Analyzing the effectiveness of the comprehension toolkit as a methodology for teaching transactional strategies

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ABSTRACT

ANALYZING THE EFFECTIVENESS OF THE COMPREHENSION TOOLKIT AS A METHODOLOGY FOR TEACHING TRANSACTIONAL STRATEGIES

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Northern Illinois University, 2015
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To be literate in the 21st century students need to comprehend complex text at higher levels than before. In order to do this, schools need to teach students the comprehension strategies that will allow them to analyze, synthesize and evaluate different types of text.

Literature identifies several instructional practices that increase students’ reading comprehension. Research identifies transactional strategy instruction as a method of furthering students’ ability to understand what they read. Despite current research, students have failed to meet the increased expectations. The lack of instructional resources targeting transactional strategies instruction is a primary factor in students’ ability to make gains.

The purpose of this quasi-experimental quantitative study was to expand the literacy interventions available to schools that target higher level reading comprehension. This study focused on the Comprehension Toolkit because this intervention incorporates the attributes of transactional strategies instruction. The current study examined the relationship between the Comprehension Toolkit and students’ reading comprehension at the primary and intermediate grades.

While the statistical analysis of primary and intermediate students’ MPG and MAP scores only showed a significant difference in students’ ability to comprehend information text
compared to literary text, the Comprehension Toolkit continues to be a promising intervention that is worthy of future research.
ANALYZING THE EFFECTIVENESS OF THE COMPREHENSION TOOLKIT AS A METHODOLOGY FOR TEACHING TRANSACTIONAL STRATEGIES

BY

JENNIFER BROWN

A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF EDUCATION

DEPARTMENT OF LEADERSHIP, EDUCATIONAL PSYCHOLOGY, AND FOUNDATIONS

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Dr. John Crawford

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ACKNOWLEDGEMENTS

First and foremost I would like to thank my doctoral committee for their ongoing support and expertise. I thank Dr. Many for ensuring administrators like myself had the opportunity to pursue doctoral studies through Northern Illinois University. Dr. Crawford has been an inspiring professor who provided insight and direction. His summer email prompting me to submit a current draft for a grade was an initial push that I am grateful for. I express a special note of gratitude to Dr. Summers, as she was a guiding force in my successful completion. She provided ongoing encouragement and she routinely shared her knowledge and guidance throughout the process.

I would like to thank the faculty at School GR. These educators are dedicated to meeting students’ academic and social needs and they go above and beyond to implement best practices in their classrooms. They embrace strategies instruction whole-heartedly and they were excited about the possibility to work with Stephanie Harvey and her intervention materials from the very beginning.

I would also like to thank my family for their ongoing support. My parents always encouraged higher education and they ensured we had the resources and support to achieve our dreams. My husband has also been a driving force. He is a model of lifelong learning and I could not have accomplished this goal without his unwavering support. Finally, to my furry baby Winston. Thank you for always bringing me great joy.
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CHAPTER 1

OVERVIEW OF THE STUDY

Literacy in the 21st century necessitates a higher performance expectation than previously existed. Goldman (2012) states readers must “move beyond what the text says to what it means” and “acquire knowledge, solve problems and make personal and professional decisions based on what they read” (p. 89-90). Readers must be able to analyze, synthesize, evaluate and connect information from numerous sources in order to be successful. Successful readers must also flexibly apply cognitive strategies and interpret information differently based on the type of text (Goldman, 2012).

It is clear today’s students must be able to comprehend the written word at a much deeper level than before. However, data suggest students have continuously failed to meet this expectation. The National Assessment of Educational Progress Report states one-third of students in the United States have not met basic reading standards by fourth grade (National Center for Education Statistics, 2011). Berkman and colleagues confirm adult performance is just as bleak, noting, “More than 90 million adults in the United States have poor literacy” (Berkman et al., 2004, p. v).

This lack of proficiency is startling given that research has identified instructional methods specifically designed to increase reading comprehension. According to Duke and Block
(2012), the difficulty lies in educators’ ability to implement research-based recommendations. Duke and Block assert, “The lack of growth in fourth graders’ ability to comprehend is not surprising given schools’ failure to adopt…comprehension recommendations” (p. 55). In further analyses Duke and Block found that “easier-to-master skills are being attended to, but…preparation for comprehension and learning in the later grades – comprehension strategy use and conceptual and content knowledge -- are being neglected” (p. 55).

In order for students to meet 21st century literacy expectations, educators must be both willing and able to implement recommendations for reading comprehension, such as strategy-based instruction. The National Reading Panel (2000) found students who are taught strategy-based instruction “make significant gains on measures of reading comprehension over students trained with conventional instruction” (p. 13). Strategy instruction allows students to internalize and flexibly apply strategic thinking while reading. It also teaches students to create meaning by utilizing cognitive strategies and activating their background knowledge. The extensive, collaborative dialogue used in this instructional approach directs students to effectively utilize strategies rather than simply answer comprehension questions (Brown, Pressley, Van Meter, & Schuder, 1996).

While research suggests strategy instruction positively affects reading comprehension, researchers agree that implementing strategy instruction in the classroom can be difficult (Pressley, Goodchild, Fleet, Zachowski, & Evans, 1989). Research suggests implementing a transactional reading strategies intervention called Students Achieving Independent Learning (SAIL) increases student achievement. SAIL educators teach students to make meaning while reading by explicitly modeling strategic reasoning (Brown et al., 1996). However, Pressley,
Schuder, Berman, & El-Dinary (1992) state, “Not all teachers are able to become proficient [in implementing SAIL] within a year of coaching and support” (p. 231). Pressley et al. attribute difficulties in implementation to several factors including teachers’ limited knowledge of information processing models, teachers’ reluctance to adopt the model and the demanding teaching methods associated with strategy instruction. The amount of comprehension strategies and limited transfer are also identified as difficulties.

If teachers are going to effectively prepare students for the 21st century they must have the knowledge and resources that allow them to effectively deliver strategy instruction. While current research shows strategy instruction positively impacts reading comprehension, the overall body of research on strategy instruction is relatively limited. For example, Duke and Carlisle (2011) claim many more predictors of reading comprehension may exist, but only a few have been identified and adequately measured. They suggest, “The degree to which…teachers model comprehension strategies [may be] highly predictive of later reading comprehension,” but “research has not yet examined that possibility” (p. 205-206). Duke and Carlisle (2011) also state existing research does not clearly account for the “development of reading comprehension strategies in the early elementary grades” (p. 208) and few studies have examined “the relationship of specific comprehension skills and strategies in the early elementary grades to reading comprehension then or in later grades” (p. 210).

The number of specific reading comprehension interventions studied is also limited. Most studies focus on a limited number or instructional techniques, such as reciprocal teaching or direct instruction, and identify few intervention programs, such as the SAIL program (Brown et al., 1996; Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989; Pressley, Schuder,
Berman, & El-Dinary, 1992).

There is a clear need to broaden the body of research around strategy instruction and additional reading strategy interventions. Stephanie Harvey’s Comprehension Toolkit is a nationally recognized intervention that incorporates the elements of strategy instruction also found in the SAIL program (Brown et al., 1996). Studying how the Comprehension Toolkit impacts students’ reading comprehension will broaden the current body of research on strategy instruction and strategy-based interventions.

**Statement of the Purpose of the Research Study**

The purpose of this study is to provide teachers and educational leaders with information about the effectiveness of an additional research-based intervention that increases students’ reading comprehension, namely Stephanie Harvey’s Comprehension Toolkit.

**Research Questions**

The following research questions guided this study:

1. What is the relationship between the degree of implementation of the Comprehension Toolkit (high versus low) and student reading comprehension as measured by the MAP/MPG assessment?

2. What is the relationship between years of teaching experience and student reading comprehension as measured by the MAP/MPG assessment?

3. What differences exist between reading comprehension scores on informational text versus literary text for students instructed using the Comprehension Toolkit?
4. What differences exist between primary grade (K-2) and intermediate-grade (3-5) students receiving instruction using the Comprehension Toolkit?

**Study Delimitations**

It is important to note while this study has the potential to further reading comprehension research, delimitations exist. Delimitations were known prior to conducting the study and they focus primarily on the nature of the participants. All of the students in the school where the study took place (hereinafter referred to as GR) were required by state law to be assessed using interim reading assessments (Colorado House Bill 12-1238/The READ Act, 2012). As a result, all student data were analyzed rather than a random sampling of participants. All student participants in the study also attended the same school. Participants therefore only represent a small portion of the overall student population, namely a predominant Caucasian student body from a middle to upper middle-class community located in a suburb of a major metropolitan area. Therefore, these results may only be generalizable to schools with a similar demographic.

Changes in staffing were also identified as delimitations. A total of eight new classroom teachers joined school GR during the year the study was conducted. These teachers were hired to replace teachers for the following reasons: a retirement, two extended maternity leaves and a reassignment within the building. Four teachers were added in response to the school’s increasing enrollment. The new teachers received the Comprehension Toolkit and were given time to collaborate with teachers who received the original training. New faculty also participated in the staff development that the original faculty members received. While new staff members were taught the key components of the Toolkit, many of these teachers were
implementing the curricula for the first time during the year the study was conducted. While five of the eight teachers had extensive training and experience teaching reading prior to joining school GR, all eight of the new teachers missed the initial in-depth staff development and the additional year of teaching the Comprehension Toolkit. The staff change, therefore, is a delimitation of this study.

**Key Terminology**

*Aesthetic:* Rosenblatt uses the term aesthetic to describe the reader’s feelings and emotions that he/she applies to text (Rosenblatt, 2004).

*Activate and Connect:* Readers “activate and connect what they already know to the new information they are reading about, adding to and correcting their background knowledge” (Harvey, Goudvis, & Schroden, 2011, p. 19).

*Ask Questions:* Readers “seek new information, solve problems and clarify and extend understanding” through asking questions (Harvey et al., 2011, p. 19).

*Background Knowledge:* Background knowledge is the “knowledge and experience the reader brings to the text” (Harvey & Goudvis, 2000, p. 26).

*Cognitive-Constructivist View of Reading:* The cognitive–constructivist view of reading states the reader “makes connections between ideas and then integrates the understandings with prior knowledge” when he/she constructs meaning (Graves, Juel, Graves, & Devitz, 2011, p. 2).

*Cognition:* “The meaning the reader gleams from a text is heavily influenced by the cognitive work [the reader] puts into the reading process” (Graves et al., 2011, p. 3).

*Comprehension:* According to Duke and Carlisle (2011), comprehension centers on determining the meaning of what is being communicated.
Comprehension Strategies: Comprehension strategies are the cognitive strategies that readers use to help them make meaning. Comprehension strategies include the following: monitoring comprehension, determining importance, asking questions, inferring and synthesizing (Harvey & Goudvis, 2000).

Constructivism: According to Graves et al. (2011), constructivism “holds that the meaning one constructs from a text is subjective – the result of a particular person’s processing of the text” (p. 3).

Determine Importance: Readers “determine importance of specific pieces of information in relation to others in the text by sorting details to serve the reading purpose” (Harvey, Goudvis, & Schroden, 2011, p. 19).

Efferent: Rosenblatt defines efferent as “the ideas, information, directions or conclusions to be retained, used or acted upon after the reading event” (Rosenblatt, 2004, p. 1373).

Efferent / Aesthetic Continuum: Rosenblatt believes that readers move along an efferent / aesthetic continuum while reading by drawing into consciousness either their feelings and emotions (aesthetic) or information and ideas (efferent) (Rosenblatt, 2004).

Evocation: Rosenblatt terms evocation as “the meaning created by flexibly applying an efferent or an aesthetic stance” (Rosenblatt, 2004, p. 1373).

Infer and Visualize Meaning: Readers “infer and visualize meaning by drawing conclusions or making interpretations that are not explicitly stated in the text” (Harvey, Goudvis, & Schroden, 2011, p. 19).

Interpretation: Rosenblatt (2004) refers to interpretation as the readers’ ability to “analyze, report or explain the evocation” or meaning of a text (p. 1378).

Measures of Academic Progress – MAP: The Northwest Evaluation Association (NWEA) created the Measures of Academic Progress (MAP) assessment. This nationally and locally normed assessment is aligned to state and national curricula and standards and it assesses students in grades three through twelve. MAP adapts to the individual student by altering the difficulty of questioning based on the student’s responses. All test items correspond to a value on the RIT Scale, or Rasch Unit, which is independent of a child’s grade level (NWEA, 2013).

Map for Primary Grades – MPG: Map for Primary Grades (MPG) is an assessment designed for students in grades K-2. The Northwest Evaluation Association (NWEA) created MPG to measure students’ knowledge of early literacy concepts and skills. Like MAP, MPG is adaptive, meaning the difficulty of questioning alters depending on an individual student’s responses. MPG also provides students with a RIT value, which is based on the difficulty of individual test items rather than a grade-level equivalent (NWEA, 2013).

