

University of Nevada, Reno

**How Do Upper Elementary Teachers Teach Informational Text  
Comprehension Strategies?**

A dissertation submitted in partial fulfillment of the  
requirements for the degree of Doctor of Philosophy in  
Education

by

Koala Q. Koenig

Dr. Diane Barone/Dissertation Advisor

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THE GRADUATE SCHOOL

We recommend that the dissertation  
prepared under our supervision by

**KOALA Q. KOENIG**

Entitled

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Diane Barone, Ed.D., Advisor

Julie Pennington, Ph.D., Committee Member

Rachel Salas, Ph.D., Committee Member

Dianna Townsend, Ed.D., Committee Member

Eleni Oikonomidou, Ph.D., Graduate School Representative

David W. Zeh, Ph.D., Dean, Graduate School

May, 2018

## Abstract

The purpose of this study was to examine what upper elementary teachers' instruction of comprehension strategies with informational text entailed. Qualitative data were collected in two fourth- and fifth-grade teachers' classrooms through observations, interviews, and artifacts. The findings suggested that the teachers used the following strategies related to informational text comprehension in their instruction most frequently: (1) questioning; (2) reading aloud; (3) text features and visual elements; and (4) vocabulary instruction. In addition, the teachers also used several other strategies such as summarizing, writing, and using Spanish to teach English Learners vocabulary to support student comprehension of informational text. Some of these strategies were well researched and have established efficacy, whereas others were studied but not on the lists of informational text comprehension strategies. How and why the teachers selected and taught these comprehension strategies was discussed and implications for researchers and educators were included.

*Keywords: informational text, non-narrative text, nonfiction text, reading comprehension, comprehension strategies, reading education, literacy strategies*

## Dedication

I dedicate this dissertation to Baba and Mama for instilling in me the importance and wonder of education, human decency, and discipline.

Life is beautiful because of you.

Mama, 我很想你!

I also dedicate this dissertation to my sons, Karlson and Keanu, for being patient, funny, and lovely. Life is beautiful with you.

Ich habe euch sehr, sehr lieb!

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## **Chapter 1**

### **Introduction**

Reading is an important skill that students need to acquire in school so that they are prepared for academic, personal, and professional tasks in life and at work in the future (Wyse, Andrews, & Hoffman, 2010). The goal of reading is for the reader to achieve comprehension, to make meaning of and connection to the text (Pressley & Allington, 2015). The RAND Reading Study Group (2002) defined reading comprehension as “the process of simultaneously extracting and constructing meaning through interaction and involvement with written language” (p. xiii). It is a complex process that involves not only the text, but also the reader and the activity itself (RAND Reading Study Group, 2002); its success depends on the individual variation of different factors such as foundational decoding skills, prior knowledge, among others. Vellutino (2003) explained:

Individual differences in knowledge, skills, and abilities that underlie word recognition and language comprehension, along with individual differences in dispositions such as the reader’s motivation, goals, and purposes, are all important sources of variability in reading comprehension. (p. 51)

Reading comprehension presents particular challenges to fourth-grade students because they need to transition from learning decoding skills and deciphering printed text in the primary grades to reading in order to understand and learn from diverse content area texts (Best, Floyd, & McNamara, 2008; Duke, Bennett-Armistead, & Roberts, 2003; Etmanskie, Partanen, & Siegel, 2016). As the RAND Report (2002) stated:

Children need to read well if they are to learn what is expected of them in school beyond grade 3. Teaching in the content areas relies on texts as a major source of instructional content. These texts are not designed as a context for comprehension instruction, but comprehension instruction that uses these texts may be crucial if students are to understand or learn from them. (pp. 5-6)

In other words, it is crucial that upper elementary teachers know how to use these texts to promote and practice comprehension strategies so that their students can understand and also learn from various texts. In 2010, the Common Core State Standards mandated that all fourth-grade reading materials be composed of 50% narrative text and 50% informational text (National Governors Association Center for Best Practices & Council of Chief State School Officers [NGA Center & CCSSO], 2010). Informational text is a genre that has been traditionally neglected in the elementary classroom (Duke, 2000; Ness, 2011a; Yopp & Yopp, 2012). Duke and Bennett-Armistead (2003) defined informational text as “texts whose elementary purpose is to convey information about the natural and social world” as opposed to narrative literature text (p. 16). It is also referred to as nonfiction, expository, or non-narrative.

### **Statement of the Problem**

Because of the complex vocabulary and unfamiliar text structure of informational text, among other distinct characteristics of this text genre, fourth- and fifth-grade teachers and students face great challenges in teaching and learning to comprehend informational text, respectively (Pao & Williams, 2015; Walters, 2013). One important cause for the mismatch between teacher practice and student performance is the traditionally overpowering choice of narrative text as instructional material in the primary

and elementary curriculum (Calo, 2011). In other words, teachers are used to teaching narrative text and have yet to include the teaching of reading comprehension with informational text (Sanacore & Palumbo, 2009). One direct consequence of teaching reading with mostly narrative text is that students score better in reading narrative than informational text. According to the Progress in International Reading Literacy Study (PIRLS), fourth-graders in the United States performed better in the literary experience domain than the acquire and use information domain (Thompson et al., 2012).

On the other hand, informational text has an increasingly omnipresent status in school tests. Hoyt (2002) observed that “standardized tests across our country are now comprised of anywhere from 50-85 percent informational texts” (p. 3), which was later confirmed by Saul and Dieckman (2005). Venezky (2000) warned that schools’ lack of adequate instruction of informational text left students ill-prepared to meet the demands in life and work. He used the term “chasm” to describe the rift between what students learned in school and what they needed to know (p. 20).

Appropriate literacy instruction can help improve student comprehension of informational text (Duke & Martin, 2015a). Some literacy researchers advocated for differentiated comprehension instruction based on text types. Duke and Roberts (2010) reviewed a variety of studies that revealed differences in reading comprehension by genre, most often by narrative vs. informational text. The areas in which genre was seen to make a difference included – but was not limited to – the following:

... predicting; confirming predictions; accessing general knowledge and associations; focusing on personal knowledge and experiences; discussing prior knowledge; commenting on structure; self-questioning; rereading; inferring;

referring to antecedent information; integrating incoming information; synthesizing; making intertextual comments; making extratextual comments; and managing reading behavior. (p. 80)

Students need explicit strategies instruction to comprehend informational text (Fox, 2009). However, comprehension instruction is generally lacking in elementary classrooms (Block & Duffy, 2008; Block & Pressley, 2003); it is even more lacking when using informational text (Ness, 2011b). Although effective comprehension strategies have been identified and the instructional needs of students to comprehend informational text have been acknowledged, not enough is known about the informational text comprehension strategies that teachers teach in elementary classrooms (Martin & Duke, 2011; Ness, 2011a).

### **Purpose of the Study**

Given the importance of informational text comprehension in and outside school and the limitation of prior research to investigate classroom practice of informational text instruction (Yopp & Yopp, 2012), the purpose of this study was to examine what fourth- and fifth-grade teachers' instruction of comprehension strategies with informational text entailed.

To address the purpose of this study, I observed how teachers taught comprehension strategies with informational text. Students need explicit comprehension strategies instruction to learn strategies (Pao & Williams, 2015). Curwen, Miller, White-Smith, and Calfee (2010) stated that explicit instruction "in cognitive processes and strategies support students as active learners rather than passive consumers" (p. 131). In general, active learners learn and apply comprehension strategies in reading various texts

more effectively (Pressley & Allington, 2015). Therefore, it is imperative that teachers provide explicit comprehension instruction with informational text to students so that they are exposed to the text and strategies teachers model, have the opportunity to practice related strategies, and gradually assume the responsibility for selecting the appropriate strategy or combinations of strategies for specific text and reading purpose (Duke & Martin, 2015a). Because current research lacks knowledge of what elementary teachers do to teach informational text comprehension, I decided to address the void by exploring fourth- and fifth-grade teachers' informational text comprehension instruction in their classrooms.

### **Significance of the Study**

First, I elected to study fourth- and fifth-grade teachers' informational text comprehension instruction because of the situation students currently face in terms of their reading performance. According to the *Nation's Report Card*, in 2015, 31% of fourth-grade students in the United States read below the basic level (National Assessment of Educational Progress). Many students in the fourth-grade have acquired decoding skills but lack comprehension skills to make sense of what they read (Etmanskie et al., 2016). Teachers need to help them make the transition from learning to read to reading to learn by providing appropriate instruction and helping them develop comprehension skills. The RAND report (2002) clarified:

Given the enormous educational importance of promoting both reading comprehension and learning among elementary and secondary students, it is crucial to organize what we know about these topics, define what we need to

know, and pursue the research that will be most important for improving teacher preparation, classroom instruction, and student achievement. (p. 3)

However, limited research showed that, on the one hand, ideologically, teachers considered the switch from using narrative to informational text easy; on the other hand, pedagogically, they made an effort to adjust but struggled (Kindall, 2013). Part of the problem is that “teacher preparation and professional development programs are inadequate in the crucial domain of reading comprehension, in part because the solid, systematic research base that should provide a foundation for teacher preparation does not exist” (RAND Reading Study Group, 2002, p. 7). Research is urgently needed to study how teachers currently teach and find out what kind of training and professional development they need and design them accordingly to help teachers teach comprehension in the Common Core era more effectively. Therefore, the significance of this study was to provide a base for further research that can inform teacher education and professional development in comprehension instruction with informational text. The ultimate goal of the research was to “enhance, extend, and expand current practice” (RAND Reading Study Group, 2002, p. 62).

Second, I adopted the case study method because it provided needed details and information of current fourth- and fifth-grade teachers’ instructional practice. In the RAND Report (2002), the importance of qualitative research in comprehension strategy comprehension was clearly stated:

...the conditions for the use of strategies are not fully explicated in either the experimental literature or the case study literature. ...this convergence does suggest that strategy instruction is a promising starting point for new research on

reading comprehension instruction. ...Qualitative methods are often the most appropriate ones when the goal is discovery. ... In addition, qualitative methods are useful for providing a cultural perspective on why certain groups respond the way they do to instruction, or for describing how teachers' practices differentially affect students' reading engagement and performance. (pp. 66-68)

This case study was designed to make timely contributions to literacy research in two ways. First, it can contribute to the knowledge base in the field of informational text comprehension research. By observing and describing how current fourth- and fifth-grade teachers taught informational text comprehension and related strategies, this study provided insight in classroom literacy practice and began to fill the void in research. It informed other researchers and practitioners of potential directions of further studies.

Second, this study provided nuanced information about comprehension strategies that can contribute to teacher training and professional development of instructional approaches. As curricula have shifted towards a focus on informational text reading and testing, the results provided teachers and teacher educators with information about some of the knowledge, skills, and strategies teachers most needed to effectively teach informational texts. The results can also support teachers as they differentiate instruction, which can lead to improved teaching and learning of reading comprehension of informational text in the classroom.

### **Research Question**

The research focused on the following question: What is the nature of comprehension strategy instruction of informational text in fourth- and fifth-grade teachers' classrooms? Concretely, it attempted to answer the following question:

- How do upper elementary teachers teach informational text comprehension strategies?

## Chapter 2

### Literature Review

Informational text has gained an increasingly prominent presence in elementary classrooms in the past decade (Liebfreund, 2015). In 2010, the Common Core State Standards (CCSS) recommended that starting in fourth grade, all classroom reading materials consist of 50% narrative text and 50% informational text (NGA Center & CCSSO, 2010). This requirement was a dramatic increase of informational text compared to the decade-long lack of these texts and related comprehension instruction in elementary classrooms (e.g., Calo, 2011; Duke, 2000). The increasing demand on teachers to teach informational text and on students to read and comprehend it, compounded by the challenges informational text presented because of its structures which are different from narrative texts, its complex academic vocabulary, and its higher requirement of prior knowledge, has rendered elementary teachers and students unprepared to tackle the reading tasks involving informational text (Duke & Martin, 2015a; Jeong, Gaffney, & Choi, 2010; McCown & Thomason, 2014).

In order to help teachers and students successfully read and understand informational text, research is needed about how teachers are currently teaching informational text to elementary students (Liebfreund, 2015). Are teachers explicitly teaching comprehension strategies to help students comprehend informational text? Do teachers' instructional choices differentiate between narrative text and informational text? Concretely, do the different features and reading demands of narrative and informational text dictate to teachers how to provide students with varied strategies to aid their comprehension of specific textual content? This study aimed to provide insight into how

upper elementary teachers teach informational text comprehension strategies to students. It addressed the following research question: What is the nature of comprehension strategy instruction of informational text in fourth- and fifth-grade teachers' classrooms?

This review serves two purposes: a) to situate this study in current research; and b) to identify a gap in the literature that this study addressed. It is organized into three main sections: 1) reading comprehension instructional models; 2) comprehension strategies for narrative text; and 3) comprehension strategies for informational text.

### **Reading Comprehension: An Overview**

In current literacy research and practice, reading comprehension was considered both the goal and a crucial part of the process of reading (Pressley & Allington, 2015). Reading comprehension was defined as the process of “simultaneously extracting and constructing meaning through interaction and involvement with written language” (RAND Reading Study Group, 2002, p. xiii). It was a complex task that invariably involved three components – “the reader who is doing the comprehending; the text to be comprehended; and the activity in which comprehension is a part” (Abadiano & Turner, 2003, p. 76).

Although comprehension was considered an integral part of reading and a goal in reading instruction, the theories and practices concerning reading comprehension have had a relatively short history, some parts of which might deviate from or even contradict modern-day thinking about literacy and reading comprehension. One such example was having teachers “use a range of questions to guide students in conversation during page-by-page guided reading and in a post-reading discussion” to promote comprehension (Pearson, 2009, p. 5).

This section will review the development of reading comprehension in three major theoretical strands that still demonstrate great influence in today's literacy research and practice: a skill-based behavioral concept of reading comprehension; schema theory; and the transactional view of reading comprehension (Damico, Campano, & Harste, 2009; Pearson, 2009; Rosenblatt, 1978).

### **Skill-Based Concept of Reading Comprehension**

According to Pearson (2009), the skill-based concept of reading comprehension was developed several decades ago. Historically, comprehension of text did not hold as important a position in reading as it did in contemporary literacy research and practice. In fact, text comprehension was left out of reading for several centuries because literacy education was reserved for the privileged few and the main purpose of reading was to achieve oral capacity and text memorization, hallmarks of the declamation and oratory inherited from the European literacy practice from 17<sup>th</sup> to 19<sup>th</sup> centuries (Pearson, 2009). The majority of commoners did not have access to printed materials and remained illiterate, whereas the literate prided themselves for reciting ancient Greek and Latin works, which was the learning goal for reading. Learners were readers and recipients of information from texts, and they, in turn, disseminated the same information to the next generation via the same texts. Further, it was assumed that "if one decoded the words on the page, comprehension would follow" (Duffy, Miller, Howerton, & Williams, 2010, p. 58).

The neglect of reading comprehension in the instructional context continued well into the first half of the last century. After World War II, school enrollment increased dramatically because of a great influx of immigrants, the prohibition of child labor, and

mandatory school attendance laws, leading to demands for testing efficiency and objectivity in reading comprehension instruction and tests (Pearson, 2009). This challenging change in literacy instruction demand coincided with the latest development in the field of psychology, which always exerted a great influence on education (Dole, Duffy, Roehler, & Pearson, 1991). Skinner's (1957) concept of behaviorism that assumed human and animal behavior responded to outside stimuli seemed to answer the pedagogic challenge of producing massive numbers of workers who could read by laying the foundation for a skill-based instructional approach to enhance reading comprehension and performance. It seemed to be a practical instructional approach that could be efficiently implemented. Reading teachers and scholars alike held the simple view of reading comprehension that it was the product of decoding and listening comprehension, skills that can be relatively easily taught to readers (Durrell, 1949). They also held the undisputed belief that meanings were located in texts (Dole et al., 1991). Therefore, the goal of comprehension instruction was to help readers acquire a set of subskills that would enable them to decode words and transfer the literal meaning from the text to their reception (i.e., what they saw in print was assumed to have identical meaning to what they had in their mind while reading those words and also afterwards). This view of comprehension was text-focused and static, discounting the active role that the reader played in the reading process. Examples of such comprehension subskills included "sequencing events in a story, predicting outcomes of a story, drawing conclusions, finding the main idea, and so forth" (Dole et al., 1991, p. 240).

This simple view of comprehension had great influence on reading instruction for several decades, leading to the flourishing of teachers' manuals and workbooks. At least

until the beginning of the 1990s, Dole et al. (1991) observed, “The proliferation of comprehension skills and the comprehension curriculum as we know it today emerged from this task-analytic behavioral conception of reading. ...In such a curriculum, it is assumed that each skill can be mastered and that the aggregate of all the subskills equaled reading comprehension” (p. 240). Despite new knowledge and revelations in reading research and practice in the past two-and-a-half decades, such skill-based and text-focused understanding and instruction of comprehension is still quite common in today’s elementary classrooms (Davis, Bippert, & Villarreal, 2015).

### **Schema Theory in Reading Comprehension**

One of the most influential developments concerning comprehension occurred in the 1970s, when educational psychologist Anderson (1978) applied schema theory to language and reading. He developed the thesis that “the knowledge a person already possesses has a potent influence on what he or she will learn and remember from exposure to discourse” (p. 67). In terms of reading comprehension, Anderson (1978) found that readers’ prior knowledge played an important role in understanding the text at hand, recognizing the interactive and constructive nature of reading and understanding a text. According to Anderson (1978), schemata were units of personal experiences on which a reader can draw to aid comprehension. Pearson (2009) studied Anderson’s (1984) works and reproduced the ways in which readers can make use of schemata:

- a. Schemata provide ideational scaffolding for assimilating text information.
- b. Schemata facilitate the selective allocation of attention.
- c. Schemata enable inferential elaboration.
- d. Schemata allow for orderly searches of memory.

- e. Schemata facilitate editing and summarizing.
- f. Schemata permit inferential reconstruction. (p.13)

The greatest value of the introduction of schemata in reading comprehension was that it recognized that the reader had an active role to play in the process, not merely as the passive recipient of text messages that were considered static and the same for all readers; the reader can make contributions and connections in the reading process and help his or her own meaning making (Cervetti & Hiebert, 2015). Even when reading the same passage or book, readers can and should bring in individual prior knowledge to make sense of what they read and may have different understandings of the same text. When cognizant of this aspect of comprehension, both students and teachers can be empowered to explore varied and more effective strategies and apply them to achieve comprehension and a more satisfying reading experience and performance, not bound and limited by a set of subskills in reading.

### **Transactional View of Reading Comprehension**

Although the term “transaction” appeared in Rosenblatt’s book, *Literature as Exploration* in 1938, the transactional view of reading comprehension was developed much later, in the 1980s. In her book, Rosenblatt (1938) reconceptualized what she termed “reader response” by

impugning the relatively undisputed belief that meanings were located in texts. Challenging the prevailing perspective of textual objectivity or textual autonomy, she instead maintained the interdependence of both text and reader, holding neither solely determinate of meaning. Rather than thinking of response as finding the “correct” meaning *in* the text, she described how a reader could draw upon a

reservoir of experiences, emotions, and attitudes in response to a text. (Damico et al., 2009, p. 178)

This concept of reading response was applied in reading comprehension and thus established a transactional view of the relationship between reader and author. Pearson (2009) explicated the ensuing changes in reading pedagogy as follows:

Comprehension gave way to readers' response to literature. Reader response emphasized affect and feeling that can either augment or replace cognitive responses to the content. To use the terminology of the most influential figure in the period, Louise Rosenblatt (1978), the field moved from efferent to aesthetic response to literature. And a "transactive model" replaced the "interactive model" of reading. ... According to Rosenblatt, meaning is created in the transaction between reader and text. (p. 20)

According to Rosenblatt (1978), efferent response referred to reading to get concrete information, facts, structure, and literal messages from the text, whereas aesthetic response referred to reading in search of lived-through experience of the reader and his or her interaction with the text. Efferent reading had been the staple goal and approach of reading comprehension up until then. The then prevalent skill-based instructional approach and plethora of teachers' manuals and workbooks all had the same goal – to teach students to extract the single and correct meaning that was right in the text, assuming that all readers should arrive at the same standard answer. The notion of aesthetic response added a human dimension to the previously undisputed mechanics of reading and afforded students and teachers immense power and possibility in learning and teaching reading. That meaning-making can be shaped by the experiences, attitude,

values, and emotions of individuals was a powerful revelation that placed the reader in the center of the reading process. Readers now had the power of interaction and interpretation; further, they made personal connections to the text, and these interpretations could vary from reader to reader, which was previously denied and which could be a motivating factor in reading development. Finally, different readers reading the same text could take an efferent or aesthetic stance or a mix of the two because there was no definite way of prescribing each reader's response (Damico et al., 2009).

However, transactional reading did not happen automatically, and the reader response approach might not function equally well across all grades and reading stages (Pressley, Brown, El-Dinary, & Allferbach, 1995). In some cases, aesthetic reading could be a source of misinformation or frustration instead of enlightening for students who struggled with decoding and comprehension. For instance, Nell (1988) pointed out that reading for pleasure – one direct form of aesthetic reading – was a complex endeavor that involved various skills and processes such as attention, comprehension, reading skills, and reading physiology. Therefore, without comprehension as a basis, aesthetic reading cannot take place. Prentice, Gerrig, and Bailis (1997) studied how undergraduate students read fictional texts and found that readers' attitudes and perceptions of the fictional world influenced their processing of the story. Concretely, when readers were unfamiliar with the setting of a fictional story:

they were vulnerable to its assertions: They became less certain of real-world truths regarding the health benefits of aerobic exercise and their safety from mental illness. When they were familiar with the story setting, they showed no such vulnerability. (p. 419)

Stahl (2006) also questioned the response-oriented instructional approach to literature in elementary classrooms. Despite the fact that many texts used for younger learners were “well written and evocative, many cannot bear the weight of individual response” (p. 61). Because texts used in the primary grades were relatively simple, Stahl (2006) warned that excessive response to a “pleasant but not richly evocative text may be as numbing as excessive questioning on minute details” (p. 61). Despite this caveat, the transactional view of reading comprehension still influences and benefits today’s intermediate literacy instruction (e.g., Pressley & Allington, 2015). For instance, a teaching model called transactional strategies instruction was developed and observed to be effective in elementary classrooms (Brown, 2008; Pressley et al., 1992).

### **Reading Comprehension: Instruction Models**

In the past few decades, literacy researchers have devoted a lot of time and effort to studying the instruction of reading comprehension (e.g., Dole et al., 1991; Dole, Brown, & Trathen, 1996; Durkin, 1978-1979; Pressley & Allington, 2015). Some researchers focused on the use and instruction of reading strategies and the effect they had on students’ comprehension, revealing the important role comprehension strategies play in student reading development (Aghaie & Zhang, 2012; Bereiter & Bird, 1985; Brown, 2008; Brown, Pressley, Van Meter, & Schuder, 1996; Schiefele, Schaffner, Moller, & Wigfield, 2012). Reading comprehension instruction in general should help students develop “the ability to *learn from text*” (RAND Reading Study Group, 2002, p. 29). However, the long-term goal was to help students learn to become strategic readers, independent comprehenders, and critical thinkers with the ability to effectively access the

various texts they would encounter in school, in life, and at work (Pressley & Allington, 2015).

### **Reading Strategies vs. Reading Skills**

Because reading comprehension instruction involves teaching strategies and fostering reading skills, it is necessary to briefly define the two terms, which are often used interchangeably in research and practice. For instance, in a curriculum analysis of comprehension instruction in five major reading programs that Dewitz, Jones, and Leahy (2009) conducted, they found frequent, mixed use of the two terms. In some of the programs they examined, comprehension strategies such as previewing and predicting were also labeled and taught as comprehension skills. For the purpose of this study, a reading comprehension strategy is defined as “a cognitive or behavioral action that is enacted under particular contextual conditions, with the goal of improving some aspect of comprehension” (Graesser, 2007, p. 7). In advocating for explicit strategy instruction, Duffy (2002) used the word “strategy” to mean “a technique that *readers* learn to control as a means to better comprehend” (p. 30), placing emphasis on the potentially powerful agency of the learner. In contrast, skills are “procedures applied in the same way every time without conscious thought” (Block & Duffy, 2008, pp. 20-21).

Afflerbach, Pearson, and Paris (2008) examined the issue and emphasized that reading strategies were “deliberate, goal-directed attempts to control and modify the reader's efforts to decode text, understand words, and construct meanings of text” (p. 368). In their opinion, a reading strategy was “a deliberate, conscious, metacognitive act” (p. 368). With practice, when the act “becomes effortless and automatic,” the reading strategy then transformed into a reading skill (see also Aghaie & Zhang, 2012).

Afflerbach et al. (2008) posited that “skill and strategy differ in their intentionality and their automatic and nonautomatic status” (p. 368). Concretely, a comprehension strategy was a “deliberate, conscious, metacognitive act” (p. 368) that students purposefully applied to aid meaning-making in reading. As time goes by and with enough practice:

the strategy requires less deliberate attention, and the student uses it more quickly and more efficiently. When it becomes effortless and automatic (i.e., the student is in the habit of asking “Does that make sense?” automatically), the reading strategy has become a reading skill. (p. 368)

Almasi and Fullerton (2012) concurred by emphasizing that strategies were “deliberate and help one attain a goal” (p. 1). They further stated that instructional activities and exercises such as using graphic organizers or Venn diagrams in processing text information were not strategies, rather mechanical tools waiting to be utilized by readers to aid comprehension. Strategies are the thinking processes and actions the reader deliberately elects to achieve a reading goal or goals, not the activities teachers require students to undertake or the worksheet to be filled out in class.

### **Models of Strategy Instruction**

Pressley and Allington (2015) stated that up to the 1970s, strategies instruction was practically “study skills instruction,” which entailed relating to prior knowledge, rereading difficult parts of text, and so on, and did not work effectively to increase student reading comprehension (p. 325). The frustration that the concerted effort did not lead to student reading achievement (Campbell, Hombo, & Mazzeo, 2000) led literacy researchers to further study how to effectively teach strategies as a way of promoting comprehension and develop various instructional models, some of which have achieved

varied degrees of success in promoting student strategy learning and reading comprehension (Andreassen & Braten, 2010). Of those models, the most researched were reciprocal teaching, transactional strategies instruction, and collaborative strategic reading (Almasi & Fullerton, 2012; Pearson, 2009).

