and determined that the students would need more time to understand these concepts. We also discussed the need for clear and memorable explanations with explicit modeling using the graphic organizer for the argument map. As a result, Laura revisited these academic concepts and provided concrete models as exemplars.

Annotation strategies require explicit modeling. Instruction in annotation was an essential strategy for deconstructing argumentative text. Initially, when Laura demonstrated how to annotate the articles with pens or highlighters, the students either marked irrelevant information or marked almost everything. As a result, she increased the amount of time for modeling the annotation task than was originally planned in the intervention sequence.

Argument construction has specialized language. The teacher reported the concepts of *reason*; *evidence*, *counter-position* and *rebuttal* were confusing to the students and evidence noted in their essays. As a result, Laura created a mnemonic in the form of a language prompt ("Yeah, but . . .") to help students remember what rebuttal meant. The counter-position, visible in *Figure 12,* was that the colonists were right to dump the tea; however, the rebuttal does not address the counter-position well, and the conclusion wavers from the original position.

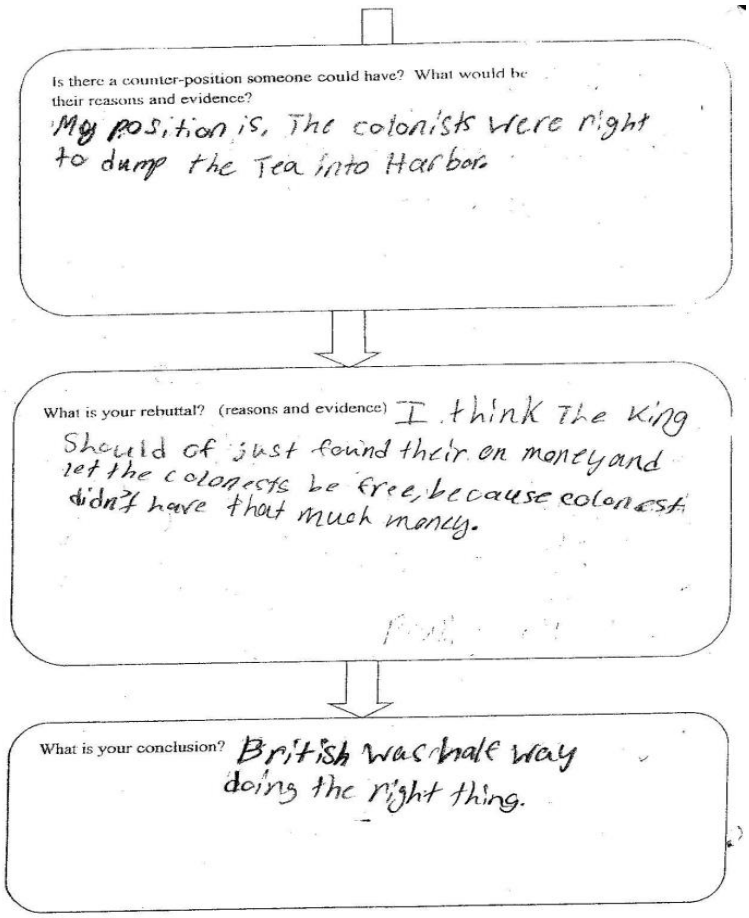


Figure 12. Student 3's argument map, page 2, for "The Boston Tea Party."

Changes in student thinking became more apparent by the third article. Students read the articles and constructed their maps individually and at a little quicker pace. The teacher's comments indicated student growth, for example, "When they [the students] are reading through, they are thinking more." "They are seeing a little deeper," and "When they get ready to write, they have an easier time." For example, there is a clearer difference between a reason and evidence in the argument map constructed by Student 5 in *Figure 13*. This sample indicates the student had begun to internalize the logical progression of an argument and could find the evidence to support it. In the last cycle, the students did not ask for help as often, and Laura supplied less scaffolding for their argument map construction and discussions.

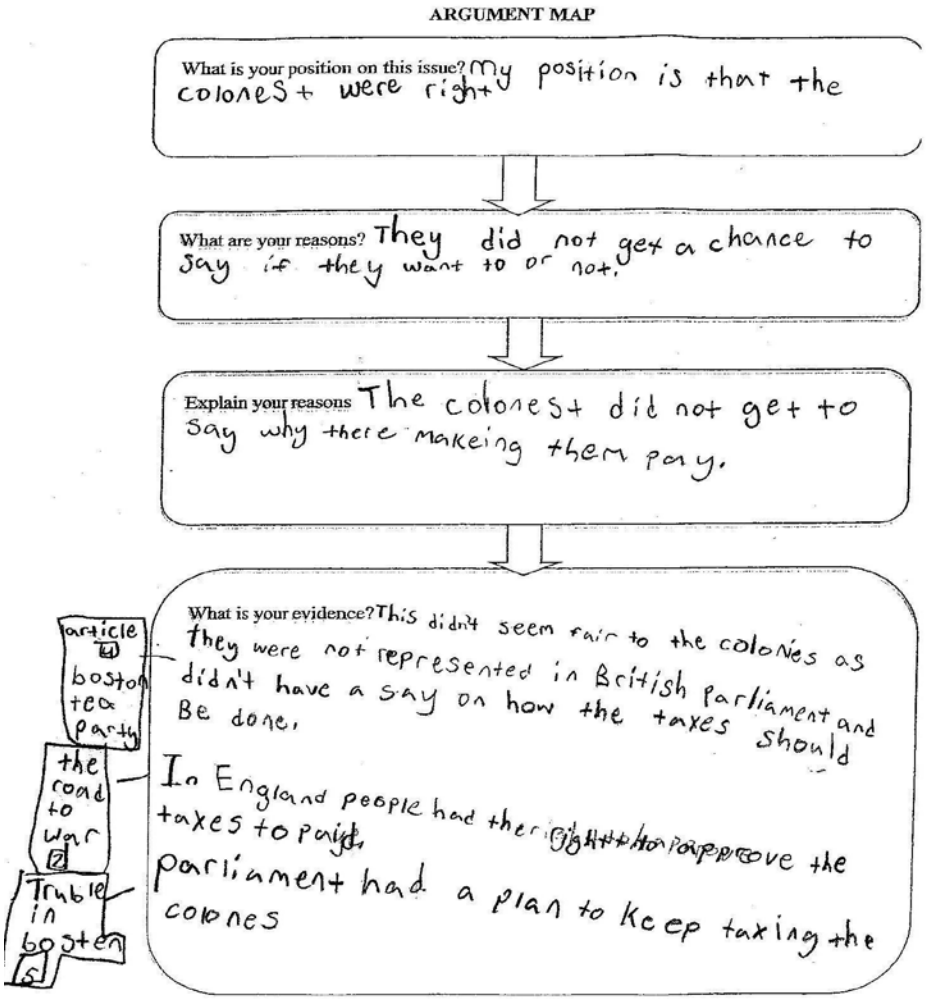


Figure 13. Student 5's argument map for "The Boston Tea Party"

Argumentation was awkward and confusing, at first. The complex task of the first oral argumentation experience described by Laura (IC) as very long and laborious and with students having the "deer in the headlights" look on their faces. Students were beginning to understand "position", but "not how the arguing works." We talked about possible verbal prompts to use; also when to use these as scaffolding techniques. From the earliest videos, the students had difficulty knowing what to say to a partner. The video data showed many student behaviors indicating this. Students were reading the argument map quietly to a partner or standing in place and saying nothing. Some looking

at the teacher for assistance while others looked at the argument map and spoke so softly it was difficult to hear. Most made little to no eye contact and spoke in monotone voice and stilted expression. All exhibited long pauses with no responses between readers.

However, students gradually improved in oral argumentation. The last oral argumentation occurred with the intervention students being mixed with their regular classroom peers and it went better. For example, Student 3 read her map more quickly and at a more adequate volume, as compared with previous lessons where the student would rarely speak. Student 2 talked confidently in response to a counter-position, in opposition to his own; for instance, in a group of three students he exclaimed, "Whoa guys! It's my turn!" and "Hold on, I really do agree with you, but how do they survive?" speaking of indentured servants. The arguing was lively and the students were all engaged.

Analyzing arguments was not easy. Later in the study, after the students constructed their maps, the partners listened to each other read. Listeners were required by the teacher to respond to the readers by answering three questions: (1) what was the writer's position? (2) Were there reasons and evidence? (3) Did that make sense? Laura reported they were initially confused about what they were expected to listen for and how to answer the questions. Analyzing argumentative text is now a student learning expectation for fifth grade on the *Common Core State Standards*, so practicing with this analysis is helpful.

Essay writing was difficult. When the study began, Laura (IC) decided to change the implementation plan and to have the students write baseline essays on the topic, "Should All Kids Get Trophies?" Although the students appeared interested in the topic,

the essays were of poor quality, for example, one essay was very short and contained only a single sentence (see *Figure 14*).

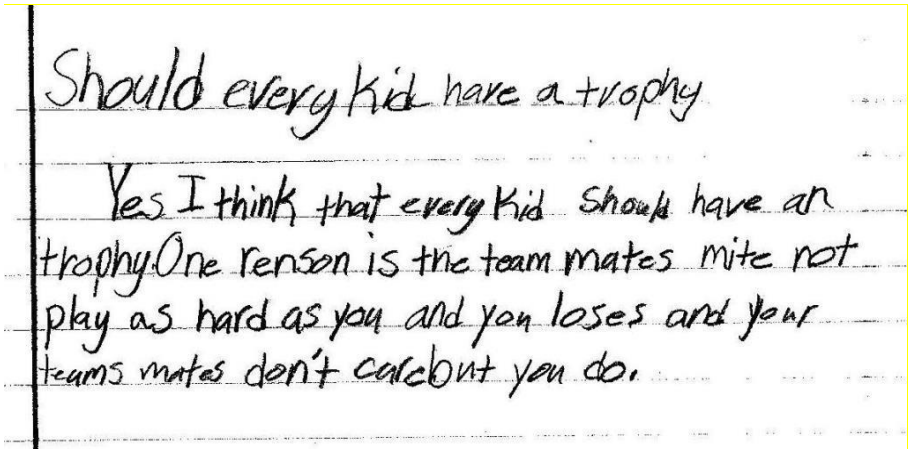
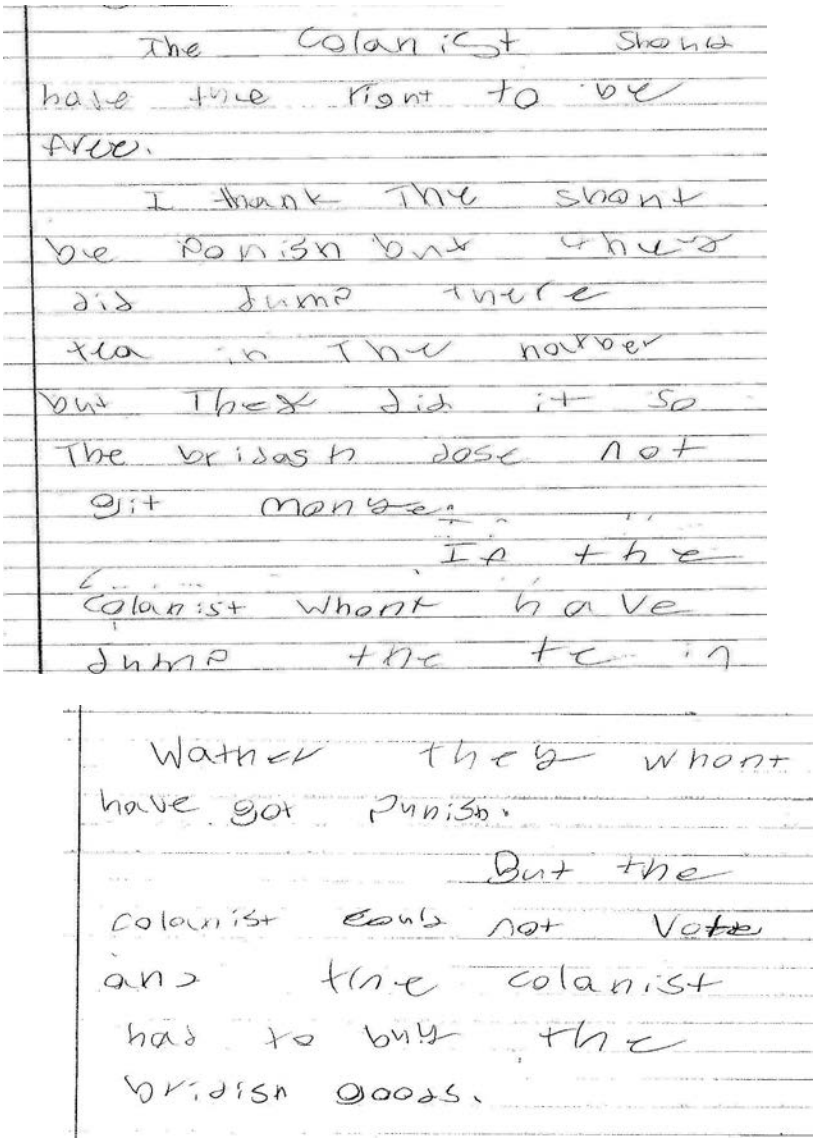


Figure 14. Student 4's baseline essay: Should all kids have trophies?

Essays were often incomplete and confusing. The students took several days to complete their essays. Even though they had personal argument maps to guide their writing, the students were unsure of which information to use for the category "reasons" and which for "evidence." Their writing was observed to be redundant and confusing, and the categories of "counter-position" and "rebuttal" were missing or misunderstood. Plans were made to help clarify the confusions with specific verbal prompting of students while engaged in arguing.

Transfer of information from map to essay was not easy. A recurring problem for some students was that their writing tended to wander off their maps and not stay with the original position. It was a difficult set of concepts for them to grasp.

Students' arguments slowly got better in their essays. An analysis of the written essays revealed that Student 2, who seemed to struggle the most, shows evidence of his improvement in the usage of textual information to support his argument (*see Figure 15*).


The Colanist Should have the right to be free.

I thank The shant be Punish but they did dump there tea in The harbor but They did it so The bridash dose not git mone. In the Colanist Whant have dump the tea in

Wather they whant have got Punish.

But the Colanist could not Vote and the Colanist has to buy the bridish goods.

Figure 15. Student 2's first essay on Who Was Right: British or Colonists?

In *Figure 16*, although there was a misconception about why the British taxed the Colonists, for example, "…everyone would just be crazy and spend there [their] money on everything", the writer stayed consistent with the argument until the conclusion, when she appeared to waffle. "There's always an answer for both sides."