Metacognition: According to Cross and Paris (1988), metacognition is “the knowledge and control children have over their own thinking and learning activities” (p. 131). Metacognition involves the mental actions of self-appraised knowledge about cognition and self-management of one's thinking. Self-appraisal involves the reader’s ability to recognize factors that affect reading and the skills that can be applied to reading. Self-appraisal encompasses the reader’s ability to accurately determine when and why to apply specific strategies. Self-management requires the reader evaluate, plan and regulate his/her thinking while reading.
Monitor Comprehension: Readers monitor their comprehension by “keeping track of thinking, listening to one’s inner voice, noticing when the text makes sense and when it does not” (Harvey, Goudvis, & Schroden, 2011, p. 19).

Reading Skills: Reading skills are defined as automatic actions that lack mental control and consciousness.

Reading Strategies: Reading strategies are defined as “intentional mental actions during reading that improve reading comprehension.” Reading strategies are explicitly taught and deliberately applied by a reader to better understand and remember the text (Shanahan et al., 2010, p.11).

Schemata: Pearson et al. (1992) defines schemata as knowledge that is already stored in an individual’s memory

Summarize and Synthesize: Readers “take their information and summarize and synthesize it, stilling information to arrive at a big picture (summarizing) and integrating new information to create new ideas (synthesizing)” (Harvey, Goudvis, & Schroden, 2011, p. 19).

Transaction: Dewey and Bentley (1949) coined the term “transaction” to describe the relationship between the knower, the known and the knowing, or the individual, the information and the meaning of text (Dewey & Bently, 1949).

Transactional Strategies Instruction: Transactional strategies instruction centers on students’ ability to internalize and consistently and adaptively utilize reading strategies while reading (Rosenblatt, 2004).
CHAPTER 2
REVIEW OF LITERATURE

Several definitions, theories and models seek to explain the complex process of reading comprehension. Transactional and cognitive models most accurately describe the mental processes that occur when readers make meaning from written text. Children’s developmental models also explain how comprehension evolves as children age. Much has also been written about the instructional practices that positively impact reading comprehension (Brown et al., 1996; Conner et al., 2004; Duffy et al., 2013). Strategy instruction, for example, promotes comprehension in primary and intermediate-age readers. While strategy instruction has evolved over time and specific strategies and strategy-based instructional practices have been identified, research on reading comprehension strategies remains limited. For educators to teach strategy instruction effectively, additional research is needed to measure the effectiveness of additional strategy interventions, including Stephanie Harvey’s Comprehension Toolkit.

How Is Reading Comprehension Defined?

Reading comprehension is a 21st century survival skill. Duke and Pressley (2005) affirm the importance of comprehending, stating, “Kids should know that saying words is not what reading is about. Reading is about getting meaning” (p. 24). According to the RAND Reading Study Group (2002), reading comprehension involves the following three elements: “the reader
who is doing the comprehending, the text that is being comprehended and the activity in which comprehension is a part” (p. 10). The RAND Reading Study Group further defines reading comprehension as “the process of simultaneously extracting and constructing meaning through the interaction and involvement with written language” (RAND Reading Study Group, 2002, p. xiii). Extracting meaning is defined as understanding what an author has stated, either explicitly or implicitly. Constructing meaning, on the other hand, addresses the reader’s ability to interpret what the author has written by drawing on the reader’s “capacities, abilities, knowledge and experiences” (p. 11). Reardon, Valentino & Shores (2012) support the notion that reading comprehension requires the reader to connect his/her personal experiences to the text. Reardon et al. state reading comprehension is “the integration of background knowledge and contextual information to make sense of a text” (p. 17).

Duke and Carlisle (2011) categorize reading comprehension as a growth construct, meaning readers continuously improve their ability to comprehend rather than reach mastery at a given point in time. Duke and Carlisle also state comprehension occurs through a combined use of strategies, or deliberate actions used to make meaning, and skills, or those automatic processes that support understanding.

A comprehensive definition of reading comprehension encompasses all of these ideals. In essence, comprehension is the meaning the reader constructs when reading a text. Comprehending, however, is a dynamic process that continuously evolves. To comprehend, the reader must apply personal experiences and prior knowledge to the written word. Comprehension is therefore a personal experience derived from a reader’s individual interactions with the words on a page.
Reading Comprehension Theories

Cognitive-Constructivist Views on Reading Comprehension

Reading comprehension is a complicated construct often associated with several interrelated elements of reading, such as decoding, fluency and vocabulary. While many theories can be used to describe how individuals learn to comprehend, this study will focus specifically on cognitive-constructivist views of reading. These views most accurately describe the mental actions that occur when a reader makes meaning of a text.

According to Graves et al. (2011), cognitive-constructivist views center on the reader’s active pursuit of meaning. Graves et al. assert the reader actively draws on prior knowledge when creating meaning while reading. The cognitive work the reader puts forth when reading includes actively connecting prior experiences and knowledge to the text. Constructivism can be understood to be the reader’s individual interpretation of text that results when the reader draws on his/her unique experiences and intellect. The construction-integration model, transactional theory of reading and schemata theory are specific reading theories exemplifying the cognitive-constructivist view of reading. The RAND Study’s heuristic for reading comprehension also represents this reading theory.

Construction-Integration Model

Kintsch’s (1998) construction-integration model begins with construction, wherein the reader makes meaning at the sentence level. Once the reader is able to connect the ideas present in several sentences, the reader integrates, or draws upon his/her background knowledge and experiences to create a broader meaning. The integration process often allows the reader to infer or draw meaning from the text that is not explicitly stated.
A Transactional Theory of Reading

Dewey and Bentley (1949) coined the term “transaction” to describe the symbiotic relationship between the knower, the known and the knowing, or the reader, the information and the meaning the reader creates. Dewey and Bentley assert each element is part of one process. Dewey and Bentley’s views are in stark contrast to Newton’s and Descartes’ dualist theories, suggesting the individual and the object are two separate entities. Pierce (1933-1935, in Rosenblatt, 2004) is also recognized for furthering the transactional theory through his notion of a triad formation. According to Pierce’s triad, a symbol is the result of the following three entities: the sign, the object and the cognitive association.

Rosenblatt (2004) asserts the transaction theory has several implications for language. He states the transactional theory strays from traditional views in which “language [is] viewed as primarily a self-contained system or code, a set of arbitrary rules and conventions that is manipulated as a tool by speakers and writers or imprints itself on the minds of listeners and readers” (p. 1365). Duke and Carlisle (2011) support the view that comprehending is a “constructive process” where meaning is “created and adjusted” using many interrelated factors (p. 200). Rosenblatt (2004) argues, “The reader is active. He is not a blank tape registering a ready-made message” (p. 34). He elaborates further, stating, “Instead of two fixed entities acting on one another, the reader and the text are two aspects of a total dynamic situation” (p. 1369). Rosenblatt asserts, “Every reading act is an event, or a transaction, involving a particular reader and a particular pattern of signs, or a text” (p. 1369). He asserts the text itself is merely “an object” and meaning does not occur until the reader and the text “transact” with one another. Rosenblatt argues, “‘Meaning’ is what happens during the transaction; hence, the fallacy is
thinking of [the reader and the text] as separate and distinct entities instead of factors in a total situation” (p. 1369).

It is clear Rosenblatt (2004) believes reading is a dynamic process and meaning is created when the reader applies his/her life and linguistic experiences to the text. He claims, “Reading any work of literature is… an individual and unique occurrence involving the mind and emotions of some particular reader” (p. 1363). Vygotsky (1962) affirms the role of a reader’s individual interpretation in addition to commonly accepted social and cultural interpretations. He states, “A word acquires its sense from the context in which it appears; in different contexts, it changes its sense” (p. 46).

Rosenblatt (2004) further states readers bring several factors to the text, including their purpose, feelings and attention, all of which are impacted by social, cultural and personal factors. He claims each of these factors influence the meaning the reader creates. In other words, Rosenblatt believes comprehension is dependent on the individual reader’s context and affect. Comprehension can therefore vary because each reader draws from their unique experiences and feelings when creating meaning.

Rosenblatt (2004) also asserts readers make meaning by operating along an efferent/aesthetic continuum. Rosenblatt defines efferent as “ideas, information, directions or conclusions to be retained, used or acted upon after the reading event” (p. 1373). Rosenblatt uses the term “aesthetic” to describe the reader’s feelings and emotions he/she applies to the text. Rosenblatt suggests the reader’s stance, or ability to bring certain elements to consciousness while reading, place the reader at varying points of the efferent/aesthetic continuum during reading. This, in turn, impacts the reader’s understanding and the meaning he/she creates.
Rosenblatt terms the meaning created by flexibly applying an efferent or an aesthetic stance the “evocation of meaning” (p. 1373). He believes the evocation process is constantly evolving as the reader brings other elements to consciousness, such as his/her reactions or contractions to his/her prior knowledge, his/her focus on the technical elements of the text or his/her need to reread (Rosenblatt, 2004). Likewise, Rosenblatt refers to interpretation as the reader’s ability to “analyze, report or explain the evocation” (p. 1378).

Schemata Theory - Pearson

The cognitive theory of schemata claims readers create meaning through the interaction and storage of old and new information. Pearson et al. (1992) define schemata as the reader’s knowledge already stored in his/her memory and argue the theory of schemata is central to reading comprehension. Kamil et al. (2011) state readers comprehend when they interpret and store new information. More specifically, Pearson suggests a reader comprehends when he/she “finds a ‘mental home’ for new information or modifies an existing ‘mental home’ to accommodate new information” (p. 255).

Rosenblatt’s (2004) description of how the reader makes meaning while reading shows the connections between the schemata theory and the transactional theory. Rosenblatt suggests when the reader is viewing the symbols on a page, he/she is mentally checking if the symbols are already stored in his/her memory as having meaning. Rosenblatt suggests the reader is constantly analyzing and testing the new information against existing knowledge or schema. If information does not align, Rosenblatt suggests the reader rereads or changes his/her existing mental framework to accommodate the new information.

RAND Study Heuristic
In 1999 the Office of Educational Research charged the RAND Reading Study Group (RRSG) with identifying the most prevalent issues in reading based on current research in the field. Through the process the RRSG (2002) developed a heuristic to describe how readers comprehend. The Heuristic for Thinking about Reading Comprehension (Figure 1) details the relationship between the reader, the text and the activity of reading.

Figure 1: RAND Heuristic for Thinking about Reading Comprehension
The RRSG asserts the reader brings his/her own cognitive abilities, motivation, knowledge and experience to the text. The text itself is also thought to contribute to comprehension. The reader makes sense of the actual words, or the surface code, and the ideas within the text, which are known as the text base. RRSG suggests the reader also creates mental models to process the given text. The activity of reading includes the reader’s purpose for reading, the processes needed to accomplish this purpose and the outcomes obtained as a result of reading. According to RRDG, the reader’s purpose can change while reading and the processes he/she applies to achieve these purposes are dependent on the type of text.

RRSG suggests the text, reader and activity are heavily influenced by the reader’s context and sociocultural factors. It is believed the reader’s community, cultural views and experiences contribute to the unique meaning the reader creates. Context and sociocultural elements therefore circle the three primary elements of reading comprehension as depicted in the heuristic.

*Developmental Theories*

Chall and Jacob (2003) describe the developmental nature of reading, stating “Reading is conceptualized not as a process that is the same from beginning stages through mature, skilled reading, but as one that changes as the reader becomes more able and proficient.” According to Chall and Jacob, reading occurs in six developmental stages modeled after Piaget’s cognitive developmental stages, ranging from pre-reading (stage 0) to mature, skillful reading (stage 5). Chall and Jacob categorize stages 1 and 2, which typically occur in first through third grade, as “learning to read.” In this phase students draw on alphabetic principles and background knowledge to decode text. Students then “read to learn” when they transition to the intermediate
grades. In these later stages of reading students are confronted with text that is more complicated and less familiar in terms of the content and vocabulary presented.

Duke and Carlisle (2011) assert in the early stages of learning to read, reading comprehension and listening comprehension are “developmentally intertwined” (p. 202). When children begin to read they “typically comprehend more challenging passages while listening than while reading” (p. 202). Several elements of language development support a student’s initial ability to recognize words, including phonological perception and phonemic awareness, or the ability to identify and associate sounds in words and rhyme. Students also develop the text patterns associated with different genres when they begin to read. Students then apply various reading comprehension strategies, such as inferring and comprehension monitoring, in their early elementary school years (Duke & Carlisle, 2011).

As students advance in elementary school their semantic skills and vocabulary development become a stronger predictor of reading comprehension. An intermediate age student’s ability to apply various comprehension strategies, however, continues to influence his/her ability to comprehend text (Duke & Carlisle, 2011).