Reciprocal teaching (Palincsar & Brown, 1984) was a multiple-strategy instructional approach that taught four comprehension strategies: predicting; questioning; clarifying; and summarizing. Palincsar and Brown (1984) studied reading education literature to find that six functions were common to all:

(1) understanding the purposes of reading, both explicit and implicit; (2) activating relevant background knowledge; (3) allocating attention so that concentration can be focused on the major content at the expense of trivia; (4) critical evaluation of content for internal consistency, and compatibility with prior knowledge and common sense; (5) monitoring ongoing activities to see if comprehension is occurring, by engaging in such activities as periodic review and self- interrogation; and (6) drawing and testing inferences of many kinds, including interpretations, predictions, and conclusions. (p. 120)

Therefore, Palincsar and Brown (1984) purposefully elected to include in the reciprocal teaching model the four strategies that helped students practice the overlapping functions listed above. For instance, summarizing required students to focus attention on the text content (3) and monitor comprehension in that process (5). In actual reciprocal teaching, just like in actual reading, these four strategies were taught not in isolation, but in various combinations determined by the comprehension demand of the text and students. For instance, if student summarizing was not successful and did not show

adequate understanding of the content, it would not be considered as a failure; the teacher could model clarifying and help the student practice it. The model was called reciprocal teaching because “teacher and student took turns leading a dialogue concerning sections of a text” (p. 124). Teachers and students read the same text, then teachers modeled one or more of the four chosen strategies as appropriate to the content. Students took turns to apply the same or different strategies as they saw fit. All of this instruction was conducted in a conversational fashion; teachers and students were active participants in reading, thinking, applying strategies, and attempting to understand one another’s reading process as well as the text at hand. Further, reciprocal teaching involved explicit strategy instruction, extensive modeling and practice, and gradual release of responsibility. Over time students cultivated the awareness of strategies available to them and accrued experiences in applying not a single strategy but flexible combinations of strategies as good readers automatically do (Palincsar & Brown, 1984).

In Palincsar and Brown’s (1984) original studies, they worked with seventh graders for four weeks in two different conditions – one with a researcher as teacher, whereas the other condition was with classroom teachers as teachers. Students in both conditions showed considerable growth in reading comprehension. The researchers attributed the success to the extensive modeling and interactive nature of the reciprocal teaching model. In the decade that followed, more researchers and practitioners studied and tested reciprocal teaching. Rosenshine and Meister (1994) reviewed sixteen studies on this instructional model and concluded that the results were mostly significant, including studies that involved below-average students (e.g., Lysynchuk, Pressley, & Vye, 1990). Interestingly, the number of studies on reciprocal teaching in the past decade

decreased. Current studies were either in the English as a Foreign Language context (Ghorbani, Gangeraj, & Alavi, 2013) or in a different language (Spörer, Brunstein, & Kieschke, 2009). These studies showed that students benefited from reciprocal teaching and achieved lasting strategy acquisition.

Collaborative strategic reading (Klingner, Vaughn, & Schuman, 1998) was similar to reciprocal teaching in that it inherited the explicit strategy instruction and modeling and extensive practice characteristics. It also elected to focus on four strategies, albeit in slightly different terminology and forms: previewing before reading the text (predicting); click and clunk when students make meaning or encounter difficulty in reading (questioning and clarifying); getting the gist during reading; and wrapping up after reading (summarizing).

Klingner et al.'s (1998) study of collaborative strategic reading involved 85 fourth-graders in an 11-day experimental condition and 56 students in a control condition. Both groups were taught by the researchers. At the beginning of the study period, researchers introduced four strategies and modeled the strategic reading process with an expository passage, using a think aloud to explicitly demonstrate to students why, how, and when strategies were used. Then, students practiced these comprehension strategies with a teacher's help. When they became more adept, cooperative groups were asked to model it for the class. From the fourth day on, students worked in heterogeneous groups of five or six throughout the day until the end of the study. With teacher modeling and assistance, as well as student modeling, students benefited from the discussion and input from other students and the teacher. Researchers found that students in the experimental condition made greater gains in reading comprehension and equal gains in

content knowledge as students in the control condition. Interestingly, students implemented the click and clunk and getting the gist strategies the most consistently and effectively. This result could be because previewing and summarizing strategies were mostly needed only at the beginning and end of the reading and did not have as many application possibilities as the other two strategies, which could be, and should be, activated throughout the reading process.

To further test the effectiveness of this collaborative strategic reading model in authentic school settings, researchers experimented with struggling readers mixed with average/high achieving students in fourth and fifth grades over two semesters (Klingner, Vaughn, Arguelles, Tejero Hughes, & Ahwee Leftwich, 2004), with groups of English Learners (Klingner & Vaughn, 2000), and with middle school students (Boardman, Klingner, Buckley, Annamma, & Lasser, 2015). All studies showed that in collaborative strategic reading classrooms, students improved significantly in reading comprehension compared with students in control classrooms. However, student initiation and participation in high-level discussions were not optimal. Klingner et al. (1998) observed that students rarely disagreed with peers or stated multiple points of view. They concluded that students needed to be exposed to more high-level discussions and given the opportunities to practice.

Unlike reciprocal teaching and collaborative strategic reading, transactional strategies instruction was not designed or developed by reading researchers; rather, it was gleaned from exemplary teachers' classes through a large-scale, longitudinal observational and interview study by Pressley and colleagues (1992). The Pressley research group consisted of reading scholars and teachers who observed and studied

aspects of instruction that were effective in helping students develop reading comprehension and become strategic readers. They named the model in their descriptive studies “transactional strategies instruction” because “student and teacher transactions with text are the heart of this form of instruction, with classroom discourse consisting of teachers providing support and guidance to students as they attempt to use strategies to learn regular elementary content” (Pressley et al., 1992, p. 513). Pressley and Allington (2015) explained that the instructional model was transactional from three different perspectives: First, students were encouraged to use strategies “to create personalized interpretations and understanding of text” (p. 336), corresponding to Rosenblatt’s reader-response theory that reading was a transactional process between reader and text. Second, transactional also referred to teachers and students actively interacting in the instructional context, in which teachers’ actions and reactions were largely determined by the reactions of the students: student progress or confusion in any part of the reading would dictate the teacher to react accordingly, maybe providing more modeling or prompting the student to try a different strategy. Third, students worked in groups and generated a group dynamic, understanding, and solutions that differed from individual students. Hence the transactional characteristic from the organizational psychology perspective.

According to Pressley et al. (1992), transactional strategies instruction emphasized “the coordinated use of diverse strategies” (p. 526), distinguishing itself from skill-based comprehension instruction or single-strategy instruction. The other important characteristic of transactional strategies instruction was that the reading groups were student-centered, with teachers providing frequent assistance and modeling to help students become aware of the strategies that might be applied to the reading text at hand.

Pressley et al. (1992) provided a description of the transactional strategies instructional activities that they observed:

A typical cycle of such activity involves a teacher initiating the interaction, perhaps by posing a question (e.g., What is this story about? How can we figure that out?). Several students usually react to an initiation, usually one at a time in an orderly fashion. The teacher sometimes responds to student comments.

Students also respond to one another. Sometimes students question their teachers about how to respond. (p. 527)

The strategies identified and investigated by the Pressley research group included “summarization, prediction, visualization, thinking aloud, story grammar analysis, text structure analysis (e.g., webbing), prior knowledge activation, and self-questioning” (p. 524). Pressley et al. (1992) argued that “transactional strategies instruction involves teaching many strategies that encourage interpretation. These strategies, however, are not mutually exclusive from ones affecting literal comprehension” (p. 526). Adding interpreting strategies to the traditional literal strategies afforded students new utensils to work with meaning-making and could potentially improve comprehension. Pressley et al. (1992) thus hypothesized the potential effects of transactional strategies instruction, “Particular strategies will be learned; particular content will be acquired; particular metacognition about strategies will develop; and particular motivational beliefs will be learned” (p. 544). Later studies confirmed these hypotheses in various instructional contexts (Brown et al., 1996; Hilden & Pressley, 2007). For instance, Pressley and Wharton-McDonald (1997) found that transactional strategies instruction in which “readers interact with text and with each other are more effective in improving reading

comprehension than reciprocal teaching, which involves less explicit instruction by the teacher” (p. 448).

Although transactional strategies instruction seemed to be effective in many classrooms in different public schools, it also drew criticism on its implementation and varied effectiveness. Brown, El-Dinary, Pressley, and Coy-Ogan (1995) voiced the concern that teachers found it challenging to allocate adequate amounts of time for strategies instruction, to find appropriate texts, and to accurately assess student progress in comprehension and strategies application. Klingner et al. (1998) stated that the transactional approach was designed “to be used with small teacher-facilitated groups rather than student-led cooperative-learning groups in large classrooms” and was, therefore, not as practical as collaborative strategic reading (p. 4). Davis (2013) reviewed and critiqued multiple comprehension strategies instruction (MCSI) in the intermediate grades between 1980 and early 2010s, and transactional strategies instruction was one that he reviewed. In his opinion, the transactional strategies instruction model, like the other MCSI studies he examined, adopted a procedural view of strategies because:

strategies are simply not taught as mental tools under the reader’s conscious control and direction. Instead, they are presented as procedures or routines that are often rigidly sequenced. The result of the proceduralization of strategies is that the interactions readers have with a text are distinctly non-strategic, even though they are disguised within structures that have strategy labels attached to them. (p. 211)

Even Pressley et al. (1992) declared as one of its characteristics that transactional strategies instruction “is based much more on direct explanation and modeling by the teacher” than other instructional models at the time, such as reciprocal teaching (p. 531).

Direct explanation of what strategies were and modeling when and how to use them was necessary in helping students learn and practice to become strategic readers; it was also a more beneficial mode of interaction than the previously prevalent “overreliance on telling as an interaction mode” in reading classes (Taylor, Peterson, Pearson, & Rodriguez, 2002, p. 278). However, how and when teachers explained and modeled strategies can be a double-sided sword: timely and adequate teacher modeling can provide students with needed scaffolding and facilitate student learning and comprehension, whereas scripted or overly teacher-directed explaining and modeling might not benefit student learning (Duke, Pearson, Strachan, & Billman, 2011). According to Stahl (2006), in an ideal direct explanation instruction, in the beginning, “the responsibility of using a strategy lies largely with the teacher; by the end, the student is executing the strategy independently” (p. 57). That teachers’ instructional decisions varied from classroom to classroom was not within researchers’ control; however, the criticism pointed to a research direction to provide teachers with effective and supportive professional development opportunities so that they can become better at utilizing models of comprehension strategies.

### **Characteristics of Effective Comprehension Instruction**

Despite their differences, the above three comprehension instructional models were relatively effective in promoting student reading comprehension and strategies learning (Boardman et al., 2015; Pearson, 2009). They shared several common traits such as an emphasis on higher-order thinking, teacher-monitored and teacher-assisted reading as opposed to child-managed reading, with scaffolded practice on both mechanics and higher-order composition skills (Block, Parris, Reed, Whiteley, & Cleveland, 2009; Connor, Morrison, & Petrella, 2004; Dougherty Stahl, 2009; Duke & Pearson, 2008;

Kraemer, McCabe, & Sinatra, 2012; Pressley, Yokoi, Rankin, Wharton-McDonald, & Mistretta, 1997; Taylor et al., 2003). For instance, Taylor et al. (2003) observed that teachers who emphasized higher-order thinking, “either through the questions they asked or the tasks they assigned” (p. 3), helped their students achieve greater reading growth. Connor et al.’s (2004) investigation found that students achieved greater reading comprehension growth when participating in teacher-managed reading comprehension instructional activities than participating in child-managed reading activities. Teachers needed to give students choices and some measures of control over their own learning, but they also needed to provide explicit strategies instruction to guide, support, and scaffold their students with relevant instructional activities (Palincsar & Schutz, 2011; Paris & Oka, 1986). Of the effective practices of comprehension instruction, the following three seemed to attract much attention and achieved consensus on their effectiveness in recent years: teaching multiple strategies; explicit strategies instruction; and guided student practice and gradual release of responsibility (Almasi & Fullerton, 2012; Duke et al., 2011).

Previous traditions of comprehension strategy instruction tended to focus on skill drills to help students learn to use some specific strategies to get the meaning from a text so that they would be able to answer prescribed comprehension questions (Cummins, Stewart, & Block, 2005). However, because of the dynamic and fluid nature of reading comprehension and flexibility in proficient readers’ application of strategies, this static way of teaching strategies was not very effective (Duke & Pearson, 2008; Keene & Zimmerman, 2013; Pressley & Afflerbach, 1995). Frey and Fisher (2013) also warned against the danger “in teaching comprehension strategies in isolation of one another,

which was a mistake commonly made in the past” (p. 17). Instead, effective strategies instruction emphasized teaching a set of strategies and helping students practice to apply them in different combinations to varied texts (Cummins et al., 2005). Effective strategies instruction required teachers to explain comprehension strategies to students, guide them through practice, and provide them with ample opportunities to read different genres of texts and help them apply various strategies during reading (Almasi & Fullerton, 2012; Socorro U. Liwanag, Fahrenbruck, & Kim, 2015). Teaching comprehension strategies in isolation might help with student comprehension of a specific text, whereas teaching multiple strategies can help students make meaning with the text at hand and add to their toolbox of strategies, potentially enhancing their comprehension ability in the long run or across different texts (Almasi & Fullerton, 2012; Tierney & Cunningham, 1984).

Another important reason for multiple strategies instruction lay in the different comprehension demands of diverse text genres, modalities, and content. For instance, when proficient adult readers read historical fiction, the combinations of strategies they activated to make meaning and interact with the text differed from when they read a news report or a journal article in a field unfamiliar to them. Therefore, teaching multiple strategies can help students grow into good comprehenders who engage with diverse texts in an effective and meaningful way. On the other hand, good comprehenders knew how and when to use varied combinations of multiple strategies in meaning-making. Kletzien (1991) studied how good comprehenders and poor comprehenders read texts of varied degrees of difficulty. She found that, as the passage difficulty increased, “good comprehenders are more flexible than poor comprehenders and have greater control of the strategies. Good comprehenders are more able to vary their use of strategies when

appropriate, and they are more willing to persevere even when the task is arduous” (p. 80).

Teaching multiple comprehension strategies was also effective in other instructional contexts. Hughes and Parker-Katz (2013) observed that when teachers incorporated strategies into social studies instruction, students with learning disabilities were provided with support “to access text even when the special education teacher is not present in the classroom to provide individualized assistance” (p. 93). The flexibility of varied combinations of strategies helped students in their social studies lessons comprehend the texts in the content area, and it also benefitted the reading development of students with learning disabilities.

Another recent application of multiple strategies instruction took place in an English as a Foreign Language (EFL) context in Greece. Manoli, Papadopoulou, and Metallidou (2016) studied 99 Greek-speaking EFL learners aged 11 to 12 with a quasi-experimental design for twelve weeks. They found that students in the experimental group receiving multiple strategies instruction improved their reading performance both in the immediate and delayed posttest measurements as compared to the students in the control group.

Traditional instruction of comprehension in elementary classrooms was limited in time and not explicit in clarifying the what, why, and how of comprehension strategies: teachers merely mentioned or named strategies and skills expected of student acquisition in class without providing practice opportunities (Ness, 2011b; Pearson & Dole, 1987; RAND Reading Study Group, 2002). Research has shown that the implicit instructional approach in which authentic reading and discussion of reading were dominant and

strategies were not clearly named, explained, and modeled might cause confusion to many students: they were mostly passive readers to begin with, and were unlikely to become active through the reading or discussion to notice when and why to use which strategies that their teacher did not specifically talk about (Almasi & Fullerton, 2012; Block & Pressley, 2007; Kucan & Beck, 1997). Pressley and Wharton-McDonald (1997) also reported that classroom observation studies showed that “insufficient attention is directed to comprehension, which needs to be taught and not just monitored” (p. 448). Further, the complexity of reading comprehension and the intricacies and flexibility of comprehension strategies and their application mandated that strategies instruction cannot rely on incidental learning alone (Pressley & Allington, 2015). In comprehension strategies instruction, it was important for teachers to provide explicit instruction, which involved the teacher’s clear explaining and modeling of what the strategies were and why, when, and how to use them; it should be followed up with guided student practice (Block, Rodgers, & Johnson, 2004; Rupley, Blair, & Nichols, 2009). Villaume and Brabham (2002) emphasized that “a critical piece of explicit instruction is an insightful teacher who is capable of clearing up confusions that emerge as students try out the modeled strategies” (pp. 673-674). With explicit strategies instruction, students were not left in the new and unknown to grapple with the illusive meaning of the text at hand; they would have a clear goal and model in learning strategies and their use (Duffy et al., 1987). This approach fostered student autonomy in strategies application and effectively helped students become familiar and comfortable with using different strategies to make meaning of varied texts.

In summarizing the RAND report, Abadiano and Turner (2003) suggested that teachers teach comprehension strategies explicitly because it “makes a difference in learner outcomes, especially for low-achieving students (modeling and careful scaffolding is key)” (p. 76). Almasi and Fullerton (2012) detailed the procedure of explicit instruction of comprehension strategies:

The teacher identifies the objectives and goals for the lesson and provides explanation, modeling, and guided practice to help students attain them. Over time the teacher gradually releases responsibility for directing the instruction to the students, until they are capable of engaging in the process entirely on their own. (p. 145)

Duffy et al. (2010) also emphasized that being explicit means modelling thinking or reasoning. Studies have shown that such explicit comprehension instruction to be effective (Droop, van Elsäcker, Voeten, & Verhoeven, 2016; Duffy, 2002; Pressley & Allington, 2015). For instance, Curwen et al. (2010) found explicit comprehension instruction with multiple strategies effective in supporting student organization of information; students learned to apply these strategies throughout the reading process. Andreassen and Braten (2011) conducted an experiment with Norwegian fifth-graders and their teachers for five months and found that students receiving explicit comprehension instruction improved their strategic reading competence and comprehension performance relative to students in the control group.

Effective strategies instruction included rich and varied opportunities for students to practice strategies under teacher guidance. Such practice needed to be guided and managed by teachers because elementary students failed to stay on task or sustain a

discussion, or that they got into three different types of sociocognitive conflict as incongruity arose. Almasi and Garas-York (2009) described the conflicts as:

conflicts with self (i.e., the metacognitive realization that some aspect of the text or one's interpretation was causing confusion), conflicts with others (i.e., realization that incongruent ideas were present among group members), and conflicts with text (i.e., realization that one's response was incongruent with information in the text). (p. 483)

Almasi and colleagues discovered that students engaged in peer discussion encountered more conflicts with self, whereas students in teacher-led conditions encountered more conflicts with text (Almasi et al., 2004). Their longitudinal study also showed that only with ample guided practice can students learn to apply strategies in different contexts and learn different content knowledge; teachers can practice gradual release of responsibility in the process (Pearson & Gallagher, 1983). This scaffolding process was “the gradual movement from teacher control of an explanation of how to do a strategy to students' control of the strategy as they apply it independently” (Block & Duffy, 2008, p. 27).

Duke et al. (2011) explicated the challenge in gradual release of responsibility:

It is important to emphasize how critical that middle portion of the release, collaborative and guided practice, is to effective instruction. We have noticed a number of teachers who provide explicit teaching but expect students to independently apply strategies too soon. A key finding of research on highly effective teachers serving high-poverty students is that they spend a good deal more time coaching (i.e., providing guided practice for) students – that is, being

the “guide on the side” as students try out their developing facility to apply strategies in actual reading and writing tasks. (p. 66)

In steering away from the teacher-centered instruction, some teachers erred on the side of refraining from giving too much direction to students, thinking that they were giving students autonomy. However, student autonomy cannot be given by any teacher that way; it had to be practiced and apprenticed by students with teachers’ help, guidance, and support. Teachers provided guidance as students needed it with meaning-making (Block et al., 2009). The process was indeed gradual. Pressley and Allington (2015) suggested, “Feedback and instruction are reduced as students become more and more comfortable with the strategic process being taught” (p. 335).

This practice was a particular challenging aspect of effective reading comprehension instruction and often failed to become an integral part of many teachers’ lessons (Block & Duffy, 2008). In a curriculum analysis of five core reading programs for third to fifth grade, Dewitz et al. (2009) tracked three reading strategies – summarization, narrative structure, and making inferences – through one unit of the fourth-grade curriculum for each of the five core programs to determine whether a release-of-responsibility model was followed. They found that “direct explanation, discussion, and questioning are more common than modeling, skill explanations, or guided practice” (p. 116). Further, across all three grades, “none of the programs have employed this model with any consistency and some not at all. The missing link in most programs is the lack of guided practice and the need for students to model the strategies” (p. 120). More research and targeted professional development programs are needed to help reading teachers become more adept at providing guided practice to students to

accomplish gradual release of responsibility in comprehension instruction (Pressley & Allington, 2015).

### **Comprehension Strategies for Narrative Text**

Research has found that, to help facilitate comprehension, good readers used various strategies in the process of reading (Almasi & Hart, 2015; Duffy et al., 1987). Teachers and educational researchers observed and studied how readers thought and how they constructed meaning – or how they failed to do so and why (Barksdale, 2013; Paris & Myers, 1981; Vogt & Shearer, 2007). They found that good readers consistently and conscientiously used various strategies to effectively interact with the text they were reading, helping themselves comprehend and respond to it in a meaningful way. They compiled a substantial list of comprehension strategies that included previewing, self-questioning, note taking, concept mapping, making connections, visualizing, thinking aloud, and summarizing, among others (Almasi & Fullerton; 2012; Bereiter & Bird, 1985; Duke et al., 2011; Fang & Coatoam, 2013; McLaughlin, 2012; McNamara, 2007).

Compared to the various directions of development in reading comprehension theories and the ensuing waves of instructional techniques, approaches, and models in the past half century, the development of comprehension strategies seemed to have stayed relatively stable. Block and Duffy (2008) noted that the list of necessary strategies has become shorter in recent years. They surveyed studies of commercial reading materials between 1987 and 1997 and found that as many as 45 different comprehension strategies were to be taught in a year. In their own selection of strategies that have been researched and validated since 2000, Block and Duffy (2008) excluded superfluous ones such as “Using study skills while reading” and “Noting whether one should recommend a text to

others” (p. 22), and they grouped similar concepts into one category. For example, “Pausing to reflect,” “Rereading when something isn’t clear,” and “Being retrospective about text” were clustered under “Look-backs, rereads, and fix-it strategies” (p. 22). Dewitz et al. (2009) examined five major reading programs and found the number of skills and strategies varied from 18 to 29 per program per year. The National Reading Panel (NRP, 2000) analyzed 203 studies of comprehension strategy instruction and recommended seven strategies plus multiple-strategy instruction. Duke and Pearson (2008) reviewed effective individual comprehension strategies and endorsed six on the NRP’s list: prediction, think-aloud, text structure, both narrative and expository, visual representations of text, summarization, and questioning. This list corresponded to the strategies that Block and Duffy (2008) gleaned from previous studies (see Table 1).

Table 1

*Strategies to be taught (recommended by current research)*

Strategies that have been researched and validated to be highly successful since 2000 (by Block & Duffy, 2008)	Individual comprehension strategies that were considered effective and selected by Duke and Peterson (2008):
1. Predict	1. Prediction
2. Question	2. Questioning
3. Image	3. Visual representations of text
4. Summarize	4. Summarization
5. Evaluate (fictional text)	5. Text structure, narrative and expository
6. Synthesize (informational text)	6. Think-aloud
7. Monitor	
8. Reread	
9. Infer	

This table showed the coherent overlap in literacy researchers’ selections of effective strategies and pointed to the recent trend to teach fewer strategies to students

and teach them thoroughly. In a more recent review, Duke et al. (2011) examined strategies that research has indicated as worth teaching – that is, “if taught, they improve reading comprehension” (p. 64). In addition to the above-listed six strategies, Duke et al. (2011) added two important ones: setting purposes for reading and activating prior knowledge. However, neither was included in this review because they should be an integral part of comprehension instruction: each reading lesson should begin with a discussion of relevant background knowledge and setting a clear purpose of instruction (Palincsar & Brown, 1984). Because the strategies Duke and Peterson (2008) evaluated and recommended have a strong research base (e.g., Akhondi, Malayeri, & Samad, 2011; Dymock & Nicholson, 2010), this section focuses on discussing these six strategies. While the strategies are presented discretely, they are often combined with other strategy use.

### **Prediction**

To provide prediction was to “hypothesize about what the author might discuss next in the text” (Palincsar, 2003, p. 101). Readers needed to “deduce the next event, action, or idea” (p. 112). Predicting was a cognitively multilayered task:

To do this successfully, students must activate the relevant background knowledge they already possess regarding the topic. The students then have a purpose for reading: to confirm or disprove their hypotheses. Furthermore, an opportunity has been created for the students to link the new knowledge they will encounter in the text with the knowledge they already possess. The predicting strategy also facilitates use of text structure as students learn that headings,

subheadings, and questions imbedded in the text are useful means of anticipating what may occur next. (Palincsar, 2003, p. 101)

During reading, proficient readers made predictions about what events would happen next or what opinions, ideas, or evidence would be presented. Then they read on and assessed their predictions automatically: if they were correct, reading could continue; if they were not supported by the text, readers would stop and make a decision to either accept that they have made a mistake and move on or apply other strategies such as rereading in an attempt to reconcile the discrepancies (Gillet & Temple, 1994). This process embodied the flexibility of a good reader's application of multiple strategies in the reading process: in this case, prediction, self-monitoring, and rereading were among the strategies that could be used.

Predicting is an important and effective strategy for readers because it lays the foundation for deeper reading and is necessary for higher-order thinking and meaning-making (Foley, 1993). Students need to learn how, when, and why it can be applied in reading, preferably in combination with other research-based comprehension strategies (Nolan, 1991). In two seminal experimental studies, Palincsar and Brown (1984) worked with teachers to train seventh and eighth grade students who struggled with reading to use four comprehension strategies, and predicting was one of them. The findings were impressive, showing that "the quantitative improvement on the comprehension tests was large and reliable; all but one student in Study 1 and all the students in Study 2 improved to the level set by good comprehenders" (p. 167). Further, the training produced durable effect and reliable transfer "to laboratory tasks that differed in surface features from the

training and assessment tasks – summarizing, predicting questions, and detecting incongruities all improved” (p. 167).