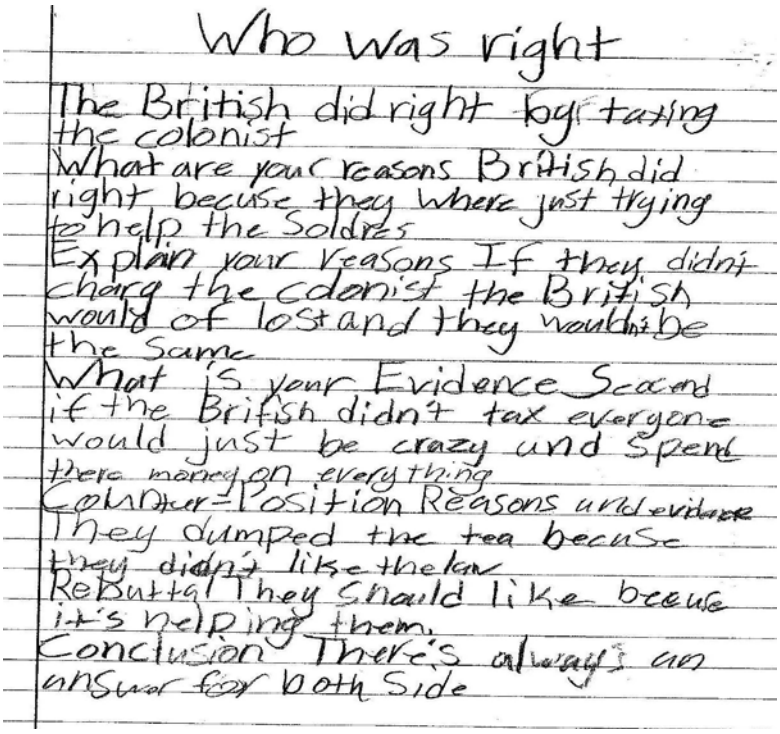

Who was right
The British did right by taxing the colonist
What are your reasons British did right because they where just trying to help the Soldres
Explain your reasons If they didnt charg the colonist the British would of lost and they wouldnt be the same
What is your Evidence Scaond if the Brifish didn't tax everyone would just be crazy und Spend there money on everything
Counter-Position Reasons und evidence
They dumped the tea because they didn't like the law
Rebuttal They Should like beause it's helping them.
Conclusion There's always an answer for both Side

Figure 16. Student 4 essay on who was Right: British or Colonists?

Misconceptions about counter-position and rebuttal remained, and even some of those students who wrote longer essays waffled at the rebuttal and closure of the essay. An example of that waffling at the end was in Student 4's final essay where presented an argument in favor of women serving in the army, including logical reasons and adequate evidence; but then when presenting a counter-position that some people said women should stay at home, he shifted his position with a conclusion that both sides were right.

The final essays were much better than the original baseline essays as indicated by students' completed map components, writers staying with the original position all the way through the essay, and much more detail added with the evidence. Several students wrote final essays at least four pages in length, which was more volume of language than the first essays. It is important to note than in only 10 weeks (and with instruction that

occurred only a few days per week), the struggling readers and writers in the intervention made noteworthy improvements, even though the reasoning and the tasks involved in argumentation are quite complex.

Conclusions from group 1 (Intervention and Collaboration, IC). In response to the qualitative question, Laura's participation in collaboration and reflection, combined with her expertise in perceiving the students' needs and matching that with effective instruction, had a positive influence on the development and implementation of the intervention. The analysis of multiple data sources (teacher anecdotal notes, collaborative conversations on the phone, email, and face-to-face, collaborative viewing of video clips, filmed at various points in the study, researcher notes, student writing) created an authentic story of how collaboration influenced the implementation of a new intervention. With adjustments and scaffolding, the students made steady progress in reading across multiple texts, annotation, argument construction, oral argumentation, and essay writing, suggesting their progress may have been tied to the teacher's expert knowledge, skills, and collaborative actions.

Instruction for Group 2 (Intervention Only, IO). Since Kelly and I did not collaborate during the intervention period, I can only describe what the student – written maps and essays were like, and the information she shared with me after the study ended. Both teachers implemented the intervention for their students, but not exactly in the same way. The same school interruptions occurred with Kelly's group, consequently reducing the intervention period from 25 hours to 16.5 hours. When I examined the argument maps and essays her students wrote, I did not find many differences between them and

Laura's students' writings. For example, their essay scores did not differ much in the categories of the rubric. The quality of writing was similar.

Instruction for Group 3 (Control Group, CG). Group 3 students received regular classroom instruction from Anne, an experienced Language Arts/Social Studies teacher. Their topic of study was also the Revolutionary War, but they did not learn about argumentation or write argumentative essays during the 10 weeks. The students were pre and post tested with the same reading assessment as the students in the other two groups, and their reading results were compared to the results from the others.

Data Convergence

The qualitative and quantitative analyses were merged to help explain the impact of the reading intervention on the students' achievement. Even though the reading comprehension tests did not indicate improvement during the 10-week study, it would seem that student participation in the intervention made a difference in their understanding of the non-fiction texts, as indicated by the qualitative analysis of the oral argumentation and the quantitative analysis of the argumentative essay writing. The students were eventually able to construct arguments after reading across multiple texts and it was observed in the qualitative data that the students became more skilled at developing reasons and finding evidence in the texts: two tasks which were very difficult for them, at first. Throughout the intervention development, the teacher and I collaborated on specific implementation issues, and two clear patterns emerged: argumentation was a complex task for struggling adolescent readers, and students needed more time to benefit from the intervention. The next chapter will explore the findings in more depth.

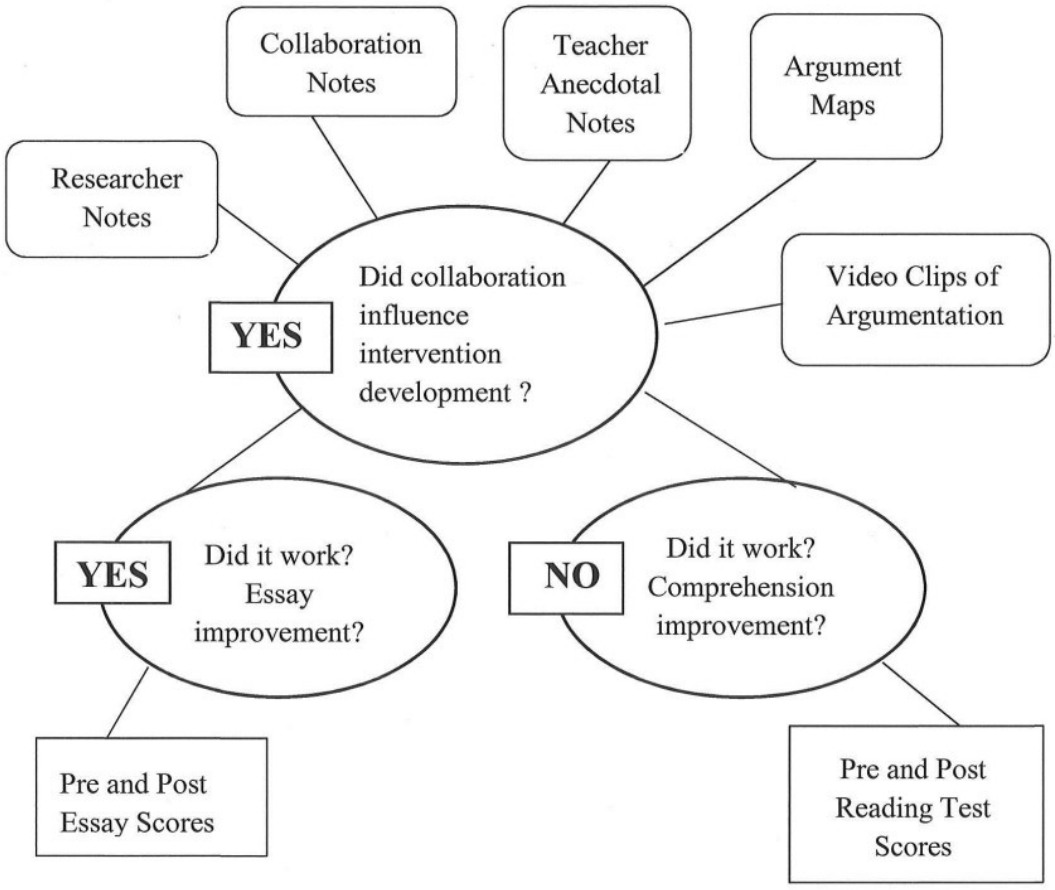


Figure 17. Qualitative and quantitative data strands converge to answer the questions.

CHAPTER FIVE

Summary, Discussion, Limitations, Recommendations, and Implications

Summary

To meet the demands of the Common Core State Standards (National Governors' Association and Council of Chief State School Officers, 2010), students must be able to apply strategies for synthesizing information across texts, critiquing arguments, and building stances from which to reason and argue (Goodin, et al., 2009). Based on this expectation, there is a need for interventions for struggling readers that focus on higher-level thinking with complex texts (Edmonds, et al., 2009; Scammacca, et al., 2007). Although there is a preponderance of research on individual components of the reading process (Wilkerson & Son, 2011), and research on some multi-component interventions (Sotor, et al., 2008), there has been no research on a multi-component reading intervention that includes (a) reading across multiple texts on the same topic, (b) understanding the structure of argumentation and constructing an argument, (c) argumentative discourse, and (d) culminating written argumentative essays. These components make up the core of the intervention for which this study was designed.

Teacher reflection and collaboration play critical roles in the successful implementation of any new instructional strategy (David, 2009; Gearheart & Osmondson, 2008; Borko, 2004), so a close examination of the results of collaboration was important. Putting experts and practitioners together, in this case a researcher and teacher, working to create, refine, and confirm knowledge to improve teaching has been highly recommended (Stigler & Thompson, 2009).

Research design. The study used a Convergent Mixed Methods design that incorporated both quantitative and qualitative data to determine if teacher collaboration influenced the implementation of the new intervention and its subsequent effect on students' reading and writing outcomes. The quantitative data determined the impact of the intervention on student literacy achievement while the qualitative data were used to explore potential reasons for student achievement outcomes.

Discussion of the findings

Quantitative findings. The quantitative data from the reading test revealed no significant improvements in students' reading achievement scores and no significant differences between the three teacher groups:

1) Group 1 (IC) teacher, Laura, who implemented the intervention and collaborated with the researcher on development and changes,
2) Group 2 (IO) teacher, Kelly, who implemented the intervention, but did not engage in collaboration with the researcher; and
3) Control Group (CG) teacher, Anne, who implemented the typical 'business as usual' language arts program.

All three groups participated in a 10-week unit around the Revolutionary War, but only Groups 1 and 2 included an instructional focus on argumentative essay writing. The pre- and post-test summative essay scores from Groups 1 and 2 revealed significant student improvement in argumentative writing (p = .000), yet there was no significant difference between the two groups (p =.66).

The new intervention incorporated evidence-based practices, such as reading multiple texts within a topic (Pappas, Varelas, Barry, & Rife, 2003), comprehension

strategies for higher level thinking (Powell & Rightmeyer, 2011; Nussbaum, 2002; Taylor, et al., 1993), argumentative discourse in speaking and writing (Chinn and Anderson, 1998; Reznitskaya, Anderson, & Kuo, 2007), and writing about reading (Graham & Hebert, 2010). Based on previous studies, it was assumed that if these research-based practices were embedded into a targeted, short-term intervention, this experience would increase student reading achievement. However, the reading gains for the students who participated in the new intervention were no better than those of the control group. In the next section, the qualitative results will be explored to determine what factors may have influenced the lack of significant reading achievement.

Qualitative findings. The qualitative results suggest five factors that may have affected the implementation of the intervention and subsequent student achievement between Groups 1 and 2. These five factors are (1) implementation fidelity, (2) short duration, (3) size of group, (4) task complexity, and (5) aligned assessments. Additionally, the factor of teacher collaboration is explored to discover possible reasons why there was no significant difference in the essay writing of Groups 1 and 2 students.

Implementation fidelity. Past research on reading programs has linked achievement outcomes to the fidelity of the implementation. The lack of achievement gains may be due to student characteristics, but it may also be due to how the instruction was implemented (Mellard, 2010). Fagella-Fuby and Wardwell (2011) proposed that intervention should be intensive and consistent, and even the best intervention models can be prevented from bringing about positive results if those conditions are not in place.

With past research in mind, the numerous modifications to the intervention framework in the current study make it difficult to determine the effectiveness of the

intervention in student achievement. A major modification to the original design related to the implementation of daily instruction. The intervention was created to provide struggling readers with intensive, daily 30-minute instruction in argumentation skills and strategies. However, because of school interruptions, other curricula demands, and test preparation and participation, the students did not receive daily instruction. Additionally, other modifications occurred on an ongoing basis throughout the 10-week implementation. Based on the qualitative data, it appears that the collaborative discussions with the teacher and researcher focused more on making changes to the intervention, in contrast to finding more efficient ways to implement the intervention with greater fidelity. In support of previous research, when an implemented program varies from the original design, it can result in ambiguous inferences about the program's effectiveness, thus making it difficult to interpret whether results are due to an ineffective program or to poor implementation (Sanetti, et al., 2013; Sanetti & Kratochwill, 2009; Lane, Bocian, MacMillan, & Gresham, 2004).

Short duration. With struggling readers, the conditions of consistency and intensity are especially important (Benner, et al. 2010). To increase intensity of intervention, instructional time must be increased. In the current study, the intervention was designed for 30 minutes of daily instruction, five days a week for 10 days, with the expectation that students would receive 25 hours of intensive instruction in argumentation skills and strategies. However, the estimated amount of time spent on the intervention by the two teachers was approximately 16.5 hours. In a synthesis of 33

effective reading programs for middle and high schools, Slavin and colleagues (2008) found that studies of shorter duration than a year may not allow programs to show their full effect.

Size of group. Past research has determined that the size of an intervention group relates to intensity and effectiveness (Helf, Cooke, & Flowers, 2009; Vaughn, Linan-Thompson, Kouzekanani, Bryant, Dickson, & Blozis, 2003). In the present study, Group 1 intervention was situated within a whole class setting. The classroom teacher, Laura (IC) implemented the intervention during her language arts block for the entire class of 26 students, while collecting data on a small group of six low-achieving readers within the larger context. This whole-class structure implies that the teacher's scaffolding and coaching were not focused exclusively on the six students in the study, but rather her attention was divided across the whole class. In contrast, Kelly (IO) implemented the intervention, without any support from the researcher, as a supplemental pullout program. This small group structure implies that Kelly was able to provide more tailored scaffolding and coaching to meet the unique needs of her students. Perhaps, the size of the groups may be one explanation as to why Kelly's (IO) students scored as high as Laura's (IC) students on the written essay task. On the other hand, the assistance provided to Laura (IC) through collaboration, during the study, enabled her to implement the intervention in the whole-class setting to the same extent as Kelly (IO) did with her small group.

***Task complexity*.** The intervention focused on higher-level thinking, which involves the use of efficient strategies for accomplishing complex tasks. A major challenge in teaching argument is that students have difficulty mastering higher level

reading comprehension and critical literacy skills associated with engaging in and critiquing effective arguments (Biancarosa & Snow, 2004; Chambliss & Murphy, 2002; Johannessen, Kahn, & Walter, 2009). With the demands of the *Common Core State Standards*, teachers must understand how to break complex tasks, such as argumentation, into manageable chunks that scaffold student performance. At the same time, teachers must understand that scaffolding does not mean simplifying the task, but rather increasing the amount of assistance to enable students to accomplish the complex task (Wood, 2002). Scaffolds are useful tools for addressing the problem of weakness in reasoning skills, as carefully designed tools can assist students to think more clearly and argue more persuasively within a conventional structure (Nussbaum, 2002).

In the present study, the teachers in both intervention groups reported that they had to "slow down" the instruction for the students to learn the argumentation process. At the same time, the intervention teachers used scaffolds, such as graphic organizers and anchor charts, to break complex tasks into manageable parts so that the students could take on the learning more easily. Yet, despite the scaffolding, the students continued to struggle with developing a deeper understanding of the argumentation process. One explanation for this outcome is that teaching argumentation is complex and demanding (Newell & Beach, 2011), and this process may take longer to develop.

The qualitative data analysis gave support to past research about adolescents and their struggles with higher level inferential thinking and reasoning about texts. Findings from several studies indicate that adolescents show weakness in argument construction; consequently, interventions should include explicit instruction and scaffolding for accomplishing complex tasks (Brem & Rips, 2000; Kuhn, Shaw, & Felton, 1997; Voss &

Means, 1991). In the current study, the students' weakness in reasoning and inferential skills may have contributed to their comprehension difficulties, as found by Roberts, et al. (2008). The students read across multiple texts on the same topic, with differing viewpoints, which is reported to develop students' critical thinking (Hartman & Hartman, 1993; Levy, et al., 1995). However, when learning from multiple texts, students rarely integrate information across texts without training (Wolfe & Goldman, 2005; Greene, 1994; VanSledright, 2002a; Van Sledright & Kelly, 1998) and with training the students could eventually construct arguments from multiple texts.