While Storch and Whitehurst (2002) found concepts of print, phonological awareness and oral language were predictors of reading comprehension and accuracy in the primary grades, they found these factors changed as students progressed from grade to grade. Storch and Whitehurst examined how code-related knowledge, including print concepts and phonological awareness, oral language and the ability to accurately decode text, predicted the reading comprehension of 626 children in preschool through fourth grade. Each child was assessed at the beginning of the school year using a variety of measures. In the earliest years, Head Start
and preschool students were given twelve subtests from the Developing Skills Checklist to measure their knowledge of print principles, emergent writing and phonological awareness. In addition to these measures, students were given the Peabody Picture Vocabulary Test—Revised, the One Word Picture Vocabulary Test and the Renfrew Bus Story to assess their receptive and expressive language. Students were given standardized reading measures at the end of each school year, including the Word Reading subscale of the Stanford Achievement Test—Eighth Edition and the Word Attack subscale of the Woodcock Reading Mastery Tests—Revised, to assess their reading level once they began formal reading instruction. The subtests that were administered increased in difficulty as children aged. As a part of the study, student performance results were coded for both their accuracy, or their ability to read words correctly, and reading comprehension, or their ability to understand a word or text passage.

Storch and Whitehurst found a strong relationship between preschool students’ oral language and code knowledge. In first and second grade, however, only code precursors had a strong influence on reading achievement. Storch and Whitehurst also found while reading accuracy and comprehension were intertwined through second grade, accuracy and comprehension become distinctly separate entities in third and fourth grade.

Storch and Whitehurst’s study sheds light on the developmental nature of reading comprehension. For example, this study shows that reading words accurately does not directly correlate with intermediate students’ ability to comprehend. These findings also have significant instructional implications for educators. Storch and Whitehurst’s study suggests a need to teach comprehension as its own skill, especially in third grade and above.
The Impact of School on Comprehension

Duke and Carlisle (2011) assert “language-rich” schools positively impact comprehension development (p. 204). They state, “Even children with similar demographic and individual characteristics show very different courses of reading comprehension development depending on the classroom context in which they are learning” (p. 206). Duke and Carlisle attribute these differences to specific instructional methods and interventions used and the amount of time devoted to reading instruction. Differences are also attributed to the reading and language aspects attended to, the availability of materials and the quality of instructional activities. For example, students in “language-rich” schools are routinely read to, engaged in rich discussions around text and exposed to rare words. Duke and Carlisle (2011) claim the teacher’s “choice of task, ways of fostering language use when talking about text and ability to scaffold children’s understanding…are important determinants of children’s literacy development” (p. 208).

In later elementary years literacy-rich classrooms engage students in higher levels of questioning and provide additional opportunities for interactive discussions. Students in such classrooms are exposed to many reading materials, including electronic text and high-interest reading materials. Teachers support comprehension development in upper elementary school by teaching students how to apply strategies differently based on the type of text (Duke & Carlisle, 2011).
Instructional Strategies and Comprehension

Existing research offers specific recommendations for fostering reading comprehension, including the use of strategy instruction. The purpose of strategy instruction is to assist readers in making meaning. Shanahan et al. (2010) state, “Comprehension strategies help readers enhance their understanding, overcome difficulties when comprehending text and compensate for weak or imperfect knowledge related to the text” (p. 10). Shanahan et al. differentiate strategy instruction from the comprehension skills typically found in core reading programs and worksheets. Reading strategies are defined as “intentional mental actions during reading that improve reading comprehension” (p. 11). Ellin Keene (2011) agrees, defining strategies as “the mental moves proficient readers make to better understand ideas and concepts” (p. 13).

Aflerbach, Pearson and Paris (2008) also seek to reduce the confusion around strategies and skills in their definitions of these terms. Aflerbach et al. define strategies as “the deliberate, goal-directed attempts to control and modify the reader’s efforts to decode text, understand words and construct meanings of text” (p. 368). Reading skills, on the other hand, are defined as “automatic actions lacking mental control and consciousness” (p. 368). According to Aflerbach et al., a strategic reader identifies an appropriate goal, develops a plan for meeting that goal and monitors how well that goal was achieved. Strategic readers also adjust their reading according to the text and their ability to successfully achieve their goal. Strategies differ from skills that are applied in an identical manner regardless of the text or situation. Aflerbach et al. note the same action could be either a skill or strategy depending on the “readers’ awareness, control, intention and specific reading situation” (p. 369). Strategic reading is essential when one is learning a concept for the first time and having difficulty comprehending or decoding text.
Aflerbach et al. recommend that teachers explain, model and apply reading strategies for students so students can see how successful readers apply skills.

Brown et al. (1996) found students engaged in strategy instruction performed higher on standardized reading tests, demonstrated greater comprehension of text and gained a greater understanding of strategy use compared to students who were instructed using conventional reading instruction. In a year-long quasi-experimental study Brown et al. explored the reading performance of low-achieving students in classrooms where teachers taught reading using a combination of conventional instructional methods and classrooms where transitional instructional strategies were taught using the SAIL program. The SAIL program explicitly taught students to adjust their reading to their purpose and type of text. This instructional program taught students to make predictions, question and interpret, summarize and determine important information. Through direct instruction and modeling, students were taught the identified strategies and instructed to think aloud.

Teachers in the control group were recommended by their principal and reading specialists based on their years of experience, ability to engage students in motivating, grade-level tasks and ability to monitor and improve students’ understanding, behaviors and self-esteem. Educators in the control group used a combination of reading practices, including traditional methods and whole language activities. In contrast, educators in the experimental group were chosen based on their competence in implementing the SAIL program, which explicitly taught students to use transactional strategies to make meaning. While the reading achievement levels of six students in each of the five SAIL and five non-SAIL classrooms were matched using a variety of standardized assessment measures, the reading group means in the
SAIL classrooms exceeded those in the non-SAIL classrooms on each of the following spring post-test measures: a strategies interview, a story retelling and the Stanford Achievement Test. Brown et al. found students who were explicitly taught transactional strategies identified more word-level and comprehension strategies in student interviews than non-SAIL students.

In addition to an increased awareness of a variety of reading strategies, students in the SAIL classrooms were able to infer, draw conclusions and personalize their interpretations more often than non-SAIL students when recalling the same story at the end of the year. Analysis of post-test think-aloud protocols also showed students in the SAIL classrooms applied more strategies more descriptively than students in the control group. Students in SAIL classrooms outperformed those in the control group on a post-standardized assessment and made higher gains compared to their fall scores. Less individual variability existed among students in SAIL groups compared to students in non-SAIL groups.

Brown et al. (1996) stated, “All measurements of student reading achievement reported here converged on the conclusion that a year of SAIL instruction improves the reading of at-risk second-grade students more than alternative high-quality reading instruction” (Brown et al., p. 39). This study suggests the explicit instruction of reading strategies significantly impacts students’ ability to comprehend.

Brown et al.’s (1996) findings favoring strategy instruction are consistent with other research on reading comprehension. In 1997 the United States Congress created a National Reading Panel to examine the effectiveness of various reading practices. The appointed fourteen-member panel reviewed over 100,000 research studies focused on reading. The panel narrowed its selection of studies to those with well-defined instructional procedures,
experimental designs, large sample sizes and those showing causality between practices and outcomes. After reviewing the research, the panel concluded strategy instruction was beneficial. They stated, “When…teachers apply strategy instruction in the classroom, even if imperfectly, their students improve in reading comprehension” (National Reading Panel, 2002, p. 13).

Strategy Instruction Impacts Low and Average Readers

Research affirms strategy instruction benefits average to below average readers in particular. Connor et al. (2004) found teacher-managed, explicit strategy instruction, including interactive discussions around predicting, inferring, summarizing and questioning, had a positive impact on students who performed at or below grade level. Conner et al. explored the relationship between children’s background and the type of instruction they received. The 73 third-grade students who participated in the study were identified as having certain “child variables,” including their parents’ level of education, fall reading scores and home literacy environment. Classroom instruction was then coded as either being explicit or implicit through classroom observations that occurred three times a year. Explicit instruction focused the child’s attention solely on the meaning of the text and included the explicit teaching of the following strategies: summarizing, predicting and questioning. Implicit activities did not focus explicitly on reading comprehension and included sustained silent reading. Instructional activities were also coded as either teacher managed or student managed. Teacher-managed activities, such as discussions or read alouds, assumed the teacher was responsible for directing the student’s attention. In contrast, students or peers were responsible for directing their attention in child-managed activities. Instructional activities were also identified as either word level or meaning based, the latter often referred to as “higher level.” Classroom activities could be a combination
of the categories outlined above (i.e., teacher-managed explicit word level, teacher-managed implicit word level, etc.).

The students were given the Peabody Individual Achievement Test – Revised (PIAT- R) subtests in the fall and again in the spring to measure their academic growth in the following areas: reading comprehension, decoding, general information and vocabulary. Conner et al. (2004) found “more time spent in teacher-managed explicit instruction activities predicted greater growth in…reading comprehension scores. Additionally, the children who began the year with lower and average reading comprehension scores achieved greater reading comprehension growth scores in classrooms that spent more time in teacher-managed explicit instructional activities” (p. 692). Connor et al.’s findings show an increased need for teacher-driven explicit strategy instruction for average to low-performing students.

Hansen and Pearson’s (1983) findings are consistent and affirm strategy instruction improves poor readers’ comprehension. Hansen and Pearson found, when “classroom teachers provided instruction to improve the inferential comprehension of…poor fourth-grade readers…poor readers benefited significantly from the instruction” (p. 821). Of the 40 fourth-grade students who participated in the study, 20 were identified as poor readers based on Stanford Achievement Test (SAT) comprehension subtests and teacher observations. Both poor and strong readers were randomly assigned to either a control group or an experimental group. Teachers in the experimental group discussed how personal experiences related to the events that occurred in the story. Students then answered a total of six questions targeting three important story events. For each story event students related a personal experience to the event and hypothesized what would happen. The combination of these two questions targeted the
inferential process, which required readers to relate new information to old information. Students in the experimental group then read the story independently and engaged in a post-discussion involving four literal and four inferential questions. Students in the control group followed the lesson outline in the teacher manual and completed a post-reading discussion that incorporated both literal and inferential questions.

Hansen and Pearson (1983) analyzed student answers to the literal and inferential questions using worksheets, oral discussions of a common story and oral accounts of a story at students’ individual reading levels. Hansen and Pearson found poor readers benefited from the additional focus on inferential thinking evident in experimental classrooms. Poor readers also demonstrated an increased ability to answer inferential questions on all three of the given assessments. Hansen and Pearson’s study affirms that direct strategy instruction positively impacts lower achieving students’ ability to comprehend.

Strategy Instruction Impacts Primary and Intermediate Students

Research suggests students in the primary grades also benefit from strategy instruction (Shanahan et al., 2010). The National Research Council (1995) specifically recommends that educators teaching grades K-3 provide students with direct instruction in comprehension by teaching reading strategies.

William et al. (2009) found “the knowledge gained improves [primary-age students’] ability to comprehend novel text” (p. 4). William et al. examined the impact of strategy instruction embedded in science instruction on second-grade student reading comprehension. The strategy instruction implemented in the experimental group explicitly taught students to compare and contrast text structures common to expository material. The compare and contrast
structure was taught through word clues (alike, both, compare, but, however, contrast), graphic organizers, compare and contrast questions and paragraph analysis. The study questioned the relationship between explicit strategy instruction and primary-age students’ ability to comprehend. It also explored the impact on student written responses and transfer of learning.

Experimental student gains were evident on two separate written assessments and through an analysis of oral responses. The results showed explicit instruction benefited primary-age children and that strategy instruction could be incorporated into content-area instruction without compromising young children’s knowledge of the content (William et al., 2009).

**Specific Reading Strategies**

Through an extensive review of research, Pressley, Johnson, Symons, McGoldrick and Kurita (1989) identified strategies shown to increase student reading comprehension in experimental designs. Pressley, El-Dinary, & Brown (1992) focused on strategies most beneficial for students in grades three through eight as comprehension was thought to be most prevalent in these grades. Emphasis was placed on single strategies rather than multiple strategy approaches. Pressley et al. (1992) found summarization, imagery, story grammar, question generation, question answering and activating prior knowledge strategies were supported by empirical research.

In a more current review of research on strategy instruction, Goldman (2012) describes a successful reader as being able to monitor his/her understanding and apply new strategies when he/she does not comprehend. She notes successful readers explain and connect concepts in the text to others cited in the literature and to their prior knowledge. According to Goldman,
successful readers also ask probing questions, generate self-explanations and seek explanations as they read. Finally, Goldman states successful readers organize text as they read and rely on multiple types of knowledge, such as sentence structures, knowledge about words and text structures, to interpret text.