Interestingly, studies and discussions of prediction as a comprehension strategy rarely involved only predicting; usually it was presented with other strategies such as setting the purpose for reading, retelling, drawing inferences, activating prior knowledge, and summarizing (e.g., Duke & Pearson, 2008; Janssen, Braaksma, & Rijlaarsdam, 2010; Mokhtari & Reichard, 2002). This fact not only revealed the foundational importance of prediction as a strategy, it also underscored the necessity of using multiple strategies in the process of reading. As Duke and Pearson (2008) emphasized, “good readers do not read a book and only make predictions. Rather, good readers use multiple strategies constantly” (p. 109). They explained:

[Prediction] is better conceived as a family of strategies than a single, identifiable strategy. At its core is making predictions and then reading to see how they turned out, but it also entails activities that come with different labels, such as activating prior knowledge, previewing, and overviewing. What all these variants have in common is encouraging students to use their existing knowledge to facilitate their understanding of new ideas encountered in text. (p. 110)

Previous studies have shown that predicting can help students improve comprehension of narrative texts (e.g., Hansen, 1981; Neuman, 1988; Spears & Gambrell, 1991). Now that the effectiveness of the prediction strategy has been supported, it remains a practical question how to teach it to students so that they can benefit from it. Young students have difficulty learning to use prediction as a strategy because of their still developing cognitive understanding and memory capacity (Block et

al., 2004). Stricklin (2011) suggested a hands-on approach with elementary students. In implementing reciprocal teaching of the four strategies, namely predicting, clarifying, questioning, and summarizing, she proposed dressing-up as “Paula the Predictor” (p. 620) or using puppets with names like “Predicting Paul” (p. 621), a parrot that can predict. Stricklin (2011) reported that upper elementary students “find these characters very entertaining” and took up each role enthusiastically (p. 621). Further, she provided a list of helpful visuals and convenient hands-on tools such as charts, bookmarks, and sticky notes to engage students in strategy learning and application.

In conclusion, prediction is an effective strategy that promotes comprehension. In practice, it is often combined with other strategy use. Because it is difficult for young learners to grasp, researchers and practitioners have been creative in recent years to explore new and accessible ways to teach this strategy to primary and elementary students.

### **Questioning**

This comprehension strategy has had the longest history of classroom application, typically in the format of teachers asking students questions about their reading (Durkin, 1978-1979; Manson & Clegg, 1970). Questions based on the text at hand can help readers engage with meaning-making and checking their own progress. Successful readers asked questions and found answers to stay focused on the most relevant information of a text; they also asked questions to detect difficulties in comprehension and took actions accordingly (Janssen, 2002; Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989; Wood, Woloshyn, & Willoughby, 1995). Different types of questions shaped student

understanding and reading of text in specific ways (Manson & Clegg, 1970). Duke and Pearson (2008) explained that:

if students receive a steady diet of factual detail questions, they tend, in future encounters with text, to focus their efforts on factual details. If teachers desire recall of details, this is a clear pathway to shaping that behavior. If, by contrast, more general or more inferential understanding is desired, teachers should emphasize questions that provide that focus. When students often experience questions that require them to connect information in the text to their knowledge base, they will tend to focus on this more integrative behavior in the future. (p. 114)

Questioning can occur when teachers asked questions or when students generated questions on their own. Questioning was an effective monitoring and comprehension-fostering strategy in the reading process (Haller, Child, & Walberg, 1988; Pressley & Harris, 1990; Taylor & Frye, 1992). According to Morgan, Moni, and Jobling (2009), “asking questions is effective in directing learners’ thinking, enhancing memorization of information, constructing and activating schemata and in aiding recall of texts” (p. 179). King, Biggs, and Lipsky (1984) suggested that the attention to specific textual details in the self-questioning process contributed to its effectiveness as a reading strategy. However, the participants in their study were college students. Rosenshine, Meister, and Chapman (1996) reviewed 26 studies on questioning and found that it was also effective in improving the reading comprehension of students in third through ninth grade. They also found that several common instructional elements in these studies were helpful to facilitate student learning of the questioning strategy such as providing prompts,

beginning with a simplified version for the task, and modeling. Janssen (2002) reviewed more recent studies on questioning and confirmed that students can be trained to ask questions that positively impact reading comprehension and recall of literacy texts. She noted the trend in teaching students to use questioning combined with other comprehension strategies such as predicting and summarizing (Nolan, 1991), which was in line with the research-based evidence favoring multiple strategies instruction in reading. Interestingly, it seemed that different instructional approaches appeared to be equally effective. She found no differences in effect sizes “between multiple strategies and single strategy instruction, reciprocal and conventional teaching, peer-assisted and teacher-assisted procedures, cooperative learning and cross age tutoring resulted from the experimental studies” (Janssen, 2002, p. 103). Two factors seemed to make the difference: training duration and the procedural prompts, such as signal words and story grammar elements, again echoing the findings of Rosenshine et al.’s (1996) review.

To test the effects of authentic, student-generated questions vs. traditional, teacher-generated questions on reading comprehension, Janssen, Braaksma, and Couzijn (2009) conducted two experimental studies. In Experiment 1, they compared self-questioning instruction to instructor-made questions about stories. In Experiment 2, they compared two forms of self-questioning instruction: a guided form and an unguided. The researchers found that “students were stimulated to express their uncertainties, wonderings, and hunches about stories, in the form of questions. According to the teachers and researchers, students were motivated to ask meaningful questions, and to think more deeply about stories” (Janssen et al., 2010, pp. 53-54). The results showed that student-generated questions in response to complex literary stories had a positive

impact on students' appreciation of the stories they read and an effect on the quality of their story interpretations. Further, the experiments showed that "(unguided) self-questioning had a positive effect on students' appreciation of literary stories, compared to instructor-prepared questions and to guided self-questioning" (Janssen et al., 2009, p. 91). The researchers suggested that "'personal ownership,' or generating questions yourself, is an important motivating factor" (Janssen et al., 2010, p. 54).

This finding aligned with the reader response theory, in which the reader was the active agent and played an important role in meaning-making. However, it did not seem to correspond with classroom realities across the country (Nystrand, 2006). In a study with data collected in 872 observations of more than 200 eighth- and ninth-grade English and Social Studies classes in a wide variety of schools in the Midwest, Nystrand, Wu, Gamoran, Zeiser, and Long (2003) found that student questions occurred infrequently in low-track classes and that teachers in general needed training and help to ask students authentic questions. For the questioning strategy to be effective, students need to learn how and when to ask what kinds of questions. Teachers need to provide support and modeling, not scripted questions. As Soter et al. (2008) suggested, the instruction had to be "structured and focused yet not dominated by the teacher" (p. 372).

### **Visual Representations of Text**

Visual representations of narrative text referred to the creation of images in a reader's mind while reading a text (Gambrell & Jawitz, 1993). Research has been conducted to explore the effect of helping children create such images on reading comprehension, and the result was positive (Gambrell & Bales, 1986; Pressley & Harris, 1990; Sadoski, 1983; Sadoski & Paivio, 2013). In one of the earliest experiments of its

kind, Pressley (1976) studied 86 third-grade students to learn whether they would learn to construct an internal visual representation of text content and whether they would benefit from such explicit instruction of mental imagery. The results were positive. He found that mental imagery training could be easily taught in the classroom and that children who received mental imagery training before reading answered significantly more short-answer questions than children who did not receive the training. Sadoski (2008) explicated the importance and usefulness of making a connection between visual representation and text by the example of a short sentence about basketball that was full of basketball-specific terms:

The meaning of the sentence can be explained by connections between specific, embodied verbal and nonverbal mental representations, such as written words in a given syntax; their contextually constrained verbal definitions, synonyms, and paraphrase; and images they evoke from our world experience (without such experience the sentence remains vague and elusive). (p. 41)

Visual representations can help the reader make the connection between the text and concrete image, providing one more helpful venue to comprehension.

To further investigate the effect of mental images on reading comprehension, Gambrell and colleagues conducted two experiments. Gambrell and Bales (1986) assigned 62 fourth-grade and 62 fifth-grade poor readers to two treatments: imagery instructions or general instructions. Then they were asked to read two passages, one containing an explicit inconsistency and one containing an implicit inconsistency. They found that the students who “received instructions to induce mental imagery identified both explicit and implicit inconsistencies in text significantly more often than did the

subjects in the control group” (p. 454). They concluded that “imagery is of functional significance in problem-solving, particularly with respect to unfamiliar or novel situations” and that “the use of imagery enhances the reader’s ability to evaluate his or her understanding of the text” (p. 461). In another experiment in 1993, Gambrell and Jawitz studied 120 fourth-graders and found that “the construction of mental images encourages use of prior knowledge as part of creating vivid representations of prose. Teaching children to construct mental images as they read enhances their abilities to construct inferences, make predictions, and remember what has been read” (p. 265). They suggested that the positive effects of self-generated images and text-relevant illustrations may be due to “the amount of attention readers bring to the task when given instructions to induce images or attend to illustration” and “the similarity of the roles that images and illustrations play in the processing chains involved in text comprehension” (p. 266).

Interestingly, the effects of mental imagery on reading comprehension varied among different students. Oakhill and Patel (1991) conducted an experiment to explore whether training in mental imagery would improve text comprehension in nine-year-old children. Two groups of children were compared: good and poor comprehenders. The results showed that the training program in imagery “benefited the poor, but not the good, comprehenders, by comparison with a control group who merely answered questions about the same passages” (p. 106). Whether the program length or the grade level of students had any influence on the results awaited further research.

In summary, Sadoski (2008) concluded:

Teaching readers to form mental images when reading is a successful practice in improving reading comprehension. Most of this imagery has been visual imagery

in which students were instructed to visualize the objects or events being discussed in the text. (pp. 41-42)

### **Summarization**

Summarization is the process of gleaning main ideas or important information from text. Concretely, it is the ability to “delete irrelevant details, combine similar ideas, condense main ideas, and connect major themes into concise statements that capture the purpose of reading for the reader” (Block & Pressley, 2003, p. 117). Dole et al. (1991) realized the importance of developing summarizing as a strategy because it can help students better engage with text and improve their overall comprehension. As Hidi and Anderson (1986) pointed out, “In addition to monitoring comprehension and recall, the process of summarization can facilitate learning, as it helps readers clarify the meaning and significance of discourse” (p. 473).

Although researchers studied summarizing among students as early as fourth grade (Taylor, 1986), most studies of summarizing dealt with students in the fifth grade and older, including high school and college students (Hare & Borchardt, 1984; Marschall & Davis, 2012; Rinehart & Thomas, 1993; Thiede & Anderson, 2003). Rinehart, Stahl, and Erickson (1986) examined the effect of a summarization training program on the reading and studying skills of 70 students in sixth grade and found that summarization training can be an effective tool for improving reading and studying skills. However, summarizing was a difficult strategy for students to learn to use, even for older students such as eighth graders (Winograd, 1984). Brown, Day, and Jones (1983) conducted a study with students from the fifth, seventh, and eleventh grade, together with college students to compare their ability to summarize. They concluded that “the ability

to work recursively on information to render it as succinctly as possible requires judgment and effort, knowledge, and strategies. As such, the ability to provide an adequate written summary of a lengthy text is a late-developing skill that continues to be refined throughout the school years” (p. 977).

Summarizing can and should be taught to all students. It can be taught either using a set of rules or the intuitive approach that “restricts the number of words students may include in their summaries” (Bean & Steenwyk, 1984, p. 298). Both approaches proved to be effective as long as teachers provided explicit instruction and modeling. To teach young learners the summarizing strategy, Hidi and Anderson (1986) made the following suggestion:

Allowing students to write summaries for themselves before learning to summarize for others represents yet another way to initially ease the difficulties of summary writing. Writer-based summaries are easier to get across to students because the summarizer need not consider an audience, and a writer-based summary does not require the elaborate planning necessary in constructing a reader-based summary. (p. 488)

Further, they provided other important and helpful instructional recommendations to teaching summarization as a comprehension strategy:

Students should begin by summarizing short segments of text first.

Students should summarize relatively simple narrative text first.

Students should be given appropriate texts at first in terms of readability and familiarity of concepts and ideas. Early texts also should be well organized and "considerate" so that important text elements are more obvious. (pp. 487-488)

## Text Structure

Narrative texts tell a story and typically have a hierarchical structure that helps to “provide a framework for the placement of elements and episodes within the structure” (Hall, Sabey, & McClellan, 2005, p. 211). According to Duke et al. (2011), a narrative text structure, also called story grammar, usually contained the following elements:

- Characters: Who the story was about
- Setting: Where and when the story happened
- Goal: What the main character was trying to do
- Problem: Why the main character took certain actions
- Plot or action: What happened to the main character or what she or he did to try to solve a problem
- Resolution: How the problem was solved and how the story ended
- Theme(s): General lessons or ideas. (p. 69)

This structure provided readers with a schema to follow so that they engaged with the events and situations depicted in the story in a logical way. Students who understood text structure can better understand the text (Duke & Pearson, 2008). However, not all children recognized the narrative text structure on their own. Therefore, students need explicit instruction to learn text structure. Students of all ages and levels can be taught to use text structure to aid reading comprehension (Dymock, 2007; Englert & Hiebert, 1984; Fitzgerald, 1984; Fitzgerald & Spiegel, 1983; Morrow, 1984; Stevens, Van Meter, & Warcholak, 2010; Williams, 2005). For example, León and Carretero (1995) conducted a three-week study with good readers and readers below average who were 14-15 years old. They found that students who received text structure instruction applied the strategy

to a new text structure. Fitzgerald (1984) studied 96 fourth-graders and 70 sixth-graders and reported “a positive relationship between reading achievement and ability to anticipate narrative text structures during reading. The relationship was consistent across grades” (p. 21). Focusing on very young learners, Stevens et al. (2010) studied kindergarteners and first graders and found that “children who learned story structures recalled more ideas from new stories and answered more questions about structural elements of those stories (e.g., who is the main character?)” (p. 159). They suggested that teachers start to provide text structure instruction to emergent and beginning readers in the context of listening comprehension activities.

### **Think-Aloud**

A think-aloud is a “metacognitive technique or strategy in which a teacher verbalizes thoughts aloud while reading a selection orally, thus modeling the process of comprehension” (Harris & Hodges, 1995, p. 256). It originally took the form of a teacher think-aloud, in which teachers explained their thinking process and demonstrated the comprehension strategies they used as well as why and how they used them. Teacher think-alouds can effectively and explicitly explain to students what strategic readers do before, during, and after reading to engage with text and make meaning. Research has shown that teacher think-alouds helped to improve student reading comprehension (Block, 2004; Block & Israel, 2004; Fisher, Frey, & Lapp, 2011).

As time evolved, the student think-aloud technique was developed as a comprehension strategy, in which students verbalize their thinking process, including strategy use as well as difficulties and confusion in reading (Bereiter & Bird, 1985; Janssen, Braaksma, & Rijlaarsdam, 2006; Kucan & Beck, 1997). In an eight-month study

of four fourth-graders, Kucan and Beck (1996) examined how these students used think-aloud in their reading process and identified five general categories of processing: paraphrasing; questioning; elaborating; hypothesizing; and monitoring. These think-alouds provided teachers with a rich venue to students' reading process and development; they not only revealed how students engaged with texts but also exposed where students might be encountering challenge and need support and scaffolding. For example, monitoring involved evidence that "students knew when they did not know something, when they were aware of the text as a whole, and when they were making use of information from more than one part of the text" (Kucan & Beck, 1996, p. 272). This practice was an effective way for teachers to learn about student reading development and learning needs – where in text and with what kind of obstacles they might need help, what strategies might work or work better, and so on. Many students, especially students who struggled with reading, tended to be passive readers and did not recognize when they had difficulty in reading or when and how to ask for help. Student think-alouds made the process transparent to both parties. Teachers provided targeted comprehension strategies instruction accordingly (Walker, 2005). Further, student think-alouds can be combined with effective comprehension strategies instruction approaches such as reciprocal teaching in classrooms to reveal what readers do – what they did that was effective meaning-making or an ineffective attempt – to raise awareness of their thinking and reading process and facilitate students' application of multiple strategies to different texts (Kucan & Beck, 1997).

### **Comprehension Strategies for Informational Text**

Informational text differs greatly from narrative text in its content, intent, structure, and vocabulary. Compared to narrative text, which tells a story, informational text (also termed “expository text” in the research literature) presents factual information that is not necessarily organized in a linear fashion. It tended to be less coherent, required more background knowledge, and needed more effort to generate inferences (Armbruster, Anderson, & Ostertag, 1987; Duke & Roberts, 2010; Graesser, Singer, & Trabasso; 1994; Pao & Williams, 2015; Spiro & Taylor, 1980). In an eight-month study comparing four students’ reading, processing, and understanding of narrative and informational texts, Kucan and Beck (1996) observed that, for these fourth-graders:

narrative discourse depicts the unfolding of goal-directed actions in familiar sequences involving conflicts and resolutions. These actions and sequences are predictable when encountered in text, because they are directly experienced by readers in everyday life. In contrast, expository texts do not offer such predictability, either in content or in structure. (p. 261)

Despite student attempts to categorize informational texts according to specific structures such as cause-effect and comparison-contrast (Meyer, 1985), it was difficult “to locate expository texts that adhere to just one such structure throughout” (p. 261). Informational text proved to be difficult for many students in the intermediate grades to understand because they were used to reading mostly narrative texts in the primary grades and lacked exposure to and practice with the informational genre (Duke & Martin, 2015a; Fox, 2009; Hedin & Conderman, 2010).

Garner (1987) suggested that there were three prerequisites for effective informational text comprehension: “(a) accessible conceptual knowledge in relevant

domains, (b) a schema for exposition that specifies how ideas in text are related, and (c) text-processing strategies” (p. 299). She stated:

strategies are particularly important when conceptual knowledge is meager and when familiarity with exposition is low. This is the situation most upper-elementary students face. They have rich expectations about the internal structure of simple stories, because they have encountered them as listeners and readers through years of experience with bedtime stories and basal-reader narratives. They have far fewer expectations about expository texts that are novel to them in both content and structure. (p. 302)

Block et al. (2004) also studied elementary students’ informational text comprehension. They observed that, as early as in third grade:

most children have developed either a positive or negative attitude toward expository text. Many pupils have also deduced, incorrectly, that comprehending is all one basic generic process. They approach every book with the same set of “before-reading expectations, metacognitions, and meaning making actions. It is important to teach students that recognizing and removing comprehension obstacles is a genre-specific task. When students learn to use different comprehension processes with different genres, their overall comprehension increases, and they rate themselves as more competent readers. (p. 92)

Because of the different nature of informational and narrative texts, not all comprehension strategies effective in reading narrative texts were readily applicable to informational texts (Calo, 2011; Duke & Bennett-Armistead, 2003; Duke & Martin, 2015a). Literacy researchers and educators have studied them and tried to select the ones

that would aid informational text comprehension. Duke (2004) suggested eight strategies that have been researched and practiced and shown to be effective in informational text comprehension:

- Monitoring and adjusting as needed
- Activating and applying relevant prior knowledge
- Generating questions
- Thinking aloud
- Attending to and uncovering text structure
- Drawing inferences
- Constructing visual representations
- Summarizing. (pp. 41-42)

This list overlapped with an earlier selection of strategies Pressley et al.'s (1989) carefully scrutinized to be effective and recommended for elementary students, which included summarization, representational- and mnemonic-imagery, story-grammar, question-generation, question- answering, and prior-knowledge activation. Duke's (2004) list also had a major overlap with the lists Block and Duffy (2008) and Duke and Pearson (2008) generated based on the strategies recommended by the NRP (2000). Dymock and Nicholson (2010) condensed the list to include five strategies because they deemed it as important to keep it simple for children. They argued that "the adult mind can only hold up to seven (plus or minus two) pieces of information at one time" (p. 167); therefore, for elementary students, five was enough. This study adopted Dymock and Nicholson's (2010) selection of comprehension strategies for informational text: activating

background knowledge; questioning; analyzing text structure; creating mental images; and summarization. This section will focus on the discussion of these five strategies.

### **Activating Background Knowledge**

Comprehension can be enhanced when readers make connections between text and their background knowledge (Anderson, 1984). Pressley et al. (1989) suggested that prior knowledge affected comprehension in several ways: It can create expectations and “direct attention to parts of text that are relevant to those expectations” (p. 18). Prior knowledge “permits inferential elaboration of text,” which meant that “the reader with prior knowledge can fill in informational gaps in text” (p. 18). After reading, prior knowledge can “facilitate recall and reconstruction of text” (p. 18). However, children did not automatically connect what they knew to what they read (Anderson, 1984). Therefore, it was crucial for teachers to teach them how to activate background knowledge to aid comprehension. In a six-week study, Dewitz, Carr, and Patberg (1987) divided 101 fifth-graders of high, middle and low reading abilities into groups and provided the experimental group with training to help these students integrate prior knowledge with text information. The training led to “superior gains in comprehension compared to the treatments that did not include this strategy” (p. 99). Further, these effects transferred to other texts, and lasted as long as four months. In a more recent experimental study of 236 sixth graders in Norway, Elbro and Buch-Iversen (2013) trained students to activate background knowledge to make inferences when reading informational text. After eight 30-minute sessions, researchers found that the training helped to improve students’ ability to make inferences by connecting background

knowledge to text. They also found the training associated with a significant advance in general reading comprehension of both narrative and informational text.

Although activating background knowledge can enhance comprehension of both narrative and informational text, its effect differed greatly because prior knowledge of students varied (Drum, 1985). Further, studies found that elementary students seemed to activate prior knowledge in connection to narrative text more readily than informational text (McNamara, Ozuru, & Floyd, 2011). Best et al. (2008) studied how 61 third-graders made use of background knowledge in reading narrative and informational texts. They had two major discoveries. First, despite the fact that narrative texts contained unfamiliar information, “most children have, from first-hand experience, well-developed schemas about the settings, actions, and events described by them” (p. 139). Consequently, most children “possess the knowledge necessary to understand narrative texts” (p. 139), which led to the phenomenon that narrative texts were comprehended more successfully than informational texts. Second, comprehension of the narrative text was “most influenced by reading decoding skills,” whereas comprehension of informational text was most influenced by world knowledge. Best et al. (2008) explained:

because expository texts often introduce many new concepts and ideas (e.g., osmosis, gravity), children’s existing knowledge is vital in order to integrate and assimilate the new information from the text. If children lack related knowledge about the concepts and ideas described by the text, their comprehension will be limited because they cannot generate accurate inferences. (p. 140)

These studies showed that teaching elementary students to activate background knowledge can enhance reading comprehension of informational text. Reading

informational texts required more world knowledge than reading narrative texts. Teachers need to be aware of this difference so that they can effectively help students practice activating their prior world knowledge that might benefit meaning-making when reading different texts (Kucan & Beck, 1996; Purcell-Gates, Duke, & Martineau, 2007).

### **Questioning**

Although questioning has been used by teachers in classroom instruction, it was not developed into an effective comprehension strategy that involved students generating and answering questions until the 1980s (Pressley et al., 1989; Rosenshine et al., 1996). Questioning was ineffective when teachers asked questions without teaching students when and how to use comprehension strategies to answer them (Durkin, 1978-1979; Janssen et al., 2010). When researchers shifted the focus of questioning to students, they found that “in the process of generating questions, students need to search the text and combine information, and these processes help students comprehend what they read” (Rosenshine et al., 1996, p. 182).

In generating and answering self-questions, students may become aware of the inadequate or incomplete comprehension, which can provide valuable opportunities for them to learn to apply appropriate strategies to deal with the obstacle and achieve comprehension and strategies learning. In an early questioning experimental study, Davey and McBride (1986) studied 125 sixth-grade students, who met for five 40-minute lessons to generate questions for informational passages over a two-week period. Findings showed “overall positive effects of training in question generation on the nature of the generated questions, on the accuracy of comprehension question responses, and on

the accuracy between actual and predicted comprehension question performance” (p. 260). Further, Davey and McBride (1986) suggested:

effective question generation can provide readers with a metacognitive strategy (heightening awareness of their own comprehension adequacy) as well as a cognitive strategy (generating and answering higher level think-type questions).  
(p. 260)

The researchers also concluded that young students can be trained in such brief, generalizable intervention, and that their training in questioning can have a positive impact on their reading comprehension.

In a recent review of 35 questioning studies published between 1990 and 2012, Joseph, Alber-Morgan, Cullen, and Rouse (2016) found in these studies that “applying self-questioning strategies improves reading comprehension across students in various grades and across students with and without disabilities” (p. 166). Concretely, methods that incorporated self-questioning strategies “were particularly effective on students’ performance on comprehension measures that consisted of retelling main ideas and recalling details of text, answering fact-based questions on multiple choice tests, and responding to questions requiring short answers” (p. 168). They also found new, innovative ways of teaching students to generate and answer questions. For example, Hagaman and Reid (2008) taught the RAP strategy (Read a paragraph, Ask yourself the main idea and details, and Paraphrase) to sixth graders, who substantially increased their reading comprehension of informational texts as a result of this intervention.

### **Analyzing Text Structure**

Informational text and narrative text differed in their structures. Narrative texts typically followed one structural pattern (story grammar), whereas informational texts contained multiple structures (Hall et al., 2005). Basic informational text structural patterns included sequence, compare-contrast, cause-effect, description, and problem-solution (Meyer, 1985). These structures provided students “with a map that guides them through a text. The greater children's awareness of expository text structures and organizational patterns, the better they can follow the author's message” (Moss, 2004, p. 712). Instruction designed to teach elementary students to identify the underlying structure of text improved their comprehension (Hall et al., 2005; Pao & Williams; 2015; Read, Reutzel, & Fawson, 2008; Taylor & Beach, 1984). For example, Armbruster et al. (1987) studied 82 fifth-grade students who either received structure training in recognizing and summarizing problem-solution text structure or received traditional instruction. They found that the structure training helped to improve students’ ability to abstract the macrostructure of problem-solution text. Williams, Hall, and Lauer (2004) studied 128 younger readers and instructed students in the experimental group to learn the compare-contrast structure of informational text. They found that text structure instruction helped second-grade students improve their comprehension of compare and contrast expository text.

Researchers also tried to find effective ways to teach text structure to elementary students (Akhondi et al., 2011; Kendeou & van den Broek, 2007; Moss, 2004). In a recent review of empirical studies designed to teach the structure strategy to increase student comprehension of informational texts, Meyer and Ray (2011) found that “direct instruction, modeling, scaffolding, elaborated feedback, and adaptation of instruction to

student performance are keys in teaching students to strategically use knowledge about text structure” (p. 127).