Chin and Anderson (1998) found many arguments were only maintained at surface levels, and few positions were challenged without teacher prompting. Reznitskaya and colleagues (2007) proposed that awareness of the principles of argumentation does not ensure proficient application of the principles. In other words, students need to actively engage in evidence-based arguments. In the present study, Laura (IC) supplied appropriate verbal prompts for stimulating complex thinking; however even with noted improvement, the students were not proficient with oral argumentation at the end of the study. The findings suggest that complex learning, as in the case of oral argumentation, is developed and refined over time; and with more experience, the students in the intervention may have acquired greater proficiency in this skill. This same interpretation can be applied to the area of written argumentation. Although the intervention students showed significant improvements in their written essays over the intervention period, they never achieved proficiency as essay writers.

Aligned assessments. The instructional goal of the new intervention was to enable low-achieving students to acquire the knowledge, skills, and strategies for reading

and writing argumentative texts. Therefore, to determine if an intervention works, the assessments should align with the instructional goals (Biggs, 2003; Webb, 1997). In the current study, two assessment measures were used to quantify student growth in reading and writing over the 10-week period. For the reading measure, *The Flynt-Cooter Reading Inventory for the Classroom* (Flynt & Cooter, 2004) was used to determine if the students made significant improvements in reading comprehension. These passages, however, may have been inappropriate for assessing the impact of the new intervention on the students' ability to apply strategies for interpreting argumentative texts.

Nussbaum (2002) conducted a similar study in Social Studies classrooms using a different type of graphic organizer to scaffold student reasoning. During the yearlong study, several samples of constructed arguments from the graphic organizer were examined as the measures of change. No reading tests were administered. Since the current intervention is specifically designed to improve students' argumentative skills after reading texts, perhaps the assessment should have matched the instructional goal more closely and measured growth in argumentative skills, or perhaps a reading comprehension assessment could have been taken from argumentative passages where the students would identify the argument components.

In contrast to the lack of significance on the reading measure, the study found significant improvements in the students' essay writing. This finding suggests that the writing measure was more closely aligned with the instructional goal of the argumentative lessons. Although there was no significant difference in student outcomes between Group 1 and Group 2 teachers, both teachers implemented the new intervention with similar procedures and texts.

***Teacher collaboration*.** Based on past research on teacher collaboration, I had theorized that the scores from Group 1 students would be higher than the scores from Group 2 students as a result on my ongoing collaboration with the Group 1 teacher. Yet, that did not occur. A possible explanation is that the teachers in the study were sharing information, perhaps unintentionally, with one another and collaborating on implementation issues. Although this is only speculation, since it was not tested in the current study, previous studies have found that skilled teachers talk to other teachers about what they are doing in their classrooms, even if the teachers are in different buildings (David 2009; Osterman & Kottcamp, 1993). Another, and perhaps more important reason for the lack of significances in student achievement, might be that both teachers had high skill levels and experiences with teaching struggling readers. As noted by Duffy and Hoffman (1999), good teaching brings good results. In the present study, both teachers were responsive to their student needs and adjusted their support to assist their struggling students, at least on a basic level, to learn the principles of argumentation.

Triangulation of quantitative and qualitative findings. The quantitative data revealed there were no significant achievement gains on the reading assessment from the three groups. One or more of the reasons suggested previously may have contributed to the lack of significance. The quantitative data related to the student essays indicated significant gains by all intervention group students, possibly because assessing the argumentative essays was more closely aligned with the instructional goals. The qualitative data indicated that Laura's (IC) collaboration with me influenced many changes in the planned intervention; and although these modifications may have been positive, they, nonetheless, made it more difficult to assess the fidelity of the

implementation. The observations of student growth in the construction of arguments after reading and in oral argumentation provide qualitative evidence that supports the significant gains found in the students' essay writing. The use of mixed methods allowed for a preliminary exploration of complex phenomena that may have influenced the implementation of the reading intervention and the subsequent improvements in student achievement.

Limitations

This research and its conclusions are bounded by time, sample size, and location. The study's qualitative data collection occurred primarily in one teacher's Language Arts/Social Studies class over the course of 10 weeks; therefore, there is no claim that the findings are in any way externally generalizable. They can be considered, however, "internally" generalizable. Maxwell (1996) explains this as generalizability within the setting.

This qualitative case study required small groups of low-achieving middle school readers to participate in the intervention; and it is possible that these students may have had additional barriers to their learning, such as unreported emotional and behavioral issues, undiagnosed learning disabilities, or excessive absences that could have had an adverse effect on their participation.

Recommendations

Extend the timeframe. Struggling readers can learn to read across multiple texts, annotate and analyze them, and create arguments from text. Students can improve, over time, in oral argumentation and argumentative writing. A longer study is needed to examine if students' reading comprehension scores will improve on reading instruments,

if their skills will transfer to novel texts and also to tell if the intervention is rigorous enough to bring gains in reading.

Develop and use fidelity measure. An implementation measure, for example, an observation protocol and or/teacher surveys, should be utilized to assess the fidelity of the intervention.

Implications

The study has implications for policy makers, educators, and researchers who are responsible for making decisions about student achievement. Improvement in reading comprehension does not happen in a hurry for adolescents. Learning to think and reason at higher levels is complex and seems to take a lot of practice with a knowledgeable teacher who scaffolds the learning process and provides many opportunities for social interactions.

Policy makers. Decision-makers need to be fully informed and understand the complexity of learning and internalizing the skills of critical thinking for analyzing texts and determining the legitimacy of arguments. This understanding can more positively affect the decisions made about curriculum and instruction needed to raise adolescent reading and writing to the levels that are needed and now required by the *Common Core State Standards*. A "quick fix" mindset on the part of policy makers about raising achievement in literacy is not supported by research.

Educators. Teachers of Response to Intervention approaches for struggling adolescent readers and writers need to place a high value on teacher scaffolding for students who are learning read, think, and write critically about texts. Breaking complex thinking skills into smaller units, such as parts of an argument, seems to be more

productive than overwhelming them. Providing a socially interactive environment for discussion and actual argumentation helps improve student understanding of the principles of argumentation and its real-life purpose. Teachers and administrators also need to remember the importance of fidelity to an intensive and possibly lengthy intervention for gains to be made.

The study supports the importance of training classroom teachers in specialized intervention approaches for low-achieving students. In the present study, there was no significant difference between the writing achievement of the struggling readers who were taught within the classroom setting and those who were taught within the pullout small-group intervention setting. This finding implies that classroom teachers can deliver effective in-class interventions that include differentiated support for low-achieving students.

Researchers. The study found that struggling adolescent readers make progress, at least in oral argumentation and writing argumentative essays, by participating in a multi-component intervention that includes cycles of reading across multiple texts, constructing an argument, engaging in oral argumentation, and writing an argumentative essay. This multi-component intervention includes inter-textuality or reading across multiple texts, and more research is needed to determine the optimal benefits of this intervention for older low-achieving readers.

In addition, more research is needed to determine how long it will take, and if it will occur, for students' reading comprehension to improve on school reading tests and also show evidence of transfer to novel texts, after participating in the intervention. In order to provide better information about the instructional conditions necessary to close

the reading gap for struggling readers, Scammacca, et al. (2007) recommended that researchers need to invest and produce studies that provide instruction over longer periods of time and assess outcomes with measures that are more similar to those used by schools to monitor the reading progress of all students.

It would also be valuable to determine whether students' improved writing will transfer to other school contexts and whether their writing improvement will mirror their reading improvement over time. Another question to ponder is what if classroom teachers tried to teach their content through argumentation. Would that approach bring changes in student reading, writing achievement, and better comprehension of the content area?

References

Abbott, S. & Berninger, V. (1999). It's never too late to remediate. *Annals of Dyslexia.* 49, 223-250.

Afflerbach, P., Pearson, P.D. & Scott, G. (2008). Clarifying differences between reading skills and reading strategies. *The Reading Teacher*, 61:5, 364-373. doi:10.1598/RT.61.5.1

Alfassi, M. (1998). Reading for meaning: The efficacy of reciprocal teaching in fostering reading comprehension in high school students in remedial reading classes. *American Education Research Journal*, 1998, 35:2, pp. 309-332.

Allington, R. (2007). Intervention all day long: New hope for struggling readers. *Voices from the Middle***,** 14:4, pp. 7 – 14.

Allington, R. (2001). *What really matters for struggling readers?* New York, NY: Addison Wesley Longman

Allinder, R. M., Dunse, L., Brunken, C. D., & Obermiller-Krolikowski, H. J. (2001). Improving fluency in at-risk readers and students with learning disabilities. *Remedial and Special Education*, 22, 48–45.

Almasi & York, (2009). Comprehension and Discussion of Text. In S.E Israel's & G.G. Duffy (Eds.), *Handbook of research on reading comprehension.* (470 - 493). New York: Routledge.

Alvermann, D.E., & Rush, L.S. (2004). Literacy intervention programs at the middle and high school levels. In T.L. Jetton & J.A. Dole (Eds.), *Adolescent literacy research and practice* (210-227). New York: Guilford Press.

Alvermann, D.E. (2002). Effective literacy instruction for adolescents. *Journal of Literacy Research*. 34, 189-208.

Alvermann, D., Hynd, C., & Qian, G. (1995). The effects of interactive discussion and text type on the learning of counter-intuitive science concepts. *Journal of Educational Research*. 88:3, 146-153.

Anderman, E.M., Austin, C.C., & Johnson, D.M. (2002). The development of goal orientation. In A. Wigfield, & J.S. Eccles (Eds.), *Development of achievement motivation* (197-220). San Diego, CA: Academic Press.

Anderson, R., Nguyen-Jahiel, K., McNurlen, B. Archodidou, A., Kim, S., Reznitskaya, A., Tillmanns, M. & Gilbert, L. (2001). The Snowball Phenomenon: Spread of Ways of Talking and Ways of Thinking Across Groups of Children. *Cognition and Instruction*, *19*:1, 1–46.

Anderson, V., Chan, K. K., & Henne, R. (1995). The effects of strategy instruction on the literacy models and performance of reading and writing delayed middle school students. In K. A. Hinchman, D. J. Leu, & C. K. Kinzer (Eds.), *Perspectives on literacy research and practice: Forty-fourth yearbook of the National Reading Conference* (180–189). Chicago: National Reading Conference.

Anderman, E., & Wolters, C. (2006). Goal, values, and affect. In P. Alexander & P. Winne (Eds.), *Handbook of educational psychology* (2nd ed., 369–389). Mahwah, NJ: Erlbaum.

Applebee, A., and Langer, J. (2006). *The state of writing instruction: What existing data tell us.* Albany, NY: Center on English Learning and Achievement.

Applebee, A. Langer, J., Nystrand, M. & Gamoran, A. (2003). Discussion-based approaches to developing understanding: Classroom instruction and student performance in middle and high school English. *American Educational Research Journal.* 40:3, 685-730.

Applegate, M. D., K. B. Quinn, and A. J. Applegate. 2006. Profiles in comprehension. *The Reading Teacher* 60:1, 48–57.

Argyris, C., & Schon, D. (1996). *Organizational learning II: Theory, method, and practice.* Reading, MA: Addison-Wesley.

Armbruster, B. B., & Anderson, T. H. (1988). On selecting considerate content textbooks. *Remedial and Special Education*, 9, 47–52.

Au, K. H. (1979). Using the experience-text-relationship method with minority children. *The Reading Teacher*, 32, 677–679.

Bakhtin, M.M. (1986). *Speech genres and other late essays*. Trans.by Vern W. McGee. Austin, TX: University of Texas Press.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1977). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman.

Beck, I., McKeown, M., Hamilton, R. & Kucan, L. (1997). *Questioning the author*: *An approach for enhancing student engagement with text*. Newark, Delaware: International Reading Association.

Benner, G., Nelson, J., Stage, S., & Ralston, N. (2010). The influence of fidelity of implementation on the reading outcomes of middle school students experiencing reading difficulties. *Remedial and Special Education.* 32: 79 DOI: 10.1177/0741932510361265

Bergman, J., & Schuder, R. T. (1993). Teaching at-risk elementary school students to read strategically. *Educational Leadership*. 50:4, 19-23.

Bhat, P., Griffin, C.C., & Sindelar, P.T. (2003). Phonological awareness instruction for middle school students with learning disabilities. *Learning Disability Quarterly,* 26:2, 73-87. Retrieved from http://www.jstor.org

Bhattacharya, A., & Ehri, L. (2004). Graphosyllabic analysis helps adolescent struggling readers read and spell words. *Journal of Learning Disabilities*, 37*,* 331–348.

Biancarosa, G., and Snow, C. (2004). *Reading next: A vision for action and research in middle and high school literacy. A report to Carnegie Corporation of New York*. Washington, DC: Alliance for Excellent Education. Retrieved June 25, 2007 from http://www.all4ed.org/publications/ReadingNext/ReadingNext.pdf

Billings, L., & Fitzgerald, J. (2002). Dialogic discussion and the Paideia Seminar. *American Educational Research Journal*, 39:4, 907–941.

Bohm, D. (1996). *On Dialogue.* New York, NY: Routledge.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrai*n. Educational Researcher,* 33:8, 3–15.

Borkowski, J., Carr, M., Rellinger, E., & Pressley, M. (1990). Self-regulated cognition: Interdependence of metacognition, attributions, and self-esteem. In B.

F. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive instruction* (53–92). Hillsdale, NJ: Erlbaum.

Borkowski, J. G., Estrada, M. T., Milstead, M., & Hale, C. A. (1989). General problem solving skills: Relations between metacognition and strategic processing. Learning Disability Quarterly, 12, 57-70

Bos, C. S., Anders, P. L., Filip, D., & Jaffe, L. E. (1989). The effects of an interactive instructional strategy for enhancing reading comprehension and content area learning for students with learning disabilities. *Journal of Learning Disabilities*, 22:6, 384-390.

Boyle, J. R. (1996). The effects of a cognitive mapping strategy on the literal and inferential comprehension of students with mild disabilities. *Learning Disability Quarterly*, 19:2, 86-98.

Brem, S. K., & Rips, L. J. (2000). Explanation and evidence in informal argument. *Cognitive Science*, 24, 573–604.

Brooks, C.D., & Jeong, A. (2006). Effects of pre-structuring discussion threads on group interaction and group performance in computer-supported collaborative argumentation. *Distance Education*, 27:3, 371–390. doi:10.1080/01587910600940448

Brown, A., Palincsar, A., & Armbruster, B. (2004). Instructing comprehension-fostering activities in interactive learning. In R. Rudell & N. Unrau (Eds.), *Theoretical models and processes of reading,* 5th edition, (780-809). Newark, DE: International Reading Association.

Brown, A., Campione, J. (1998). Designing a community of young learners: Theoretical and practical lessons. In N.M. Lambert & B.L. McCombs (Eds.), *How students learn: Reforming schools through learner-centered education,* (153-186). Washington DC: American Psychological Association.

Brown, A. L., Armbruster, B. B., & Baker, L. (1986). The role of metacognition in reading and studying. In J. Orasanu (Ed.), *Reading Comprehension: From research to practice*. Hillsdale, NJ: Erlbaum.