Duke and Block (2012) agree with several of the strategies identified by Goldman, including the importance of questioning, drawing inferences and summarizing. In addition, Duke and Block identify the need to predict and visualize when they read. Shanahan (2010) adds activating prior knowledge and retelling to the list of essential reading strategies. The National Reading Panel (2002) supports these strategies and identifies comprehension monitoring, story structure, asking and answering questions and summarizing among the eight most effective reading strategies.

How Has Strategy Instruction Evolved Over Time?

In her research review, Goldman (2012) states, “Strategy instruction has evolved from teaching one strategy to teaching children how to integrate multiple strategies” (p. 94). Brown at al. (1996) report initial research on single-strategy instruction reveals student learning and comprehension did improve, but only in extremely controlled conditions (i.e., the teacher told the student to implement a particular strategy at a particular time). They note single-strategy instruction rarely increases students’ ability to generalize strategy use and comprehend.

The development of the merged model and the understanding that “readers coordinate a number of strategies while reading” gave rise to interventions focused on flexibly using multiple strategies (Brown et al., 1996, p. 18). Reciprocal teaching, or the explicit teaching of identified strategies, showed students improved in their ability to use the target strategy. Only minimal
improvements were noted, however, when student achievement was measured using standardized reading assessments (Rosenshine & Meister, 1994). Other interventions, such as those advocating the teaching of numerous strategies quickly, did not prove to be effective in increasing elementary students’ reading comprehension either (Paris & Oka, 1986).

As stated previously, research supports strategy instruction as an effective means of teaching reading comprehension (Pressley & Afflerback, 1995). Transactional strategies instruction emerged with the purpose of teaching students to internalize and consistently and adaptively use strategies when reading text.

*What Does Effective Strategy Instruction Look Like?*

Pressley, El-Dinary, & Brown (1992) identify several instructional practices common to effective strategy-based instruction. They find successful instruction ensures reading strategies are an integral part of a school’s core curricula. Strategies should also be explicitly taught, modeled and supported. Pressley et al. also note successful programs require students to reflect on how and why they are applying specific reading strategies. Effective educators of strategy instruction also clearly communicate that strategies are critical to becoming a successful reader. Pressley et al. also find educators who are effective in teaching reading strategies encourage students to apply strategies flexibly and differently based on the text and situations. Successful educators also highlight background knowledge and create a learning environment that plays on students’ interests and needs.

The National Reading Panel (in Shanahan et al., 2010) emphasizes the importance of teaching students to reflect on how strategies help them become better readers rather than memorizing the strategy itself. The panel asserts, “Instead of teaching individual strategies,
[effective] teachers help students view reading as a problem-solving task and help them think strategically to solve comprehension problems” (p. 15).

Duke and Block (2012) also cite the need to teach students strategies using a gradual release of responsibility. In the gradual release model teachers initially provide direct instruction and then gradually release their support as the students gain independence through practice. The National Reading Panel (in Shanahan et al., 2010) identifies the need for teachers to explain and model specific strategies. Goldman (2012) agrees, stating strategy instruction is effective when it is explicitly taught and when students receive feedback on their performance as they practice.

In a study conducted with 21 third-grade teachers from different urban schools Duffy et al. (2013) found that low-performing readers who were “taught more explicitly the mental processing behind reading strategies were more aware of lesson content and the need to be strategic when reading, and scored better on nontraditional, standardized and maintenance measures of reading achievement” (p. 347). Duffy et al. randomly assigned teachers to either an experimental group or a control group. Teachers in the experimental group were taught the reasoning effective readers utilize when strategically applying skills and strategies. Participating students achieved equal levels on fall baseline data, all of which was below grade level. Students in the experimental and control groups equally included students who were identified as mainstreamed special education students, immigrants and students with behavioral disorders.

Instruction in the experimental classrooms emphasized why skills were strategically applied, rather than teaching the skill alone. In other words, teachers in the experimental group taught the metacognitive components and cognitive elements of the reading skills identified in basal readers so students could use them when they were problem solving as readers. These
teachers were also taught how to model the thinking that occurred when using a strategy. Teacher explanations in the experimental classrooms described the thinking associated with the strategy rather than procedures to be followed at given times. This was done so students could see that strategy usage should be incorporated flexibly. Monthly teacher observations, which included audiotapes, field notes, coaching and student interviews, ensured experimental teachers were able to effectively explain the mental processes that align with strategic skills use. Control teachers, in contrast, were teaching prescribed lessons from the assigned basal reader.

Interviews were used to determine students’ understanding of the content, which focused on strategy instruction. Student understanding also measured student knowledge of when the strategy should be applied and the need to be strategic as readers. The following four assessments were used to measure student achievement: the Supplemental Achievement Measure (SAM), which measured student ability to apply a skill and their explanation of what they did to solve the problem; the Graded Oral Reading Paragraph Test (GROP), which assessed student ability to obtain the meaning of unknown words from reading them in context and a self-report of self-corrections; the Stanford Achievement Test (SAT), a standardized reading assessment; and the annual state reading assessment, or the Michigan Education Assessment Program (MEAP). While the experimental student achievement measures only showed a positive difference with regard to the word study subtest, student interview findings suggested metacognitive awareness was higher in low readers who were given “explicit explanations about the reasoning associated with using specific strategies” (Duffy et al., p. 361).

Goldman (2012) further claims strategy instruction is effective when multiple strategies are used interchangeably. She claims effective strategy instruction occurs when students
recognize when they do not comprehend and adjust the strategy they are using accordingly. Duke and Block (2012) agree with Goldman and emphasize the “importance of cognitive flexibility in reading comprehension” (p. 58). The National Reading Panel (2002) states, “Teaching comprehension strategies in combination, with flexibility and in natural settings, improves students’ reading comprehension” (p. 14).

Shanahan et al. (2010) agrees the goal of strategy instruction is for readers to actively apply multiple strategies. After an extensive review of existing research, however, Shanahan et al. found teachers can use either a single-strategy or a multiple-strategy approach when teaching. In other words, teaching one strategy at a time and then using all learned strategies (single-strategy instruction) is as effective as introducing several strategies at once (multiple-strategy instruction).

Metacognition, or the ability to mentally control thinking while reading, has also been strongly correlated to the effective use of reading strategies. In an experimental study, Cross and Paris (1998) developed a reading comprehension curriculum called Informed Strategies for Learning (ISL) which targeted students’ ability to identify factors influencing their reading (declarative knowledge), identify different skills and how they are applied (procedural knowledge) and understand when and why different strategies should be applied (conditional knowledge). The ISL program also developed students’ ability to evaluate their purpose and disposition, develop a plan that identified which strategies would allow them to meet their intended goal and regulate their thinking while reading.

Cross and Paris implemented the ISL curriculum with two third-grade classrooms and two fifth-grade classrooms. The four remaining control groups (two third-grade classrooms and
two fifth-grade classrooms) were housed at a separate but demographically similar school to avoid the sharing of newly learned strategies amongst teachers. Several measures were used to assess student comprehension and strategic reading, including the reading comprehension subtest of the Gates MacGinitie Reading Test, cloze passages developed from the Classroom Reading Inventory and error detection within given passages. A Reading Awareness Inventory was administered to determine students’ ability to evaluate the difficulty of their task, develop a plan to reach a goal and monitor their progress toward that goal. Students also ranked their perceptions regarding the helpfulness of each strategy.

Students in the experimental group were instructed using the ISL program for four months. Professor Lipson taught specific strategies that supported reading comprehension twice a week for thirty minutes. In addition, students accessed bulletin boards that included questions and metaphors regarding how, when and why specific strategies should be applied. Classroom teachers were also given handouts describing each strategy, its importance and how they could incorporate the strategy into their classroom instruction.

Students were divided into subcategories based on their reading awareness and performance. One third of the third-grade students were found to have either high awareness and low performance (Good/Poor) or low awareness and high performance (Poor/Good) on their pretest measures. While Cross and Paris (1998) noted this pattern was consistent with prior research among young children, they also found none of the fifth-grade students had these extreme differences. They concluded, “Children integrate their understanding about reading strategies with their reading performance throughout Grades 3, 4 and 5” (p. 140). When analyzing pre- and post-test measures, Cross and Paris found ISL improved students’
comprehension and their knowledge of strategies. The ISL instruction benefited all third-grade subgroups, with the exception of students who were identified as having poor performance and poor knowledge of strategies on the pretest. Fifth-grade students who were identified as having poor reading performance but average knowledge of reading strategies made significant gains in both areas.

Cross and Paris’s (1998) findings indicate specific instruction about reading strategies and metacognition does increase comprehension and can be implemented effectively in the classroom. Their study emphasizes the importance of teaching children the cognitive practices associated with reading strategies. Cross and Paris show teaching comprehension strategies goes beyond naming the strategy. Cross and Paris state strategy instruction requires teachers to explicitly teach students to recognize when and why specific strategies should be applied and to evaluate, plan and monitor their use of them.

*How Should Strategy Instruction Be Incorporated Into Curricula?*

Research recommends reading comprehension be embedded into content-area instruction, which would in turn increase the amount of time students spend engaged in literacy instruction (Pressley, 2002). According to the National Reading Panel (2002), “teaching a variety of reading comprehension strategies in natural settings and content areas leads to increased learning of the strategies, transfer of learning, memory and understanding of new passages, and, in some cases, to general improvements in comprehension” (p. 13). William et al. (2009) also assert text structure can be embedded into content-area instruction without compromising the amount of content knowledge obtained.
Goldman (2012) warns, however, teachers are not always effective when teaching strategy instruction in the content areas. Goldman explains students often lack the content knowledge to be successful. She claims, “General reading strategies are often taught when using content text and these strategies do not address the complex demands of content area texts” (p. 96). Lee, Buxton, Lewis, and LeRoy (2006, in William et al., 2009) also found most literacy activities in content curricula usually “do not contain a systematic approach to the development of comprehension; the activities are more practice oriented than instruction oriented” (p. 4).

Despite the overwhelming recognition of the benefits of strategy instruction, Donaldson (2011) found little instructional time is dedicated to teaching reading strategies. After observing 325 classrooms in 22 urban, rural and suburban school districts Donaldson found comprehension instruction was only evident in 23% of reading instruction in grades K-3 and explicit instruction was only introduced in a quarter of these classrooms.

Pressley et al. (1993, in Brown et al., 1996) claim teachers began integrating strategies into their classroom more as the research showing its positive effects grew. They found, however, when strategies where taught in schools there were several additional implications that were otherwise controlled in experimental studies.

After reviewing research on reading instruction published after 1998, Duke and Block (2012) concluded, “While the time spent on comprehension instruction has increased some… the subject area appears to receive relatively little attention” (p. 61). Duke and Block assert, “While teachers are attending to ‘easier to master skills’ they fail to adequately teach comprehension” (p. 61). They claim “the lack of instruction in conceptual and content knowledge [prevents students from comprehending] as does the lack of explicit comprehension instruction (p. 61). Duke and
Block attribute the lack of effective implementation of research on the following three factors: the short-term nature of educational reform, which fosters a focus on easier to master skills; educators’ lack of knowledge on how to effectively deliver harder strategy instruction; and time constraints.

And while studies on primary-age students show strategy-based instruction benefits younger children, studies show it is not until third grade that “many students acquire knowledge-based literacy competencies, such as inferences” (Reardon et al., 2012, p. 20). Dole, Duffy, Roehler and Pearson agree (1991, in William et al., 2009). They assert, “Limited attention that has been given to comprehension instruction in the primary grades and what has occurred has usually focused on narrative text” (p. 4). These authors state this is a concern, “seeing as most of the texts students encounter… are expository” (Bernhardt, Destino, Kamil, & Rodriguez-Munoz, 1995, in William et al., 2009).

**Stephanie Harvey’s Toolkit--Elements of Strategy Instruction**

There is a clear need to provide teachers with the tools necessary to effectively teach strategy instruction. Stephanie Harvey’s Comprehension Toolkit (Harvey, & Goudvis, 2011) is an instructional resource that incorporates the elements of effective strategy instruction. The Comprehension Toolkit offers “explicit, robust, in-depth comprehension instruction” that “lay a foundation of thinking so that students internalize ways to comprehend what they read and apply strategies in their own independent reading and learning” (p. vii). Harvey and Goudvis (2005 b) stated the Toolkit “captures the language of thinking we use to explicitly teach kids to comprehend the wide variety of information text they encounter” (p. 5).
Harvey and Goudvis (2005) claim the Toolkit helps readers “use strategies to maintain understanding and repair comprehension when it breaks down” (p. 6). The purpose of the Toolkit’s strategy instruction is for students to “learn and practice… strategies to enhance understanding, acquire knowledge and gain insight” (p. 6). The intent is to also “teach for understanding and to engage kids in active literacy across the curriculum” (Harvey, Goudvis, & Schroden, 2011, p. 112).