Informational text structures varied in how challenging they were to teach. Englert and Hiebert (1984) studied 76 third-graders and 70 sixth-graders and found sequence to be “a powerful text structure because of young children's prior experience and familiarity with time-based structures in stories,” whereas “description and comparison/contrast were the most difficult text structures for children at both grade levels” (p. 71). They explained:

This result runs counter to the pattern of many elementary-school content area textbooks that have a great deal of description. A reason that description text structures might be less salient to readers is that description passages typically occur as short segments within other structures and seldom occur as a single organizing structure. Moreover, description segments often shift abruptly to accommodate other text structures, so readers may have learned to expect sudden changes in the description text structure. The findings of this study do suggest that from third to sixth grade, children made the greatest gains in their acquisition of the description text structure. Rather than knowledge of all text structures developing in parallel fashion, discourse types were acquired differentially. (p. 71)

With the advance of new technology, researchers have tried to find new ways to teach text structure. Meyer and Wijekumar (2007) used a web-based tutoring system to help fifth and seventh graders learn the text structure strategy. Students learned to identify words and phrases commonly used to signal structure; they also learned to

organize the information in a text into a main idea. The researchers reported success in improving reading comprehension for middle school students.

### **Creating Mental Images**

An important way to create a mental image of the text is to visualize how texts are structured (Dymock & Nicholson, 2010; Leopold & Mayer, 2015). The mental images of informational text vary from those of narrative text. The mental images or visual representations of informational texts focus on graphics, charts, tables, and so on that present the information and structure from text in a concrete and graphic way, with lines and various forms to show the relationship or connection among the components, whereas narrative texts usually focus on mental imagery of the characters, setting, and plots of a story that can aid student reading comprehension. However, these two visualization processes “do not operate in isolation but are interconnected” (De Koning & van der Schoot, 2013, p. 267).

Teaching students to generate visual representations or mental images can enhance reading comprehension (De Koning & van der Schoot, 2013). Visual representations of informational text provided a useful aid to the reader by presenting information in a visual way. As Duke and Pearson (2008) stated:

The point about visual representations is that they are *re*-presentations; literally, they allow us to present information again. It is through that active, transformative process that knowledge, comprehension, and memory form a synergistic relationship – whatever improves one of these elements also improves the others (p. 112).

This type of visual presentations or mental images was typically associated with informational text and usually researched and discussed alongside text structure. Dymock (2005) pointed out the importance of raising student awareness of text structure through creating mental images. She stated:

Demonstrating how to diagram the various expository text structures enables students to ‘see’ how texts are constructed. These strategies enable the reader to make order out of the ‘sea of words.’ Creating a clear structure is critical for learning and thinking. (p. 178)

Students need training to learn to create such mental images to help with comprehension. Although teaching students how to create mental images might seem simple, and sometimes it can be done in one session (De Koning & van der Schoot, 2013), it might not be effective or helpful to all readers in aiding comprehension, especially readers who lack relevant prior knowledge. Students with little prior knowledge lacked the ability to distinguish relevant from irrelevant information presented visually, so they got confused and misinterpreted the information, which can lead to misreading and frustration (Cook, 2006). In other words, visual representation can provide powerful tools to mature and proficient readers in informational text comprehension; novice and struggling readers with little prior knowledge and strategic experiences, however, need continuous support and practice to learn this strategy and apply it in combination with other strategies such as text structure, visual elements, and activating prior knowledge to facilitate reading comprehension. It is important for teachers to help students practice creating different kinds of mental images when reading informational texts because research has found that imagery training “helps readers to

mentally visualize text and enhances their ability to recall information, make inferences and predictions, and monitor their understanding (De Koning & van der Schoot, 2013, p. 270).

### **Summarization**

Summarization in writing can help students engage more intensely with informational text and lead to better comprehension (Fang & Coatoam, 2013; King et al., 1984; Thiede & Anderson, 2003). It is of great importance for students to learn to use this comprehension strategy in reading. Summarization is also of great value from an instructional perspective. Gelati, Galvan, and Boscolo (2014) pointed out that the ability to summarize informational text adequately “is a basic tool to assess student comprehension and a learning strategy” (p.191). They perceived three reasons to be responsible for the difficulty that children experience with writing adequate summaries:

1) the complexity of expository texts, which are the typical genre of materials that are to be studied and summarized, 2) the strategies and cognitive processes to be used during summarization, and 3) the specificity of summaries as a writing genre” (p. 192).

Researchers have noticed the above three issues and others that caused difficulties in summarizing, particularly for younger and less able students (e.g., Brown et al., 1983; Taylor, 1986; Winograd, 1984). Garner (1987) observed that less skilled readers tended to “focus on lexical items and intrasentence empirical accuracy, rather than on intersentence logical consistency” (p. 308), which led them to reread all details of a text and they were unable to delete unimportant or irrelevant information. She suggested that students needed to be taught “how to use titles, thematic first sentences, repetition of

general concepts, and so forth to locate highly relevant information in text” (p. 308).

Also, teachers needed to “demonstrate how a full answer to a question is often unavailable in a single sentence, and how ideas from many parts of text must be combined in a summary” (p. 308).

Taylor (1986) examined how fourth- and fifth-grade students wrote summaries of both expository and narrative texts and compared them. He found no difference between the summarizations of the two text genres. He also concluded that good summarizers shared several important common traits: they began summarizing during reading, were aware of the title and text structure, could generalize and use their own words, were skeptical, and able to monitor their own summarizing process.

Studies such as Taylor’s (1986) and Garner’s (1987) helped to refine the studying and instruction of summarizing as a comprehension strategy; it directed researcher and practitioner attention to developing more effective instruction of summarizing. For example, Taylor and Frye (1992) conducted a four-month study with fifth- and sixth-grade students of average or above average reading ability, in which teachers taught weekly comprehension strategies lessons such as comprehension monitoring, reciprocal teaching, and independent self-questioning alongside summarizing. Results showed that in students receiving the weekly strategy lessons became better at summarizing social studies material than control subjects. Gajria and Salvia (1992) trained 30 students with learning disabilities from sixth- to ninth-grade to use five rules of summarization to write summaries and found that the direct instruction in the summarization strategy was effective in increasing reading comprehension of the students in the experimental group. Students were able to maintain strategy usage over time and generalize its use.

Summarization in writing can promote student engagement with informational text and promote reading comprehension. However, it is difficult to teach summarizing. Further, it is important and more effective to teach students summarizing in conjunction with other comprehension strategies.

### **Summary**

This section discussed the importance and related issues of five comprehension strategies for informational text that have a strong research-base as well as an increasingly noticeable presence in instructional practice: activating background knowledge, questioning, analyzing text structure, creating mental images, and summarization. Research continues in this area. Calo (2011) observed two teachers who explicitly taught students how to use the comprehension strategies of asking questions, making connections, making comparisons, and setting purposes for reading when reading informational text. In this process, these two teachers realized “the value of teaching students how text features and graphic elements can help them access information in nonfiction texts” (p. 293). Barone and Barone (2016) adapted the traditionally narrative text-based literature circle creatively to engage fifth-grade students with informational texts. They found the adaptation could effectively “extend students’ knowledge and acquisition of literacy skills and strategies in motivating and engaging instruction” (p. 80).

In working with fifth- and sixth-grade students, Merchie and Van Keer (2013) trained students to process and visually organize informational text with an explicit mind map (the strategies of creating mental images and analyzing text structure), which showed that students were able to learn to apply the mind map rules and improve

significantly in processing the information using a mind map. Similarly, Mason, Meadan-Kaplansky, Hedin, and Taft (2013) taught low-achieving students to apply the general strategy of TWA (Think before reading, think While reading, think After reading – the questioning strategy) to informational text and found progress in their reading comprehension.

Instead of adapting general or narrative-related comprehension strategies, some teachers were innovative and designed their own informational text-specific strategies. For instance, Bass and Woo (2008) created Comprehension Windows Strategy (CWS) “to support students in their decision-making process as they analyze and synthesize informational text” (p. 571). The CWS prop is a tent-like “file folder with labeled flaps for categorizing small bits of information on sticky notes” and a numbered reference list on the back (p. 572). Teachers helped students label CWS prop flaps and categorize and sort information. The CWS was an attempt to make reading comprehension and strategy learning more appealing to young learners. It helped students organize facts in informational text, stimulate them to become active participants in reading, as well as introduce them to proper documentation and citations.

### **Research Purpose and the Current Study**

Dramatic changes in textual use in elementary classrooms happened in the past few years. In 2010, the Common Core State Standards (NGA Center & CCSSO) mandated that all fourth-grade classroom reading materials to be composed of 50% narrative text and 50% informational text. This mandate has had profound influence on and provided great challenges to teachers and students alike in terms of comprehension instruction and learning (e.g., Calo, 2011; Duke, Halladay & Roberts, 2013). Students

need effective comprehension strategies instruction to become good readers (e.g., Paris, Lipson, & Wixson, 1983; Paris & Myers, 1981; Pressley et al., 1991). Implementing adequate, research-based strategies instruction can help students learn comprehension strategies, develop reading skills, achieve reading comprehension, and acquire content knowledge (Duke & Martin, 2015b; Garner, 1987; Luttenegger, 2012; McCown & Thomason, 2014; McIntyre & Hulan, 2013; Neuman & Gambrell, 2013; Palincsar & Schutz, 2011; Pearson, 2009; Pearson & Dole, 1987). Two decades ago, Pressley and colleagues studied the nature of literacy instruction in fourth- and fifth-grade and “observed explicit comprehension instruction only rarely, despite a great deal of research in the past two decades on how to promote children’s comprehension of what they read” (Pressley & Allington, 2015, pp. 318-319). Two decades later, research on how intermediate teachers instructed comprehension strategies was still greatly needed to help contextualize and support classroom practice (Ness, 2016).

Despite the growing use of informational text in elementary classrooms, researchers continued to report substantial discrepancies between narrative and informational text instruction (Duke & Martin, 2015b). Jeong et al. (2010) observed fifteen classrooms of second-, third-, and fourth-grades and found that written language activities with narrative text consumed more than half of the instruction time across all grades, whereas less than a quarter of the time was spent on informational text-related instruction. Research is needed to explore whether teachers are using more informational text in literacy instruction and whether they differentiate comprehension strategies instruction according to text types (Duke & Roberts, 2010). Research is also needed to reveal what intermediate teachers do in terms of comprehension strategies instruction

with informational text, specifically. Ness (2007) observed secondary content-area teachers for 40 hours and recorded 82 minutes of comprehension strategies instruction; the most frequently used strategies were asking literal questions and having students write summaries of text. Research is needed to find out how teachers are using comprehension strategies instruction with informational text in the intermediate grades.

Intermediate students were unique in that they usually had proficient decoding skill but not sufficient comprehension skills. Best et al. (2008) noted one problem that children may face when they reach the third- and fourth-grade – “how to deal with low cohesion science texts that demand knowledge that these readers may not yet possess. This situation, we expect, could spiral such that the child fails to understand the learning material and thus goes deeper into a knowledge debt” (p. 153). Whether intermediate teachers take this learner characteristic into their comprehension strategies instruction is worth exploring. It can offer teachers “ways of conceptualizing how key instructional ideas come together into a cohesive and integrated approach to the teaching of informational texts” (Maloch & Bomer, 2013, p. 446).

### **Guiding Question**

This study is a qualitative case analysis describing, analyzing, and interpreting two teachers’ instruction of comprehension strategies for informational text. The following question guides this inquiry: How do teachers teach informational text comprehension strategies?

## Chapter 3

### Method

This is a multiple-case study in the qualitative tradition (Creswell, 2013). I chose this design based on Yin's (2014) common case rationale, whose objective was to "capture the circumstances and conditions of an everyday situation" (p. 52). Case studies have increasingly become a valid research method (Willis, Jost, & Nilakanta, 2007). Flyvbjerg (2006) stated the value of case studies:

A scientific discipline without a large number of thoroughly executed case studies is a discipline without systematic production of exemplars, and a discipline without exemplars is an ineffective one. Social science may be strengthened by the execution of a greater number of good case studies. (p. 219)

Yin (2014) pointed out that case study is a preferred research method "when examining contemporary events, but when the relevant behaviors cannot be manipulated" (p. 12). In this study, I observed how two fourth- and fifth-grade teachers taught informational text comprehension strategies in their daily lessons. They helped to answer the research question and provided insight to the current instructional practice involving informational text at the elementary school level.

The two teachers who taught in the same elementary school were the cases in this study. They were considered instrumental cases (Creswell, 2013) because they were selected to better understand a problem or a phenomenon. It can be an opportunity "to shed empirical light about some theoretical concepts or principles" (Yin, 2014, p. 40). The study provided information about how these two teachers taught reading comprehension strategies while using informational text and can offer insights that

experimental studies cannot provide (Creswell, 2014). Aligning with the “logic of replication” (Creswell, 2013, p. 99), I replicated the data collection and analysis procedures for each case in this multiple case study.

### **Researcher Background**

Working as a supervisor of a tutoring program at an elementary school for two years and volunteering to tutor struggling readers at different schools prior to undertaking this case study provided me with the opportunity to learn about the literacy instruction at the elementary level in the local school district. In addition, I brought to the study research skills trained and developed during my formal graduate study and university-level research and teaching tasks in the past five years. Further, I have initiated research studies in my doctoral program, one of which was a case study. Thus, I have started to gather experience and training in this methodology. On the other hand, I did not work as a teacher in the elementary school where I conducted the study and was, therefore, not considered an insider. It was advantageous to maintain a neutral stand in this case. Tracy (2013) pointed out, “When values and behaviors are familiar, they become so normalized that they are almost invisible to insiders” (p. 108). I maintained a certain emotional and pedagogical distance from the teachers in this study, which could, in turn, contribute to the objectivity of the research data collection and analysis (Tierney & Lincoln, 1994).

A critical part of qualitative research is to consider the researcher’s positionality. Although not a teacher in any public school in the United States, I have worked closely with elementary teachers and students as well as with pre-service teachers in the past four years. I deeply appreciate the value and importance of informational text and its place in all elementary classrooms. I also understand the complexity and challenges teachers and

students face in teaching and learning with informational text. I believe that children are interested in reading informational text because it presents knowledge of the real world in a venue different from fiction, poetry, and stories. This strong and positive belief led to my current inquiry about how teachers in elementary school teach informational text.

On the other hand, Piantanida and Garman (2009) cautioned practitioner-researchers to separate the research study and their practice and service. They observed, “Classroom teachers and school administrators can be especially susceptible to the demands of practice” (p. 186). Because I am not a classroom teacher or a school administrator, I did not need to worry about blurring the boundary between practitioner and researcher. Instead, I was able to focus on the three forms of reflection – recollective, introspective, and conceptual (Piantanida & Garman, 2009) – and keep the context in mind, devoting full attention to the study itself.

### **Participants**

The two teachers in the study were chosen because they worked in the same school in which I had previous professional contact and made themselves available. Abigail (all names are pseudonyms) taught for 22 years at the same school. She had a dual Special Education and Elementary Education degree. Maggi, the other teacher, also held a bachelor’s degree in Elementary Education and Special Education. For Maggi, this was her first official year to teach independently at the same school.

Abigail always taught at the same school. She taught developmental and integrated kindergarten, kindergarten, first grade, third grade, and fourth grade. She was currently teaching fourth grade. Her various class periods usually lasted 40 minutes but could be as long as 80 minutes if she decided to continue the lesson. She had about 25

students. She had a combination of English Learners (ELs), students needing special education, and struggling readers. At the beginning of the study, she had seven ELs. However, the number of students in her class fluctuated frequently as students were absent or moved away, sometimes with new students joining during the semester.

In her 22 years of teaching, Abigail was used to teaching with narrative texts for a long time. Talking about the change in instructional materials, she said, “I don’t think it’s changed the way I instruct; I think it has changed the balance of what I teach – so versus novels I just might choose stories, I pay more attention to non-fiction texts, biographies, informational text.” She also described how she experienced the transition from narrative text to informational text:

I think that, at first I was resistant, ‘cause I liked my stories and my novels. And then I started to, we started to get better materials and games that require thinking, not just playing. All of those things made me go, Wow, there’s so much more available, just for them to go farther than just play “Scrabble,” think, think about why you’re choosing these words. Yeah, I think it was for the better.

Therefore, Abigail said that she welcomed the increased use of informational text in the curriculum. She also said, “I think in my standard practice of teaching from informational textbooks I’m very prepared.” She once had a week-long training called “Guided Language Acquisition Design” (GLAD) that involved a series of strategies. She found the training beneficial to her teaching. Talking about the goal of her informational text instruction, she said, “What I really try to do is give them strategies that they can use in any text at any time.”

All teachers in the fourth grade in Abigail's school were required to teach the core knowledge curriculum and use the same set of textbooks. In an interview, Abigail said, "It is not the first time I've used this curriculum – it is the first time I've used the unit, and we did not receive any training. Or I'll say, I did not receive any training." Abigail said that one social studies textbook was "dated, but I think it's well-done." She continued teaching it.

Abigail was content with the core knowledge curriculum in her school. She commented, "It turned out to be that we do love them; we do think they are deep and rich in meaning." In terms of teaching the core knowledge curriculum, she said, "I follow that as closely as I can, given the time constraints."

In addition to the textbooks, Abigail used leveled readers of informational text in guided reading groups. She also used online sources to teach informational text. Two of the online sources she often used were RAZZ kids, which was an intervention, and NewsELA, which was high-interest non-fiction reading. She sometimes used leveled articles on readworks so that students at different levels could read the same topic but at different levels.

Maggi, the other participating teacher, was a native of Guatemala, Central America. Her native language was Spanish. She finished her teacher education in Guatemala and moved to the United States. She worked as a teacher assistant for English as a Second Language for eleven years before she went back to school to get her degree in Elementary Education and Special Education in the United States. When I started to observe her class, it was her first year of working as a full-time teacher. She was teaching fourth grade in the first year and moved to teach fifth grade in the second year.

Maggi's various class periods usually lasted 40 minutes but could be as long as 80 minutes if she decided to continue the lesson. Her class had about 26 students in it, and nine of them were ELs. Similar to Abigail's class, the number of Maggi's students also fluctuated throughout the semester because of student absence or relocating.

Like Abigail, Maggi also felt comfortable teaching informational text. She went through the same week-long GLAD training. She said, "We were provided with different approaches. Basically we're trying to integrate the GLAD strategy. So we provide more visual components to the students." Of the different approaches, she said, "I'll say that [GLAD] is the one that I found the most effective so far. In my experience, that has been the most helpful because kids can actually see what we are talking about."

Maggi said that her goal in informational text instruction was to teach students strategies that they could use at home when they read on their own. She said about her strategies instruction, "I teach them one at a time. I have found out that it is more effective when we focus on one strategy each week.

Maggi was satisfied with the curriculum at her school. She said, "Actually we have a good curriculum at school. Especially in the social studies, we have a good one that exposes students to the content." She further explained, "The Core Knowledge program we have at our school – most of it is non-fiction text. So they read a lot of informational text versus narratives. And students are included in all of the literature that they need to learn in fourth grade, but we do a lot of informational text." Maggi said that she followed the core knowledge curriculum as closely as possible. She said in an interview, "We always refer to the summative target, which is what we're learning."

In addition to using the designated textbooks to teach the core knowledge curriculum, Maggi supplemented her informational text instruction with level-readers books so that students had more information about the same topic. She also used articles from readworks and NewsELA, with the latter providing the same lessons in Spanish. Maggi gave those to the Spanish-speaking English Learners in her class as homework, whereas the other students got the English versions.

### **Setting**

The study took place in Madison Elementary School (pseudonym). Madison Elementary School is a Title I school in an urban area in a western state. According to the District Accountability Report, the school had 523 PK-6 students in the 2016-2017 school year. All students were entitled to free or reduced lunch, and more than 65% of them spoke Spanish at home. There were 47 teachers. This school was one of the thirty-three Title I elementary schools in the school district, and its minority enrollment was 79% of the student body (majority Hispanic), more than the state average of 67% (last available statistic in 2000), and much higher than the current school district average minority enrollment of 55% (see Table 2).

Table 2

*Demographics and Special Populations*

	Minority enrollment	English learners	Free or reduced priced lunch and breakfast eligible	Free or reduced priced lunch receiver	Free or reduced priced breakfast receiver
Madison Elementary School District	79%	39%	100%	100%	100%
Average State	55%	15%	47%	35%	26%
Average	67%	15%	61%	47%	33%

**Data Collection**

The case study was interpretive and emergent in nature (Stake, 1995). In case study research, Yin (2014) emphasized that multiple sources of data collection were of paramount importance in ensuring rich, detailed data. The sources of evidence may include “documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts” (p. 105); even films and videotapes can be collected as sources. In this study, I collected data through class observations, interviews, and artifacts.

The data collection phase expanded from the original two months to two years. The initial phase was over eight weeks during the months of February through April 2017. After I completed eleven observations and three interviews with each of the two participants, I started to analyze the data. The results were not sufficient to answer the research question. Yin (2014) advised researchers to stay adaptive when case studies did

not unfold as planned. He said that, in such cases, the need for the researcher to “balance adaptability with rigor – but not *rigidity* – cannot be overemphasized” (p. 75). Therefore, after the initial lack of data, I sought my dissertation chair’s approval and conducted a second round of data collection from January to February 2018. I observed each teacher an additional ten times and interviewed them two more times.

### **Observations**

When observing the teachers during their instruction, I tried to maintain a role as a non-obtrusive, neutral observer as much as possible in order to get a genuine picture of the teachers in their natural classroom environment. Tierney and Lincoln (1994) suggested that a subjective distance is necessary in this kind of study so that we do not limit and bias our data recording from an insider’s point of view. On the other hand, Piantanida and Garman (2009) suggested that interpretive inquirers conduct their research with the “exquisite sensitivity to the subtle vibrations of encountered experiences” (p. 59). I was conscientious of the intricate relationship between the two desired qualities and strived to strike a balance throughout the study.

When I entered the classroom for the first time, the teachers introduced me to the class and told the students that I was there because I wanted to learn more about how teachers teach them to read and understand informational text. The students were told that I was there to observe the teachers; students should just do their regular work, and I would be around to watch, listen, and write down notes so that I can learn. When whole group lessons were taking place, I sat in the back corner of the room where I could easily listen and observe the lesson. During independent and partner reading time, I would follow the teacher to various areas of the room to better observe and take notes, but still

stayed out of the main action as much as possible. When approached, I was friendly and participated in short conversations and answered questions about my identity and role within the classroom, but I was careful to remove myself as much as I could and not to take an active role in conversations or activities during my observation periods (Yin, 2014).

Throughout this study, I strove to be a reflective researcher. May and Perry (2014) pointed out, “Reflexivity involves turning back on oneself in order that processes of knowledge production become the subject of investigation” (p. 110). To prepare myself for the second round of data collection, I deliberately stayed away from all my data, previously collected and analyzed, for four weeks during the winter break. This distance provided a necessary space between my perspective and the new data so that my observations and interviews were not pre-determined and confined by the data I had collected and analyzed. On the other hand, after I returned from the winter break, I reread the literature review of my study to refamiliarize myself with the theoretical background and consciously adhered to my research question, using it as a guide in my observations and interviews. Thus, I was able to collect “large amounts of new information without bias” (Yin, 2014, p. 74). Further, the extra duration and increased number of observations and interviews served to enhance the validity of this case study (Butin, 2010).

There were twenty-one observations of varied lengths of each teacher’s instruction. As soon as I obtained the approval from the Internal Review Board at my institution, I went to the two classrooms and spent an entire day in each of them to get a sense of every teacher’s literacy instruction practice. I asked the teachers to suggest periods of instruction using informational texts for observation, be it during social studies

or science classes or literacy blocks. For example, if a teacher was teaching a science unit that took three days to complete, I made an effort to observe during those three days.

However, this ideal planning was constantly interrupted by various testings, sudden and unexpected schedule changes, and school functions such as meetings. For this reason, the numbers of observation of each teacher's instruction as well as the duration of the observation periods varied. For example, sometimes I observed one teacher for 45 minutes each time in three consecutive days in one week and did not get to observe the other teacher at all.

All observations during the first round of data collection were recorded in the form of field notes typed on a computer. However, realizing that I did not collect enough data, I changed my observation range and recording method during the second round of data collection. For example, I had focused on whole-class instruction and did not follow teachers to their small group instruction, missing many opportunities to observe their informational text comprehension instruction with a set number of students; I did not record student behavior because I did not include them as participants in the study when submitting the IRB protocol. In the new data collection phase, I observed everything that happened in the class; I also audio-recorded the observed sessions and transcribed them. During this process, I sensed that my ability to observe, collect data, and manage such a research project has made steady progress.

### **Interviews**

I conducted five semi-structured interviews and one-on-one in-depth interview with each of the participating teachers. The first interview was in their classrooms before the study began, the second was after several observation sessions, the third was after I

finished the first phase of collecting classroom data, the fourth was upon completion of the second round of data collection, and the fifth was a follow-up with emerging inquiries. The interviews were administered either during teachers' preparation period before school or during the period of specials, when students went to the library, music, sport, or computer class.

Each interview lasted between 15 and 30 minutes. These interviews resembled "guided conversations rather than structured queries" and the actual stream of questions were "fluid rather than rigid" (Yin, 2014, p. 110). These interviews centered on questions related to the research question (see questions in Appendix A) and probed teachers' preparation of and reflection on their comprehension strategies instruction and use of informational text. Interviews were audio-recorded. Following the interviews, I transcribed the recordings and sent the transcripts to the participants; they reviewed them for accuracy.

### **Artifacts**

I collected informational texts the teachers used in class. I also collected worksheets and took pictures of teachers' and students' writings and group projects displayed in classrooms.

### **Limitations**

The selection of the two teachers was not based on how exemplary their literacy instruction was. They were typical teachers with varied lengths of teaching experience and training. They taught in the same school. It would have been helpful to study exemplary fourth- and fifth-grade teachers alongside these typical teachers to see how

they teach informational text comprehension strategies and whether they teach differently.

I did not teach literacy in public schools in the United States. Therefore, despite my frequent work and volunteer tutoring in elementary classrooms, I was not familiar with the everyday instructional routines in a fourth-grade or fifth-grade classrooms. This could lead to the overlooking of some subtle pedagogical procedures of literacy relevance during observations.

In addition to English, one of the two teachers, Maggi, used Spanish as her classroom language to teach Spanish-speaking English Learners. I recognized Spanish-English cognates and was able to code her vocabulary instruction in Spanish. However, because I did not speak Spanish and did not have a Spanish-speaking translator, I could not access most of her instruction in Spanish. The data would have been more complete and richer if Maggi's informational text instruction in Spanish could be translated and included in the study.

### **Data Analysis**

I analyzed field notes, interview and later observation transcripts, and classroom artifacts such as maps and pictures from textbooks and student posters for codes and themes. The field notes and transcripts provided information on teachers' instructional moves. I went through three major cycles of data analysis.