Brown, A.L., Palincsar, A.S., & Purcell, L. (1985). Poor readers: Teach, don't label. In U. Neisser (Ed.), *The academic performance of minority children*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Brown, A.L., & Campione, J.C. (1981). Inducing flexile thinking: A problem of access. In M. Friedman, J.P. Das & N. O'Connor (Eds.), *Intelligence and learning* (515-529). New York: Plenum.

Brown, R. & Coy-Ogan, L. (1993). The evolution of transactional strategies instruction in one teacher's classroom. *Elementary School Journal*. 94, 221 – 233.

Brozo, W.G., & Hargis, C.H. (2003). Taking seriously the idea of reform: One high school's efforts to make reading more responsive to all students. *Journal of Adolescent & Adult Literacy*, 47, 14-23.

Bryk, A., Rollow, S., & Pinnell, G. (1996). Urban school development: Literacy as a lever for change. *Educational Policy*, 10:2, 172 – 201.

Butler, D., & Winne, P.H. (1995). Feedback and self–regulated learning: A theoretical synthesis. *Review of Educational Research,* 65, 245–281.

Caccamise, D. (2011). Improved reading comprehension by writing. *Perspectives on Language Learning and Education*. 18, 27-31.

Chan, L. K. (1991). Promoting strategy generalization through self-instructional training in students with reading disabilities, *Journal of Learning Disabilities*. 7, 427-33.

Chan, L. K. (1996). Combined strategy and attributional training for seventh-grade average and poor readers. *Journal of Research in Reading*, *19*, 111–127.

Chi, M. (2000). Self-explaining expository texts: The duel processes of generating inferences and repairing mental models. In R. Glasser (Ed.), *Advances in Instructional Psychology: Educational Design and Cognitive Science.* Mahwah, NJ: Lawrence Erlbaum Associates.

Chi, M., De Leeuw, N., Chiu, M. & Lavancher, C. (1994). Eliciting self-explanations improves understanding. *Cognitive Science*, 18:3, 439-477.

Chinn, C.A., Anderson, R.C., & Waggoner, M. (2001). Patterns of discourse in two kinds of literature discussion. *Reading Research Quarterly*, 36, 378–411.

Chinn, C., & Anderson, R. (1998). The structure of discussions that promote reasoning. *Teachers College Record, 100*, 315-368.

Clay, M. (2001). *Change over time in children's literacy development*. Portsmouth, NH: Heinemann.

Clay, M. (1998). *By different paths to common outcomes*. York, MA: Stenhouse Publishers.

Cochran-Smith, M., & Lytle, S. L. (1999b). The teacher research movement: A decade later. *Educational Researcher*, 28:7, 15-25.

Cohen, R. (1983). Self-generated questions as an aid to reading comprehension. *Reading Teacher*, 36, 770–775.

Collins, C. (1991). Reading instruction that increases thinking abilities. *Journal of Reading.* 34:7, 510 – 516.

Conner, C., Morrison, F., & Petrella, J. (2004). Effective reading comprehension instruction: Examining child x instruction interactions. *Journal of Educational Psychology*. 96:4, 682- 698.

Coté, N.C. & Goldman, S. R. (1999). Building representations of informational text: Evidence from children's think-aloud protocols. In H. van Oostendorp & S.R. Goldman (Eds.), *The construction of mental representations during reading.* (169–193). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Creswell, J. & Plano Clark, V. (2011). *Designing and conducting mixed methods research*, 2nd ed. Washington DC: Sage

Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks, CA: Sage Publications.

Creswell, J. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Criscuola, M. (1994). Read, Discuss, Reread: Insights from the Junior Great Books Program. *Teaching for Understanding*, 51:5, 58 – 6.

Cross, D. (2009). Creating optimal mathematics learning environments: combining argumentation and writing to enhance achievement. *International Journal of Science and Mathematics Education.* 7, 905 -930.

Daly, E. J., III, & Martens, B. K. (1994). A comparison of three interventions for increasing oral reading performance: Application of the instructional hierarchy. *Journal of Applied Behavior Analysis,* 27, 459-469.

Daniels, H. (1994). *Literature Circles: Voice and Choice in the student-centered classroom*. York, ME: Stenhouse Publishers.

Darch, C., Carnine, D., & Kameenui, E. J. (1986). The role of graphic organizers and social structure in content area instruction. *Journal of Reading Behavior,* 18, 275-294.

Darch, C., & Eaves, R. (1986). Visual displays to increase comprehension of high school Learning-disabled students. *Exceptional Children*, 20, 309-318.

David, J. (2008). Collaborative inquiry. *Educational Leadership*. 66:4, pp. 87-88.

Deshler, D., Palincsar, A., Biancarosa, G., & Nair, M. (2007). *Informed Choices for Struggling Adolescent Readers*. Newark, DE: Carnegie Corporation of New York

Deshler, D. & Schumaker, J. (1993). Strategy mastery by at-risk students: Not a simple matter. *Elementary School Journal*. 94:2, 153 – 167.

Diaz, R., Neal, C., & Amaya-Williams, M. (1990). The social origins of self-regulation. In L. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of scociohistorical psychology.* (127-154). New York, NY: Cambridge University Press.

DiCecco, V. & Gleason, M. (2002). Using graphic organizers to attain relational knowledge from expository text. *Journal of Learning Disabilities*. 35:4, 306-320.

Dole, J. A., Duffy, G. G., Roehler, L. R., & Pearson, P. D. (1991). Moving from the old to the new: Research on reading comprehension instruction. *Review of Educational Research*, 61:2, 239–264.

Dorn, L. & Soffos, C. (2001). *Shaping literate minds: Developing self-regulated learners*. Portland, Maine: Stenhouse.

Duffy, G.G., & Hoffman, J.V. (1999). In pursuit of an illusion: The flawed search for a perfect method. *The Reading Teacher*. 53, 10-16.

Duffy, G. G., Roehler, L. R., Meloth, M. S., Vavrus, L. G., Book, C., Putnam, J., & Wesselman, R. (1986). The relationship between explicit verbal explanations during reading skill instruction and student awareness and achievement: A study of teacher effects. *Reading Research Quarterly,* 21, 237-252.

Easterday, M. W., Aleven, V., & Scheines, R. (2007). The logic of babel: Causal reasoning from conflicting sources. In V. Aleven, K. Ashley, C. Lynch, & N. Pinkwart (Eds.), *Proceedings of the workshop on AIED applications in ill-defined domains at the 13th international conference on artificial intelligence in education*. Marina del Rey, CA. (31-40).

Edmonds, M., Vaughn, S., Wexler, J., Reutebuch, C., Cable, A., Klinger-Tackett, K., & Schnakenberg, J. (2009). A synthesis of reading interventions and effects on reading comprehension outcomes for older struggling readers. *Review of Educational Research*. 79:262-300. DOI: 10.3102/0034654308325998

Eeds, M., & Wells, D. (1989). Grand Conversations: An exploration of meaning construction in literature study groups. *Research in the Teaching of English*, 23:1, 4–29.

Faggella-Luby, M. & Wardwell, M. (2011). RTI in a middle school: Findings and practical implications of a tier 2 reading comprehension study. *Learning Disability Quarterly,* 34:1, 35-49

Faggella-Luby, M. & Deshler, D. (2008). Reading comprehension in adolescents with LD: What we know: what we need to learn. *Learning Disabilities Research & Practice,* 23:2, 70–78.

Feger, M. (2006). "I want to read": How culturally relevant texts increase student engagement in reading. *Multi-cultural Education*. 13:3, 18-19.

Fisher, D., Grant, M. & Frey, N. (2009). Science literacy is > strategies. *The Clearing House*. 82:4, 183-186.

Fisher, D. & Ivey, G. (2006). Evaluating the Interventions for Struggling Adolescent Readers. *Journal of Adolescent & Adult Literacy*, 50:3, 180-189.

Fisher, D. (2004). Setting the "opportunity to read" standard: Resuscitating the SSR program in an urban high school. *Journal of Adolescent & Adult Literacy*, 48, 138-150. doi:10.1598/JAAL.48.2.5

Fisher, D., & Frey, N. (2004). *Improving adolescent literacy: Strategies at work.* Englewood Cliffs, NJ: Merrill.

Fisher, D. (2001). "We're moving on up": Creating a school- wide literacy effort in an urban high school. *Journal of Adolescent & Adult Literacy*, 45, 92-101.

Fitzgerald, J., and Shanahan, T. (2000). Reading and writing relations and their development. *Educational Psychologist*, 35, 39–50.

Flynt, E.S. & Cooter, R.B. (2004). *Flynt-Cooter Reading Inventory for the Classroom,* Upper Saddle River, NJ: Pearson

Fuchs, L. S., Fuchs, D., & Kazdan, S. (1999). Effects of peer-assisted learning strategies on high school students with serious reading problems. *Remedial & Special Education*, 20, 309-319.

Gajria, M., Jitendra, A., Sheetal, S., & Sacks, G. (2007). Improving comprehension of expository text in students with LD: A research synthesis. *Journal of Learning Disabilities*. 40:3, 210–225.

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

Gambrell, L. B. & Almasi, J.F. (Eds.). (1996). *Lively discussions! Fostering Engaged Reading.* Newark, DE: International Reading Association.

Garcia, G., Taylor, B., Pearson, P.D., Stahl, K., & Bauer, E. (2007). *Final report: Instruction of reading comprehension: cognitive strategies or cognitive (response) engagement?* Submitted to the Institution of Educational Sciences, US Department of Education, WDC (Grant R305G030140). Champaign: University of Illinois.

Gearhart, M., & Osmundson, E. (20*08). Assessment portfolios as opportunities for teacher learning* (CRESST Report 736). Los Angeles: University of California, Center for Research on Evaluation, Standards, and Student Testing.

Gickling, E., & Armstrong, D. (1978). Levels of instructional difficulty as related to on-task behavior, task completion, and comprehension. *Journal of Learning Disabilities,* 11, 559-566.

Goldenberg, C. (1993). Instructional conversations: Promoting comprehension through discussion. *The Reading Teacher*, 46:4, 316–326.

Goodin, S., Weber, C., Pearson, P.D. & Raphael, T. (2009). Comprehension: The means, motive, and opportunity for meeting the needs of diverse learners. In L. Morrow, R. Rueda & D. Lapp (Eds.) *Handbook of Research on Literacy and Diversity,* (337 – 365). New York:NY, Guilford Press.

Graham, S. & Hebert, M. (2010). *Writing to read: Evidence for how writing can improve reading. A Carnegie Corporation Time to Act Report*. Washington, DC: Alliance for Excellent Education.

Graham, S., & Weiner, B. (1996). Theories and principles of motivation. In D. Berliner & R. Calfee (Eds.), *Handbook of educational psychology* (63–84). New York: Simon and Schuster Macmillan.

Graesser, A. C.. Singer, M., & Trabasso,T. (1994). Constructing inferences during narrative text comprehension. *Psychological Review*, 101, 371-395.

Greenleaf, C., Schoenbach, R., Cziko, C. & Mueller, F. (2001). Apprenticing adolescent readers to academic literacy. *Harvard Educational Review*. 71:1, 79 -129.

Greene, S. (1994). The problems of learning to think like a historian: Writing history in the culture of the classroom. *Educational Psychologist, 29*:2, 89–96.

Gutierrez, K., Baquedano-Lopez, P. & Tejada, C. (1999). Rethinking diversity: Hybridity and hybrid language practices in the third space. *Mind, Culture, and Activity*, 6:4, 286 – 303.

Gutierrez, K. (1994). Scripts, counterscripts, and the construction of context in literacy activities for elementary age Latino children: Perspectives on literacy, schooling,

and power. Sociolinguistics Session, XII World Congress on Sociology, Bielefeld, Germany.

Guthrie, J.T., Mason-Singh, A. & Coddington, C.S. (2012). Instructional effects of Concept- Oriented Reading instruction on motivation for reading information text in middle school. In J. T. Guthrie, A. Wigfield, and S. L. Klauda (Eds.) *Adolescents' Engagement in Academic Literacy,* (155-215). University of Maryland, College Park, USA.

Guthrie, J. T., Wigfield, A., & Klauda, S. L. (2012). Adolescents' engagement with academic literacy. (Report No. 7). Retrieved from www.corilearning.com/research-publications

Guthrie, J.T., McRae, A. & Klauda, S. (2007). Contributions of Concept-Oriented Reading instruction to knowledge about interventions for motivations in reading. *Educational Psychologist,* 42:4, 237–250.

Guthrie, J., Hoa, L., Wigfield, A., Tonks, S., & Perencevich, K. (2006). From spark to fire: Can situational reading interest lead to long-term reading motivation? *Reading Research and Instruction*, 45, 91 - 117.

Guthrie, J.T., Wigfield, A. & Perencevich, K.C. (Eds.). (2004). *Motivating reading comprehension: Concept-oriented reading instruction.* Mahwah, NJ: Erlbaum.

Guthrie, J. T., & Wigfield, A. (2000). Engagement and motivation in reading. In M. Kamil, R. Barr, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading /research: Volume III* (403–425). New York: Longman

Guthrie, J.T., Wigfield, A., Cox, K. & Metsala, J. (1999). Predicting text comprehension and reading activity with motivational and cognitive variables. *Scientific Studies of Reading*, 3, 231-256.

Guthrie, J.T. (1996). Educational contexts for engagement in literacy. *The Reading Teacher*. 49, 432-445.

Guthrie, J. T., Schafer, W. D., Wang, Y. Y., & Afflerbach, P. (1995). Relationships of instruction of reading: An exploration of social, cognitive, and instructional connections. *Reading Research Quarterly*, 30, 8–25.

Hacker, D.J. & Tennent, A. (2002). Implementing reciprocal teaching in the classroom: Overcoming obstacles and making modifications. *Journal of Educational Psychology*. 94 (4), 699-718.

Hadwin, A. & Jarvela, S. (2011). Introduction to a special issue on social aspects of self-regulated learning: Where social and self meet in the strategic regulation of learning. *Teachers College Record*, 113:2, 235–239.

Hartman, D. (1995). Eight readers reading: The intertextual links of proficient readers reading multiple passages. *Reading Research Quarterly*, 30:3, 520 - 561

Hartman, D. & Hartman, J. (1993). Reading across Texts: Expanding the Role of the Reader. *Reading Teacher*. 47:3, 202-11.

Hasselbring, T. & Goin, L. (2004).Literacy instruction for older struggling readers: what is the role of technology? *Reading & Writing Quarterly*, 20, 123 -144.

Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education,* 11, 33-49.

Heath, S. (1983).*Ways with words: Language, life, and work in communities and classrooms.* New York: McGraw-Hill; Oxford University Press.

Heller, R. and Greenleaf, C.L. (2007). *Literacy instruction in the content areas: Getting to the core of middle and high school improvement*. Washington, DC: Alliance for Excellent Education.

Hidi, S. & Renniger, K. (2006). The four-phase model of interest development. *Educational Psychologist*, 41 (2), 111-127.

Hidi, S. & Harackiewicz, J.M. (2000). Motivating the academically unmotivated: A critical issue for the 21st century. *Review of Educational Research*. 70, 151-179.

Hilden, K., & Pressley, M. (2007). Self-regulation through transactional strategies instruction. *Reading & Writing Quarterly*. 23:1, 51-75.

Huberman, M. & Miles, M (Eds.) (2002). *The Qualitative researcher's companion.* Thousand Oaks, CA: Sage

Hynds, S. (1997). *On the brink: Negotiating literature and life with adolescents.* New York: Teachers College Press.

IBM. (2013). *SPSS Statistics, Version 22*. (Statistical Package for the Social Sciences). doi http://www-01.ibm.com/software/analytics/spss/

Ingram, D., Louis, K.S. & Schroeder, R.D. (2004). Accountability policies and teacher decision-making: Barriers to the use of data to improve practice. *Teachers College Record*, 106:6, 1258-1287.