Providing explicit instruction using the gradual release of responsibility, making thinking visible and audible and developing the strategies essential for strong reading comprehension are among the Comprehension Toolkit’s guiding principles. The Toolkit provides teachers with 26 lessons that have been field tested by educators from diverse schools across the nation. The lessons explicitly teach students the following six research-based reading comprehension strategies: monitoring comprehension, activating and connecting prior knowledge, asking questions, inferring and visualizing, determining importance and summarizing and synthesizing. Each strategy is explicitly modeled because it is believed “when teachers share their own reading process, model their thinking and show students how to monitor their own thinking as they read, everyone in the classroom is able to see that learning begins with understanding” (p. 6). More importantly, however, the Toolkit teaches students why each strategy is needed and how good readers use each strategy as they read (Harvey et al., 2011).

Harvey et al. (2011) believe reading strategies must be taught through active literacy. Active literacy classrooms include reading materials that align to students’ interests, incorporate multiple perspectives and are present in the real world (i.e., newspapers, essays, editorials, magazine articles, etc.). An active literacy classroom creates a culture of thinking by including
informational reading and strategic thinking. In such environments students make their thinking visible by sharing their thoughts and work and co-constructing meaning by collaborating with peers. Harvey and Goudvis (2005) state students in active literacy classrooms “know it’s not about finding the one right answer; it’s about using their own minds to identify issues, gather resources, synthesize information and ask questions that lead to new learning” (p. 8). Finally, active literacy requires that strategies initially be explicitly taught through direct modeling from the teacher. Support is then gradually released to the students through guided practice and then independent work.

The Toolkit incorporates strategy books that detail explicit instruction models of how to teach strategic thinking and each comprehension strategy. The Toolkit also includes nonfiction text so strategies can be applied in all content areas. In contrast to basal reading series, the Comprehension Toolkit integrates strategies into all subject areas. This was done because Harvey et al. (2011) believe “content-area reading is among the most complex of all texts, and for that reason, students need strategies to understand what they read” (p. 127).

While the Comprehension Toolkit mirrors research on strategy instruction, research has not yet examined this instructional methodology’s impact on reading comprehension. Other instructional programs have been challenging for teachers to fully implement; therefore, exploring the effects of the Comprehension Toolkit may provide teachers with additional materials that will allow them to teach strategy instruction effectively.
Research Questions and Hypotheses

The research questions posed in this study explore the relationship between the Comprehension Toolkit and students’ ability to comprehend as measured by a standardized assessment. While the Comprehension Toolkit embodies the elements of effective strategy-based instruction identified in research, experimental studies have not yet examined its impact on student achievement. Research also clearly shows additional research-based strategy interventions are needed to support teachers in their daily instruction of reading comprehension strategies. Therefore the questions that guided this study are as follows:

Research Question One: What is the relationship between the degree of implementation of the Comprehension Toolkit (high versus low) and student reading comprehension as measured by MAP/MPG?

\[ H_01: \] Teachers who are implementing the Comprehension Toolkit at high levels of implementation will have higher reading comprehension scores than those who are implementing the Comprehension Toolkit at a lower level.

Because the Comprehension Toolkit embodies many of the traits noted in effective strategy instruction, this intervention is thought to have a positive impact on students’ reading comprehension. The Comprehension Toolkit specifically instructs the strategies proven in experimental studies to increase reading comprehension, namely synthesizing and summarizing, asking and answering questions, creating mental imagery, inferring and activating and
connecting prior knowledge (Pressley, Johnson, Symons, McGoldrick & Kurita, 1989). The Comprehension Toolkit also incorporates instructional practices associated with strategy instruction identified in research. For example, the Comprehension Toolkit instructs teachers to explicitly teach students how and when to use each strategy during think alouds and discussions (Goldman, 2012). In addition, the Comprehension Toolkit emphasizes comprehension strategies are tools readers use to help create meaning. This is consistent with findings from the National Reading Panel (2002), which urges educators to move beyond having students simply memorize the strategy. Finally, the Comprehension Toolkit delivers strategy instruction by gradually releasing responsibility to the student after direct modeling and guided practice. Duke and Block (2012) identify the gradual release approach of instructional delivery as being a preferred method of strategy instruction. The program is thought to have a positive impact on student achievement because the instructional components of the Comprehension Toolkit mirror research on effective strategy instruction. It is therefore believed teachers who are implementing the intervention with greater fidelity will have a greater impact on student reading achievement.

Research Question Two: What is the relationship between the number of years of teaching experience (i.e. 0-5 years, 6-10 years, 11-15 years and 16+ years) and student reading comprehension as measured by the MAP/MPG?

\textit{H01: Teachers who have more years of experience will have higher reading comprehension scores than teachers who have less experience.}
There are several reasons why additional years of teaching experience suggest higher student reading comprehension scores. Researchers clearly recognize delivering strategy-based reading instruction is a difficult endeavor (Duke & Block, 2012; Pressley, Goodchild, Fleet, Zachowski, & Evans, 1989). Teachers with fewer years of experience tend to struggle with additional challenges, including classroom management and differentiation. It is therefore thought that teachers with additional years of experience will outperform those with less experience.

Strategy-based instruction is also not a new concept. Rosenblatt wrote about transactional strategy instruction in 1969 and such instruction has continued to be in prevalent in the literature since. Teachers with additional years of experience are likely to have greater background knowledge. They made have also received additional professional development on strategy instruction over the years. These factors suggest additional years of teaching experience will positively impact reading comprehension.

Research Question Three: What differences exist between reading comprehension scores for informational text versus literary text for students who were instructed using the Comprehension Toolkit?

*H01: The Comprehension Toolkit will have a greater impact on students’ informational text scores compared to their literary comprehension scores.*

The Comprehension Toolkit is designed to teach students to apply reading strategies in multiple content areas, with a primary focus on informational text. Many of the mentor texts
used to model and explicitly teach each strategy are informational. Stephanie Harvey also
recommends that educators teach the Toolkit lessons in social studies and science once they have
been explicitly taught in reading (pers. com., 2012). It is believed the Comprehension Toolkit
will have a greater impact on students’ ability to comprehend informational text as the
intervention is specifically designed to teach reading strategies using this type of text.

Research Question Four: What differences exist between primary grade (K-2) and
intermediate grade (3-5) comprehension scores for students who were instructed using
the Comprehension Toolkit?

\[ H01: \text{Comprehension composite scores for students in grades three through five will be}
\]
\[ \text{higher than primary-age students’ scores.} \]

Research shows the explicit instruction of reading strategies benefits primary-age
students as well as intermediate-age students (The National Research Council, 1995; Shanahan et
al., 2010). Research suggests, however, that young children do not acquire many comprehension
strategies, such as inferring, until third grade (Reardon et al., 2012).

According to Chall’s developmental nature of reading (1988), students make a significant
transition in fourth grade when they move from learning to read to reading to learn. Chall
attributes the dip in student test scores in fourth grade to the increased text complexity and
content demands associated with the later stages of reading development. Based on this
research, it is predicted the Comprehension Toolkit will have a greater impact on intermediate-age student reading scores than primary-age student scores, with the exception of students in grade four. In other words, it is expected students in grades three and five will outperform students in the primary grades and fourth-grade students will score slightly lower.
CHAPTER 3

METHODOLOGY

Participants

GR Elementary School serves a middle to upper middle-class suburban community located 40 miles south of Denver, Colorado. Most (84.3%) of GR students are White, 5% of the student population is Hispanic and 10.7% of the student population includes other ethnic groups. According to the State of Colorado’s Performance Plans, GR Elementary School has met academic achievement and academic growth indicators in reading, writing and math each year since the building opened in 2005.

A total of 628 students at GR participated in this study. The breakdown by grade level is as follows: 92 kindergarten, 116 first grade, 82 second grade, 116 third grade, 110 fourth grade and 112 fifth grade. Students with significant academic needs did not participate in this study. These students were given alternative assessments and they did not take the state assessment. A total of 19 second-grade students were also excluded from this study. These students were in a classroom that took the intermediate second-grade MAP assessment in the spring rather than the primary second-grade MPG assessment. This class of students was excluded from the study because of the differences in the fall and spring assessments. The remaining 81 second-grade students took the primary second-grade MPG assessment in the fall and spring and were
therefore included in the sample. Each grade level had approximately the same number of boys and girls and the ages of students across grades K-5 ranged from 5 to 12 years of age. The average class size in grades K-5 was 22-25 students per classroom.

**Research Design**

Quantitative, quasi-experimental designs have been used in many other studies focused on the impact of transactional strategies interventions. For example, Brown et al. (1996) conducted a quasi-experimental study and used standardized assessment data to identify the impact of the SAIL program’s transactional strategies on student reading comprehension. In keeping with accepted research practice, a quantitative approach was used to examine the research questions in this study.

The research design was a pre-post nonequivalent group quasi-experiment. The student participants in this study were assessed in August 2013 before the reading intervention was administered and again in May 2014 after students were instructed using the Comprehension Toolkit. Student reading comprehension scores were measured twice under two different conditions and at two different points in time. This study was quasi-experimental as participants were not randomly selected. The quasi-independent variable was the time before and after the reading intervention was applied. The dependent variables were student reading comprehension scores as measured by the MAP and MPG assessments.

A quasi-experimental design was purposefully selected to reduce limitations related to implementation. Because the implementation of any intervention, including the Comprehension Toolkit, can vary from teacher to teacher, as well as from building to building, this study was
limited to students who attended one school. Focusing on one school’s results ensured teachers received consistent staff development and implemented the program in a similar fashion. Reducing possible limitations associated with effective and consistent implementation allowed this study to focus exclusively on the impact of the intervention.

Instrumentation

According to Colorado state law, all schools are required to have identified assessment practices in the area of reading (House Bill 12-1238/The READ Act). In the spring of 2013 a teacher and administrator panel at GR compared a District reading interim assessment for grades two through five to the Measures of Academic Progress (MAP) assessment for grades 3-5 and the Measures for Primary Grades (MPG) assessment for grades K-2. After an extensive review of both assessments, the panel adopted MAP and MPG as their interim reading assessments for the 2013-2014 school year.

MAP and MPG are computerized assessments created by Northwest Evaluation Association (NWEA). Both MAP and MPG adapt to the individual test taker by adjusting the test item difficulty based upon an individual student’s responses. Student data can be interpreted as both an achievement measure and a growth measure. MAP and MPG are based on an equal-interval Rasch Unit scale (RIT). The RIT scale is designed to provide student data independent of age or grade level and therefore every test item correlates to a value on the RIT curriculum scale. After completing the MAP reading assessment, typically consisting of 40 multiple-choice questions with four answer choices, students receive an overall RIT score for reading. Students
also receive RIT ranges for the following four goal areas: Word Meaning, Literal Comprehension, Interpretive Comprehension and Evaluative Comprehension.

Over 12.4 billion test items for MAP have been administered in 24 million assessments over 30 years. The number of test items used and the adaptability of test items ensure internal reliability, or the reliability between test items. In addition, NWEA has conducted several test and retest studies to determine reliability. Despite the fact NWEA’s studies measure the consistency of student results over months rather than days, reliability indices have been consistently statistically significant (NWEA, 2013).

To ensure content validity, NWEA aligns all test items to state and national academic standards in “breadth of content and depth of knowledge” (Wang, McCall, Jiao, & Harris, 2013, p. 92.). NWEA publishes Goal Structure reports documenting the alignment between test items and individual state standards. NWEA’s curricula experts conduct the alignment process. Numerous studies have also been conducted to prove the assessment’s construct validity. Colorado, for example, was one of ten states used in a study that found MAP’s construct validity was high across states, academic terms and grade levels (Wang et al., 2013).

There are several reasons why MAP and MPG were appropriate instruments for this study. First and foremost, many states are moving toward computerized state assessments. Colorado, like many other states, will be administering the Partnership for the Assessment of Readiness for College and Careers (PARCC) assessment in the spring of 2015. PARCC, like MAP and MPG, is an online assessment aligned to the Common Core academic standards (Partnership for the Assessment of Readiness for College and Careers, 2013). Because MAP and MPG are also aligned to the same standards, the results of this study will be a strong predictor
for student achievement on the PARCC assessment. The proven reliability and validity of the MAP and MPG assessment also suggested data obtained from this instrument would be a true measure of the relationship between the Comprehension Toolkit and student reading comprehension. Finally, several schools in multiple states administer the MAP and MPG assessments. Replication studies could be conducted in multiple schools in numerous states as a means of verifying the results obtained in this study.

Procedure

Prior to the start of the 2014-2015 school year, key members of the school leadership team, including the GR principal, assistant principal, the building instructional coach and the reading specialist, attended a three-day training conducted by Stephanie Harvey titled Comprehension and the Common Core. The training provided an overview of instructional strategies and practices aligned to the Common Core and current reading research. While attending the course, GR representatives studied the Comprehension Toolkit materials and discussed how they could be implemented at the school. This team shared the Comprehension Toolkit with grade-level representatives at a leadership team meeting in August. All teachers supported the purchase of the Comprehension Toolkit as a means of supporting the school’s primary school improvement goal, which focused on building a collective understanding of common grade-level outcomes in the area of reading.