The first round of data analysis was executed manually. I cut printed field notes and transcripts into individual units; I color-coded the excerpts with highlighters and labeled on the back where they originated. For example, O 28 referred to page 28 of the observation notes I took in class, and if the words or phrases were highlighted yellow,

they were from Maggi's class; on the other hand, I-3/A 2 referred to page two of the third interview with Abigail. Then I jotted down words that described such data units. I chunked and summarized instructional sequences and identified key activities. These activities included labels such as: setting purpose for reading; activating prior knowledge; rereading; and so on. I also indicated how the text was read (e.g., silent reading by students; teacher reading aloud) and instructional details (e.g., student asking a question; students in groups of four discussing; teacher asking student a question). A total of 34 codes were identified. I listed all the codes and tried to determine if the codes were related and could be combined to form categories or themes. Next, I wrote all codes on slips of paper so that I could physically move them together as I identified them to be related to similar concepts. For example, the terms pictures, diagraphs, t-chart, diagrams and image card were combined to form a category called visuals. I grouped all similar codes into 13 categories.

Because the categories produced by the first coding cycle did not yield any obvious patterns related to the research questions, I decided to start a second cycle of coding (Miles, Huberman, & Saldana, 2014). I used a qualitative data analysis software NVivo for open coding because it was an efficient tool. In an attempt to find patterns, I grouped all six interviews into one document and all observation notes into another. This made sense because the themes emerging in the two documents would present any differences and alliance between teachers' talk and thoughts versus their instructional practices in class. The frequency chart on NVivo clearly showed the three themes with the most occurrences: visuals; vocabulary; and questioning. However, after I realized that the initial set of data were not sufficient to answer the research question, I abandoned it.

After I finished the new data collecting phase, I began the third round of data analysis anew. I still used NVivo, this time more confidently because of my previous experience and a much larger data set. I had fewer codes than last time because I discarded codes with only one or two references, which indicated a more focused range of strategies used by the two teachers. The analysis yielded nine major themes, which are discussed in next chapter.

## Chapter 4

### Findings

The purpose of this multiple case study was to observe and record how fourth- and fifth-grade teachers taught informational text comprehension strategies. Since the Common Core State Standards recommended that, starting in the fourth grade, reading materials be comprised of 50% informational text (NGA Center & CCSSO, 2010), researchers have started to study effective informational text comprehension strategies (e.g., Frey & Fisher, 2013; Gelati, Galvan, & Boscolo, 2014; Keene & Zimmermann, 2013). However, little is known about the actual teaching of those strategies in elementary classrooms. For example, do teachers teach informational text in a way similar to how they teach fiction because they are most familiar with those materials? This chapter presents findings of the practice and patterns of two intermediate grade teachers' informational text instruction. The following research question framed the study:

How do fourth- and fifth-grade teachers teach informational text comprehension strategies?

The teachers were interviewed and observed during their instruction with informational texts. The interviews and observations were analyzed for themes, and the findings were organized according to the frequency of coded instances appearing in the teachers' interviews and class observations. The codes were compared to determine similarities and differences in the two teachers' instruction of informational text. The findings indicated that, interestingly, both teachers used the following strategies related to informational text comprehension in their instruction most frequently: (1) questioning;

(2) reading aloud; (3) text features and visual elements; and (4) vocabulary instruction. In addition, the teachers also used unique strategies ~~unique~~ in their individual classrooms. This chapter presented first the similarities and then the differences in the two teachers' informational text comprehension instruction.

### **Main Comprehension Strategies**

Abigail and Maggi discussed and employed specific strategies and activities to teach informational text comprehension. The following table showed that Abigail and Maggi used the same top four strategies most frequently (see Table 3).

Table 3

#### *Rank of Strategies by Teacher and Frequency Count*

Rank	Abigail	Maggi	Total References
1. Questioning	160	231	391
2. Reading Aloud	107	100	207
3. Text Features and Visual Elements	108	94	202
4. Vocabulary	61	63	124

Both of the teachers employed questioning, reading aloud, text features and visual elements, and vocabulary as informational text comprehension strategies in their classrooms. The frequency count indicated that Maggi used questioning significantly more often than Abigail; they used the other three strategies almost equally frequently in instruction. The following section discusses how they applied these top four strategies in their teaching.

**Questioning.** Questioning can be an effective strategy to aid informational text comprehension (Morgan et al., 2009). Maggi and Abigail both used questioning most frequently in their informational text instruction. This strategy was coded 231 times in Maggi's case and 160 times in Abigail's case, accounting for 29% of the total coded

references. This percentage showed the extremely high frequency and importance of questioning in both teachers' instructional choice.

In her first interview, Abigail emphatically talked about helping students understand informational texts through questioning, "Giving them time to question and time to process is very important." Maggi also said, "I provide students with guided questions based on the informational text they have." They both used a lot of teacher-generated and text-based questions but also included questions on vocabulary and comprehension strategies.

At the beginning of their lessons, both teachers either wrote or asked the Big Questions to direct students to keep in mind the purpose of reading. For example, before Abigail started the unit on the Road to Independence, she wrote and projected the guiding question on the Promethean board – The big question: Why did the British government tax the colonists, and why did that make the colonists angry? Maggi used a different format in her class. She wrote the lesson objectives in the form of a statement. For example, for a social studies class, she wrote the following objective on the white board – We will be able to explain the changes the Spanish brought to New Spain. Maggi turned that objective into a question, What are the changes the Spanish brought to New Spain?, and asked students to refer to it throughout that period.

Routine use of questioning was a prominent part of both Abigail's and Maggi's informational text instruction. They used questioning in three distinct ways to serve different instructional goals: vocabulary questions to prepare students for the reading; text-based questions to check student understanding; and strategy-related questions to teach students comprehension strategies.

**Vocabulary questions.** In their informational text instruction, Abigail and Maggi raised vocabulary questions often. Through such questions, they drew student attention to the words in the text and also assessed students' background knowledge on the specific topic.

At the beginning of a social studies class about the American Revolution, Abigail asked students, "Any word in the big idea that you do not know?" Students shouted out the words they did not know. She wrote down three words on the white board: colonist; government; and tax. However, Abigail did not explain what the words meant right away; instead, she left the three words on the board and proceeded to read page one of the first chapter about the French and Indian War. As she read, she drew students' attention to the map on page four; students saw the thirteen colonies in North America on the map and made the connection to the word *colonist*. Through the process of asking questions about vocabulary, then reading and discussing the text and the map, Abigail helped students grasp the concept of colonist and government. Finally, she explained what tax was by giving an example, "This newspaper costs \$1, I need to pay \$1.05; this pamphlet costs \$.50, I need to pay \$.53. That extra money goes to the government, and it adds up to pay for the war." The example not only clarified what *tax* was and where it came from but also defined its purpose as well as made the connection to the other new word of the lesson, *government*.

Sometimes vocabulary questions were answered in a more direct and visual way. In a geology class about volcanoes, Abigail asked students to look at the picture on page C 18, "According to the diagram, what is the magma chamber?" She read the caption aloud for all students to hear, "A magma chamber is an underground pool that holds hot

magma.” Abigail thus used questioning to draw student attention to the vocabulary and modeled how to find answers in pictures and captions.

When pictures did not have explanatory captions, Abigail added explanations herself. In a geology class about mountain forms, she asked students to look at the picture in the book (Figure 1), “So you know what a dome is in general? It’s like a half-circle shape. Right? OK? So do you see the mountain in the background? Not the sedimentary rock, but the one in the background, how it’s kind of rounded? OK, that’s a dome mountain in Utah.”



*Figure 1. A dome mountain in Utah. (Grade 4 Core Knowledge Language Arts Unit 6 Geology: The Changing Earth, 2014, p. 80).*

Abigail also used technology to help answer vocabulary questions in informational text instruction. In a class about Earth’s forces of change, a mini-lesson about moss unfolded as follows:

Abigail: Who doesn’t know what moss is? It is a lot. It grows on north-facing trees and rocks. I’m going to show you.

Abigail looked up images of moss on the computer. Students were waiting.

Mike (all student names are pseudonyms): That's where cheese comes from.

Tim and John: How's that where cheese comes from?

Abigail found pictures of moss and projected them on the Promethean board: It's this green...

Abigail broke off and asked Noah, who wandered away from his seat: Why are you there?

Noah returned to his seat.

Abigail pointed at the moss on the screen: It's this green fuzzy plant.

Some students nodded.

Like Abigail, Maggi also used questions often to help her students understand word meaning and comprehend texts. In a class about the society in New Spain in the 1500s, Maggi talked about changes for the native people. She said, "Something that we learned is that the peninsulares – some of them owned plantations. What is a plantation? Large farms – they own it. So the peninsulares – some of them were wealthy and they own plantations." This kind of vocabulary questioning, imbedded in the context, occurred regularly in Maggi's informational text instruction.

In a science class about biomes, Maggi asked the students sitting around her table, "What is diversity?" One student answered, "I don't know." Maggi read the text to them, "This amazing diversity, or variety," she explained, "look at how they put the comma right there? That means diversity and variety are synonyms. They mean the same." Students at her table focused their attention to the word and nodded.

Students sometimes asked questions when they did not understand a word. In learning about the conflicts between England and Spain during the 1500s, a student asked

Maggi, “What does interpret mean?” Maggi replied, “Interpret the reasons – that means you have to think and analyze, this is what happened. So now you in your own words are going to say, the reasons for the conflict between Spain and England were that... So you are interpreting ‘cause you got that knowledge.”

Both teachers used a variety of questions in their instruction. In addition to vocabulary-related questions, they also posed questions related to other aspects of the content, such as text-based question.

**Text-based questions.** In teaching informational text, Abigail and Maggi asked mostly literal and at times inferential questions about the content they just learned or were going to learn to check on student comprehension. Text-based questioning served to help students grasp the facts in book but failed to promote higher learning and independent thinking in the way inferential and critical questions would do.

After reading the passage about the Stamp Act in a social studies class with her students, Abigail raised a text-related question, “Why did they raise taxes with the Stamp Act?” She directed students to look at the page they just read and said, “Put the answer in a sentence: They raised taxes with the Stamp Act because they wanted money to pay for spending on the war and the protection.” She modeled to students how to look for answers in the text they were reading.

In another social studies class about the Independence War, Abigail raised the following question based on the text, “What European country joined the Continental Army to fight the British, and how did their help influence the outcome of the war?” Students found the answers in the passage they just read.

In a social studies class about mining in the State of Nevada, Abigail read the passages with students. Then she asked, “You understand what they mean by the panning method?” Some students shook their heads. Abigail reread the text on page 112:

Panning for gold was slow, back-breaking work. Prospectors used flat bottom pans to scoop up water, earth, and gravel from the bottom of a stream. As they moved the pan in a circle, the water spilled over the sides of the pan. Then they could see gold dust or gold nuggets mixed in with the dirt and gravel.

Abigail explained the procedure, and showed the drawing on the next page, pointing out the panning prospectors and their tools to students. She used such text-based questions to focus students’ attention on the at times, difficult informational text and to check and aid their understanding of the content they just read.

Questioning was also the most prominent theme in Maggi’s informational text instruction. Many of Maggi’s questions were text-based and literal, such as “Who can explain how seafloor spreading causes mid-ocean ridges and ocean trenches? Who can describe the seafloor features hydrothermal vents and seamounts?” in geology class and “What are the Intolerable Acts? What was the Massachusetts Government Act?” in social studies class.

Maggi considered factual information of great importance to reading comprehension and explained that students “have to get facts to answer questions, or ask questions.” In teaching informational text, she used questioning to help students understand the content. She found questioning a helpful informational text reading strategy and told her students, “One way to recall information is answering the questions; the other way is writing.”

Maggi used text-based questions to help students understand the facts in informational text. For example, after reading about the colonization of New Spain, she asked:

We just learned: New Spain is what?

Jonathan: A big...

Maggi: ...the new city that the Spanish...

Jonathan: ...conquered.

Maggi: Exactly! It was before in decline, now they changed it. What changes?

Paul: They made farms.

Jonathan: They built schools.

Ashton: ... and have a government.

Maggi translated the text to Spanish for Diego, who was new in class and spoke only Spanish.

Maggi: Is that clear? So that was the New...?

Maggi and students said at the same time: ...Spain.

Maggi: They destroyed Tenochtitlan. So now they said, "This is going to be New Spain." And they built schools, they put a government, and the city looked different, right? Here in this area, where Mexico City is, right here. And that was called New Spain.

Maggi explained to Diego in Spanish.

Maggi: And here they found a wealthy... what does the text says?

Paul: ...a wealthy and powerful native people.

Maggi: A huge empire! Remember what an empire is?

Paul: Yes!

T stopped there. She turned to Diego at her table and explained the text to him in Spanish.

Maggi continued: Francisco Pizarro conquered an empire, right?

Students: Yeah.

Maggi: What was the name of this empire?

Jonathan: Llama... Inki... Inki...uh, Inca.

Maggi: Exactly. So Francisco Pizarro came and conquered the Inca Empire.

T talked to Diego about the text in Spanish.

Maggi: Is that clear?

Students: Yes.

Such text-based questions were regular occurrences in Maggi's instruction. She relied on questioning to check on student comprehension of the informational text they were reading. Another example was in a class about the British colonization in the late 1500s. Maggi had a discussion with students, raising text-based questions.

Maggi: So the text also said that Queen Elizabeth I chose Walter Raleigh as the organizer of the first English colony in North America. Why do you think she chose him?

Paul: Maybe they... they... I think because he was like... like...

Maggi: Let's go back and take a look at this paragraph right here (pointing at the text on page 157). Walter Raleigh. Do you see his name was highlighted? This is the answer.

Jonathan: Over where...uh... at reviewing...

Maggi: But why that [*sic*] the Queen is chosing [*sic*] him?

Paul: Because he often organized...

Jonathan: New York is the capital ...

Maggi: They said that Walter Raleigh has been a soldier, and he had explored North America before.

This kind of questioning helped Maggi check on students' understanding of the content they just covered. If students did not understand, Maggi had the opportunity to work on it with students. However, most of Maggi's text-based questions were literal questions. During the observations, she occasionally asked inferential questions but did not explicitly teach students how to make inferences. In a science class about biomes, Maggi handed students a worksheet with four questions and said:

Let's look at the first one. Why do you think the tucanette has such an oversized beak? Look at this beak (pointing at the picture on page B66). That is only for you to make inference.

Maggi explained the question to Diego in Spanish.

Maggi: They are asking you to infer, Paul. Why do you think they have that?

Paul did not have the answer.

Maggi (to Logan): You have to form a hypothesis. You are like a scientist. They observe, and then they take notes, and then they provide their thinking about the hypothesis. You don't know for sure if we can prove this is true... after a lot of struggles and observation... That's how scientists do. Right now, they are asking you to observe, and then provide a hypothesis.

Maggi did not model how to infer; nor did she provide clues or an answer to the question. It could be that she taught her students how to infer in the fourth grade and did not have time during that particular period to help them revisit the skill. Students at her table did not know how to answer this question; they skipped it and worked on the next question. In several instances, Maggi made mistakes in answering text-related questions or did not correct students' mistakes immediately. In a social studies class, Maggi said to one student in her table group:

Paul, can you please describe Columbus's first encounters with the Taino?

Paul: I forgot.

Maggi: You forgot? How sad that is.

Valentina: They exchanged potatoes with turkeys.

Here Maggi did not clarify that both potatoes and turkeys were from the west hemisphere. Instead, she asked:

Did this happen there or elsewhere? What else did you learn? Andrew, can you explain?

Andrew: He led three more expeditions and took 17 ships.

Maggi: To where?

Andrew: to Spain.

Here Maggi did not clarify that the expeditions were headed to the West Indies, not to Spain. She moved on to the next question on her list and asked students about the impact of the event. Later in the semester, in another social studies class, Maggi asked the group of students at her table:

When Francis Drake was returning to England, what happened?

Students were silent.

Maggi: His ship was captured by the Spanish. Do you think the Spanish people were happy about that?

Christopher: No! It's... The reason why they call Drake "Master Thief" because he stole the gold – he stole the ships.

Maggi: Do you think he stole it? Look at it here.

Christopher: Yeah!

Maggi reread the text. Christopher was right.

Maggi: Absolutely right, Christopher! So he got it from them. He became a hero in England. Of course, the Spanish people were...

Students: Mad!

Text-based literal questions were necessary because they served to gauge students' understanding and helped them understand the facts in the informational text. However, inferential and critical questions were also needed to promote higher-order analytical and thinking skills in students, and the teachers did not engage students in these kinds of questions.

**Strategy-related questions.** Besides asking questions based on vocabulary and content to check student comprehension, Abigail and Maggi also asked strategy-related questions to help students learn comprehension strategies in informational text instruction. They used the content material to showcase techniques and tools to help students develop reading awareness and skills, which, in turn, aided reading engagement and comprehension. Some of the comprehension strategies appearing in their questions were text structure and text features and visuals.

In an interview, Maggi described what she asked students in a recent social studies class, “What did you learn? Can you compare and contrast the geography of the three regions of the first colonies?” She said that she asked students to first discuss in group how to compare and contrast – a comprehension strategy for informational text – the colony locations, then write it down the next day. Maggi gave another similar example. She asked her students, “Does it have any meaning to me after I read this page? What do you guys think I can do to understand this?” She said, “And they always go, ‘We have to go back [to the text]!’” She referred to using rereading as a strategy to help students comprehend the informational text they were reading.

In her interviews, Abigail also described the comprehension strategies she taught students to use, such as compare and contrast and text features. For example, she said that she would ask them about any informational text, “What is the author’s purpose? What are they trying to teach children? What are they trying to teach adults?” Setting the purpose for reading was an effective strategy in helping students engage in and understand informational text.

Both teachers used strategy-related questioning in classroom instruction. In a geology class, Abigail pointed students’ attention to the map on page six in the textbook. She read the caption, then she asked, “What is coal? It’s a fuel that is mined out of the earth to provide energy.” She explained the legends on the map to students and emphasized, “Reading a legend is very important – it’s going to tell us what everything is.” Thus, she used questioning to teach students how to use text features such as maps and captions, index, diagrams, and graphs to get extra information when reading informational texts.

Another example concerned text structure. In a social studies class, Abigail explicitly demonstrated the cause-and-effect structure through questioning:

Why did they raise taxes with the Stamp Act? Put the answer in a sentence: They raised taxes with the Stamp Act because they wanted money to pay for spending on the war and the protection. The cause is the why, and the effect is what happened.

Teaching students to detect text structures such as sequence, cause-and-effect, compare/contrast, and problem and solution was useful in enhancing informational text comprehension. In this case, Abigail combined two comprehension strategies – questioning and text structure – to help students make meaning of the different informational texts they were reading.

Maggi also used strategy-related questioning in her instruction. In a social studies class about the colonization process of Columbus, Maggi tried to draw students' attention to the particular text structure of cause and effect. She explained:

Claim means this land belongs to the King and Queen of Spain! Why? Why instead of saying, "This land belongs to me!" He said, "This land belongs to the King." Why? Cause and effect – the reason why something happened. The reason why he claimed the land for the King ... the King gave Columbus what he needed.

Maggi used questioning and answering to model how to apply the cause-and-effect text structure to understand the informational text she and students were reading. She then asked students to write down the answer to the question.

In another social studies class discussion about the American Revolution, Maggi asked a student, “What strategy do you use to understand this text?” The student replied, “Rereading.” Maggi reminded students that they had several strategies they could use to read the same text. She explained:

What Camila means is that she monitors and clarifies. Maybe Alejandro summarizes what he read. What you (pointing at Samuel) mean is using the context to figure out the meaning of the word. Noah, you are creating mental pictures.

In this case, Maggi asked questions and supplied answers and clarification to help students think about the different comprehension strategies they had learned and when and how they could apply them to individual readings.

The teachers were flexible and creative in the execution of questioning. They sometimes found different ways to use questioning to help struggling students understand informational text. For example, Abigail described how she used questioning with students who were barely beginning readers, “[I] take those struggling, nearly non-readers, and I will ask them – they speak into the iPad, they need to answer me, then I’ll have a record of what they’ve learned.”

In sum, questioning was the most frequently coded comprehension strategy that Abigail and Maggi used in teaching informational text. However, their pattern of questioning throughout the observations displayed three distinctive characteristics: (1) the questions were mostly teacher-directed, which fell in three major categories – vocabulary questions, text-based questions, and strategy-related questions; (2) the questions were

mostly literal questions, whereas inferential and critical questions were hardly observed in their informational text instruction; and (3) the questions were assessment-oriented.

First, the questions were mostly teacher-directed, not student-generated. Of the 391 coded references of questioning, fewer than a handful were from students, and they concerned technical details about the assignment. For example, in a social studies class, one student asked Maggi, “What does interpret mean?” One task of the day was interpreting the reasons for the conflict between Spain and England. Maggi and Abigail modeled using questioning as a comprehension strategy by raising questions, big and small, oral and written, in their daily instruction of informational text. However, although they also encouraged students to ask questions, students were busy answering teacher-generated questions and did not initiate the process.

Second, the questions were fact-based literal questions and not inferential or critical questions. Of the 391 coded references of questioning, there was one instance of Abigail suggesting to students to “use your power of inferring to find explorers’ contributions” in a social studies class about early explorers in the West, and she did not further explain or model how to infer; in Maggi’s case, there were three instances in which she briefly talked about how students should make inferences “based on your knowledge.” The teachers did not include inferential or critical questions in oral or writing form in their informational text instruction. Maggi explained the reason behind such an instructional decision:

The students here have a differentiated instruction ‘cause I want them to get to one level first. And then when I do, for example, core knowledge, a lot of that instruction asked students to cite evidence or do a lot of inferences. So to not

double-dip and get something with them, when I check those lessons I can anticipate it, and I say, in social studies, I'm going to use this to work on these skills; and when we do core knowledge, we do a lot of inferential, a lot. So they get it in a different subject.

Third, the questions were assessment-oriented. The teachers' instruction was permeated by assessment of various sort, big or small, informal or standardized. For example, in a geology class, Abigail modeled how to write an expository essay introduction and asked students to write one by themselves. She said, "This is an assessment. All fourth-graders are writing an expository paragraph today. This is a test!" My observations were frequently postponed because of testing sessions such as SBAC, MAP, and WIDA. Therefore, although there were only a handful of references related to assessment in the study, the influence of assessment could be felt. The teachers were mostly discreet about teaching to the testing except for an occasional remark. Once Maggi said to a sleepy student, "During the assessment, Love, this is the type of text that you're going to be reading. So be a bit familiar with those words. It's going to be easier for you."

### **Reading Aloud**

Reading texts aloud was the second most used strategies in Abigail's and Maggi's informational text instruction: it was coded 107 times in Abigail's case and 100 times in Maggi's. Research showed that reading aloud could be an effective strategy in engaging students, practicing reading fluency, gaining exposure to vocabulary, and promoting comprehension in informational text instruction (Kolski & Zhang, 2017; Santoro, Baker, Fien, Smith, & Chard, 2016). Abigail and Maggi did reading aloud in various forms: with

whole class; in small groups; in pair reading; and solo reading while the rest followed along.

The teachers provided individual rationales for adopting reading aloud as a strategy with informational text in class. Maggi stated that “one way to differentiate the instruction is to read aloud to them and stop to monitor and clarify their understanding.” Before reading, she gave students guiding questions; during reading, she stopped to check students’ understanding – if students read the text and did not know how to answer related questions, she would have them reread it or explain the text to them; after reading, she would point to the lesson objectives to see if they were achieved. For Abigail, reading aloud was for monitoring purposes; in addition, she had other reasons in mind, such as motivational and fluency-promoting effects. She said:

I think they are proud to do it. It gives me an informal survey on how they are reading. By me doing it, I’m modeling fluency. It’s for me to monitor how they are doing, especially when I’m doing running record with them. I don’t think it’s designed to help them improve their comprehension of text. But it does help. To have them all read at the same time gives them more time for eyes on print.

Maggi typically divided her students into groups of four and asked them to take turns to read to each other before discussing the text and answering questions; in the meantime, she would do reading aloud with a group of students – usually struggling readers and English Learners who spoke Spanish – at her table. In a science class about the ecosystem, Maggi said to the students at her table:

Let's begin reading. You must read with me. You think about the information when you read. You summarize what you read when you are done reading. (She read the text on page B 53 while the students read along). What do you think?

Students: Food! Trees!

Maggi translated the text into Spanish for two Spanish-speaking ELs.

Maggi then continued in English:

How is human population related to the ecosystem? What is needed for human ...

Let's read, "Most declines in population is caused by ..."

Maggi and students read on. She frequently used reading aloud to help students focus on the text and practice orally reading fluency; she also used it to help them acquire unfamiliar vocabulary and build background knowledge. In addition, she also used reading aloud to teach students comprehension strategies. For example, in another science class about the rain forest, Maggi read paragraph one on page B 66 out loud with students:

Tropical forest – you can get an idea of what it feels like to be in a tropical rain forest...

They finished reading the first paragraph.

Maggi: Stop right there. Just with that information, I want you to look at the board [where the four guiding questions were listed]. What is it that we are going to be learning?

Ethan: It rains every day.

Jacob: The temperature is warm.

Maggi: Why?

Ethan: There is sunlight most of the year.

Maggi: Isn't that the key of what we are learning? Awesome job! Does that help you understand? The climate and which biome is developing – what type of life will develop there? Let's continue.

In this section, Maggi modeled strategies such as asking questions, making connections between facts, and going back to reread to help oneself understand the text. While she was translating the text into Spanish for the Els, several students started to write the answer on the worksheet.

Like Maggi, Abigail also often used reading aloud in her class. Sometimes she read the text and had students follow along; sometimes she asked the entire class to read together; and sometimes she had students read in small groups. For example, in a science class about the changing Earth, she read the third paragraph on page 74 in the textbook and asked students to read along. Then she stopped and said to students:

Do you remember earlier in the book when we talked about the different ways that the plates moved? Show me if you can remember with your hands.

Abigail showed the movement with her hands and said: They can slide over, right? They can slide side by side.

Some students imitated her hand movement.