Ivey, G. (2004). Content counts with urban struggling readers. In D. Lapp, C.C. Block, E.J. Cooper, J. Flood, N. Roser, 8c J.V. Tinajero (Eds.), *Teaching all the children: Strategies for developing literacy in an urban setting* (316-326). New York: Guilford.

Jenkins, J. R., Heliotis, J., Stein, M. L., & Haynes, M. (1987). Improving reading comprehension by using paragraph restatements. *Exceptional Children*, *54*, 54–59.

Jiménez, R. T., Garcia, G. E., & Pearson, P. D. (1995). Three children, two languages, and strategic reading: Case studies in bilingual/monolingual reading. *American Educational Research Journal*, 32, 67–97.

Jitendra, A. K., Hoppes, M. K., & Xin, Y. P. (2000). Enhancing main idea comprehension for students with learning problems: The role of a summarization strategy and self-monitoring instruction. *The Journal of Special Education*, 34, 127–139.

Johnston, P.H. (1987). Teachers as evaluation experts. *The Reading Teacher*, 40, 744-748.

Kamil, M. L. (2004). Vocabulary and comprehension instruction: Summary and implications of the National Reading Panel findings. In P. McCardle & V. Chhabra (Eds.), *The voice of evidence in reading research,* (213–234). Baltimore: Paul H. Brookes.

Kamil, M. L. (2003). *Adolescents and literacy: Reading for the 21st century.* Washington, DC: Alliance for Excellent Education.

Kaplan, A., Lichtinger, E. & Margulis, M. (2011). The Situated Dynamics of Purposes of Engagement and Self-Regulation Strategies: A Mixed-Methods Case Study of Writing *Teachers College Record,* 113:2, 284–324.

Kennedy, K.M. & Backman, J. (1993). Effectiveness of the Lindamood auditory discrimination in depth program with students with learning disabilities, *Learning Disabilities Research & Practice,* 8:4, 253-259.

Kiewra, K. (1989). A review of note-taking: The encoding-storage paradigm and beyond. *Educational Psychology Review*, 1, 147–174.

Kim, A., Vaughn, S., Wanzek, J., & Wei, S. (2004). Graphic organizers and their effects on the reading comprehension of students with ld: A synthesis of research. *Journal of Learning Disabilities*, 37:2*,* 105-118.

Kintsch, W. & Kintsch, E. (2004). Comprehension. In S.G. Paris & S.A. Stahl (Eds.) *Children's reading comprehension and assessment* (71-92). Mahway, NJ: Lawrence Erlbaum.

Kintsch, W. (1998*). Comprehension: A paradigm for cognition*. New York, NY: Cambridge University Press.

Kintsch, W., & van Dijk, T.A. (1978). Toward a model of text comprehension and production. *Psychological Review*, 85:5, 363–394. doi:10.1037/0033-295X.85.5.363

Kiuhara, S., Graham, S., and Hawken, L. (2009). Teaching writing to high school students: A national survey. *Journal of Educational Psychology*, 101, 136–160.

Klinger, J. K., & Vaughn, S. (1996). Reciprocal teaching of reading comprehension strategies for students with learning disabilities who use English as a second language. *The Elementary School Journal, 96*, 275-293.

Kuhn, D. & Udell, W. (2003). The development of argument skills. *Child Development*. 74:5, 1245–1260.

Kuhn, M. R., & Stahl, S. A. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology*, *95*:1, 3–21.

Kuhn, D., Shaw, V., & Felton, M. (1997). Effects of dyadic interaction on argumentive reasoning. *Cognition and Instruction,* 15, 287-315.

Kuhn, D. (1992) Thinking as argument. *Harvard Educational Review.* Vol. 62:2, 155-179.

Kuhn, D. (1991). *The skills of argument.* New York: Cambridge University Press.

Lankshear, C. & Knobel, M. (2007). Sampling "the new" in new literacies. In C. Lankshear & M. Knobel (Eds.). *A new literacies sampler,* (1-24). New York: Peter Lang.

Langer, J. A. *(1995). Envisioning literature: Literary understanding and literature instruction.* New York: Teachers College Press

Langer, J., and Applebee, A. (1987). *How writing shapes thinking: A study of teaching and learning.* Urbana, IL: National Council of Teachers of English.

Lao, J., & Kuhn, D. (2002). Cognitive engagement and attitude development. Cognitive Development, 17, 1203-1217.

Lauterbach, S. L. & Bender, W. N. (1995). Cognitive strategy instruction for reading Comprehension: A Success for high school freshman. *The High School Journal, 79*. 58-64.

Lawrence, J. & Snow, C. (2011). Oral discourse and reading. In Michael Kamil, P. David Pearson, Eliabeth Moje & Peter Afflerbach (Eds.) *Handbook of Reading Research, Volume IV*, (320 – 337. New York, NY: Routledge.

Lepper, M.R. & Henderlong, J. (2000). Turning "play" into "work" and "work" into "play": 25 years of research on intrinsic versus motivation. In C. Sandone & J.M. Harackiewicz, (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (257-307). San Diego, CA: Academic Press.

Leu, D., Kinzer, C., Coiro, J., & Cammack, D. (2004). Toward a theory of new literacies emerging from the Internet and other communication technologies. In R. Ruddell & N. Unrau (Eds.), *Theoretical models and processes of reading* (5th ed., 1570 – 1613). Newark, DE: International Reading Association.

Levy, B., Campsell, J., Browne, J., Cooper, D., Waterhouse, C., & Wilson, C. (1995). Reading fluency: Episodic integration across texts. *Journal Of Experimental Psychology Learning Memory And Cognition.* 21:5, 1169-1185.

Lipman (1975). *Philosophy for Children (Technical Report).* Montclair, NJ: Montclair State College.

Luria, A. R. (1981). *Language and cognition.* (J. V. Wertsch, (Ed.). New York: Wiley.

MacArthur, C. A., & Haynes, J. B. (1995). Student Assistant for Learning from Text (SALT): A hypermedia reading aid. *Journal of Learning Disabilities*, 28, 150–159.

MacKinnon, J. (1993). Becoming a rhetor: Developing writing ability in a mature, writing intensive organization. In R. Spilka (Ed.), *Writing in the workplace: New*

research perspectives. (41-55). Carbondale, IL: Southern Illinois University Press.

Marsh, J. A., Pane, J. F., & Hamilton, S. (*2006). Making sense of data-driven decision making in education: Evidence from recent RAND research.* Santa Monica, CA: RAND.

Marshall,J. D., Smagorinsky, P., & Smith, M. *(1995). The language of interpretation: Patterns of discourse in discussions of literature.* Urbana, IL: National Council of Teachers of English.

Mastropieri, M. A., Scruggs, T. E., & Graetz, J. E. (2003). Reading comprehension instruction for secondary students: Challenges for struggling students and teachers. *Learning Disability Quarterly*, *26*, 103–116.

Mastropieri, M., Scruggs, T, Mohler, L., Beranek, M., Spencer, V., Boon, R. & Talbott, E. (2001). Can middle school students with serious reading difficulties help each other learn anything? *Learning Disabilities Research and Practice*, 16:1, 18 – 27.

Mastropieri, M. A., Scruggs, T. E., Bakken, J. P. & Whedon, C. (1996). Reading comprehension: A synthesis of research in learning disabilities. *Advances in Learning and Behavioral Disabilities*, *10B*, 201–227.

Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom instruction that works*. Alexandria, VA: ASCD.

Maxwell, J. (1996). *Qualitative research design*. Thousand Oaks, CA: Sage Publications.

McKeown, M.G., Beck, I.L., & Blake, R.G.K (2009). Rethinking reading comprehension instruction: A comprehension of instruction of strategies and content approaches. *Reading Research Quarterly*, 44:3, 218-253.

McNamera, D. & Kintsch, W. (1996). Learning from texts: Effects of prior knowledge and text coherence. *Discourse Processes*. 22:3, 247 – 288.

Mead, G.H. & Strauss, A. L. (1962). *The social psychology of George Herbert Mead.* Chicago, IL: University of Chicago Press.

Mellard, D. (2010). Fidelity of Implementation within a Response to Intervention (RtI) Framework: Tools for Schools. National Center on Response to Intervention (NCRTI) www.rti4success.org

Mercer, C. D., Campbell, K. U., Miller, M. D., Mercer, K. D., & Lane, H. B. (2000). Effects of a reading fluency intervention for middle schoolers with specific learning disabilities. *Learning Disability Research and Practice,* 15:4, 179–189.

Michaels, S., O'Connor, C. & Resnick, L. (2008). Reasoned participation: Accountable talk in the classroom and in civic life. *Studies in Philosophy and Education*. 27:4, 283-297. Published online by Springer Science+Business Media B.V. 2007.

Miller, S.D. & Faircloth, B.S. (2009). Motivation and reading comprehension. In S.E Israel's & G.G. Duffy (Eds.), *Handbook of research on reading comprehension.* (307-322). New York: Routledge.

Moore, P. J., & Scevak, J. J. (1995). The effects of strategy training on high school students' learning from science texts. *European Journal of Psychology of Education*, 10, 401-410.

Morris, A. & Hiebert, J. (2009). Introduction: Building knowledge bases and improving systems of practice. *The Elementary School Journal*. 109:5, 429 -441. doi 0013-5984/2009/10905-0001

Murphy, P.K., Wilkinson, I.A.G., Sotor, A.O., Hennessey, M.N. & Alexander, J.F. (2009). Examining the effects of classroom discussion on students' high-level comprehension of text: A meta-analysis. *Journal of Educational Psychology*. 101, 740-746.

Myers, G. (1991). Stories and styles in two molecular biology review articles. In Bazerman & J. Paradis (Eds.), *Textual dynamics of the professions: Historical and contemporary studies of writing in professional communities*. (45-75), Madison, WI: University of Wisconsin Press.

National Center for Education Statistics (2011). *NAEP 2011 Reading Executive Summary*. http://nces.ed.gov/nationsreportcard/pubs/main2011/2012457.asp

National Governors' Association and Council of Chief State School Officers, (2010). *Common Core State Standards*. Retrieved from http://www.corestandards.org/

National Institute for Literacy, (2001*). Put reading first: The research building blocks for teaching children to read*. Retrieved from http://www.nationalreadingpanel.org/publications/researchread.htm

Nelson, T. H., Slavit, D., Perkins, M., & Hathorn, T. (2008). A culture of collaborative inquiry: Learning to develop and support professional learning communities. *Teachers College Record*, 110:6, 1269–1303.

Newell, G., Beach, R., Smith, J. & VanDerHeide, J. (2011). Teaching and Learning Argumentative Reading and Writing: A Review of Research. *Reading Research Quarterly* • 46:3, 273–304. dx.doi.org/10.1598/RRQ.46.3.4

Neville, D., and Searls, E. (1991). A meta-analytic review of the effects of sentence-combining on reading comprehension. *Reading Research and Instruction*, *31*, 63–76.

Nussbaum, M. (2002). Scaffolding argumentation in the social studies classroom. *The Social Studies.* 79-83

Nystrand, M. (1997). *Opening dialogue: Understanding the dynamics of language and learning in the English classroom*. New York, NY: Teachers College Press.

Nystrand, M. & Gamoran, A. (1991). Instructional discourse, student engagement, and literature achievement. *Research in the Teaching of English*. 40:4, 392-41.

O'Connor, R., Swanson, H., and Geraghty, C. (2010). Improvement in reading rate under independent and difficult text levels: Influences on word and comprehension skills. *Journal of Educational Psychology*, 102:1, 1-19. doi:10.1037/a0017488

Osterman, K. & Kottkamp, R. (1993). *Reflective practice for educators: Improving schooling through professional development*. Newbury Park, CA: Corwin Press, Inc. A Sage Publications Company.

Palinscar, A.S. (1986). The role of dialogue in providing scaffolded instruction. *Educational Psychologist*. 21:1-2, 73-98.

Palinscar, A.S. & Brown, A.L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1:2, 117-175.

Pappas, C., Varelas, M., Barry, A. & Rife, A. (2003). Dialogic inquiry around information texts: The role of intertextuality in constructing scientific

understandings in urban primary classrooms. *Linguistics and Education*. 13:4, 435-482.

Paris, S. G., Wasik, B. A., & Turner, J. C. (1991). The development of strategic readers. In P. D. Pearson, R. Barr, M. L., Kamil, & P. Mosenthal (Eds.), *Handbook of reading research* (Vol. 2, 609–640). White Plains, NY: Longman

Paris, S.G. & Winograd, P. (1990). How metacognition can promote learning and instruction. In B.F. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive instruction* (15 -52). Hillsdale, NJ: Erlbaum.

Paris, S., Lipson, M. & Wixson, K. (1983/2004). Becoming a Strategic Reader. In Robert Ruddell and Norman Unrau (Eds.), *Theoretical Models and Processes of Reading*, *Supplementary Articles* CD. International Reading Association.

Paris, S.G., Cross, D.R., & Lipson, M.Y. (1984). Informed strategies for learning: A program to improve children's reading awareness and comprehension. *Journal of Educational Psychology,* 76*,* 1239–1252.

Paulsen, G. (2010). *Woods Runner*. New York, NY: Wendy Lamb Books, a division of Random House Publishing.

Pearson, P.D. & Fielding, L. (1991). Comprehension instruction. In R. Barr, M.L. Kamil, P.B. Mosenthal & P.D. Pearson (Eds.) *Handbook of reading research Volume 2*. 815-860. White Plains, NY: Longman.

Pearson, P.D. & Dole, J.A. (1988). Explicit comprehension instruction: a review of research and a new conceptualization of instruction. A reading research and education center report. *Technical Report 427*. Center for the Study of Reading. University of Illinois at Urbana-Champaign.

Peterson, R., & Eeds, M. (1990). *Grand conversations: Literature groups in action*. Canada, Ontario: Scholastic.

Peverly, S., Ramaswamy, V., Brown, C., Sumowski, J., Alidoost, M., and Garner, J. (2007). What predicts skill in lecture note taking? *Journal of Educational Psychology*, 99, 167–180.

Peverly, S. T., and Wood, R. (2001). The effects of adjunct questions and feedback on improving the reading comprehension skills of learning-disabled adolescents. *Contemporary Educational Psychology*, 26, 25–43.

Pintrich, P. (2000a). The role of goal orientation in self–regulated learning. In M. Boekaerts,P. Pintrich, & M. Zeidner (Eds.), *Handbook of self–regulation* (451–502). San Diego: Academic Press.

Pintrich, P. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research,* 31, 459–470

Pintrich, P., & Schunk, D. H. (2005). *Motivation in education: Theory, research, and application* (2nd ed.). Englewood Cliffs, NJ: Merrill Prentice Hall.

Pressley, M., & Harris, K. (2006). Cognitive strategies instruction: From basic research to classroom instruction. In P. Alexander & P. Winne (Eds.), *Handbook of educational psychology* (2nd Ed., 265–286). Mahwah, NJ: Erlbaum.

Pressley, M. (2000). What should comprehension instruction be the instruction of? In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research: Volume III* (545–561). Mahwah, NJ: Erlbaum.

Pressley, M. (1998). Comprehension strategies instruction. In J. Osborn & F. Lehr (Eds.), *Literacy for all: Issues in teaching and learning* (113-133). New York: Guilford Press.

Pressley, M., Brown, R., VanMeter, P. & Schuder, T. (1995). Transactional Strategies. *Educational Leadership*. 52:8, 81.

Pressley, M., El-Dinary, P., Gaskins, I., Schuder, T., Bergman, J. Almasi, L., et al. (1992). Beyond direct explanation: Transactional instruction of reading comprehension strategies. *Elementary School Journal*. 92:5, 513 – 555.