The instructional coach designed a professional development course for teachers that provided staff development on how to best implement the Comprehension Toolkit. Each staff member who participated in the training received the complete Comprehension Toolkit and
recommended mentor texts. All but two of the classroom teachers participated in the initial training. One of the teachers who did not participate had worked with Stephanie Harvey at a local staff training center (PEBC) and trained both teachers and administrators throughout the state of Colorado on how to instruct the research-based reading comprehension strategies found in the Comprehension Toolkit.

The GR instructional coach used the *Staff Development with the Comprehension Toolkit* (Harvey et al., 2011) to create the professional development course. The class addressed all of the key topics Harvey and colleagues identified, namely the components of active literacy, the format of Comprehension Toolkit lessons and assessment practices. As a part of this training, teachers were required to attend a total of four one-hour sessions between September and December of 2012. As part of their course work, teachers wrote reflections on what they learned after implementing Comprehension Toolkit lessons. Teachers also shared samples of student work obtained after teaching Comprehension Toolkit lessons.

In addition to this professional development course, Stephanie Harvey conducted three staff development sessions at GR. In an hour session held in September, Stephanie Harvey spoke to teachers and administrators about literacy in the 21st century and the importance of reading nonfiction. In a three-hour session held in November, Harvey elaborated on the elements of an active literacy classroom. She showed a video of students facilitating a class discussion centered on students’ new learning and remaining questions regarding their research. Harvey also shared additional resources, including the Ladders nonfiction leveled readers, which support varying reading levels. In addition, Harvey presented a learning progression outlining the continuum of comprehension.
During a January full-day session, Harvey identified the nonfiction text features and literary elements evident in a given reading selection. She also shared examples of student work, noted their level of comprehension and identified teaching points. Teachers also had an opportunity to share student work, and grade-level teams identified teaching points aligned to student work.

In weekly job-embedded staff development sessions, grade-level teams created a year-long instructional plan that captured the learning outcomes associated with each of the reading comprehension strategies addressed in the Comprehension Toolkit. This instructional plan captured common grade-level expectations for each reading strategy. Grade-level teams also created rubrics aligned to the reading strategies identified in the Comprehension Toolkit.

The teachers implemented the Comprehension Toolkit over the course of the 2012-2013 and 2013-2014 school years. Teachers’ levels of implementation were measured both informally and formally. During informal walkthroughs the principal and assistant principal looked for common evidence, referred to as “look fors,” to determine the level of implementation. The frequency and degree to which the following “look fors” were identified determined each teacher’s level of implementation:

• The outcome of the lesson was a comprehension strategy identified in the Comprehension Toolkit.

• Teachers’ instruction mirrored a lesson outlined in the Comprehension Toolkit.

• Students were practicing a comprehension strategy identified in the Comprehension Toolkit using a text that was at their instructional reading level.
• Students were able to describe a strategy identified in the Comprehension Toolkit and explain how the strategy helped them as a reader.

• Students recorded their use of comprehension strategies using think sheets provided by the Comprehension Toolkit.

Formal evaluations also focused on teachers’ ability to instruct reading strategies and implement the Comprehension Toolkit. Each teacher was required to have at least one formal observation and all of observations focused on reading comprehension lessons. Based on informal and formal data, the instructional coach provided additional support for two teachers. This support included co-planning and modeling.

Data were collected in the 2013-2014 school year. Taking data one year after the Toolkit was initially introduced gave classroom teachers a full year to implement the Comprehension Toolkit before assessment results were measured formally. Eight new teachers joined the GR staff in August of 2013. In addition to the instructional coach, a minimum of two teachers who participated in GR’s initial training remained at each grade level. Teachers who attended the initial training served as “experts” and they routinely shared their knowledge of the Comprehension Toolkit and strategy instruction during team meetings. All new teachers reviewed the year-long instructional plan for their grade level and Comprehension Toolkit lessons in August. Ongoing discussions regarding reading comprehension and the Comprehension Toolkit were embedded into individualized induction meetings that occurred at least once a month. All new teachers also completed the Comprehension Toolkit staff development course initially presented in the fall of 2012-2013.
All GR teachers completed two MAP/MPG training sessions in the fall of 2013. These sessions reviewed the structure of the assessment, test administration and how to interpret results. All students took a reading practice test in August of 2013 prior to taking the formal assessment. The practice test consisted of five to seven computerized questions similar to those found on the reading assessment. The MAP/MPG reading assessment was administered for the first time during the weeks of August 26 through September 10. Teachers analyzed student results in staff development sessions held in October. Students were taught Comprehension Toolkit lessons between the months of September through April. In May all students were reassessed using the MAP/MPG reading assessment.
CHAPTER 4

RESULTS

In order to examine the relationship among the primary study variables, descriptive statistics were conducted. Please see Table 1 for sample size, means and standard deviations for primary study variables. Please see Table 2 for correlations among primary study variables. As a reminder, for K-2, Substrand A = Reading for All Purposes, Substrand B = Print Concepts, Substrand C = Oral Expression, and Substrand D = Writing and Comprehension. For grades 3-5, Substrand A = Literary Text, Substrand B = Informational Text, and Substrand C = Vocabulary and Decoding.
### Table 1

**Descriptive Statistics**

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Pearson Correlation Matrix among Variables

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*p < .01, two-tailed

Research Question One

What is the relationship between the degree of implementation of the Comprehension Toolkit (high versus low) and students' reading comprehension as measures by MAP/MPG?

H01: Teachers who are implementing the Comprehension Toolkit at higher levels of implementation will have higher reading comprehension scores than those who are implementing the Comprehension Toolkit at lower levels.—Not supported.

In order to answer Research Question One, two MANOVAs were conducted: one for grades K-2 and another for grades 3-5. First, change scores were calculated between the fall and
spring NWEA Map Total Reading scores. Next, change scores were calculated for all NWEA MAP substrands broken down by grades K-2 and 3-5 because of the test being slightly different for K-2 versus 3-5 students. The overall change score, as well as the substrand change scores, became the dependent variables in the respective analyses. The independent variable for both the K-2 and 3-5 analysis was the Level of Toolkit Implementation (high vs. low as measured by walkthroughs). Please see Table 3 for means and standard deviations for all groups.

For the K-2 students, results of the overall MANOVA were not significant, Wilks’ lambda = .989, $F(4, 295) = .977, p = .241$. Because the overall MANOVA was not significant, follow-up ANOVAs were not conducted. These results indicate there were no differences in the change scores for primary-grade students who had teachers who were high implementers versus students who had teachers who were low implementers. Both groups of students showed similar gains. These results hold true for not only the Total RIT change from fall to spring but for Substrands A, B, C, and D as well. Please see Table 4 for results.

For the 3-5 students, results of the overall MANOVA were not significant, Wilks’ lambda = .985, $F(4,333) = 1.30, p = .27$. Because the overall MANOVA was not significant, follow-up ANOVAs were not interpreted. These results indicate there were no differences in the change scores for intermediate-grade students who had teachers who were high implementers versus students who had teachers who were low implementers. Both groups of students showed similar gains. These results hold true for not only the Total RIT change from fall to spring but for Substrands A, B, and C as well. Please see Table 5 for results.
Table 3
Descriptive Statistics for Research Question One

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<td>( M(SD) )</td>
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<tr>
<td>Change in Overall RIT from Fall to Spring (total)</td>
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Table 4

*ANOVA Examining Implementation Differences (High Versus Low) and Primary Students' Reading Comprehension*

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<th>F</th>
<th>p</th>
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Table 5

*ANOVA Examining Implementation Differences (High Versus Low) and Intermediate Students' Reading Comprehension*

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Research Question Two

What is the relationship between teachers' years of experience and students' reading comprehension as measures by MAP/MPG?

H01: Students who have teachers with a greater number of years of classroom experience will have higher reading comprehension scores than students who have teachers with a lesser number of years of classroom experience.--Partially supported.

Similar to Research Question One, this research question was answered via two MANOVAs: one conducted using scores from grades K-2 and the other conducted using scores from grades 3-5. The independent variable was level of teacher experience grouped in the following manner: 0-5 years, 6-10 years, 11-15 years, 16+ years of experience. The same change scores used in the analysis for Research Question One were also used in the analysis for Research Question Two. Recall that change scores were calculated between the fall and spring NWEA Map Total Reading scores, as well as all substrands. The analysis is run separately for K-2 versus 3-5 because the test is different for K-2 versus 3-5. These change scores became the dependent variables in both MANOVAs. Please see Tables 6 and 7 for means and standard deviations.

For the K-2 sample, results of the overall MANOVA were significant, Wilks’ lambda = .850, $F(15, 806) = 3.27, p < .001$. Follow-up ANOVA’s indicate significant differences in changes in Substrand B scores, $F(3,296) = 2.91, p < .05$, and Substrand C scores, $F(3,296) = 4.22, p < .01$. For Substrand B, post-hoc Tukey HSD analyzes differences in scores for teachers with 11-15
years of experience versus those with 16 or more years of experience. An examination of means indicates teachers with 11-15 years of experience have students with greater change scores (M=20.53, s.d.=11.88) compared with the change scores of students whose teachers had 16 or more years of experience (M=15.46, s.d.=11.69). No other contrasts were significant for Substrand B. Please see Table 8 for results.
Table 6

*Means, Standard Deviations, and Sample Size for Primary Students’ Reading Comprehension Scores by Years of Teaching Experience*

<table>
<thead>
<tr>
<th>Change in RIT from Fall to Spring (total)</th>
<th>N</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in Overall RIT from Fall to Spring (total)</td>
<td>300</td>
<td>16.67 (8.67)</td>
</tr>
<tr>
<td>5 years of experience or less</td>
<td>69</td>
<td>16.94 (7.01)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>67</td>
<td>15.34 (7.13)</td>
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<tr>
<td>11-15 years of experience</td>
<td>70</td>
<td>16.53 (9.71)</td>
</tr>
<tr>
<td>16 or more years of experience</td>
<td>94</td>
<td>17.53 (9.87)</td>
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</table>

<table>
<thead>
<tr>
<th>Change in Strand A from Fall to Spring (total)</th>
<th>N</th>
<th>M (SD)</th>
</tr>
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<tr>
<td>Change in Strand A from Fall to Spring (total)</td>
<td>300</td>
<td>16.93 (12.90)</td>
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<tr>
<td>5 years of experience or less</td>
<td>69</td>
<td>19.44 (10.57)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>67</td>
<td>13.75 (12.39)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>70</td>
<td>17.51 (15.24)</td>
</tr>
<tr>
<td>16 or more years of experience</td>
<td>94</td>
<td>16.93 (12.66)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in Strand B from Fall to Spring (total)</th>
<th>N</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in Strand B from Fall to Spring (total)</td>
<td>300</td>
<td>17.26 (11.79)</td>
</tr>
<tr>
<td>5 years of experience or less</td>
<td>69</td>
<td>17.70 (11.83)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>67</td>
<td>15.91 (11.28)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>70</td>
<td>20.54 (11.88)</td>
</tr>
<tr>
<td>16 or more years of experience</td>
<td>94</td>
<td>15.46 (11.70)</td>
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</table>

<table>
<thead>
<tr>
<th>Change in Strand C from Fall to Spring (total)</th>
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<th>M (SD)</th>
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<tr>
<td>Change in Strand C from Fall to Spring (total)</td>
<td>300</td>
<td>14.39 (13.48)</td>
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<tr>
<td>5 years of experience or less</td>
<td>69</td>
<td>11.16 (13.15)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>67</td>
<td>12.15 (10.40)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>70</td>
<td>15.05 (14.95)</td>
</tr>
<tr>
<td>16 or more years of experience</td>
<td>94</td>
<td>17.88 (13.83)</td>
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<table>
<thead>
<tr>
<th>Change in Strand D from Fall to Spring (total)</th>
<th>N</th>
<th>M (SD)</th>
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<td>Change in Strand D from Fall to Spring (total)</td>
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<td>17.98 (14.46)</td>
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<tr>
<td>5 years of experience or less</td>
<td>69</td>
<td>19.88 (10.16)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>67</td>
<td>17.44 (10.79)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>70</td>
<td>16.33 (12.05)</td>
</tr>
<tr>
<td>16 or more years of experience</td>
<td>94</td>
<td>18.20 (20.03)</td>
</tr>
</tbody>
</table>
Table 7

Means, Standard Deviations, and Sample Size for Intermediate Students’ Reading Comprehension Scores by Years of Teaching Experience

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in Overall RIT from Fall to Spring (total)</td>
<td>338</td>
<td>7.93 (7.87)</td>
</tr>
<tr>
<td>5 years of experience or less</td>
<td>111</td>
<td>8.05 (7.18)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>68</td>
<td>8.38 (8.91)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>159</td>
<td>7.66 (7.90)</td>
</tr>
<tr>
<td>Change in Strand A from Fall to Spring (total)</td>
<td>338</td>
<td>7.08 (11.15)</td>
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<tr>
<td>5 years of experience or less</td>
<td>111</td>
<td>7.28 (11.18)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>68</td>
<td>7.10 (10.65)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>159</td>
<td>6.93 (11.40)</td>
</tr>
<tr>
<td>Change in Strand B from Fall to Spring (total)</td>
<td>338</td>
<td>8.94 (9.86)</td>
</tr>
<tr>
<td>5 years of experience or less</td>
<td>111</td>
<td>9.50 (9.58)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>68</td>
<td>7.76 (11.47)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>159</td>
<td>9.05 (9.31)</td>
</tr>
<tr>
<td>Change in Strand C from Fall to Spring (total)</td>
<td>338</td>
<td>7.23 (9.53)</td>
</tr>
<tr>
<td>5 years of experience or less</td>
<td>111</td>
<td>7.34 (8.80)</td>
</tr>
<tr>
<td>6-10 years of experience</td>
<td>68</td>
<td>7.93 (9.42)</td>
</tr>
<tr>
<td>11-15 years of experience</td>
<td>159</td>
<td>6.86 (10.09)</td>
</tr>
</tbody>
</table>
Follow-up Tukey HSD results on Substrand C indicated that teachers with 16 or more years of experience had students with significantly greater gains (M=17.87, s.d. = 13.82) on Substrand C when compared with teachers who had 5 years or less experience (M=11.16, s.d. = 13.15). The results of these analyses indicate that teachers with the greatest number of years of experience have students who show more gains on the skills measured in Substrand C when compared to new or novice (0-5 years) of experience.