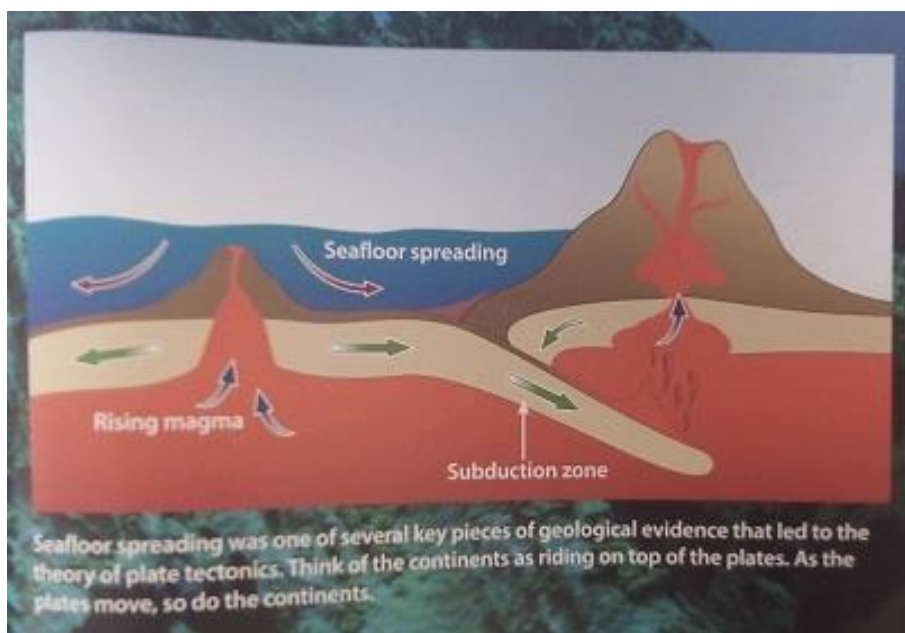
Student 1: What was another way?

T: Under.

Elijah: We just did that!

Abigail: We just did that.

Abigail used reading aloud to engage students and helped them make connections to the previous lesson by making a simple visual representation of the topic. It was beneficial for students, especially struggling readers, to read aloud so that they could hear unfamiliar words pronounced by themselves, peers, or their teacher. This would help to improve their fluency and vocabulary. For example, in another science class, Abigail asked a student to read the caption under the diagram on page 83 (Figure 2).



*Figure 2. Moving plates and continents. (Grade 4 Core Knowledge Language Arts Unit 6 Geology: The Changing Earth, 2014, p. 83).*

While the student was reading the text, Abigail helped him with the following words: “geological”; “evidence”; “theory”; “continents”; and “as riding.” After he finished reading, she said:

So this was so important, you guys. When we come up with that map of the continents, and we put it back together like how it might have been in just one

solid case – it helped to show how close the plate movement can move all those pieces of land.

Through this reading aloud, Abigail not only helped this student – possibly other students at a similar level – read unfamiliar words, she also connected the topic to knowledge they gained in previous lessons. Further, she showed them how to extract information from text features such as diagrams and captions, which were important and useful comprehension strategies when reading informational text. Abigail used reading aloud to teach students comprehension strategies purposely. For example, in another science class, she said to students:

OK. Bottom paragraph. 75. All eyes on the page, and I want to see everybody's book flat, so I can see where you're at. Everyone. Please! Flat! OK.

Abigail read the fourth paragraph while students followed along.

Abigail (referring to the picture on page 75): So I want you to look at the diagram. Do you see how they would explain – how they could be called “fold mountains” – how they kind of have folds in that crust right there? So you can see that.

Students: Yeah!

This reading aloud exposed students to the content that they were learning. Further, Abigail directed their attention to the map and the key concept, making the connection explicit for students to grasp; in the meantime, she also modeled using the text feature as a comprehension strategy to make meaning of the informational text they were reading.

### **Text Features and Visual Elements**

Informational text typically contained more text features such as charts, diagrams, captions, and index than fictions and stories (Barone & Barone, 2016). Visual elements referred to charts, graphs, diagrams, maps, photographs, and videos that can provide information in addition to text content and support student understanding (Niknejad & Rahbar, 2015). I combined the two strategies in this study because they overlapped a great deal and also complemented each other. The use of text features and visuals was a versatile strategy in informational text comprehension instruction because it had a wide range of presenting forms such as charts and photos and even multimedia and interactive content; it afforded the possibility to convey different kinds of information beyond the traditional print form.

Abigail and Maggi often included text features and visual elements as a comprehension strategy in their informational text instruction. It was coded 108 times in Abigail's case and 94 times in Maggi's. In an interview, Abigail explained her application of this strategy:

We look at text features pretty in-depth, as far as table of contents, index, glossary, pictures, captions, charts and diagrams. So that is on-going. But I have a lesson I do in the beginning that is strictly text features. We take articles from Scholastic News or something like that – about three different periodicals – locate within there so they know where to look if they need the information.

Throughout her lessons with informational text, Abigail conscientiously brought student attention to various text features and visuals. For example, in a class about Native Americans and explorers, she told students about the text they just finished reading, “Italics like this paragraph is the exact quote.” She explained what that meant and whose

perspective that represented. Students now had one more text feature as a comprehension strategy for reading informational text.

Abigail considered visuals of utter importance and help to informational text learning. Pictures were the most used visuals in Abigail's class because they provided information through a venue other than print and helped her students see what the text was referring to and thus better understand the text. She stated, "When the topic is unfamiliar, I believe there is much more need for picture support." She had a systematic way of collecting and using pictures in class. She said:

We are not just reading words... so for example, migration, we have to show pictures of what migrating butterflies and animals look like; we are going to have to use those words in repeated times – migration, hibernation. In my classroom, I always try to have a variety of picture support that comes up. At times we have collected it. And they have it in a research binder, so that they have that, as a mental image... or they have it as a sketch, their note-takers that give them the visual. So the visuals I find are very important.

In addition to pictures, Abigail also used other visuals such as maps, captions, index, glossary, charts, and diagrams in teaching informational text comprehension. In reading various informational texts, she often drew student attention to the visuals by saying, "I want your eyes to gravitate to the caption. I want your eyes to gravitate to the bold words." Then she would help students extract meaning from the visuals to supplement what they read in text.

Another common example of visuals in Abigail's informational text instruction involved maps. In a social studies class about the American Revolution, students said

they did not know where Quebec was. Abigail handed each group an Atlas. She first asked them to look for the city where their school was. Then she showed them where Quebec was. Abigail used this visual to provide background knowledge and at the same time establish a connection to students so that they had a vivid understanding of the geographic locations of places mentioned in the text before they delved into more historical details.

Abigail also used visuals in science lessons frequently. For example, she showed students geology image cards (i.e., pictures of a volcano and lava, the Grand Canyon, and so on), so that they had an explicit image to match the concept in print. When talking about continental drift, Abigail also used visuals. She pondered out loud in front of the class:

It's hard to believe that they move, but they do. Look at our world map, those continents have a drift – they slowly move over time. People wondered if the continents had one been joined and later moved apart. (Pointing to South America in the map) Does it look like the continent used to be joined together?

Several students shook their heads, while others murmured something unintelligible. Abigail explained to them that it was a very gradual process, which means that it happened “little by little.” She drew students’ attention to a caption on page four in the textbook and said, “Fossils help provide information about the history of the earth; it looks like leaves falling into the rocks.” If students did not understand the abstract idea of what fossils had to do with continental drift, Abigail’s instruction with visuals helped them establish a more concrete connection that they could begin to fathom.

To fully apply this comprehension strategy, Abigail asked students to make their own diagrams and charts. In the previous unit about inventors, she had students draw a diagram to show what “inventors needed to recreate their inventions for other people.” She said, “They had to sketch it, and then they had to label its parts, and give a brief one or two sentences of ‘What does it do?’” In producing a diagram, students had to understand the informational text and present it in a visual form.

In addition to the typical text features and visual elements associated with informational texts, Abigail sometimes used unusual visuals such as concrete objects to help her students understand the ideas and concepts in text. In a geology class, Abigail and students read that “mid-ocean ridges form a near-continuous chain of mountains that wraps around the earth like the stitching on a baseball,” Abigail asked a student:

David, do you know what they are talking about, stitching on a baseball? Does anybody know what I’m talking about? Daniel, what’s stitching on a baseball?

Daniel murmured something unintelligible.

Abigail: Well, a real baseball is made out of...

Martin: Wood!

Pablo: Clay!

Lucas: No.

Liberty: She has one.

Abigail walked from the Promethean board in the center front of the class to her left to get a baseball from her desk.

Abigail held the baseball up for students to see and said: So if you were a real major league baseball, they are kind of filled with rubber bands – sort of super

packed tight, and they are made out of leather over the front. And this would normally be red stitching. You see what I'm talking about?

Students: Yeah!

Lilly: Was it bleached out?

Abigail: No, this is not for serious play. I just wanted to show you what a stitching is and it's usually red. (She pointed at the stitching.) So here's the stitching – it goes around, kind of in a pattern, as it connects to the next thing, to connect to the leather on the baseball.

Abigail went around the room to show students the baseball and its stitching.

Abigail: The stitching goes around like that, OK? So the stitching will go around like this. Now I want you to look at your map (see Figure 3).

Students: OK.



*Figure 3.* Mid-ocean ridges form a near-continuous chain of underwater mountains.

*(Grade 4 Core Knowledge Language Arts Unit 6 Geology: The Changing Earth, 2014, p. 84).*

Carter: There is nothing like that.

Abigail show Carter the baseball and the stitching: Yes, there is. There are stitching like that on the baseball.

Henry: There is the red line!

In this episode, Abigail used an actual baseball as a visual to provide her students with background knowledge: If students did not play baseball or go to baseball games, they would have difficulty understanding the connection between the red lines in the map and baseball stitching. This real-life visual effectively supported students' understanding of the text they were reading.

Like Abigail, Maggi also used text features and visual elements such as charts, diagrams, graphic organizers, pictures, and videos as a strategy to support her students' informational text comprehension. Both teachers used this comprehension strategy in their daily instruction of informational text. Depending on the content, they sometimes naturally extended the visual elements to include actual objects related to text so that students saw and physically held the items in hand. This helped to turn the abstract to the concrete and afforded students the possibility to apply other senses to understanding the meaning of the text. An example in Abigail's class was when she fetched a baseball to show students what baseball stitching looked and felt like when they read that "mid-ocean ridges form a near-continuous chain of mountains that wraps around the earth like the stitching on a baseball." Maggi brought rocks from her own collection to show students before she began the science unit on rocks on the Earth.

One of the most frequently used visuals in Maggi's class were video clips. When illustrating her daily routines, Maggi said, "To engage them, the first strategy I like to do

is video.” She emphasized that she regularly looked for content-related videos, such as “World top 10 animals in danger of extinction” for a science class about extinction and its causes, to show students because they provided students with needed background knowledge, stimulated their curiosity and interest, and were therefore effective in engaging them and helping them better understand the text. She continued:

I have noticed this year that every time I use a video, then a pictorial, then when I put the kids to read, they are more motivated because they have a big background knowledge now and they know what they are talking about.

Maggi gave an example from her science class. She said, “Last week we were learning about hydro-thermal vents, and they were fascinated to see them in a video and say, Look, they are like minerals!” Students gained a concrete idea of what the text was about and could build their conceptual understanding on the visual foundation. Maggi found this strategy to be effective and helpful to promote student comprehension of informational text.

Maggi used a wide range of visuals other than videos in informational text instruction, such as maps, graphic organizers, and diagrams. In a social studies class, to give students an idea of the physical routes of Columbus’s voyages to the Americas, she hung a map of the regions on both sides of the Atlantic (Figure 4). She told her students, “I’m going to give you a map. We’re going to talk about the continents. I need you as a team to refer to all these: Atlantic Ocean, Pacific Ocean. This is a tool to refer to.” This visual gave students a concrete idea of where the countries, continents, and oceans mentioned in the text were; it could help them make connections between the abstract concept of colonization and the physical activity of cross-continental traveling.



*Figure 4.* Maggi's map of Europe and the Americas.

Throughout the observed classes, Maggi and her students referred to this map often. In a later lesson about the conflicts between the English and Spanish colonists, Maggi pointed at that map and explained to the group of students at her table, “Here, look at this. This is Spain, and this is England. See it? America is right here. The ships were traveling across the Atlantic Ocean and then they spy on them. Notice those ships were loaded with gold.” She then explained what she just said in Spanish to a Spanish-speaking English Learner so that he knew what the others were learning. Then Maggi drew students’ attention to the drawing on page 158 in the book, using another form of visual. She explained:

Then Spain was unhappy about the situation. So they planned on a battle of the Spanish Armada. Do you see how many ships were there? So they went there and they attacked England. They wanted to go back. They wanted to attack them. This was the battle we were talking about. Many Spanish ships were sunk by the

English cannonballs because the English at the time – they were more advanced in using weapons.

Again Maggi explained what she just said in Spanish. She used the map and the picture as strategies to add visual elements to the abstract historical facts. They were useful strategies to help students make connections and better understand the informational text they were reading.

Maggi used pictures often as visual aids in teaching informational text comprehension. In a science class about the rain forest, she and the students at her table finished reading the passage, “...under the canopy are a few shorter trees and many vines, orchids, and ferns.” Then Maggi pointed at the picture on page B 66 and said:

Orchids and ferns – those are the pictures. You see those ferns? Do you see those short trees, those short plants?

She read from the text: “Very few plants live on the rain-forest floor...” Do you see that? So they’re giving the reason now why.

Paul: ‘Cause there is a little bit of sunlight!

Maggi: Absolutely! Because there is a little bit of sunlight that can get down through the canopy because the canopy, you see, is thick, is like an umbrella. And do you remember we watched the video – how they need the sun, the soil, and water to produce life?

Paul: If they don’t get water, ...

Maggi: Water I’m pretty sure they can get. It says in the rain forest it rains almost every day.

Maggi used the picture to provide students with a visual image so that they understood what the text was about. That was the foundation for deeper discussion about causes, consequences, and so on. Presenting concrete images was a useful comprehension strategy for reading informational text because often the concepts were rather abstract.

Maggi also asked students to produce their own visual images. In a science class about natural and human causes of extinction, she said:

You can show learning by drawing a diagram. Natural causes for extinction – this would be my title. Drought would be one. I would draw very dry land, like cracking.

Jonathan: Can you draw a fire?

Maggi: Absolutely! Fire is one of the natural causes.

She did not draw the diagram but described it to students; she also asked students to list the causes they could think of. Then she let them spend time drawing the diagram. Such a visual representation reflected students' thinking and understanding of the content. Text features and visual elements provided a versatile and easily accessible arsenal to teachers who teach informational text comprehension.

### **Vocabulary**

In both teachers' teaching of informational text comprehension strategies, vocabulary ranked fourth in terms of frequency of references. It was coded 61 times in Abigail's case and 63 times in Maggi's case. They both paid a lot of attention to vocabulary building when helping students understand informational text.

When talking about "front-loading vocabulary," Abigail said, "It depends on where I think they are at – if it's something unfamiliar, then I'll do it; [if] it's something

they can maybe decode and get from the context, then I won't worry about it so much.” Maggi also discussed the importance of being explicit about vocabulary with students when reading informational text. She said, teaching the words “they are encountering, anticipating what is going to be difficult for them – I must do [*sic*] in every lesson.”

Informational text typically contained specific academic vocabulary. Abigail was aware of it and the importance of teaching it to support student comprehension of the informational text they were reading. She said:

That kind of academic vocabulary, too, evidence to support your claim, has to be taught independently – well at first it does – because they can have two meanings. Support means, “Hey Buddy, you are doing a good job!” And support meaning [*sic*] how does this author – what proof does he have? So that academic vocabulary really is important.

Recognizing the importance of vocabulary in informational text comprehension instruction, Abigail stated, “I make sure students understand the vocabulary that they will encounter.” She taught vocabulary words in varied ways. For example, she sometimes brought students' attention to the vocabulary before the reading. In a geology class, Abigail asked a student:

There is a bold-printed word (rugged) in the second paragraph. Carter, you think you know what it is?

Some students: I know!

Abigail: Shhhh!

Carter: Rigid?

Abigail: No. What do you think, Henry?

Henry did not know.

Abigail read the paragraph, with students following along.

Abigail: So when something is “rugged,” sometimes it can have several meanings. So rugged is something that... It can be kind of tough and hard to get around. Ok, Carter, what do you have?

Carter: Uh, having a rough surface.

Abigail: Having a rough and uneven surface. We also call people that are really tough “rugged.”

Abigail also tried to make use of technology in vocabulary learning. In teaching the American Revolution, Abigail modeled how to look up the word “burgess” in an online dictionary. She got on a website of a dictionary on her computer and projected the search on the Promethean board; she typed in the word “burgess” and read the definition with students, then she made the connection to their text and explained the historical context of the word.

In Abigail’s class, one area of particular instructional emphasis was academic vocabulary, particularly the so-called Tier 2 words (i.e., words of high frequency in a specific text or of multiple meanings) (Beck, McKeown, & Kucan, 2013). For example, words such as “financial,” “ceded,” and “acquired” were not part of students’ daily conversation, but they were present in their informational text. Abigail helped students become sensitive to the words, make meaning and practice with them, and distinguish them from daily usage. For example, in a science lesson, Abigail drew student attention to the word “earth” in textbook, “When I was reading this, I found it interesting that the

earth is in lower case when referring to mud; when it is a place, it's a proper noun and is capitalized.”

Abigail pointed out the multiple meanings and usages of Tier 2 words to broaden students' vocabulary knowledge, which was crucial in understanding informational text. In another science class about seamounts and subduction zones, Abigail finished reading a passage with the last sentence stating, “Great **schools** of fish live around seamounts, too.” She asked students:

So why do you think they bolded the word “schools”? We know what a school is.

Martin: They bolded “schools” because that's when the fish stay all together.

Abigail: That's right. Like a herd of cows, we have a school of fish. And that's a different word – it's a group of fish that swim together.

This kind of explicit academic vocabulary instruction clarified word meanings for students and thus dispelled potential confusions about their usages. Not only Abigail applied frequent vocabulary instruction as a comprehension strategy, Maggi also used vocabulary as a support in her informational text instruction. As a learner of the English language, Maggi recognized the importance of appropriate vocabulary in reading comprehension and the needs of her students to develop it. She said:

I do exactly what I teach my students to do, especially because my native language is Spanish. That is what opened my eyes to the understanding of many of my students, even the ones whose native language is English. There are some academic language and words, especially in science. So I really have to use the strategies – I stop, and I monitor my understanding. I do exactly what the kids do – sometimes they have to look up in a dictionary for a word.

She noticed that many students in her school were “newcomers and have no language at all.” She explained what she encountered in class:

Some students – depending on the group – they are going to be struggling with just reading words with prefixes and suffixes, whereas you have other group of people, even though they can read beautifully, or they won’t read at all – we have all of them. They won’t understand certain words. I present the vocabulary words first. And then I show them words that I know for sure they are going to be having problems reading – so we read them first. And then I introduce the story, do a book walk.

Therefore, Maggi was vigilant about vocabulary in informational text instruction. She said, “The words they are encountering, anticipating what is going to be difficult for them – I must do [this] in every lesson.” Vocabulary instruction built the essential foundation for Maggi to support students’ informational text comprehension. Maggi tried different tactics to help her students grasp the meaning of new words before guiding them further in the text. In a social studies class about the new colony called New Spain, Maggi said:

More changes for native peoples. So something that we learned is that the peninsulares – they were wealthy and they were firm. Some of them owned plantations. What is a plantation?

Maggi translated and explained in Spanish to Diego and Luciana, both were Spanish speaking ELs.

Maggi: Large farms – they own it. So the peninsulares – some of them were wealthy and they own plantations.

To help students understand the societal hierarchy in New Spain, Maggi explicitly explained what a “plantation” was and what the connection between peninsulares and plantations were. Students needed to know this before they could proceed to learn other layers of societal relations at that time.

Direct clarification of word meaning was one tactic that Maggi often used in informational text instruction; on the other hand, she also paid special attention to homonyms, words with multiple meanings, to avoid confusion in understanding. For example, in a social studies class about the English colonization, Maggi said, “We talked about the word *found*: I found my shoe. Remember the other meaning? When you discover something or establish something. The English here, they founded a colony on Roanoke Island.”

Maggi also used elaborated examples and analogies to help students understand academic vocabulary. In a class about the tropical rain forest, Maggi finished reading the passage with the last sentence stating, “This amazing diversity, or variety, of life is one of the characteristics of tropical rain forest.” The she asked students at her table:

What is diversity?

Paul: I don’t know.

Maggi: “This amazing diversity, or variety” – look at how they put the comma right there? That means diversity and variety are synonyms. They mean the same.

If we have a variety of drinks, for example, what does that mean, Student 1?

We’re talking about the word. You didn’t understand the word “diversity.”

Maggi translated what she just said into Spanish for the two Spanish-speaking ELs at her table.

Maggi: We have a variety of drinks. What does that mean?

Valentia: We have a variety of ... drinks.

Maggi: So what can you see? A lot of different drinks. Pretend we have orange juice...

Andrew: Mango!

Maggi: Mango juice...

Jonathan: Apple juice.

Maggi: What else can you see?

Issac: Water.

Maggi: We could have water, we could have...

Jonathan: Pineapple.

Maggi: Pineapple! That is a diversity. Say it: "di-ver-si-ty"! Different kinds!

Diversity!

Valentina: Cherries...

Maggi: So do you understand the meaning of the word now? When they talk about diversity, let's go back here (pointing at the text). Ready? Do you understand now the meaning of the word diversity? Diversity of life – what does that mean in the forest?

Valentina: With a lot of life...

Andrew: And there is... like... different birds and...

Maggi: Animals! Absolutely!

Jonathan: There's also different tall trees.

Maggi: So let's use that word in a sentence. In the tropical rain forest, there is an amazing... What is the word that we are learning? If you are telling this to somebody, let's pretend we are writing about it: In the tropical rain forest, there is a diversity of life. You can use "amazing," absolutely! You are describing an amazing diversity.

Maggi and students slowly repeated the sentence together: In the tropical rain forest, there is an amazing diversity of life.

Maggi: Some people use variety. And I guess that if I say variety, you'll be more familiar with it. But I need you to learn the word now diversity, like in our classroom. Look at it here: We have a diversity of population, OK? Some of us are Hispanics; some people are African American; we have Asian; and some people are from the Pacific Island; we have Caucasian. This is di-, diversity. You see over there? That's diversity. Is that word clear now?

Several minutes later, after more reading and discussion, Maggi asked:

So what factors contribute to the diversity of plant and animal life in the tropical rain forest? What are the factors? What was the word that we use?

Paul: Dee-ver-si-ty?

Maggi: Diversity. Paul is trying really hard on that word. And all of you are going to be using that word. I need you to use diversity. Say it.

Students (all at the same time): Diversity!

Through clarifications, examples and analogies, and repetitions, and with the help of technology and other strategies such as text features and visuals, Maggi and Abigail devoted a lot of time and effort to help students acquire vocabulary. In their vocabulary

instruction related to informational text, the teachers provided ample explicit definitions and moderate explanation of word relations. However, they barely provided any instruction on morphology and syntax: of the 1336 coded references, Abigail was observed to teach prefixes on three occasions, and Maggi, zero. In a social studies class, Abigail introduced the prefixes of in- and im- to students; she explained that these prefixes meant “not” and gave them examples such as improper-not proper; impersonal-not personal; inability-not able; and independent-not dependent. In two science classes, Abigail and her students encountered words like “subduction zone” and “submersibles.” She explained that the prefix sub- usually meant under, as in “submarine.”

Together with questioning, reading aloud, and text features and visual elements, vocabulary instruction belonged to the most frequently used strategies Maggi and Abigail applied in teaching informational text comprehension. Aside from the same top strategies they frequently used, Abigail and Maggi also used other strategies unique to their respective instruction.

### **Abigail’s Strategies in Informational Text Comprehension Instruction**

In Abigail’s class, students sat in table groups of three or four, facing the Promethean board and the white board. Abigail also had another grouping system for some reading and research tasks, namely according to their reading levels. Students of varied reading abilities worked in the same group so that they could benefit from the experience and support of one another. When such tasks arose, students stood up and left their tables and got into their pre-assigned groups to start the work.

Abigail usually began each class by greeting her students and writing the objective and language objective of the lesson on the white board. Then she asked one or

two students to bring the textbooks for the lesson, and students would come and get the copy with their designated numbers and return to their table. Instruction thus began.

Abigail reviewed the content from previous classes by asking students questions or went over the vocabulary words by explaining them to students; as new words came up, she also had them discuss the words in their table groups. In addition to the top four strategies, Abigail also used summarizing and writing predominantly to support students' understanding of informational text.

**Summarizing.** Summarizing required students to have a clear understanding of the text and present only key ideas in an organized manner in writing or an oral report. This could be an effective comprehension strategy for reading informational text because it required active production based on solid understanding of the content. Research found that summarization instruction could improve both writing and reading comprehension (Shanahan, 2015).

Summarizing was coded 59 times in Abigail's case. She frequently used it as a comprehension strategy in her informational text instruction and said that she always tried to "make some sort of a key word or key idea activity" in almost every class. She said, "Summarizing is really, really hard, but again, it's a super necessary thing." She taught her students how to summarize in a systematic way, beginning with *reading* summaries of informational text. She said:

In the science book, there is a section that says summary. I said, see how you just put the important details in there? When you can condense it... If I go to the summary, I get a preview of what I'm reading about. What are we going to be talking about? So I might have them read the summary first.

Understanding that summary provided the most important information in a text was a necessary and good start. Abigail spent a substantial amount of instruction time reading the text with students and helping them decide on key words and discern important facts from interesting ones. Garner (1987) noted that less skilled readers paid more attention to words and their meanings than the connections between the concepts they represented. She advised teachers to “demonstrate how a full answer to a question is often unavailable in a single sentence, and how ideas from many parts of text must be combined in a summary” (p. 308).

Abigail did just that. When she read the text, discussed it and gleaned key words from it with students, she asked them periodically, “Now, am I making sentences or just making thoughts? Key words?” She waited for students to answer, then she reinforced, “Key words and ideas!” After she modeled how to find key words in a passage, she let students practice it. Then she had students write summaries.

When helping students write summaries of informational text, Abigail did a lot of preparation and scaffolding for them. In a science class about how the plates built mountains, Abigail went from paragraph to paragraph on pages 72 to 80 to discuss and write down key words with students. She said to students, “I’m giving you the help for each of the pages. So we have fold mountains, we have fault-block mountains, and we have dome mountains.” She then asked students to copy the key words on the top part of their paper and write a summary at the lower part. To get students started, Abigail typed on her computer and showed the first topic sentence on the Promethean board: There are 3 main types of mountains. She asked students to continue writing the rest with their own ideas, using any keys words written on top of their paper.