Pressley, M., Johnson, C., Symons, S., Goldrick, J., & Kurita, J. (1989). Strategies that improve children's memory and comprehension of what is read. *Elementary School.*

RAND Reading Study Group. (2002). *Reading for understanding: Toward an R&D program in reading comprehension*. Santa Monica, CA: RAND.

Raphael, T., George, M., Weber, C.M. & Nies, A. (2009). Approaches to teaching reading comprehension. In S.E. Israel & G.G. Duffy (Eds.), *Handbook of research on reading comprehension* (115-139). New York: Routledge.

Raphael, T., & McMahon, S. (1994). Book Club: An alternative framework for reading instruction. *The Reading Teacher*, 48:2, 102–116.

Renaissance Learning. (2014). STAR Reading: Technical manual. Wisconsin Rapids, WI: Author. Available by request to research@renlearn.com

Renaissance Learning. (2014). The research foundation for STAR Assessments: The science of STAR. Wisconsin Rapids, WI: Author. Available online from http://doc.renlearn.com/KMNet/R001480701GCFBB9.pdf

Resnick, L., Salmon, M., Zeitz, C., Wathen, S., Holowchak, M. (1993). Reasoning in Conversation. *Cognition and Instruction*. 11:3-4, 347-364.

Resnick, L. (1985). Cognition and instruction: Recent theories of human competence. In B. Hammonds (ED.), *Psychology and Learning: The master lecture series*, 4, 127-186. Washington DC: American Psychological Association.

Reznitskaya, A., Anderson, R. & Kuo, L. (2007). Teaching and learning argumentation. *The Elementary School Journal.* 107:5, 449 – 472.

Reznitskaya, A. & Anderson, R. (2002). The argument schema and learning to reason. In C.C. Block & M. Pressley (Eds.), *Comprehension instruction; Research-based best practices* (319 - 334). New York, NY: Guilford Press.

Reznitskaya, A., Anderson, R., McNurlen, B., Nguyen- Jahiel, K., Archodidou, A., & Kim, S. (2001). Influence of oral discussion on written argument. *Discourse Processes*, 32, 155–175.

Roberts, G., Torgesen, J., Boardman, A., & Scammacca, N. (2008). Evidence-based strategies for reading instruction of older students with learning disabilities. *Learning Disabilities Research & Practice*. *23*:2, 63–69.

Rhody R. & Alexander, J.E. (1980). A scale for assessing attitudes toward reading in secondary schools. *Journal of Reading*, 23:2, 609-614.

Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In J. V. Wertsch, P. del Rio, & A. Alvarez (Eds.), *Sociocultural studies of mind* (139–164). Cambridge, England: Cambridge University Press.

Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social contexts*. New York, NY: Oxford Press

Romance, N.R. & & Vitale, M.R. (2001). Implementing an in-depth expanded science model in elementary schools: Multi-year findings, research issues, and policy implications. *International Journal of Science Education*. 23:4, 373-404.

Rosenblatt, L. (1978). *The reader, the text, and the poem: The transactional theory of literature work.* Carbondale, IL: Southern Illinois University Press.

Rosenshine, B. & Meister, C. (1994). Reciprocal teaching: A review of the research. *Review of Educational Research*. 64:4, 479-530.

Royer, J.M., Hastings, C.N., & Hook, C. (1979). A sentence verification technique for measuring reading comprehension. *Journal of Reading Behavior*, 11:4, 355–363.

Rumelhart, D. (2004). Toward an interactive model of reading. In R. Ruddell & N. Unrau (Eds.)*Theoretical models and processes of reading Fifth Edition.* (1149-1179). Newark, DE: International Reading Association.

Saddler, B., and Graham, S. (2005). The effects of peer-assisted sentence combining instruction on the writing performance of more and less skilled young writers. *Journal of Educational Psychology*, *97*, 43–54.

Salahu-Din, D., Persky, H., and Miller, J. (2008). *The nation's report card: Writing 2007*. NCES 2008–468. National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, DC.

Saunders, W. & Goldenberg, C. (1999). Effects of instructional conversations and literature logs on limited- and fluent-English-proficient students' story comprehension and thematic understanding. *Elementary School Journal*. 99, 277 –301.

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

Schön, D. A. (1991) *The reflective turn: Case studies in and on educational practice*, New York: Teachers Press, Columbia University.

Schoenbach, R., Greenleaf, C., Cziko, C. & Hurwitz, L. (1999). Reading for understanding: A guide to improving reading in middle and high school classrooms. San Francisco: Jossey-Bass.

Schunk, D. H. & Zimmerman, B. J. (1997). Social origins of self-regulatory competence. *Educational Psychologist*, 32, 195–208.

Schunk, D., & Zimmerman, B. (1994.). *Self-regulation of learning and performance: Issues and educational applications.* Hillsdale, NJ: Erlbaum.

Searle, J. (1995). *The construction of social reality*. New York: The Free Press.

Sanetti, Lisa M. Hagermoser; Gritter, Katie L.; Dobey, Lisa M.(2011). Treatment Integrity of Interventions with Children in the School Psychology Literature from 1995 to 2008. *School Psychology Review*, 40:1

Short, K, & Pierce, K. (1990). *Talking about books: Creating literature communities*. Portsmouth, NH: Heinemann.

Sinatra, G.M., Brown, K. & Reynolds, R.E. (2002). Implications of cognitive resource allocation for comprehension strategy instruction. In C.C. Block & M. Pressley (Eds.) *Comprehension Instruction: Research-based Best Practices* (62-76). New York: Guildford Press.

Singer, H. (1994). The strata factor theory of reading. In R. Ruddell & H. Singer (Eds.) *Theoretical Models and Processes of Reading 4th Edition.* (895-927). Newark, NJ: International Reading Association.

Slavin, R., Cheung, A., Groff, C., & Lake, C. (2008). Effective reading programs for middle and high schools: a best-evidence reviewed. *Reading Research Quarterly*, 43:3, 290-322. International Reading Association. http://www.jstor.org/stable/20068345 .

Sodian, B. & Frith, U. (2008). Metacognition, Theory of Mind, and Self-Control: The Relevance of High-Level Cognitive Processes in Development, Neuroscience, and Education. *Mind, Brain, and Education*, 2:3, 111-113. DOI: 10.1111/j.1751-228X.2008.00040.x

Soter, A.O., Wilkinson, I.A.G., Connors, S., Murphy, P.K. & Shen, V. (2010). Deconstructing "aesthetic response" in small-group discussions about literature: A possible solution to the "aesthetic response" dilemma. *English Education,* 42, 204-225.

Soter, A.O., Wilkinson, I.A., Murphy, P.K., Rudge, L., Reninger, K., & Edwards, M. (2008). What the discourse tells us: Talk and indicators of higher-level comprehension. *International Journal of Educational Research,* 47, 272-391.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly.* 21:4, 360–407.

Stigler, J. & Thompson, B. (2009) Thoughts on creating, accumulating, and utilizing shareable knowledge to improve teaching. *The Elementary School Journal.* 109:5, 442-457. doi 0013-5984/2009/10905-0002

Swanson, H. L. (1999). Reading research for students with LD: A meta-analysis of Intervention outcomes. *Journal of Learning Disabilities*, 32, 504–532.

Swanson, H. L., & Hoskyn, M. (2001). A meta-analysis of intervention research for adolescent students with learning disabilities. *Learning Disabilities Research & Practice,* 16, 109–119.

Tharp, R. & Gallimore, R. (1991). The instructional conversation: Teaching and learning in social activity. National Center for Research on Cultural Diversity and Second Language Learning. Retrieved February 2008.

Tokuhama-Espinosa, T. (2010). *The new science of teaching and learning: Using the best of mind, brain, and education science in the classroom.* New York, NY: Teachers College Press.

Torgesen, J. K. (2005). Recent discoveries from research on remedial interventions for children with dyslexia. In M. Snowling & C. Hulme (Eds.), *The science of reading* (521–537).

Toulmin, S.E. (1958). *The uses of argument*. New York: Cambridge University Press.

Treptow, M., Burns, M., & McComas, J. (2007). Reading at the frustration, instructional, and independent levels: The effects on students' reading comprehension and time on task. *School Psychology Review*. 36:1, 159 – 166.

van den Broek, P., Young, M., Tzeng, Y., & Linderholm, T. (1999). The landscape model of reading. In H. van Oostendorp & S. R. Goldman (Eds.), *The construction of mental representations during reading* (71–98). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

VanSledright, B. (2002a). Confronting history's interpretive paradox while teaching fifth graders to investigate the past. *American Educational Research Journal.* 39, 1089–1115.

VanSledright, B. A., & Kelly, C. (1998). Reading American history: The influence of multiple sources on six fifth graders. *The Elementary School Journal*, 98, 239-265.

Vallecorsa, A., & deBettencourt, L. U. *(1997). Us*ing a mapping procedure to teach reading and writing skills to middle grade students with learning disabilities. *Education and Treatment of Children,* 20, 173-188.

Vallely, R. J., & Shriver, M. D. (2003). An examination of the effects of repeated readings with secondary students. *Journal of Behavioral Education,* 12, 55–76.

Vaughn, S., Gerten, R., & Chard, D.J. (2000). The underlying message in learning disabilities intervention research: Findings from research synthesis. *Exceptional Children,* 67:1, 99-114.

Verelas, M. & Pappas, C. (2006). Exploring the role of inter-texuality in concept construction: Urban second graders make sense of evaporation, boiling, and condensation. *Journal of Research in Science Teaching*. 43:7, pp. 637-666.

Voss, J. & Means, M. (1991). Learning to reason via instruction in argumentation. *Learning and Instruction*, 1:4, 337-350.

Vygotsky, L. S. (1981). The development of higher forms of attention in childhood. In J. V. Wertsch (Ed.), *The concept of activity in Soviet psychology*. Armonk, NY: Sharpe.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Vygotsky, L. (1962). *Thought and language*. Cambridge, MA. MIT Press.

Waggoner, M., Chinn, C. A., Yi, H., & Anderson, R. C. (1995). Collaborative reasoning about stories. *Language Arts.* 72, 582-589.

Webb, N.(1997). *Criteria for Alignment of Expectations and. Assessments in Mathematics and Science Education.* (Research Monograph No. 8.). Washington, DC Council of Chief State School Officers.

Wertsch, J. V. (1985). *Culture, communication, and cognition: Vygotskian perspectives.* London: Cambridge University Press.

Wells, G. (1989). Language in the classroom: Literacy and collaborative talk. *Language and Education*, 3, 251-273.

What Works Clearinghouse. Retrieved 11/ 29/10 at http://www.whatworks.ed.gov, U.S. Dept. of Education, Institute of Education Science.

Wigfield, A. & Tonks, S. (2004). The development of motivation for reading and how it is influenced by CORI. In J. Guthrie, A. Wigfield, & K. Perencevich (Eds.) *Motivating Reading Comprehension: Concept-oriented Reading Instruction*, (249-272). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.

Wigfield, A., Guthrie, J., Tonks, S., & Perencevich, K. (2004). Children's motivation for reading: Domain specificity and instructional influences. *Journal of Educational Research*. 97:6, 299 -309.

Wiley, J., & Voss, J. F. (1999). Constructing arguments from multiple sources: Tasks that promote understanding and not just memory for text. *Journal of Educational Psychology*, 91:2, 301-311.

Wilder, A. A., & Williams, J. P. (2001). Students with severe learning disabilities can learn higher order comprehension skills. *Journal of Educational Psychology*, 93, 268-278.

Wilkerson, I.A.G. & Son, E.H. (2011). A dialogic turn in research on learning and teaching to comprehend. In M. Kamil, P.D. Pearson, E.B. Moje, & P. Afflerbach (Eds.), *Handbook of reading research* (359-387). New York: Routledge.

Wilkinson, I. A. G., Soter, A. O., & Murphy, P. K. (2010). Development of a model of quality talk about literary text. In: McKeown, M.G., & Kucan, L. (Eds.), *Bringing reading researchers to life: Essays in honor of Isabel L. Beck.* New York: Guildford Press.

Wilkinson, I. A. G., Murphy, P. K., & Soter, A. O. (2003). Group discussions as a mechanism for promoting high-level comprehension of text. *Technical Report 1* (PR/Award No. R305G020075). Columbus, OH: The Ohio State University, Research Foundation.

Williams, J. P., Brown, L. G., Silverstein, A. K., & deCani, J. S. (1994). An instructional program in comprehension of narrative themes for adolescents with learning disabilities. *Learning Disabilities Quarterly*, 17, 205-221.

Winter, G. (2000). A comparative discussion of the notion of "validity" in qualitative and quantitative research. *The Qualitative Report*. 4:3-4. Retrieved from http://www.nova.edu/ssss/QR/QR4-3/winter.html

Wolf, M., Crosson, A., & Resnick, I. (2004). Classroom talk for rigorous reading comprehension instruction. *Reading Psychology*, 26:1, 27-53. DOI: 10.1080/02702710490897518

Wolfe, M. & Goldman, S. (2005). Relations between adolescents' text processing and reasoning. *Cognition and Instruction*, *23*:4, 467–502.

Wolters, C. (2011). Regulation of motivation: Contextual and social aspects. *Teachers College Record*, 113:2, 265–283.

Wood, D. (2006). *How children think and learn.* Malden, MA: Blackwell Publishing

Worthy, J., Broaddus, K., & Ivey, G. (2001). *Pathways to independence: Reading, writing, and learning in grades 3-8*. New York: Guilford.

Yeh, S. (1998). Empowering education: Teaching argumentative writing to cultural minority middle-school students. *Research in the teaching of English*. 33:1, 49.

- 83. NCTE. URL: http;//www.jstor.org/stable/40171572. Accessed Oct. 10, 2011.

Yin, R. (2009). *Case Study Research: Design and Methods, Fourth Edition*. Thousand Oaks, CA: Sage Publications, Inc.