These same analyses were repeated for grades 3-5. The overall MANOVA was not significant, Wilks’ Lambda = .970, $F$ (8, 664) = 1.27, $p$ = .25. Because the overall MANOVA was not significant, follow-up ANOVAs were not interpreted. These results indicate there were no differences in the amount of gains made in any Substrand or in the total score for 3-5 students regardless of how experienced their teachers were. Please see Table 9 for results.
Research Question Three

What differences exist between reading comprehension scores on informational text versus literary text for students who were instructed using the Comprehension Toolkit?

H01: The Comprehension Toolkit will have a greater impact on students’ informational text scores compared to students’ literary comprehension scores.

This research question was answered via a paired-sample t test. The difference in mean scores between Informational Text Comprehension versus Literary Text Comprehension on the NWEA assessment were analyzed. Only the scores from students in grades 3-5 were used for this analysis since those students are the only ones whose scores are reflective of Informational (Strand B) versus Literary Text (Strand A) comprehension. Results of the t test were significant, \( t(337) = -2.77, p < .01 \). An examination of the means indicates students made greater gains on Informational Text, Substrand B (M = 8.94, s.d. = 9.85) than Literary Text, Substrand A (M = 7.08, s.d. = 11.15). Please refer to Table 3 for means and standard deviations for all groups.
Research Question Four

What differences exist between primary-grade (K-2) and intermediate-grade (3-5) students' comprehension?

H01: Reading comprehension composite scores for students in grades three through five will be higher than the scores for primary-age students (K-2).--Not supported.

In order to compare which group (K-2 versus 3-5) made greater gains on the Overall RIT score from fall to spring, an independent-samples $t$ test was conducted. Results of the $t$ test were significant, $t(636) = 13.35$, $p < .01$. An examination of the means indicates primary students (K-2) made greater gains on the Overall RIT Score from fall to spring (M = 16.67, s.d. = 8.66) than intermediate (3-5) students (M = 7.93, s.d. = 7.87). Please see Table 3 for means and standard deviations for all groups.
CHAPTER 5
DISCUSSION

This quantitative, quasi-experimental study used descriptive and inferential statistics to examine the relationship between Stephanie Harvey’s Comprehension Toolkit and student reading achievement and growth as measured by the MPG (grades K-2) and MAP (grades 3-5) assessments. The study’s purpose was to determine if the Comprehensive Toolkit intervention increased student reading comprehension. Student reading achievement and growth were measured across grades K-5 during the second year the Comprehension Toolkit was implemented at School GR. Literature on transactional reading strategy instruction narrowed the study’s focus to the intervention’s impact on student reading achievement in classrooms where the Toolkit was implemented at high levels versus low levels and in classrooms staffed by teachers with varying years of experience. In addition, this study focused on the relationship between the Comprehension Toolkit and the ability of intermediate students (grades three through five) to comprehend informational text versus literary text and primary-student (grades K-2) reading growth versus intermediate-student (grades 3-5) growth. The statistical methodologies employed to examine the research questions included the following: MANOVA, ANOVA and t tests.
Overall findings on the relationship between the Comprehension Toolkit and student reading comprehension scores are discussed in this chapter, as are additional limitations of the study. This chapter concludes with the implications of this study and the future direction of ongoing research.

**Findings and Interpretations**

The first research question examined the relationship between the degree of implementation of the Comprehension Toolkit (high versus low implementation) and student reading growth. It was predicted students with teachers who implemented the Comprehension Toolkit at high levels would have higher reading comprehension growth scores than students whose teachers implemented the Comprehension Toolkit at lower levels. Classroom walk-throughs were used to code teachers as either high- or low-level implementers. There were no significant differences in either the total RIT scores or the four substrand scores between students taught by teachers identified as either high- or low-level Comprehension Toolkit implementers.

Literature on reading comprehension and transactional strategy instruction identify effective interventions as including specific instructional elements, namely explicit strategy instruction, the gradual release of responsibility, an emphasis on creating meaning and flexible application of multiple strategies (Brown et al., 1996; Duke & Block, 2012; Goldman, 2012). It was predicted teachers implementing the Comprehension Toolkit at high levels would have a greater positive impact on student reading comprehension because the Comprehension Toolkit encompasses the effective elements identified by existing research. This study’s findings did not support this prediction.
Brown et al. (1996) found students engaged in strategy instruction performed higher on standardized reading tests, demonstrated greater comprehension of text and gained a greater understanding of strategy use compared to students who were instructed using conventional reading instruction. Brown et al., however, explored the reading performance of low-achieving students in classrooms where a control group of teachers taught reading using a combination of conventional instructional methods. The control group’s teaching methods in Brown et al.’s study included both traditional methods and whole language activities. All teachers in this study, however, participated in staff development targeted at strategy instruction and therefore were employing strategy instruction to some degree.

The criteria used in classroom walkthroughs to identify teachers as either high or low implementers looked for specific pedagogical elements from the Comprehension Toolkit, such as the use of identified mentor texts and think sheets or language, rather than the effectiveness of the strategy instruction being taught. Teachers may have been classified as low implementers solely because they did not use materials from the Comprehension Toolkit. The walkthrough tool did not measure the quality of teachers’ classroom strategy instruction; rather, the walkthrough tool measured the implementation of this specific intervention (i.e., the Comprehension Toolkit). Some of the teachers identified as low implementers had several years of experience teaching comprehension strategies and taught them masterfully. For example, one of the teachers identified as a “low implementer” modeled strategy instruction for a state professional development organization. The teachers identified as low implementers failed to incorporate pedagogical elements unique to the Comprehension Toolkit.
This distinction is important because quality strategy instruction was occurring in classrooms identified as low-implementation classrooms. If the walkthrough tool measured levels of strategy use versus levels of program implementation, for example, results may have been significantly different. The lack of a clear control group and the walkthrough tool could have had an impact on this study’s findings.

Literature supporting the benefits of explicit strategy instruction also focuses primarily on average to low average readers in grades two through five (Brown et al., 1996; Connor et al., 2004; Cross & Paris, 1998; Duffy et al., 2013; Hansen & Pearson, 1983). The students included in the current study included kindergarten and first-grade students, in addition to students in grades two through five. Participants in the current study also differed from those in previous studies because they represented all ability levels. Rather than focusing exclusively on struggling readers, the current study included students with a full range of ability levels.

Differences in participant grade levels and ability levels may have contributed to the current study’s lack of findings. Assessing young students presents a unique set of research challenges (Chall & Jacobs, 2003; Duke & Carlisle, 2011; Storch & Whitehurst, 2002). Including kindergarten and first-grade students in the current study may have altered the study’s overall findings because of the differences in young readers. The same can be said of including higher ability readers in the current study. Readers with average to above-average abilities may respond to instruction differently. It is difficult to compare the findings of the current study to previous studies because there are significant differences in participants.

Finally, prior research supporting the benefits of explicit strategy instruction used different measures to assess reading achievement. Prior studies not only used different
standardized assessments, they also included qualitative and nontraditional measures. For example, Hansen and Pearson (1983) analyzed student responses to literal and inferential questions using worksheets, oral discussions around a common story and oral accounts of a story at the student’s individual reading level to prove strategy instruction positively impacted lower achieving students’ ability to comprehend. While some studies used standardized assessment measures, such as the Stanford Achievement Test, most studies paired formalized assessments with other measures. Brown et al. (1996) included a strategies interview and a story retelling while Hansen and Pearson (1983) incorporated student responses and teacher observations. Duffy et al. (2013) also used nontraditional assessments in addition to standardized assessments to measure the benefits of teaching students the mental processes essential to reading strategies. Duffy found only one positive difference in the word study subtest of the student achievement measure, but student interview findings suggested metacognitive awareness was higher in lower level readers who received instruction stressing the reasoning behind the intervention. It is important to note the current study’s narrow manner of measuring student reading achievement and growth. Based on previous studies, a standardized measure alone may not have accounted for all of the gains in student reading achievement.

The Comprehensive Toolkit’s impact on student reading comprehension merits additional study. The Comprehensive Toolkit includes many of the elements identified by previous research as positively impacting students’ reading comprehension. The current study’s lack of findings may be explained by the following limitations: the lack of a true control group, differences in participant ages and abilities and a narrow use of assessment measures. Perhaps
the Comprehension Toolkit would show a positive effect on student reading comprehension in future studies if these limitations were addressed.

The second research question examined the relationship between years of teacher classroom experience and student reading achievement. It was predicted students having teachers with more years of classroom experience would have higher reading comprehension scores than students who had teachers with fewer years of classroom experience. It was anticipated teachers with more classroom experience would perform better because they had more strategy instruction background and additional years of classroom experience employing reading comprehension strategies. Again, differences in the MPG (grades K-2) and MAP (grades 3-5) assessments required a separate MANOVA for teachers at the primary and intermediate levels with the following years of classroom experience: 0-5 years, 6-10 years, 11-15 years and 16 or more years of experience.

Though results of the MANOVA for intermediate students’ overall and subsequent four substrand scores were not significantly different based on teacher classroom experience, statistical differences were found among primary students. Follow-up ANOVA scores showed students whose teachers had 11-15 years of classroom experience scored better than students with teachers having 16 or more years of experience on Substand B (print concepts, decoding, vocabulary). Teachers with 16 or more years of experience scored higher than teachers with 0-5 years of experience on Substrand C (oral expression and listening).

Chall and Jacobs’s research (2003) on the developmental nature of reading comprehension indicates the demands of reading comprehension at the intermediate grade level increases significantly as students transition from “learning to read” to “reading to learn.”
According to Chall and Jacobs, these challenges are heightened by the demands of more complex text, content and vocabulary. The MAP assessment used in the current study to measure student reading achievement and growth in grades 3-5 included more complicated informational and literary passages compared to the MPG assessment, which measured student reading growth in the primary grades. The difficulties associated with reading comprehension in the intermediate grades and the difference between the MPG and MAP assessment may account for the current study’s limited findings across students in the intermediate grades.

Several researchers have studied the relationship between years of teaching experience and student achievement. Hanushek, Kain, O’Brien and Rivkin (2005), Kane et al. (2006) and Rockoff (2004) found the minimal impact of classroom experience on student achievement typically occurs within a teacher’s first five years of classroom experience. The impact of teacher classroom experience on student vocabulary tends to occur in years one through five and then it plateaus. The effect of classroom experience on reading comprehension continues for a slightly longer time period. The effect of classroom experience on reading achievement as noted in other research is depicted in Figure 2.
Figure 2: Effect of classroom experience on reading achievement.

Research by Stagier and Rockoff confirms the effects of classroom experience on student reading achievement occur within the initial years of teaching (Stagier & Rockoff, as cited in Jacob, 2012). It is possible that the Comprehension Toolkit provided intermediate teachers with five or less years of experience a foundation in strategy instruction that allowed their students to perform at the same level as those who were taught by teachers with five or more years of experience. This would suggest the Comprehension Toolkit and accompanying professional
development highly impacted teachers who were new to the profession. Future studies are needed to examine this possibility further.