Abigail explained how she trained her students to summarize, “So I also try to have them, as much as I can, condense, sometimes at the end of the lesson, it’s just two sentences – what did we take away today?” She asked them to look for the “main idea for a paragraph, find the topic sentence.” She also tried to have them “get to the concluding paragraph of a chapter – notice that it is a summary, and then go back.” All these summarizing activities were observed in Abigail’s class. For example, in a class about the American Revolution, Abigail said to students:

Come up with the key vocabulary – at least three or four words – in your group.

You will use it to sum up the text. Watch out: you are looking for key vocabulary, not just a lot of words; some words might be interesting, but do they clarify or change the meaning of the text?

Students got into discussions, and Abigail walked around the room to listen to them.

To help students practice selecting key words, Abigail showed them a video on a teaching channel about “Key vocabulary: Keep it or junk it?” The video showed students to vote on words to determine whether they were important or not by showing different numbers of fingers: One finger meant to keep the word; two fingers meant to junk it; and three fingers meant to cloud it – to store it for later consideration. Abigail then had students discuss in groups and pick key words for the chapters about the American Revolution they were reading; then she asked five groups to present their key words in front of the whole class, where all students practiced the keep-it/junk-it technique.

Learning how to summarize was a long and gradual process. To help students get used to the idea of finding key words and main ideas and not get overwhelmed, Abigail taught students to pay attention to key words in smaller units such as sentences. For

example, in a social studies class, she read a sentence about the American Revolution, “The 56 members of the First Continental Congress drafted a list of complaints and grievances against the king and his government.” Then she asked students to carry out a “30-second talk on your table about what are the important words that stand out in the first sentence on page 22.” Varied and frequent exercises in finding key words served to heighten student awareness of the meaning and function of words in the text and help them develop a sense of what was important vs. what was interesting, an essential skill in summarizing.

Abigail also modeled how to select key words from a given text. In a series of geology classes about the Earth’s forces of change, she discussed and wrote down words that students considered important and related to weathering. She said:

What we do is we broke down the pieces into key words and phrases (Figure 5).

We decide that there are two types of weathering. What were the causes of the physical weathering? You take all this basic information and turn them into sentences.

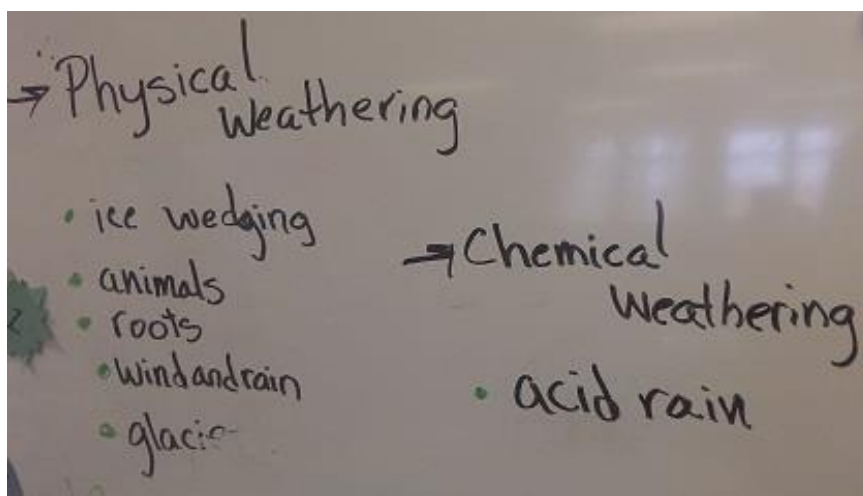


Figure 5. Abigail’s list of key words and phrases about weathering.

Such lists provided students with key ideas to which they could refer without rereading the entire text. This helped to simplify the summarizing process. Abigail scaffolded this process deliberately so that students could learn how to work in a similar way. She admitted that it was “challenging” for her students because they tended to have a difficult time trying to decide which words and ideas were the most important, as happened later in the same geology class. After Abigail and students read the second paragraph, she inquired:

Really? Paragraph two doesn't have anything? New information that we don't have?

Abigail asked Mike: What do you think?

Mike murmured something unintelligible.

Abigail: No, no, no. Just a key word and an idea.

She said to all students: OK. Raise your hand if you have another idea... What about subduction zone?

Students: Yeah!

Abigail: Let's put it on.

She wrote “subduction zone” on the poster (Figure 6).

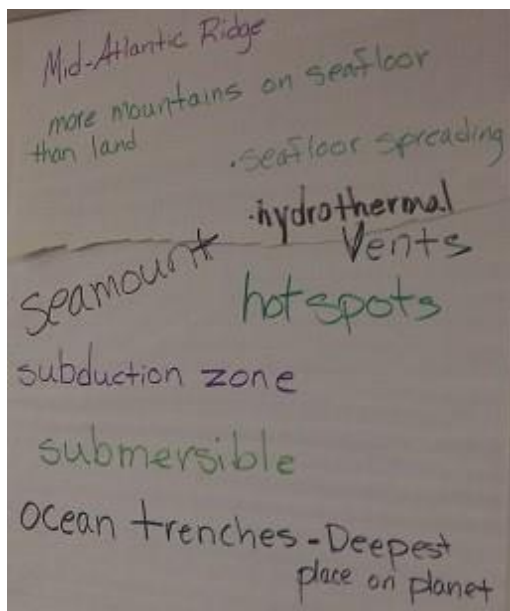


Figure 6. Abigail's list of key words and phrases about Earth's undersea world.

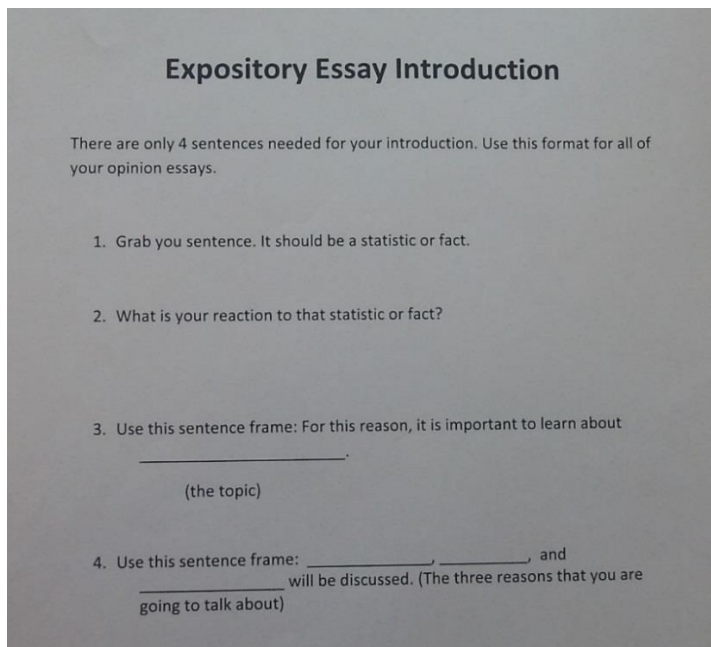
In addition to finding key words and writing summarization of text, Abigail also taught her students to read summaries. She told her students, "If I go to the summary, I get a preview of what I'm reading about. What are we going to be talking about?" Therefore, she sometimes had them read the summary first. It helped students preview the content and understand the main ideas of the text.

Summarizing was an important comprehension strategy in Abigail's informational text instruction. She used various methods and frequent exercises to help students develop a sense of the main idea and distinguish the important from the interesting. Another major strategy Abigail used in promoting students' informational text comprehension was also directly related to summarizing: writing.

**Writing.** Writing was an important comprehension strategy in Abigail's informational text instruction. It was coded 53 times in her case. Abigail explained how she viewed the relationship between writing and comprehension:

The connection with writing is that it's another exposure to the information, especially if they have to internalize it and reproduce it. It's an idea with math – you have to read it, you have to write it, and you have to say it. So sometimes I'll have them share what they've written with someone else, and it helps them with three different exposures to the information.

Abigail gave her students various writing assignments frequently. She also provided them with a lot of scaffolding and sentence-level support. For example, in a geology class about volcanoes, Abigail was teaching the expository essay introduction. She gave students a handout with the four sentences needed for the introduction (Figure 7).



*Figure 7.* Handout for expository essay introduction.

Abigail modeled expository essay writing by writing sample sentences and showing them to students. She finished the first two sentences and was working on the third sentence on the handout. She read:

For this reason, it's important to learn about \_\_\_\_\_.

Abigail wrote "volcanic eruption" as her sample topic.

Abigail: Then you are going to use the next sentence frame for your essay: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ will be discussed.

She wrote "types of volcanoes" and "types of eruptions" on the first two lines.

Abigail: What should we say? What can we add to that, Elijah?

Elijah was silent. No student had an idea.

Abigail: How about "dangers will be discussed"?

Some students nodded. Abigail wrote "dangers" on the third line. She left the sample sentences projected on the Promethean board for students to see and went around to check their work.

In another science class, Abigail combined reading and note-taking and modeled how to look for key words in the text – all in preparation to write a paragraph about how the plates build mountains. She reminded students about the notes she took with them about the two types of weathering in the previous class and the writing they did. She pointed at the weathering notes still on the white board to her left and said, "You take all this basic information and turn them into sentences." Abigail had read the text on the building of mountains. However, to get students started on the preparation for writing on this new topic, she said to students:

Let's go back to page 72. We are going to go page by page to find key ideas.

Abigail read the paragraph. Students followed along with their eyes.

Abigail: OK. Can we reasonably say, tectonic plate is part of the building of mountains?

Several students: Yes.

Abigail: OK, so that's the first thing on my notes.

She wrote "tectonic plates" on the Promethean board.

Abigail read paragraph three on page 73 and had students follow along.

Abigail: So we know now there is different ways to build mountains, right?

Several students: Yes.

Abigail: OK. That's probably what we are going to be reading.

She wrote down "diff. ways to build mountains" on the Promethean board.

Abigail: All right. Am I writing whole sentences?

Abigail and students: No!

Abigail: I'm using abbreviations, just thoughts and phrases, OK?

Here Abigail reminded students to use abbreviations to write down thoughts and ideas, not detailed information from the text. It could be overwhelming for students to glean necessary information from the dense content, especially when it was about various unfamiliar topics, as was the case most of the time. Abigail scaffolded this panning process – like miners searching for gold – and showed students how to separate important information from not-so-important information when writing such a paragraph. During the remainder of that class, she continued reading the passages, discussing them and explaining them to students, and modeling how to take notes. She said:

So I'm going to do the first paragraph: Colliding continents. Ready? Here we go.

She read the text. Some students followed along.

Abigail: We should probably use colliding as our key word, Right? OK. Anybody disagree with that? Anybody know what I just said?

She wrote “colliding plates” on the smartboard.

Abigail: Colliding plates, from two different continents. Colliding plate, OK?

Seems to be that collision was important, OK?

It took Abigail and the class 81 minutes to read the nine pages of text and take all the notes (Figure 8). She left the notes on the Promethean board and said to students, “OK, next time, I’m going to have you do most of the note-taking on your own.”

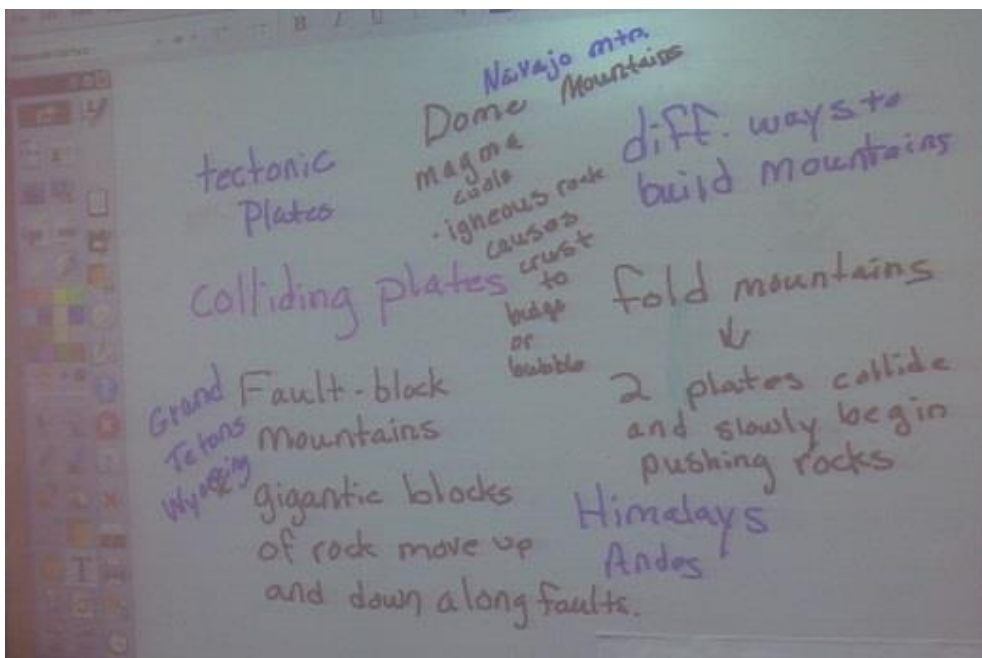


Figure 8. Abigail’s notes about Earth’s mountains.

Abigail told students to take notes from her notes, i.e., select and copy words and phrases they needed for writing the paragraph. She said, “Notes go on the top [of the paper], paragraph goes at the bottom. Notes are up there (pointing at the smartboard). Turn them into a paragraph.” She sent her notes to the printer three times and finally succeeded in printing copies for students. She handed a copy to each student. Then she asked students, “Do you want me to give you the topic sentence to get you started?”

Students answered, “Yes!” Abigail typed the topic sentence on her computer and projected it on the Promethean board for students to see: There are 3 main types of mountains. Students had 77 minutes to write this paragraph.

In another two-part geology class about Earth’s undersea world, Abigail again went through the chapter paragraph by paragraph with students and helped them determine key words, despite her previous announcement to let students take their own notes. Students could not come up with their own key words. So she discussed with them and wrote the key words on a poster. She said:

So I’m going to put down here – that’s an interesting fact... I’m going to put “more mountains on seafloor than land.” Does that sound fair?

Students: Yeah!

Abigail wrote it on the poster.

Abigail: Now, am I making sentences or just making thoughts? Key words?

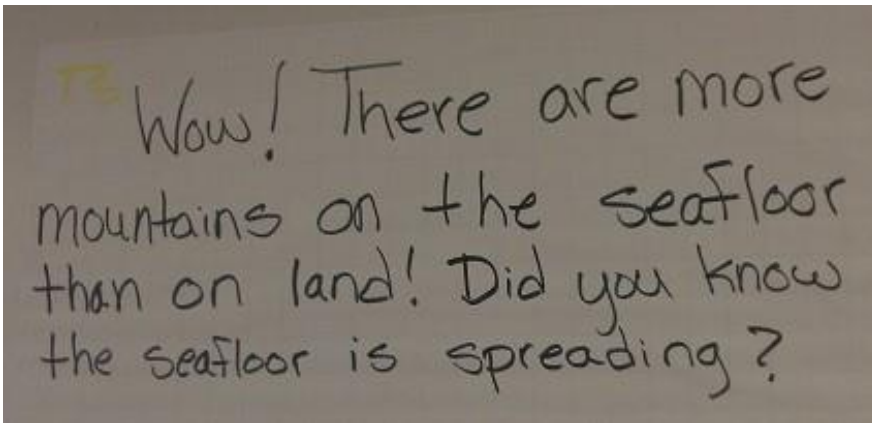
Students: Thoughts!

Abigail: Key words and ideas. Do you think we should add to our list the phrase “seafloor spreading”? I kind of do. That’s a phrase – seafloor spreading – sounds like it’s important.

She wrote it on the list.

This discussing and training on finding key words was continuous. Alongside key words, Abigail also taught students the importance of writing topic sentences. In a geology class, she did so by modeling it. She said, “So my topic sentence tells me what I’m going to be talking about – mountains on the ocean seafloor, correct?” She put a large blank poster paper to the right of the key word list she and the students just

discussed and created. She wrote, “Wow! There are more mountains on the seafloor than on land!” (Figure 9). Then she pointed at the topic sentence she just wrote and asked, “What is this called again?” A student replied, “Introduction!” Abigail said, “Topic sentence! The TS!” She wrote “TS” in yellow in the upper left corner of the paper. She continued, “You know what happened in the last few years? Kids copied the TS. You don’t need to. This is just highlighted to show you where it goes.”



*Figure 9.* Abigail’s topic sentences.

After weeks of training students in reading summaries, finding key words, and writing various sentences and paragraphs, including topic sentences, Abigail decided to break students into small groups in a social studies class to create an informative poster about mining in the West. They first read the text together. Abigail explained the content to them. After reading, she divided the text into four themes and assigned four to five students to write about one theme (Figure 10).

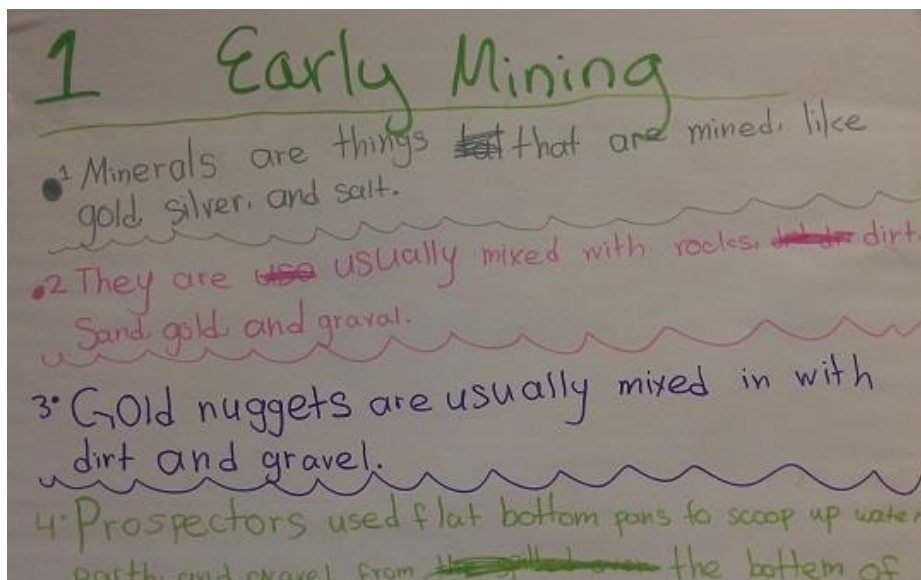


Figure 10. Students' informative poster about mining in the West.

In her informational text instruction, Abigail used summarizing and writing the most in addition to the top four strategies she shared with Maggi to teach students comprehension. Maggi, on the other hand, applied several strategies unique to her class in helping students understand informational text.

### **Maggi's Strategies in Informational Text Comprehension Instruction**

In Maggi's class, students sat in long rows or formed a "u" shape in front of the white board; when Maggi conducted whole-class instruction, all students faced her way. When Maggi assigned group work, she usually asked students to get into a group of their own choice. This typically took several minutes before students could settle into a group, taking their learning materials – sometimes also their own chairs – with them. Sometimes students became loud and could not settle down. Maggi would say in a louder still voice, "Hands on top!" Students dropped their items and placed hands on the head, "Everybody stop!" She would instruct students to form their groups quickly to start work.

Maggi usually began classes by greeting her students enthusiastically and projecting the lesson objectives on the smartboard or writing them on the white board. She then reviewed the content from previous classes or showed students a relevant video to prepare them for a lesson. Maggi frequently mixed whole-class instruction with long periods of group work in her lessons, during which she usually worked either with a Spanish-speaking student new to the class or with the “lowest group” of students to provide the support they needed. The other groups sometimes went off track and became loud, and Maggi had to intervene to guide their attention back to task: She frequently reminded them to demonstrate “fourth-grade behavior” and later “fifth-grade behavior,” be “mindful,” and use “level-one voice.”

In addition to the top four informational text comprehension strategies shared with Abigail, Maggi also used strategies unique to her class to help students understand informational text, namely teaching vocabulary in Spanish, text structure, and visualizing.

**Teaching Vocabulary to English Learners in Spanish.** Spanish was Maggi’s native language. She used it as her instructional language with the Spanish-speaking ELs in her class. In some whole-class instructions and in all small group instructions, after Maggi read or talked about a text, she immediately, rapidly repeated what she said in Spanish for the ELs to understand. When EL students asked her questions in Spanish, she replied in the same language. I coded Maggi’s use of Spanish more than 200 times in the data but did not include that in the final analysis because Spanish was not one of the foreign languages that I spoke and, therefore, I did not understand what Maggi was saying to the Spanish-speaking ELs. I coded Maggi’s use of Spanish to teach vocabulary deliberately and separately because I heard her say specific words in either English or

Spanish or both to the ELs. This code had 42 references. Maggi taught vocabulary in Spanish more often than that, but I could only decipher cognates in the two languages; I did not understand Spanish words that sounded differently from their English counterparts or with another origin and, therefore, did not record those instances.

In small group instruction, Maggi usually first read and spoke English with struggling readers who were English monolinguals, then she rapidly translated and explained what she just said into Spanish. She detailed the dual process, starting with finding science informational text in Spanish for ELs:

It's really cool because [on] that website, NewsELA, the same lesson is in Spanish. So I give it to them in Spanish. I can show you an article. So the same information is in Spanish. So first I front-load by giving them the information in Spanish while I teach and read with my low readers. And then I pull them, and they can talk to me. Then I highlight some words – key words for the topic. And then I tell them, this is how you say this in English, this is what we're learning. And they at least get a few words, two or three sentences, they can get in English, using key words. But the content, I am glad I found it in Spanish because the social studies text – I have to translate for them.

Maggi consciously started with the teaching of vocabulary before helping students tackle the higher-order task of text comprehension. Research has found that vocabulary was one of the foundational knowledge bases students needed to comprehend informational text, especially English Learners. Therefore, August and Shanahan (2006) advised teachers teaching ELs to devote “greater attention to word-level skills early in the process and more direct and ambitious attention to reading comprehension later on” (p.

4). Maggi's attention to vocabulary seemed to have positive effect on the English Learners in her class. She said:

With the front-loading, when they come, they have so many things to tell me. So they are learning the content in their native language, but I'm trying to give words, like, for example, right now with colonies they know "geography" – they are using those key words, or "Pilgrims," and then one little sentence with Pilgrims – something that is remarkable. They learn it in Spanish, they tell me, in one sentence, in English. We work on those. That's how they're learning English, but I'm making sure they are learning, and then the writing at the end – they have to produce the writing, expository writing in Spanish because that is no way they can write in English.

During the second phase of data collection, I observed Diego, a Spanish-speaking student new to Maggi's class, progressing from not speaking and not understanding any English to following informational text in Spanish and answering some vocabulary and comprehension questions in some kind of English-Spanish mix in five weeks' time. This attested to Maggi's effort and impact of using Spanish to teach ELs vocabulary and thus promoting their informational text comprehension.

In a social studies class about the hierarchical society in New Spain in the 1500s, Maggi worked with a group of students who were either struggling readers or ELs. She first read the text, "Next were creoles (kroy OH lays), people with Spanish background who were born in the Americas. Under the creoles were the mestizos, the largest group in New Spain society. A mestizo is a person with Indian and Spanish background." Maggi stopped there and translated and explained "creoles" and "mestizo" in Spanish for Diego,

a student who had arrived from Mexico eleven days before and Luciana, a Spanish-speaking girl who has been in her class for almost a year. The other students at her table were used to this language switching. Some of them stared at the book or read on, while others started to chat with each other.

In another social studies class about colonization, Maggi talked about cause and effect. She asked students why Columbus claimed the land on behalf of the Spanish. She said, “When you say ‘because,’ that’s a signal [word for reason].” She explained this to Diego in Spanish and repeated “because” in English several times. Then she and her students moved on to the rest of the paragraph.

Because the English Learners in Maggi’s class did not speak much English and read even less, she had to teach them word meanings as well as pronunciations. In a science class about biomes, Maggi explained the English text they just read in Spanish. Then she said to Diego, “Say ‘climate’ – clima!” He repeated the word “climate” in English after her. In another social studies class about New Spain, she spoke to him first in Spanish, then in English. “Many Spanish explorers came, looking... searching...” She spoke Spanish, then in English again, “...came searching for...” He completed her sentence in Spanish. She nodded and said in English, “They were searching... they were looking... searching for gold!” She said the word “searching” in Spanish. Diego repeated the word “searching” in English and smiled a shy smile, seemingly pleased with himself. It was natural for Maggi and her ELs to mix two languages in the instruction and conversation. Later in the same class about New Spain, Maggi finished reading a paragraph in English and asked Diego, “Do you know what New Spain was?” He answered proudly, “Si!”

With Maggi's instruction in Spanish, ELs not only learned the vocabulary, but also showed comprehension of the content. In the same social studies class about New Spain, Maggi stopped reading and said, "I want you to tell me please in your own words – what is it that you are learning right now?" Diego answered in English, "Life." Maggi asked him, "Life in where?" She and Diego said at the same time, "Life in the New Spain!"

In a science class about animal extinction and its causes, Maggi asked students to give her two reasons why animal populations decline. One student said, "Tornado destroyed trees." Diego said, "Fuego i aqua (fire and water/flooding)." This indicated that he understood the text and the question that Maggi had translated and explained to him in Spanish.

**Text structure.** Text structure referred to how information was organized in text, such as main idea and details, sequence, compare and contrast, cause and effect, and problem and solution. Text structure has been proven to be an effective strategy in helping students of varied abilities and reading levels understand informational text (e.g., Pyle et al., 2017). Maggi used this strategy often in the instruction of informational text. It was coded 27 times, compared to Abigail's 19 times.

Maggi said that she chose to teach different text structures, depending on the text. For example, sometimes she taught students to understand the text "by looking at sequence and important events." At other times, texts might have a different text structure. She explained in an interview how she applied this strategy in class, "There are some type of informational text that definitely can compare and contrast, places or animals, find similarities between them. So the text appeals to that strategy; we use only

compare and contrast.” Maggi often used text structure to guide her lessons and student learning by including various structures in the lesson objectives, such as “Summarize the sequence of events involved in Spain’s search for gold in North America in the early to middle 1500s” or “List the sequence of the Spanish Conquest in the Americas after Cortés defeat of the Aztecs.”

In a science class about the causes of extinction, Maggi used text structure to explain it:

Human population increase is related to decreased habitats. Think about cause and effect. Imagine if 20 fifth-graders come into the classroom. We need more chairs. It becomes crowded. Cutting down everything there and building homes. More humans, and less animals, less habitats. They have to find somewhere to survive.