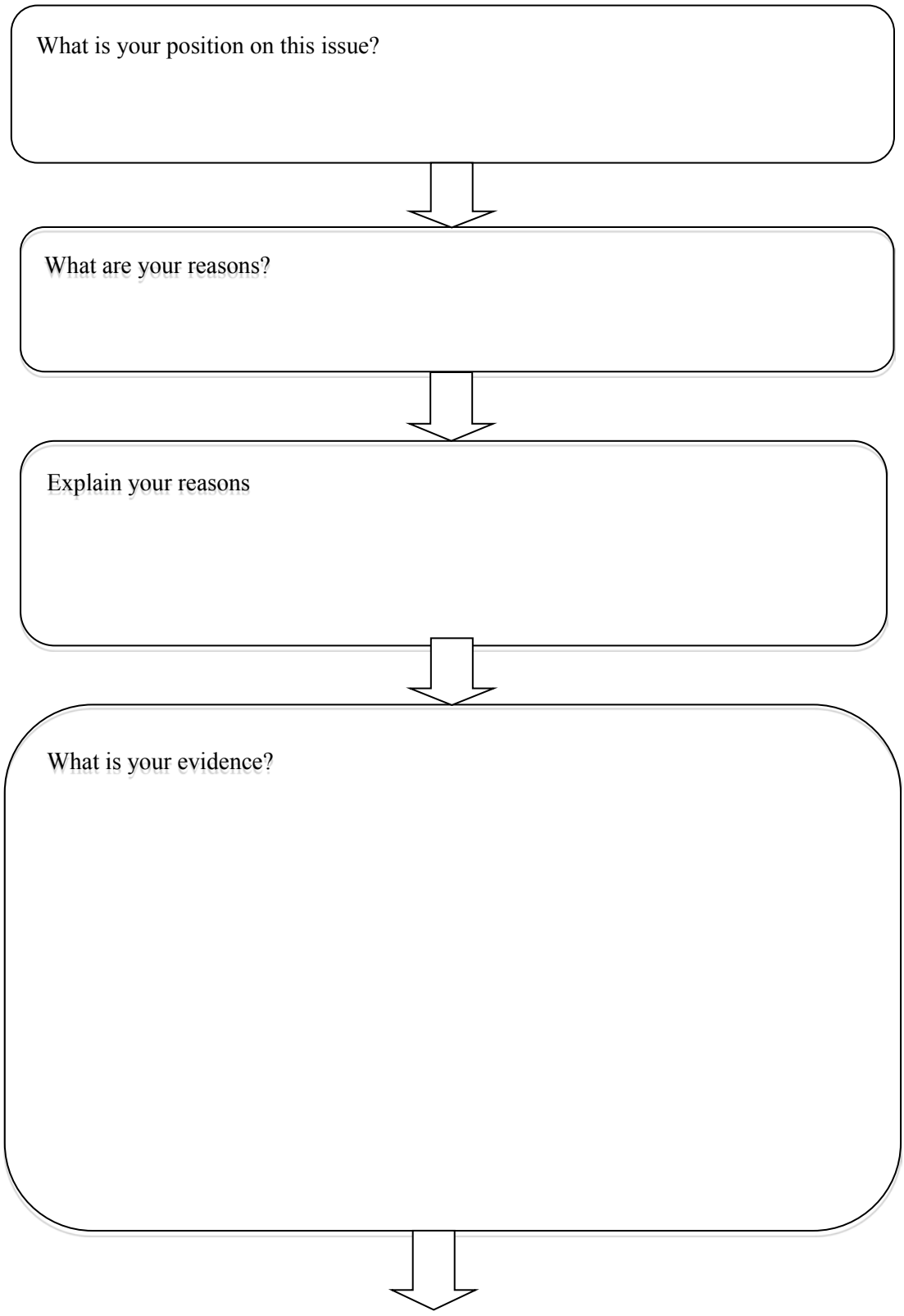
Young, R. (1987). Recent developments in rhetorical invention. In G. Tate (Ed.), *Teaching composition: Twelve bibliographical essays* (1-38). Fort Worth, TX: Texas Christian University Press.

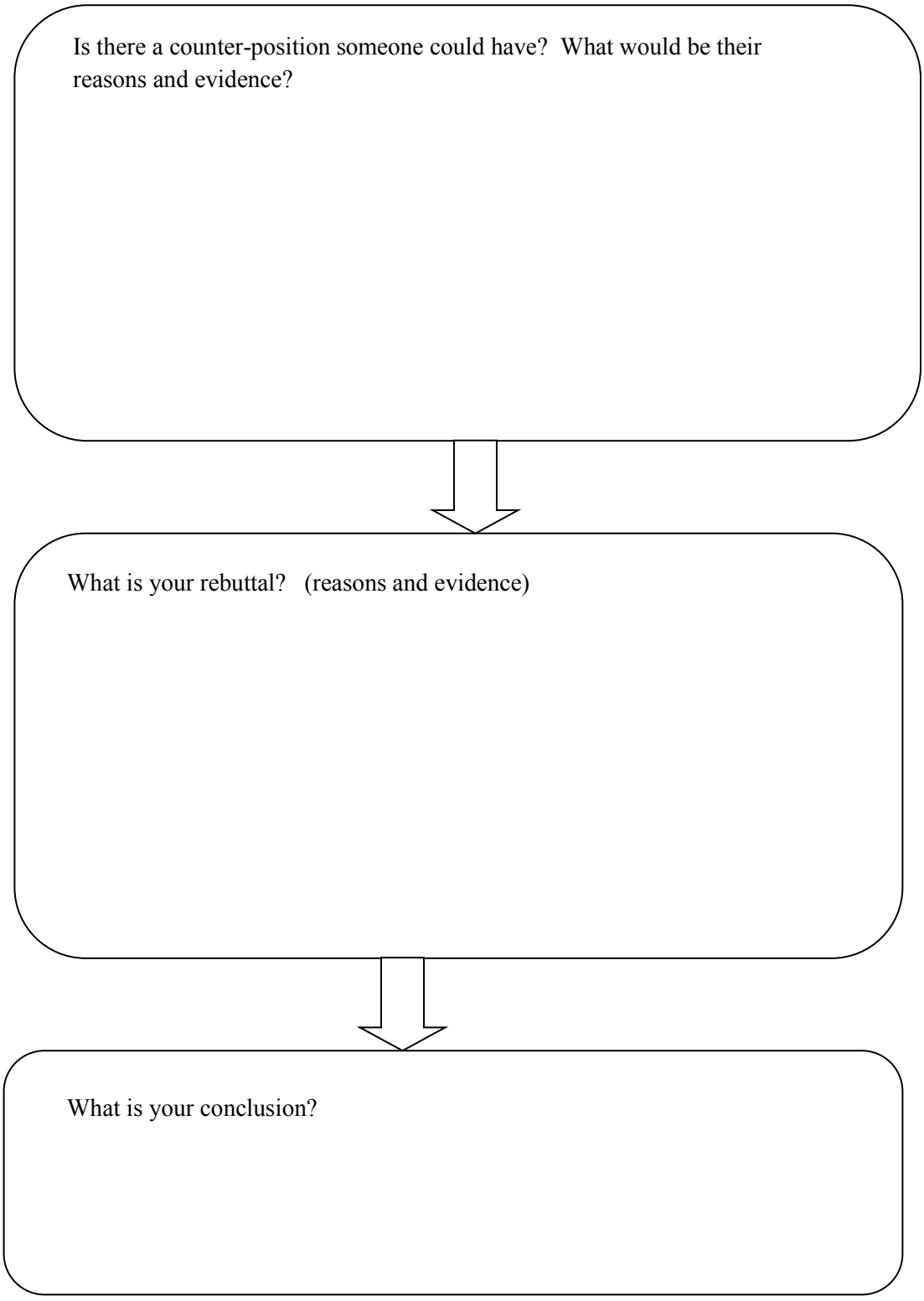
Zimmerman, B. (1989). A social cognitive view of self-regulated learning and academic learning. *Journal of Educational Psychology*, 81, 329–339.

Zimmerman, B. (1986). Becoming a self–regulated learner: Which are the key processes? *Contemporary Educational Psychology,* 11, 307–313.

Appendix A

ARGUMENT MAP




Is there a counter-position someone could have? What would be their reasons and evidence?
What is your rebuttal? (reasons and evidence)
What is your conclusion?

Appendix B

Argumentative Essay Rubric

	Exemplary	Proficient 3	Emerging 2	Not Yet Demonstrated 1
Intro/ Thesis Background/ History, Defining Problem, Thesis statement	Well-developed introduction engages the reader and creates interest. Contains detailed background information and a clear Explanation of the problem Thesis clearly states a Significant and compelling position.	Introduction creates interest and contains background information. Thesis clearly states a problem and the writer's position is evident.	Introduction adequately explains background of the problem, but may lack clarity. Thesis states a Problem, but writer's position may not be evident.	Background details are a random collection of information, are unclear, and may be loosely related to the topic Thesis/position is vague or not stated.
Argument Body paragraphs Refutation Conclusion	Well-developed argumentative points directly support the writer's thesis/ position. Supporting examples are concrete and detailed. Commentary is logical and well-thought-out. Refutation acknowledges Opposing viewpoints clearly and skillfully. Conclusion revisits the thesis in a new way and applies the writer's position universally.	Most argumentative points are related to the thesis, but one may lack sufficient support or deviates from thesis. Refutation acknowledges opposing viewpoint (s) with some logic and clarity Conclusion summarizes thesis and key points with some "fresh" commentary present.	More than one argumentative point lacks sufficient details and support. Writer attempts to address one or more opposing arguments, but the writer may not refute the opposition clearly or or adequately. Conclusion mirrors introduction too closely, with little or no new commentary on the writer's thesis/position.	Most argumentative points are poorly developed. Refutation is missing or vague. Commentary is not present Conclusion does not revisit the thesis or summarize key argumentative points.

Argumentative Essay Rubric, page 2

	Exemplary 4	**Proficient 3**	**Emerging 2**	**Not Yet Demonstrated 1**
Organization Structure Transitions	Logical progression of ideas with a clear structure that enhances the thesis. Transitions are smooth and provide coherence between and among ideas.	Logical progression of ideas Transitions are present Throughout the essay and provide adequate coherence between and among ideas.	Organization is clear. Transitions are present, but may not lend to coherence between and among ideas.	No discernible organization. Transitions are not present.
Style and Conventions Diction Spelling, Punctuation Capitalization	Writing is smooth, skillful, coherent. Sentences are strong and expressive with varied structure. Diction is consistent and words are well-chosen. The tone is highly consistent with writer's position/thesis and appropriate throughout essay. Punctuation spelling, and capitalization are accurate with few or no errors.	Writing is clear and sentences have some varied structure. Diction is appropriate. Tone is generally consistent with the writer's position/thesis and is appropriate throughout essay. Punctuation, spelling, and capitalization are generally accurate, with some errors.	Writing is clear, but Sentences may lack variety. Diction is sometimes inconsistent and/or inappropriate at various points in the essay. Tone may be inconsistent with with writer's position/ thesis. Several errors in punctuation, spelling, and capitalization.	Writing is confusing and hard to follow. Contains fragments and/or run-on sentences. Diction is inappropriate and inconsistent throughout essay. Tone of piece is highly inconsistent with writer's position/thesis. Many errors in punctuation, Spelling, and capitalization distract reader.

Argumentative Essay Rubric, page 3

	Exemplary 4	**Proficient 3**	**Emerging 2**	**Not Yet**
Sources Format Relevance Reliability	Evidence from sources is smoothly and logically integrated into essay and serves to add credibility and insight into writer's position/ thesis. All sources are cited accurately and are highly relevant and reliable.	Evidence from sources is integrated into the text. Most sources are cited accurately generally relevant and reliable.	Some source material is used and may or may not lend credibility to writer's position/thesis. Several sources may not be cited accurately. Relevance and reliability may be questionable.	Little or no source material is used. Source citations are not evident or may be highly inaccurate. Relevance and/or reliability are strongly in question.

Adapted from RCampus, a comprehensive Education Management System and a collaborative learning environment.

Appendix C

INTERVENTION PLANNING GUIDE

Pre-Intervention:
(1) Assess students with a reading test to determine reading levels.
(2) Take a baseline argumentative essay sample for each student written before instruction in argumentation.
(3) Introduce students to the topic or time period about to be explored in the beginning of the intervention cycles. Activate and build background knowledge about the topic by allowing time for reading aloud from relevant novels, viewing video clips, doing internet searches, and discussion about what they already know.

INTRODUCTION TO THE INTERVENTION

Week 1: Teach the tasks

Topic: Any topic of high interest to adolescents

Part 1: Introduction to Argumentation: The big picture (i.e., explanation of cycles of reading across multiple articles, constructing an argument, engaging in civil argumentation, and eventually writing an argumentative essay for others to read. Assure students of modeling and coaching with every part of the process)

Intro to Text 1: Activate background knowledge about the topic, introduce any unfamiliar vocabulary, and set the purpose for listening**.** Read the article aloud.

Students listen and read along silently.

Teacher/Students discuss text content and collaborate on choosing a *position* and stating *reasons*. Model writing these on a class-size argument map.

Position:

Reasons:

Students: Write on individual maps, as the teacher writes.

Note: *Take additional days on determining position and reasons, if needed. This can be confusing.*
Use "*Reasons* are what you say in your own words, after you think about what the author said, and *evidence* is what you find in the text"

Part 2: Annotating evidence

Teacher: Review argument map previously started with position and reason (s). Model: Reread the text with a document camera and mark places that give *evidence* for the reasons. Review the difference between reasons and evidence. Write the condensed version of the evidence on the class argument map. Discuss

Students: Mark on their article copies, as the teacher marks *evidence* on the class copy and write the *evidence* on individual argument maps.

Part 3: Civil Oral Argumentation

Teacher: Explain oral argumentation. Adults engage in it all the time. People use the skills when they reason about advertisements, when choosing sides in politics, voting on issues, choosing what to believe on Facebook, and etc. It is to be conducted respectfully. (Establish norms and put them on a poster in the classroom.)

Explain the first step in learning to do this is to read your argument map to a partner and have the partner listen respectfully and without interrupting until you have finished. Then, you will listen respectfully to your partner read his argument map.

Review the class argument map. Then model this with a proficient student and you, as a partner. Respect will be important when actually arguing opposite positions.

Students: Partners will take turns reading their maps to each other and listening respectfully.

Part 4: Write an essay from the argument map

Teacher: Model taking information from the argument map and writing it in essay form. Think aloud about how you figure out what to say and how to say it, using the argument map as a base. *Make your writing sound like you would talk. Don't just copy word for word from the map.* Show how an interesting opening can get the readers' attention and prepare them for the position you state. Then write the reason (s) and the evidence and finish with a conclusion. If needed, show this on colored sentence strips to show paragraph parts they need to include. Some may even need help with sentence construction. Coach individual writers.

Students: Begin writing essays, using argument maps as guides.

Part 5: Finish essays and read to partners

Teacher: Coach writers as they finish essays. Ask two partners to volunteer to read their essays to each other, in front of the class, to model. Then have pairs of students do the same with their essays. Remind them of the norms for civil argumentation.

Students: Finish writing essays. Take turns reading essays to a partner and listening respectfully to the partner read.

CYCLE 1

Topic: Any topic of high interest to adolescents. Students are learning the process.

Text 1:_____

Text 2: _____

Text 3: _____

Notes: There are no time limits for cycles. *Position, reasons*, and *evidence* are introduced in this cycle. Use only the first page of the argument map.

Teacher: Review the process of reading, choosing a position, thinking of reasons, annotating text for evidence, recording information on argument map, and writing an essay. Now, over time, they will read three articles, make three maps, and write one essay about the three articles.
Note: *Students are in the beginning stages of learning the process. Go as slowly as they need with instruction. There is no time frame to accomplish the cycles.*

Introduction to Text 1: Give a full introduction to the article, as in Part 1. Read aloud, if needed, for scaffolding students' understanding of the process.

Teacher/Students: Collaborate on class argument map for Text 1. Model with think aloud and determine a position and reasons. Take time with each part. Annotate on the text where students can observe and copy. Record information on the class argument map.

Position:

Reasons:

Evidence:

Students: Annotate evidence on article, as teacher annotates. Record information on individual maps, as teacher writes.

Oral Argumentation

Teacher**:** Review the procedure for listening respectfully and taking turns reading argument maps. Remind students of norms. Model reading your argument map using expression and eye contact. An argument is an exchange of ideas between people and is real communication.

Students: Read argument maps to partners, using expression and eye contact.

Text 2: _____

Teacher: Introduction of Text 2. Give a full introduction to the article. Students should be able to read the article independently. Have students write on scrap paper what they think the author's position is and the reasons. Before they record on argument maps, have a class discussion about what they have decided. Co-construct a class map with a position and reasons.

Model finding evidence in the text for reasons and marking or highlighting it. Record on class argument map.

Students: Read the article silently. Decide the position of the author. Decide the reason (s) for the position. Write the position and reasons on scrap paper. Later, annotate the text, as the teacher does. Record all the information on individual maps: position, reasons, and evidence.

Oral Argumentation

Teacher: Remind students of norms for argumentation. Remind them of using eye contact and expression in their voices and to read with confidence. Model reading so softly it is hard to hear, reading with shy body language, and then reading with good eye-contact, a strong voice, and a posture of

confidence. Pair students with partners and coach them for eye contact and confidence, as they take turns reading their argument maps. *These basics will help them when they argue opposing viewpoints later*.

Students: Take turns reading argument maps with confidence and eye-contact.