The current study found primary-student growth was higher on print concepts, decoding and vocabulary in classrooms where teachers had 11-15 years of classroom experience compared to teachers with 16 or more years of classroom experience. Students whose teachers had 16 or more years of classroom experience outperformed students whose teachers had five years or less experience on oral expression and listening. Previous research on the relationship between years of experience and student achievement cautions readers from drawing general conclusions based upon on two substrands. This is particularly true seeing as other data from the current study found no difference in scores between students with teachers identified as either high - or and low-level implementers in the primary or intermediate grades. Because a large body of research suggests the number of years of experience only moderately impacts student achievement in the initial years, the current study’s findings should not be used to differentiate between teachers.

Research Question Three examined the relationship between the Comprehension Toolkit and intermediate student scores (grades 3-5) on informational text compared to literary text. Due to differences in MPG and MAP assessments, only intermediate student scores (grades 3-5) were analyzed. It was predicted the Comprehension Toolkit would have a greater impact on student informational text scores because this intervention focuses heavily on applying reading strategies while reading informational text. The results from the paired-sample t test were statistically significant, indicating intermediate students (grades 3-5) made greater gains on informational text compared to literary text.
Literature supports the integration of strategy instruction into content-area instruction, identifying the following benefits: overall increases in time spent reading, general improvements in the transfer of learning and general increases in reading comprehension (Guthrie & Ozgungor, 2002; National Reading Panel, 2002; Pressley, 2002; William et al., 2009). The Comprehension Toolkit incorporates informational text and directs teachers to utilize the reading strategy pedagogy in the different content areas. Many of the mentor texts included in Comprehensive Toolkit lessons utilize informational texts. All teachers, even those teachers identified as low implementers, participated in staff development designed to support classroom utilization of the Comprehension Toolkit. These staff development sessions highlighted the benefits of having all students read informational text. As a result of this professional development, all teachers incorporated informational text into their reading instruction.

The statistical difference in student informational text scores could be a result of the Comprehension Toolkit and trainings associated with the intervention. However, the desired result is for there to be no difference in the student informational text scores regardless of grade level. This is because all elementary-age students should comprehend informational and literary text equally well. The Common Core academic standards, for example, call for equal amounts of informational and literary text in grade four (Aspen Institute, 2012). Most schools do not include enough informational text. As such, the Comprehension Toolkit and aligned professional development are potential resources to address this curricular need. Schools like GR, however, will need to continue to balance informational text instruction with comprehension instruction targeted at literary text.
The final research question examined differences in student reading growth in grades K-2 compared to grades 3-5. Due to differences in the MPG and MAP subtests, the change in student overall RIT scores from fall to spring was analyzed. It was predicted comprehension composite scores for students in grades three through five would be higher than primary-age student scores (grades K-2). This prediction was based on research indicating young children do not acquire several comprehension strategies, such as inferring, until third grade (Reardon et al., 2012). Results from the t test showed the opposite result. In other words, primary grade student comprehension composite scores were statistically higher than intermediate student scores.

It was predicted intermediate age students (grades 3-5) would make greater gains in reading achievement based on research indicating students begin to acquire reading strategies in grade three and above (Reardon et al., 2012). The nature of the MPG assessment and developmental reading theories may explain why students in kindergarten through second grade achieved at higher levels.

Duke and Carlisle (2011) assert in the early stages of “learning to read,” reading comprehension and listening comprehension are “developmentally intertwined” (p. 202). When children begin to read they “typically comprehend more challenging passages while listening than while reading” (p. 202). Storch and Whitehurst (2002) found concepts of print, phonological awareness and oral language were predictors of reading comprehension and accuracy in the primary grades. They also found a strong relationship between oral language, code knowledge and reading comprehension in preschool students. Additionally, a relationship between code precursors and first - and second-grade student reading achievement was also noted.
The MPG assessment used to measure kindergarten, first- and second-grade students’ overall reading achievement directly aligns to the following elements of early reading identified in the literature: reading for all purposes, research and reasoning, print concepts, decoding and vocabulary, oral expression and listening and writing and composition. Chall and Jacobs’s (2003) research clearly identifies difficulties associated with the intermediate-grade-level shift to “reading to learn.” He notes student test scores in fourth grade tend to drop due to the increased text complexity and content demands associated with the later stages of reading development.

It is possible the level of difficulty assumed in the intermediate-grade MAP assessment accounted for the statistically significant differences in the overall achievement scores between intermediate and primary students. The MPG assessment asks intermediate-grade-level students to comprehend more complicated informational and literary passages. As such, the findings of the current study align with Chall and Jacobs’s research suggesting the increased difficulty experienced by students in the intermediate grades is attributable to the increased academic demands associated with this age level.

**Limitations**

The following limitations were identified after the current study was completed. In addition to concerns regarding the participants and the staffing changes described in Chapter One, the time period in which the Comprehension Toolkit and the MPG / MAP assessments were implemented should also be noted. The Comprehension Toolkit was initially implemented for one academic school year prior to the current study. During the year when the current study was conducted the primary school improvement goal shifted from reading strategy instruction to
instructional writing practices. While implementing Stephanie Harvey’s Comprehension Toolkit and teaching comprehension strategies continued to be the focus of formal and informal teacher evaluations and staff development, especially for teachers new to GR, the same in-depth examination of strategy instruction and the intervention were not present. While the school provided new teachers with the same reading course, new teachers did not explore these instructional methods with the same time and intensity.

The current study was also conducted during the first year GR began using the MPG and MAP assessments. The administration of these assessments was new to teachers, as was the interpretation of results and the implications for classroom teaching. Several administration errors occurred during each assessment window, including slow computer processing time and test sessions ending prior to the designated completion time. These difficulties were due to the large number of schools attempting to simultaneously administer these assessments.

Durlak and DuPre (2008) observe, “Transferring effective programs into real world settings and maintaining them…is a complicated, long-term process that requires dealing effectively with the successive, complex phases of program diffusion” (p. 327). Durlak and DuPre suggest developing an effective intervention is only the initial step. They acknowledge the implementation process is complex and includes multiples steps, namely disseminating information, adopting, implementing, sustaining and finally diffusing the program to other organizations. Durlak and DuPre assert the effectiveness of each implementation stage directly impacts a program’s overall effectiveness.

Schwartzbeck (2002) agrees with Durlak and DuPre. According to Schwartzbeck (2002), effective implementation can take a minimum of three to five years and some initiatives require
more than five years to become fully implemented. Schwartzbeck refers to Rosenblum’s “click point,” or the point in time when the reform has been mostly successful and embraced by the school community, as requiring at least three years to obtain. Schwartzbeck also cites research showing test scores and teacher moral often drop early in the implementation process due to difficulties associated with implementation.

Schwartzbeck cites Useem’s work, which identifies initiatives involving teaching practices as being the most difficult to implement. Useem states the implementation of change associated with instruction requires intensive in-class support, curriculum coaches and ongoing professional development. Literature on successful school reform suggests the limited implementation time period for the Comprehension Toolkit and the MPG / MAP assessments at GR were limitations that may have affected the findings of the current study.

While teachers at GR remain committed to teaching comprehension strategies and implementing the Comprehension Toolkit, additional time, training and resources are required for the impact on student achievement to be fully realized. As research suggests, implementation timelines for successful interventions far surpass the two-year time period allocated in the current study. This intervention incorporates many of the elements identified in transactional strategy instruction and research notes this type of instruction is essential for students to excel in the 21st century. Future research must therefore continue to further explore the relationship between the Comprehension Toolkit and reading comprehension.
Implication of Findings

To be literate in the 21st century students must be able to apply reading comprehension strategies in a variety of genres and think at high levels (Goldman, 2012). Implementing interventions that teach students how to flexibly apply strategies is essential. While findings on the impact of the Comprehension Toolkit on student overall reading achievement and growth must continue, the impact on students’ ability to comprehend informational text suggests the need to implement the Comprehension Toolkit. According to Green (2012), “The Common Core State Standards require students to be thoughtful consumers of complex, informational text - taking them beyond the realm of dry textbooks and self-selected reading” (p. 23). The Common Core Standards, adopted by the majority of states in the United States, are designed to prepare students for college and careers. The Aspen Institute (2012) claims the Common Core includes informational text because evidence suggests if students are unable to comprehend this more complex text they will be less likely to engage in general reading after completing high school. The Institute also states students will not be prepared for the workplace or college if they cannot competently read informational text. The Institute further notes college students are expected to independently comprehend informational text in multiple disciplines. It is therefore suggested students in grade four read equal amounts of informational and literary text.

Many state assessments, such as PARCC and SmarterBalanced, are aligned to the Common Core and therefore measure students’ ability to comprehend both informational and literary text. All educators must be aware of the requirements of the Common Core Standards and assessments, as school rankings and funding are often associated with these student academic achievement results.
The Common Core Standards incorporate informational text in literacy practices across grades K-12. Classroom teachers must have the instructional resources needed for effective classroom instruction that aligns to state standards and assessments. The current study’s findings show students performed higher on informational text compared to literary text. The Comprehension Toolkit and staff development associated with this intervention may be a contributing factor. It is therefore recommended that schools consider the Comprehension Toolkit as a viable instructional resource.

Preparing students for the future requires students to comprehend informational text at deep levels. Research, however, describes teaching strategy instruction effectively as a difficult endeavor (Pressley, Goodchild, Fleet, Zachowski, & Evans, 1989). The current study suggests the Comprehension Toolkit and aligned professional development may positively impact students’ ability to comprehend informational text. Further research may prove additional benefits of this intervention.

**Future Directions for Research**

The current study’s findings suggest several implications for further research. There is a need to continue to study the relationship between student reading achievement and the Comprehension Toolkit. It is predicted continued research will support the relationship between this intervention and student reading comprehension.

Due to limitations associated with the implementation timeline, it is recommended the Comprehension Toolkit be studied three to five years following initial implementation. It is also suggested the implementation of the intervention be monitored and evaluated over the additional
years while ongoing staff development is provided to classroom teachers. According to literature on implementation, it is predicted that additional benefits will be evident when more time is allocated.

It is also recommended the Comprehension Toolkit be examined using a different research methodology than was employed in the current study. The relationship between the Comprehension Toolkit and student achievement should be measured using the methodology utilized in previous quantitative studies that show a positive relationship. Conducting an experimental study with a true control group may produce additional findings. As stated previously, experimental studies that compared strategy interventions to a control group using traditional reading methodology produced positive results (Brown et al., 1996, Cross & Paris, 1998). A quasi-experimental study where all teachers employ strategy instruction may have impacted the overall findings of this study.

Future studies should also include a broader means of assessing reading comprehension, including the addition of qualitative studies. Several of the studies indicating a positive relationship between strategy instruction and reading comprehension used different standardized achievement measures and included additional qualitative and nontraditional measures (Brown et al., 1996; Duffy et al., 2013; Hansen & Pearson, 1983).

One non-standardized assessment recommended is Ellen Keene’s Assessing Comprehension Thinking Strategies (2006). Keene’s assessments require students to apply reading strategies using four grade level passages, two of which are informational and two are literary. The rubrics used to assess students’ ability to infer, ask questions, monitor comprehension, synthesize and determine importance closely align to the instruction outlined in
the Comprehension Toolkit. Administering tightly aligned assessments in a pre/post quantitative experimental study may yield additional findings.

Future research may show the Comprehension Toolkit positively impacts students’ ability to comprehend. Controlling for the identified limitations discussed previously could prove such benefits.

**Conclusion**

The purpose of the current study was to identify an intervention that focused on transitional reading strategies in order to increase K-5 students’ reading comprehension. The Comprehension Toolkit was selected because it included several elements noted in research on transactional strategy instruction. The current study examined the relationship between teacher levels of implementation of the Toolkit (high versus low) and teachers’ years of classroom experience to determine if these factors impacted students’ reading comprehension. This study also focused on the Comprehension Toolkit’s impact on intermediate - versus primary-age students and students’ ability to read informational versus literary text in grades three through five.

While the current study’s results suggest the need for further research, results show a positive impact on students’ ability to comprehend informational text versus literary text. This difference could be attributed to the Comprehension Toolkit and aligned professional development. This is a significant finding in light of Common Core State Standards and expectations for the 21st century, which require students to comprehend complex informational text.
Research suggests ongoing, highly supported implementation efforts will further define the benefits of the Comprehension Toolkit, as will future studies that control for the limitations posed in this study. It is imperative that researchers continue to study the relationship between the Comprehension Toolkit and student reading achievement across grades K-5 as this intervention could be used by many school districts to prepare students for the future. The need to provide teachers with resources aligned to research on transactional strategy instruction is essential if schools are to equip students for the 21st century. A sense of urgency remains for others to continue to study the Comprehension Toolkit as this intervention embodies many of the elements noted in research to further student understanding of the written word.
REFERENCES


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