Throughout the class, Maggi mainly used the strategy of text structure to help students grasp the concept of cause and effect. She said:

Consumer and producer: plants produce food for the animals. Animals eat because they get energy from the food. Remember the food chain. All of them are producers because they produce energy. If there are natural disasters, there will be no food for those animals. Mostly those animals will die. That’s one natural cause for extinction.

In a social studies class about the history of colonization, Maggi used the strategy of sequence because it was appropriate for the text. She said:

Since you are almost done with it now, we’re going to work on sequence of events, OK? You’ll be explaining which event happened – they are asking us for the dates. We are going to place these events in the correct sequence. The dates

are missing, so let's look for information right here. Look at the first one: New Spain is established. When did this happen? So let's look in our text. You are going to look for when, and you are going to write down the date here.

Maggi often involved students in the discussion of various text structures to dispel misperceptions and help them understand the text. In a social science class about religious persecution in England, Christopher said:

Persecution is basically killing the people. They are like...torturing them... and if they keep doing it, they're just going to slaughter them.

Maggi: Do you know why these people were persecuted?

Christopher: Because they believe that they... that the Church of England should be separated from England...

Maggi: No, that was the Church of England. They didn't have those beliefs, right? Because they didn't agree with their beliefs, they wanted to separate from that church. They didn't want to be part of that.

Christopher: They were persecuted because of their beliefs.

Maggi: Exactly! So that's cause and effect. The reason why something happened is crucial. Paul, let's keep that in our mind!

Students benefitted from this kind of discussion and learned to apply text structure in their own reading. In a social studies class about the effects of the Columbian's expeditions, one student said, "One cause and effect is they learn about different people in different countries."

**Visualizing.** Visualizing, or making mental pictures, was another effective comprehension in informational text instruction (De Koning & van der Schoot, 2013). It

was coded 24 times in Maggi's case, compared to Abigail's one instance. Maggi found visualizing useful and important in helping student comprehend informational text. In an interview, she said, "As they read, they have to make those mental pictures, so they understand." In class, she often said to students, "You need to read and make mental pictures. If you can read and cannot make those mental pictures, we are in trouble."

Maggi used visualizing to help students understand the text and help herself check their understanding. She said, "If their answer doesn't make sense, you know that they didn't learn. As I read, I make sure they are making those pictures." She used a recent social studies class on the Renaissance as an example, "Can you see the people? Can you see how busy they were? Can you see the different type of jobs? How they contributed to the community? And then they say, for example, oh, the shoemaker was helping! I can see!"

Maggi used visualizing as a strategy to help students understand diverse informational texts. For example, in a geology class about ocean trench, she said to students, "Just picture in your mind what it (ocean trench) looks like." In a social studies class about the American Revolution, she read the text about Benjamin Franklin and asked, "He drew a cartoon of a snake divided into sections. Can you picture that? Can you picture that snake with different sections? Because they represent different states."

In a class about the society in New Spain, Maggi and her students were reading about the hierarchy in the society. Maggi said:

So the top, top people in society – who's at the top? The peninsulares. The peninsulares were the people born in Spain and now live here in New Spain. If you think of a pyramid, under them came what? We just read it! Ashton, I don't

see you (unintelligible). Are you processing, Love? Ashton, part of your job as a reader, Sweetheart, is making those mental pictures as you read, so you can see what's going on, and understand and answer the questions, or ask questions. I need you to please read... Do you see here (pointing at the page they were reading)? That's what we're reading right now. I want you to start making those mental pictures, and stop me when you have questions. Ready?

In another social studies class about the conflict between England and Spain, Maggi read in a small group a paragraph about the Spanish preparation for the war, "In 1588, King Philip decided to attack England. He assembled the Spanish Armada, a huge fleet of war ships." Then she said to the students at her table, "Can you picture that?"

In her informational text instruction, Maggi often used visualizing and creating mental images as a comprehension strategy. She once explained how she used this with students in class, "As I read, I make sure they are making those pictures. Can you see the people? Can you see how busy they were? Can you see the different type of jobs – how they contributed to the community?"

In addition to the top four strategies revealed in this study, Maggi used Spanish to teach English Learners vocabulary and also taught text structure and visualizing to help her students understand informational text. In contrast, Abigail used summarizing and writing in addition to the top four strategies to teach informational text comprehension. Some of the strategies they used overlapped with the ones studied in literacy research, whereas some of the strategies they used were not on the well-researched list with a focus on informational text.

## Chapter 5

### Discussion

The purpose of this study was to record and report elementary teachers' current teaching of informational text in everyday classes. The following research question guided the study: How do upper elementary teachers teach informational text comprehension strategies?

I chose to study this topic because upper elementary students continued to have difficulties reading informational text (Ness, 2011a; Yopp & Yopp, 2012). Since the CCSS expected teachers to integrate at least 50% of informational text in their fourth-grade instructional material in 2010 (NGA Center & CCSSO), schools have had an rapidly increasing amount of informational text included in the curriculum. However, how teachers teach students to read and understand such material remains opaque to all. The two teachers in this study were dedicated professionals. They were selected not because they were exemplary teachers, but because they were typical teachers in an ordinary elementary school and made themselves available.

In recent years, literacy researchers studied informational text instruction intensively and provided best-practice lists of comprehension strategies that had been proven to be effective (e.g., Block & Duffy, 2008; Calo, 2011; Duke & Pearson, 2008; Duke & Martin, 2015a; Dymock & Nicholson, 2010). Despite the different perspectives and circumstances of the research studies and the varied lengths of such best-practice lists, several comprehension strategies invariably appeared on most of them: activating background knowledge; questioning; analyzing text structure; creating mental images; and summarizing. In this study, teachers used some of these strategies, but in ways

different from researchers' suggested best practice. On the other hand, the teachers used strategies not included on those lists. This section discusses a variety of issues such as curricular considerations and student populations that suggested why teachers used the strategies they used and in the ways they used them; implications for researchers and educators concludes this section.

### **Curricular Considerations in Informational Text Comprehension Instruction**

In this study, questioning was the comprehension strategy both teachers used the most in informational text instruction, accounting for one third of all the coded references. This percentage indicated the extremely high frequency of questioning in the teachers' classes. They used questioning to explain vocabulary; they used it to clarify student understanding of the text and detect misconceptions; and they usually supported questioning with explicit instruction of using other comprehension strategies such as text features and monitor and clarify to answer the questions (Janssen et al., 2010). The findings indicated that, in informational text instruction, curricular considerations played a role in teachers' choice of questions.

Compared to the relatively passive act of looking for information to answer questions, asking questions would benefit students more. Research showed that the process of generating and answering self-questions helped students become aware of their inadequate or incomplete understanding and look for ways to apply other strategies to achieve comprehension (Joseph, Alber-Morgan, Cullen, & Rouse, 2016). Their study showed that applying self-questioning improved reading comprehension across students in various grades and across students with and without disabilities; further, self-questioning could be taught to students in a relatively short time.

Research also showed that different types of questioning and questions shaped students' long-term learning behavior and reading of text in specific ways (Duke & Pearson, 2008; Manson & Clegg, 1970). If teachers generated most of the questions in class, then students would get used to looking for answers in the text instead of engaging with it in a more active manner to initiate and formulate their own questions; if teachers asked mostly fact-based questions, students would be attuned to factual answers while at loss with inferential and critical questions.

Most of the questions observed in this study were text-based literal questions generated by teachers. Abigail and Maggi frequently asked students about the content and vocabulary they just learned, such as “What is Burgess?” “What is coal?” and “What is extinction and what are its causes?” There were less than a handful of instances in which teachers raised inferential questions. Once Abigail tried to guide students to think more deeply about the social studies text and asked, “What does it mean to be independent or to have independence? Can you be independent from the government?” There was no modeling of asking and answering inferential questions in either teacher's class. Further, no critical questions were recorded in the 42 observed sessions during the two semesters of data collection in the teachers' informational text instruction.

However, inferential and critical questions were important in informational text comprehension instruction because they were needed to promote higher-order analytical and thinking skills in students. In an interview, Maggi explained that she differentiated instruction in such a way that students mostly got literal questions in informational text instruction so that they searched for facts and learned the content, whereas in core knowledge instruction, they got a lot of practice with inferential questions. Implicit in

Maggi's instructional decision was the main goal to help students understand the content so that they could fill in the factual information in testing and perform well in the assessment. Abigail said that she taught the same curriculum as Maggi in the fourth grade. In the observations, both teachers taught the kind of content and questions that would appear in assessment. This kind of teaching-to-test pressure permeated the instruction, which could be one of the main reasons why the majority of her questioning also focused on literal questions and barely included any inferential questions and no critical questions.

Pearson, Moje, and Greenleaf (2010) studied the phenomenon of teachers teaching science to the test and pointed out that the current standardized tests "privilege the assessment of facts over concepts or knowledge frameworks" (p. 461). They concluded, "The combination of high stakes (rewards and sanctions based on performance) and low intellectual challenge (the factual character of the vast majority of test items) almost compels teachers to eschew deep inquiry in favor of content coverage" (p. 461).

The teachers in this study used questioning most frequently as a comprehension strategy in their informational text instruction. They did a thorough job using questioning to cover topics such as vocabulary and relevant reading strategies. Perhaps because of curricular considerations and the pressure of assessment, they both focused their instructional time and energy on generating literal questions to help students obtain facts from the informational text and avoided spending time to practice inferential and critical questions. The long-term consequence of such absence would lead to students' lack of

ability to engage in higher-order thinking, analyzing, and understanding of more complex informational texts in later grades.

### **Inexplicit Use of Background Knowledge in Informational Text Instruction**

Background knowledge, also referred to as prior knowledge, has always played an important role in reading comprehension. In the reading process, background knowledge can affect comprehension in different ways: It can create expectations before reading and support recall after reading (Pressley et al., 1989). The lack of background knowledge, on the other hand, may impede student understanding of the text. Current research on reading comprehension proposed that “prior knowledge is the strongest reading comprehension predictor” (Tarchi, 2015, p. 81). Background knowledge seemed to play an increasingly important role in reading informational text because informational text “tends to have a greater density of vocabulary and concepts that are directly related to students’ background knowledge” (Neuman, Kaefer, & Pinkham, 2014, p. 147).

In this study, the teachers used background knowledge mostly inexplicitly throughout their informational text instruction and embedded it in all the top four comprehension strategies: questioning; visual elements; reading aloud; and vocabulary instruction. Both teachers clearly recognized the importance of supporting students to develop and activate their background knowledge in reading. Abigail said in an interview, “In reading comprehension, the stronger you build the background in an unfamiliar topic, the more success you are going to see.” Maggi also said, “We provide students with background knowledge, which is, you have seen that here – I make sure students understand where we are going to.”

In their informational text instruction, Abigail and Maggi often used questioning as a comprehension strategy. When asking questions, they frequently drew student attention to the words in the text and also assessed students' background knowledge on the specific topic. For example, at the beginning of a social studies class, Abigail asked students if there were any words in the big idea that they did not know. She wrote down the unfamiliar words students provided and used them as a base to gauge student reading and learning, helping them build the background knowledge they needed to understand the text.

Both teachers frequently used visual elements as a comprehension strategy in informational text instruction. They also embedded background knowledge instruction in it. For example, Maggi regularly looked for content-related videos and showed them to students before they started a lesson. The videos fell into the category of visual elements because of their format of presenting the information. However, the video content provided students with needed background knowledge and served to engage them and help them better understand the text.

Another example involved maps used in Abigail's social studies class. Students did not know where Quebec was. Abigail gave them an Atlas and showed them the city where their school was before pointing to the location of Quebec. This was a visual strategy, but Abigail used it to provide background knowledge and help student make a text-to-self connection to help them better understand the content. Such instances abounded in both teachers' informational text instruction. For example, Abigail showed students a baseball to give them an idea about the baseball stitching that a science passage used to describe a near-continuous chain of mountains formed by mid-ocean

ridges that wrapped around the earth; Maggi brought her collection of rocks for students to hold and feel before starting a lesson on rock formation.

Similarly, in reading aloud, one of the top comprehension strategies the teachers used, they also embedded background knowledge building in the process. In a class about tropical forest, Maggi read the text with students and asked them to characterize a rain forest, making connection to the biomes they learned in the previous lesson. In a science class about the changing Earth, Abigail read a paragraph and asked students to read along. She then reminded students to think back about the earlier chapter when they learned about the different ways that the plates moved.

Another comprehension strategy the teachers frequently used was vocabulary instruction, which also provided background knowledge to students. For example, when Maggi taught students the new academic word diversity, she explained that it was synonymous to variety and gave them an analogy between the varieties of lives in a tropical rain forest and the diversity of student population in their own classroom. Using analogies in informational text instruction can help students build background knowledge. (Neuman, Kaefer, & Pinkham, 2014).

### **Scaffolding in Informational Text Comprehension Instruction**

Abigail used summarizing as one of her top comprehension strategies in informational text instruction. Summarizing was considered an effective comprehension strategy for informational text. By practicing it, students learned to eliminate unimportant details and glean the main ideas. In the process, students clarified the meaning of the text and the purpose for reading (Fang & Coatoam, 2013). However, summarizing placed a complex cognitive demand on students. For example, students had to cultivate the ability

to discern important concepts from extraneous facts. This was no easy task for beginning readers and struggling readers, and its training could take a long time. Therefore, although summarizing was taught at an increasingly younger age, most prior studies of summarizing dealt with students in the fifth grade and older, including high school and college students (e.g., Marschall & Davis, 2012).

According to Taylor (1986), good summarizers began summarizing during reading, were aware of the title and text structure, could generalize and use their own words, were skeptical, and able to monitor their own summarizing process. Abigail might not be aware of all the theories and criteria for a good summarizer, but in her informational text instruction, she attempted different approaches and strategies to help her students practice and become good at summarizing, and scaffolding was one of them.

Abigail started the scaffolding process by having students read summaries included in the informational text. She used them as models to show students what summaries looked like. Then she proceeded to show students how to select key words from reading the text. This was an important step in the scaffolding process. She read the passages one by one with students and discussed with them which words were important to keep and which words were merely interesting but not important; she urged students to pay close attention to her demonstration and printed a list of key words for them. When it was time to write the summary, Abigail offered to help students get started by writing a topic sentence to show them what it looked like.

Some researchers argued that too much teacher-directed explaining and modeling might not benefit student learning (Duke, Pearson, Strachan, & Billman, 2011). Some advocated for a model of teacher's gradual release of responsibility (Pearson &

Gallagher, 1983). Theoretically, it seemed logical. However, from a teacher's initial introduction and instruction of a comprehension strategy to students' independent application, no specific length of release time could be named. Some researchers showed that only with ample guided practice can students learn to apply strategies in different contexts (Almasi et al., 2004). Again, how much guided practice was enough varied based on the teachers and students involved.

In this study, throughout the two semesters of observations, Abigail provided lots of scaffolding to help students familiarize with and practice summarizing. Even though not all students were able to write a succinct summary, they were apprenticed to the craft, aware of it as a comprehension strategy when reading informational texts, and able to debate which words might be important or interesting but not important. This was the progress students made in the reading process, thanks largely to Abigail's thorough and thoughtful scaffolding of summarizing.

### **Student Factors in Informational Text Comprehension Instruction**

Reading aloud and vocabulary were among the top four strategies the teachers used in informational text comprehension instruction, despite the fact that they generally were not included on the well-researched lists of comprehension strategies (e.g., Duke & Pearson, 2008). The teachers based these instructional decisions on the learning needs and reading levels of the student populations in their individual classes, which consisted of many Spanish-speaking students. Most of their students were struggling readers who were not reading at grade level. They lacked decoding skills that, ideally, should have been acquired in the earlier grades; they could not read fluently, which directly impeded comprehension. Research showed that teachers needed to spend a good deal more time

coaching and supporting these students in acquiring the foundational skills in reading and writing (Duke et al., 2011).

Both teachers frequently used reading aloud in the instruction of informational text – this despite their very different cultural and educational backgrounds as well as distinct lengths of teaching experiences. In the interviews, the teachers did not point to any professional training or curriculum-designated method as reasons for their frequent reading aloud. Further, research showed that reading aloud to be an important literacy practice to promote reading because students “develop strategies important for a variety of listening and speaking situations as they observe and listen to experienced readers read” (Kolski & Zhang, 2017, p. 106); however, it was not on the lists of well-researched comprehension strategies. For example, Duke and Pearson (2008) assembled a list of “six individual comprehension strategies that research suggests are beneficial to teach to developing readers” (p. 114) which included the following: prediction/prior knowledge; think-aloud; text structure; visual representations; summarization; and questioning. They stated that these strategies were also identified by the National Reading Panel (NRP) report (2000). Similar lists developed by other literacy researchers in the past decade also did not include reading aloud as a major informational text comprehension strategy (e.g., Akhondi, Malayeri, & Samad, 2011; Block & Duffy, 2008; Dymock & Nicholson, 2010).

However, research showed that reading aloud aided comprehension. In a recent study of how reading aloud and reading silently impacted fourth-graders’ reading proficiency in relation to 2015 NAEP scores, Kolski and Zhang (2017) asserted, “Read aloud is a positive instructional strategy that has been established as beneficial in improving students’ background knowledge and academic vocabulary which are key

ingredients of reading comprehension” (p. 124). Fien et al. (2011) studied how 102 first-grade students identified with low language and low vocabulary skills performed in read-aloud instruction. They were instructed with structured read-alouds in which teachers read the text and integrated explicit comprehension instruction. Results showed student gains in vocabulary and comprehension. In another study, Cummins and Stallmeyer-Gerard (2011) found that engaging third-grade students in interactive read-alouds increased their understanding of informational texts. Barnes and Oliveira (2018) observed how a second-grade teacher and a fifth-grade teacher used read-alouds to point out and help students make sense of metaphors in science informational texts. They found that such read-alouds helped students achieve informational text comprehension and develop conceptual knowledge.

In practice, Kolski and Zhang (2017) found that the use of oral reading “as a method for developing reading skills and improving overall reading achievement” has been used in many classrooms for a long time (p. 106). Further, because reading aloud was used more with younger students and beginning readers and less with upper elementary and older students (e.g., Fien et al., 2011; Santoro, Baker, Fien, Smith, & Chard, 2016), some researchers advocated the use of reading aloud with *older* students as a comprehension strategy (Archer, Gleason, & Vachon, 2003; Kolski & Zhang, 2017).

Implicit in both teachers’ rationales was the assumption that students’ fluent reading of informational text was an important part of the reading process and conducive to comprehension. In Abigail’s and Maggi’s fourth- and fifth-grade classes, many students struggled with decoding and lacked fluency in reading. The teachers resorted to reading aloud to help them develop the foundational skills such as fluency, listening

comprehension, vocabulary, and background knowledge. Therefore, reading aloud functioned as a comprehension strategy in both teachers' informational text instruction by building several essential reading skills in their students. Further, the teachers mixed and modeled other comprehension strategies in the process of reading aloud such as questioning and summarizing to support students' informational text comprehension.

Similarly, vocabulary was also not included on the lists of well-researched comprehension strategies (e.g., Duke & Pearson, 2008). However, it was the basis and an important part of reading; it was essential to informational text comprehension.

Researchers have extensively studied the relationship between vocabulary and reading comprehension. They found that vocabulary contributed to reading comprehension in general (Price, Meisinger, Louwerson, & D'Mello, 2015) and demonstrated the largest influence on informational text comprehension in particular (Liebfreund & Conradi, 2016). Silverman, Barber, Doyle, and Templeton (2016) discovered that both monolingual and bilingual students benefited from instruction that included explicit definitions, word relations, and morphology and syntax. The teachers understood the importance of vocabulary and integrated its instruction in teaching informational text. In addition to teaching vocabulary words explicitly, Abigail and Maggi also provided students with "opportunities to use them in discussion, debate, and writing" (Snow, 2010, p. 452) in informational text instruction.

Another effective approach to teaching vocabulary was wide reading, which provided access to rich language and promoted students' vocabulary growth (Ford-Connors & Paratore, 2015). These two researchers stated, "[F]or vocabulary to increase through reading, students must read frequently, in significant quantities, and with texts of

sufficient complexity to be exposed to new and sophisticated language” (p. 65). Kuhn, Rausch, McCarty, Montgomery, and Rule (2017) also advocated the use of more informational texts in the primary grades to support students’ reading comprehension and vocabulary development. Wide reading was not evident in the teachers’ vocabulary instruction with informational text. In addition to textbooks, Abigail and Maggi provided leveled readers on related topics to students. Students were observed to read such readers once in each class during the 21 observations of each teacher’s informational text instruction.

### **Strength of Using Spanish in Informational Text Comprehension Instruction**

To help the EL students in class, Maggi had a unique approach in her informational text instruction: She used Spanish to teach them vocabulary because, as a native of Guatemala, she spoke the language as her mother tongue. Actually, she used mostly Spanish as her instructional language with the new ELs because they were from Spanish-speaking countries and hardly spoke any English. This was an effective way to support EL students’ informational text comprehension (de Oliveira, Gilmetdinova, & Pelaez-Morales, 2016; Gort & Pontier, 2013; Wright, 2015).

In a study of teaching ELs science, Tong, Irby, Lara-Alecio, and Koch (2014) found that “structured and direct instruction, together with grade-appropriate ESL strategies, and context-embedded vocabulary learning are effective in teaching native Spanish-speaking ELLs” (p. 422). Maggi went a step further than what the researchers suggested: She did all the instruction with ELs in Spanish. It not only helped the Spanish-speaking student develop literacy skills in English rapidly, it also supported learners’ efficacy and confidence in their heritage language (Arteagoitia & Howard, 2015;

Esteban-Guitart & Moll, 2014; McDevitt, 2016). In Maggi's class, a new Spanish-speaking student progressed from speaking no words of English to using some academic vocabulary words in English to answer comprehension questions after five weeks of instruction. This attested to Maggi's strength in using Spanish as an instructional language to teach informational text to ELs.

### **Implications and Next Steps**

The current study is important because it provides insight to the instruction of informational text comprehension strategies in fourth and fifth grade. Little research has directly addressed elementary teachers' current teaching of informational text. Therefore, this study sought to describe how two upper elementary teachers taught informational text comprehension strategies in daily classes. The findings showed that, on the one hand, the teachers used some strategies not well researched in relation to informational text comprehension; on the other hand, they used some of the well-researched strategies with distinct variations. The question of what strategies would be best to teach informational text comprehension remains.

Currently, the discussion is picking up momentum. In the American Educational Research Association conference held in New York in April 2018, Snow (2018) gave a talk on "Theories versus evidence: The limits of RCTS as guides to literacy instruction." Snow (2018) urged literacy researchers to:

understand why well-conceived, theoretically sound, and sensible programs or practices are so often unsuccessful in large-scale evaluations. Subsequently, we have to decide whether or not to recommend only those instructional practices

that have demonstrable impacts, even when those have limited theoretical or conceptual credibility.

Epistemic challenges aside, teachers cannot afford to wait for the final verdict to teach because their students need to learn, every day. Liebfreund and Conradi (2016) asserted:

The success of the Common Core is contingent on providing teachers with support and professional development related to instruction using informational texts. The importance of factors such as vocabulary and prior knowledge necessitates that teachers are provided professional development related to building proficiency in these areas. In addition, given that different component skills influence informational text comprehension for diverse readers, teachers require support to tailor instruction to specific students. (p. 1155)

The teachers in this study did just that. They knew their student populations and demonstrated adaptability in their instructional decisions. They adopted comprehension strategies that did not explicitly appear on the most researched lists of informational text comprehension strategies but appropriate to help their students, such as reading aloud, vocabulary, and teaching ELs in Spanish, to support student learning and understanding of informational text; they also used some well-researched and recommended comprehension strategies such as questioning and summarizing in informational text instruction, but they deviated from the researched versions because of practical considerations and limitations such as students' below-grade reading levels.

More research is needed to study why fourth- and fifth-grade teachers use the informational text comprehension strategies they choose and why they use them the way

they do. It would shed more light on teachers' instructional decisions if typical teachers in ordinary schools can be observed. Studying typical teachers such as Abigail and Maggi can help researchers get in touch with the prevalent reality of informational text instruction in everyday fourth- and fifth-grade classrooms – its challenges, its hidden rationales, and its potential solutions. Further, curricular considerations and student populations should be included in future studies.

In the meantime, supporting teachers in better conceptualizing and applying strategies such as reading aloud, vocabulary, visualizing, and questioning should be developed. Teachers with strengthened pedagogical content knowledge are in a position to better support diverse student populations in reading and understanding of informational text.

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## Appendix A

## Semi-Structured Teacher Interview Questions

## Interview One

1. Tell me about your background and how you became a teacher. What is your educational background? How long have you been teaching and at what grade levels?
2. What is your philosophy about teaching, specifically in the area of literacy? How do you think children learn? What do you think good reading instruction is?
3. Talk to me about the Common Core Standards. Have they changed the ways in which you instruct? Have they changed the materials you use in your instruction? If so, how? Have they caused you to rethink your teaching philosophy? If so, how?
4. What instruction is typically included in your literacy block?
5. How do you choose texts to use in your instruction? How many narrative or fictional texts do you use? How many informational texts do you use? Please give me some examples of the informational texts you use in class.
6. How often do you think you use informational texts as your read aloud book? What about as your guided reading texts?
7. How do you teach informational texts? What structures and features of informational text are important at this grade level? What strategies have you found useful when teaching these?
8. Do you teach informational texts differently than you teach fictional texts? If so, how?

### Interview Two

1. Please try to reconstruct the details of your reading instruction and how your teaching has evolved. What do you actually do on the job every day? How do you study your own teaching?
2. What does it mean to you to be a reading teacher involved in the teaching of comprehension strategies?
3. What are the challenges in comprehension strategies instruction? What are the challenges in comprehension strategies instruction with informational text?

### Interview Three

1. Do you use comprehension strategies when you read informational text yourself? If you do, what strategies do you use?
2. Regarding the issue of what to teach, which strategies have you identified as necessary and sufficient for the improvement of informational text comprehension? Why? Which ones can your fourth grade students be expected to understand and make use of? Do you teach them those strategies?
3. When you teach comprehension strategies, do you teach one at a time or do you focus on a few strategies? How do you select them, for example, does your selection depend on the text or students? In your opinion, is it more effective to teach single strategies separately to students or several strategies together?
4. Have you had professional development training focused on reading comprehension? Please describe it.
5. In your opinion, are you prepared to teach comprehension strategies with informational text? In what way are you prepared/not so prepared? Do you think

it is necessary to provide professional development training focused on reading comprehension with informational text?

#### Interview Four

1. What are you doing differently to teach informational text in this class?

#### Interview Five

1. Interview Five: Why did you use the strategies you used?