Text 3: _____

Teacher: Introduce Text 3. Give a full introduction to the article. After the students have discussed their findings in small groups or with partners, have students discuss, whole-group, what they have decided and record the information on the class argument map. Correct any misunderstandings, as needed.

Students: Students will read the article silently and write, on notebook paper, their

position and reasons. They will look for evidence independently and highlight it in the text. They will discuss their findings with a partner or small group for collaboration. Students will record information from the class map on individual maps.

Constructing an Argument Map from Three Articles

Teacher: Model rereading the three class argument maps and deciding which position to take. Record a position on a new class map. Think aloud the reasons that would make sense and which could come from any of the maps. Record. Then decide what evidence would be best to use from the previous maps and record it on the class map. Coaching of individual writers is very important here.

Students: May choose to use the class map as a model and write the same information on individual maps OR may choose a different position and find the information and record on individual maps.

Oral Argumentation

Teacher: Unlike the previous experiences, some students may have opposing positions on this map. Pair those students with others of different positions to read their argument maps to each other. Remind students of the norms, and reading with confidence and eye contact.

Students: Take turns reading argument maps to partners with confidence and eye contact and listening respectfully.

Write the Essay (draft, not final copy)

Teacher: Remind students of the essay they wrote in the first week and how you modeled how to take the information from the argument map and put it into your own words, so it reads like you would talk. Review the actual modeled essay you wrote. Talk to them about taking the information from their last map and thinking about how it would sound if you explained the argument in your own words. Model one. Assure students that you will coach them as they write.

Students: Write an argumentative essay using the last map they made, taken from the three previous articles.

CYCLE 2

Topic:

Text 1: _____

Text 2: _____

Text 3: _____

Notes: There are no time limits on cycles**.** *Counter-position* and *rebuttal,* and *conclusion* will be introduced in this cycle. Use both pages of the argument map.

Read, Position, Reasons, and Evidence

Text 1: _____

Teacher: Introduce Text 1. Give a full introduction to the article. After the students read the text silently, discuss the content. Have them determine the position, think of reasons and discuss them with a partner or small group. After that collaboration, co-construct the argument map with position and reasons. Lead them through annotating the text for evidence and record the evidence on the class map.

Students: Read article independently. Determine position and reasons for it. Discuss with partner or small group for confirmation and collaboration.

Annotate text for evidence, as teacher marks article. Record on individual argument maps.

Introduce *Counter-position*

Teacher: Review class argument map of Text 1 of this cycle. Introduce the concept of counter-position with examples they are familiar with in real life. Not everyone has the same opinion. Being able to listen to another point of view on a matter and think about whether you agree is something everyone will do in life. Experts can have different opinions on the same topic and disagree.

Model with a think aloud what a counter-position might be to the position on the argument map. What might be some reasons for the counter-position? Record the counter-position on the class argument map. What might be some reasons and evidence an opposing view could have? Record those on the class map.

Students: Record counter-position teacher writes on class map. Discuss with a partner what some reasons and evidence might be for the opposing view. Participate in class discussion and record reasons and evidence on individual maps.

Introduce *Rebuttal*

Teacher: Review position, reasons, evidence, and counter-position on the class map. Introduce rebuttal by thinking aloud what the author might say back to the person with the opposite viewpoint. Use "yeah, but…" to help them remember what a rebuttal is. After respectfully listening to the counter-argument, the author would say, "Yeah, but here's my answer to that." Brainstorm with the students what some rebuttals might be to the counter-position on the map. Then record a good rebuttal on the class argument map.

Students: Brainstorm with a partner what a good rebuttal would be to the counter-position on the class map. Participate in whole-group discussion about possible rebuttals. Write what the teacher records on the class map on individual maps.

Oral argumentation with counter-position and rebuttal

Teacher: Review position, reasons, evidence, counter-position, and rebuttal on the class argument map. Explain that partners will play roles when they argue.

One partner will read the argument map up to the counter-position. The other partner will read the counter-position and reasons and any evidence while the first partner listens. Then the first partner will answer the counter-position with the rebuttal on the map. Remind the students of respectful listening and respectful talk. Modeling with two volunteer students would be helpful.

Students: Partners will play roles while arguing. One partner will be the originator of the argument and read the map and stop at the counter-position. The other partner will read the counter-position and any reasons and evidence that go with it. The first partner will listen and then give the respectful rebuttal. Both will read with confidence and eye-contact.

Introduce *Conclusion*

Teacher: Review the argument map with all its parts. Introduce the conclusion with an explanation that it is a restating of the position and includes the reasons. The position and reasons in the conclusion have to be the same as the ones at the beginning of the map. *Many students have trouble with staying with the same position consistently.* Model stating a conclusion to the argument and write it on the class map.

Students: Write the conclusion on individual maps that the teacher records on the class map. *This map will be a model for them in the future as they write their own maps and essays.*

Read and complete whole argument map (This may take several days)

Text 2: _____

Teacher: Introduce Text 2. Give a full introduction to the Text 2 article. Students will read the article silently. After reading, discuss the content of the article.

Direct the students to co-construct their maps with a partner. They will have to agree on a position, reasons, and find the evidence. Teacher will circulate and coach writers, as needed. When the partners have completed the positions, reasons, and evidence argument page, discuss with the whole-group what a counter-position might be. What might be some reasons for the counter-position? Any evidence? If needed, record this on a class map.

Brainstorm possible rebuttals with the whole-group and record one on the map. Finish with reminding them that a conclusion restates the original position and reasons.

Students: Read article silently. Partners will co-construct an argument map for Text 2. They will negotiate and agree upon a position, reasons, and evidence (helping each other annotate evidence in their texts). They will record these argument points on individual maps. They will participate in a whole-group discussion of possible counter-positions, reasons, and evidence and record these on their maps. Brainstorm with the teacher possible rebuttals and record their choice. Finish the map with a conclusion that restates the original position and reasons.

Oral Argumentation

Teacher: Students need to reread their argument maps in preparation. Pair students who were not original partners, to "present" their arguments to each other. Give the listeners a job to do by having them notice if the argument makes sense. Be ready to tell the author if it did and if not, where the listener got confused. Coach partners as they present their arguments with verbal prompts, as needed.

Students Reread argument maps before argumentation. Take turns presenting arguments. If listening, notice if the argument makes sense and if not, tell where confusion started.

Read and complete full argument map independently

Text 3: _____

Teacher: Introduce Text 3. Give a full introduction to the third article in this cycle. Students will read silently. Students will construct argument map, with all its parts, independently. This will require much individual coaching. If faltering by several students is noticed, stop and model again for the whole-group or pull a small group together for coaching. Encourage them to use their previously completed maps to help them remember what kind of information goes in the different sections of the argument map.

Keep class maps posted for reference as anchor charts, too. Students may confer with each other for help, as needed.

Students: Read article silently. Construct the argument map independently, using old maps to help remember the kind of information that goes in each section. Confer with peers, as needed.

Oral Argumentation

Teacher: Pair students to present their arguments. Listeners are to notice if the argument makes sense, and if not, where they got confused. Authors can revise their argument maps because of feedback. Coach pairs with verbal prompts, as needed. Remind them of norms and of using eye-contact and confidence.

Students: Take turns presenting arguments with eye-contact and confidence.
When listening, notice if the argument makes sense. If not, tell where confusion started.

Construct argument map from three articles

Teacher: Remind student how they looked at each of the three argument maps in Cycle 1 and decided on the position they wanted, the reasons for the position, and the evidence. Everything they need is on the previous argument maps. They will need to include a counter-position, reasons and evidence, and their rebuttal, and finally a conclusion. Show all those parts on a previous class map. You may need to model this on a document camera to review.

Students: Read their previous three maps and decide what position they are going to take and write the appropriate information in each of the parts of the argument map.

Oral Argumentation

Teacher: Notice if any students are taking opposite positions and pair them with someone of an opposing side. Ask for a volunteer pair like this to model presenting their arguments to each other for the other students. If you have students model while the others gather around, it is called a "fishbowl" model. Have students present their arguments in pairs. Be available for verbal prompting and coaching. Remind them of norms, eye contact, and confident reading and speaking.

Students: Present arguments in pairs, listen to see if the presenter has an argument that makes sense, if not, say where confusion started.

Write the essay (draft, not final copy)

Teacher: Review the procedure for using the latest map to write an argumentative essay. Write the information from the map in your own words, like you were talking. Show completed essays from previous sessions. The essay isn't a copy of the map without boxes. Remind them of attracting the attention of the reader with an interesting introduction. You might construct a poster of the essay parts with labels (i.e. e. on a bulletin board, wall chart) as an anchor chart for essay writing. Assure them of your coaching support, as they write.

Students: Use the latest map as a guide to write an essay of your argument. Write in your own words, like you would talk.

CYCLE 3 and Beyond

Continue the procedure of reading three texts on the same topic, completing an argument map, oral argumentation, and essay writing. Eventually, students should be able to present opposite sides to an issue and be able to argue their points without reading from their maps. If at any point, the students seem confused, frustrated, or resistant, stop and model what they need. Modeling and individual coaching seems to scaffold and support struggling readers and writers in this intervention.

The texts can come from textbooks, internet articles, magazine articles, library books or a mix of these. They will need to be texts that present a side or position about something controversial and of high interest to adolescents. See if readability is an issue with students. If it is, find something easier for them to read.

Assess progress with the essay rubric and eventually, another reading test with non-fiction texts. If needed, adapt the essay categories to fit your students. Compare both the essay scores and the reading comprehension levels to the beginning of the intervention.

Collaborate with at least one colleague, during the implementation of the intervention, for helpful reflection and brainstorming of ideas for better teaching and learning. A second set of eyes and ears are essential when evaluating whether an intervention is working well. Teachers also need encouragement and moral support to sustain them during frustrating or disappointing situations. Have patience with the process.

Appendix D
Reading, Arguing, Writing Study - Time-Ordered Data Display

Activity	Teacher	Students	Intervention Development
Baseline essay *Trophies, Yes or No?*	Assigned Task Brief directions	Wrote opinions with reasons Writing length was mostly about a paragraph	Teacher chose different topic, no article to read, no discussion No video. Many class interruptions like school pictures, assemblies, etc.
First article: Cell Phones in School, *Yes or No?*	Scaffolded students by: Read article aloud Modeled identifying position Modeled identifying reasons Modeled identifying evidence Modeled marking on text (annotating) Modeled map construction Explained how to read maps to peers and discuss them Facilitated discussion with many prompts Observed discussion attempts	Listened and observed Wrote on map when teacher wrote Attempted discussion of ideas with peers Maps read with no eye contact Little response from listeners Acted like they didn't know what to do. Some wouldn't say anything	Teacher chose to do only this one cell phone article because interruptions and needing to match articles to Rev. war study in Social Studies Teacher saw "immediately" that they had difficulty with reading comp. and identifying supporting evidence. *Researcher now thinks that modeling all those steps in the process was too much at one time and should have been broken up into parts, over more time.
First cycle of three articles: *King George: Dealing with The Rebels*	Read article aloud Have them decide what side to take and write it down. Put small groups together to discuss their sides. Modeled constructing a map from notes and markings on the text. Organized small groups to do their first	Students followed along on their copy. Students had a hard time with discussing their chosen side with others. Didn't know what to say. They struggled with the difference between reasons and evidence. Students took a "LONG" time to complete their maps. "This is hard!" a boy said. Little eye contact in discussion	Teacher could tell students needed more scaffolding with understanding the process, so she read aloud and modeled the process again. Teacher said "We're not as far along as I hoped we would be by now. I am having to go slow." They needed specific instruction on how to find evidence and this took more time than planned. "They are beginning to understand

Activity	Teacher	Students	Intervention Development
	explanations of terms on map Prompted discussions Modeled how to create a final argument map from all three article maps	Had better discussions with their own maps, but still struggled Four wanted to switch sides after discussion Read maps with more fluency A girl with ADHD stayed on task Through whole discussion, surprising Everyone. She seemed very interested In her argument being listened to. Another girl took the side of the British, with good reasons, in a discussion with her mother, who had the opposite view.	Teacher sent article as homework for position for those who didn't finish their maps Students need more background knowledge about the Rev. War, so teacher is reading aloud a novel set in that time period. Schema is growing. Teacher said they are learning that their opinion matters. Assistant principal observed that the students seemed confused. Teacher responded, "Thinking is HARD for them! If it was easy, they wouldn't be confused!"
Final Essay on 1st cycle: *Who was Right? British or the Colonists?*	Teacher modeled writing an essay from the final argument map, using all the parts To scaffold peer evaluation, she posted three questions for the responder to answer about the writer's essay: 1. What was the writer's position? 2. Was there reasons and evidence? 3. Did that make sense? They were to make notes and make sure the writer answered every section.	Students wrote their own essays, using their final argument map as a guide. (See essay scores) Took a long time to complete. They read their essays to a listener who was supposed to notice if they answered all the sections on the map. This first time, they were not connecting what the writer wrote from one point to another. It was very difficult for them to track from the information to the questions A student was talking about his argument and was getting confused	Teacher said they needed help writing complete sentences and with organizing their writing, even with the maps in use. Posting the questions for the listeners to answer was a new twist to instruction. It was an effort to scaffold critical thinking.

Activity	Teaer	Students	Intervention Development
1st article in 2nd cycle: the *Women in the Revolu-* construct *tionary War: A Tough Choice*	Teacher gave directions to read article and write a map. Put them with a partner to discuss what they wrote on their maps and share ideas Facilitated discussion with prompts.	Students read article silently and wrote their individual maps. This was a little easier this time. They read their maps more fluently aloud and seemed to engage in more discussion on the topic	Teacher is having the students read articles without her support,
2nd article in 2nd cycle: *Deborah Sampson*	Teacher gave directions to read article and write a map. Put them in small groups to discuss their ideas on the maps. Facilitated with prompts.	This went much faster and they seemed like they understood what they were supposed to do without a lot of prompts from the teacher.	
3rd article in 2nd cycle: *American Athenas*	Gave directions to read article and choose a position to take on whether women should have been allowed to serve in the Revolutionary War. They were to consider all three articles. She put them in small mixed groups with peers from their classroom to argue their positions.	Students took a long time to complete this map, but when they argued, many were much more confident and fluent with their reasons and evidence. Student 3 was able to read her map to the teacher more fluently (she would rarely speak, previously) Students 5, 2, and 4 were observed reading fluently from their maps. Student 5 questioned the speaker. Student 2 talked confidently in response to the counter-position to his. Student 5 said, "Whoa, guys! It's my turn!" Student 5 said, "Hold on, I really do agree with you, but how do they survive?" speaking of indentured servants. The arguing was lively and the students seemed engaged	Teacher said confidence makes a big difference in oral arguments. Teacher said the study students did better mixed with non-study students arguing. When someone wentagainst them, they responded better orally.

Activity	Teacher	Students	Intervention Development
Final essay on 2nd cycle: *Should Women have been Allowed to Fight in the Revolutionary War?*	Gave directions to write an essay based on their maps and reminded them to use each section of the map. When finished, they were to work with a partner, listen to the writer read essay and then answer the posted questions and write notes for the writer to use for revisions.	Students were all engaged and on task while writing their essays. Student 7 complained that it was a "…LOT writing!" The students were seriously listening to the writers and making notes to attach to the essays. (See final essay scores) Students agreed with teacher that this process was getting easier They also agreed that it helped to make a map of each article, first instead of trying to write an essay after reading three articles.	Teacher said that the students seemed much improved at thinking and writing. They are getting better at answering the questions about the writers' essays. Teacher said that the essays may not show the improvement they have made in their thinking, but their maps show it. Researcher will consider reviewing maps, as well as essays for evidence of this growth.