REPORTED USE OF IMAGERY STRATEGY

IN READING COMPREHENSION

INSTRUCTION

By

SANDRA M. MAJORS

Bachelor of Science
Central State University
Edmond, Oklahoma
1968

Master of Science, Curriculum and Instruction
Oklahoma State University
Stillwater, Oklahoma
2001

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Thesis Approved:

Barbara Walker
Thesis Adviser

Margaret Scott

Sandee Goetze

Gretchen Schwarz

Jean VanDelinder

A. Gordon Emslie
Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Background

Minds have toyed with the concept of mental imagery throughout the annals of history. Whether within the discipline of philosophy, rhetoric, literary study, psychology, or education, imagery has ridden the waves of time, waxing in some eras and waning in others (Sadoski & Paivio, 2001). The idea of imagery has long existed in both *theory* and *practice*, yet early *research* in the field of imagery did not begin until the late 1800s and early 1900s. Huey (1908) was one of the earliest theorists who believed that imagery played a central role in reading. He concluded that reading should always be for meaning, using the tools of imagery, language, and the affective feeling. Imagery refers to the internal representations of one's experiences in order to access them when reading. Wittrock (1974) proposed that readers' understanding is enhanced when they elaborate on what they read. His generative learning theory focuses on readers' images used to generate or construct meaning. Today this theoretical base is called constructivism.

This study is based on the philosophical orientation of constructivism. The constructivist epistemology (view of how knowledge is formed) departs from the objectivist view of static, passive acceptance of established knowledge, (Mertens, 1998), and veers toward knowledge that is interpreted and meaning that is constructed from

experiences and interactions with one's environment. Several interpretations and learning theories have developed within the constructivist epistemology.

Dewey's (1933) philosophy of experience is often considered to be the early foundation of constructivism. Bruner (1990) and Piaget (1972) are among the main theorists of cognitive constructivists, and Vygotsky (1978) leads the field among social constructivists. Cognitive constructivism is based on cognition, good habits of thinking (Dewey, 1933) and child development (Piaget, 1972), while social constructivism (Vygotsky, 1978) argues that students need to experience social interaction in which they share their thinking and hear the thinking of others.

Constructivism affects learning theories in a profound way because it changes the role of the teacher. Instead of interpreting knowledge for the student, as with the behaviorist approach, in which knowledge exists and is transmitted to the student, constructivism uses a more cognitive and social approach. Knowledge is not already established, but rather, constructed within one's social realities and experiences. The teacher's role changes from a pipeline of knowledge into the student, to a guide or coach who provides opportunities for students to make sense of learning themselves. Learning is focused on the process, not the product in the learning theory of constructivism.

Social constructivists believe in scaffolding, a process of helping the learner get from what is currently known to a point of additional knowledge. Vygotsky (1978) breaks down students' problem solving skills into what the learner cannot do, what the learner may be able to do, and what the learner can do with help. The teacher's support helps the learner function at a level slightly above what the learner could do without the teacher's guidance. Vygotsky's (1978) Zone of Proximal Development (ZPD) is the

place a child's new learning can be developed. Students can learn from each other as they work with a more capable peer or with an adult. I believe that scaffolding actually is included in explicit teaching. Pedagogy (the way we teach) is affected by theoretical orientations. This constructivist thinking affects theoretical framework related to learning and reading.

Greene believes that in the construction of knowledge, "we actively insert our own perception into the lived world. It is a process of meaning making" (1995, p. 74). She focuses on an aesthetic view of learning, emphasizing the importance of the arts in constructing social and cultural meaning. She loves to see children write narratives of their lives and share them with the classroom community, showing multiple perspectives. Greene (1995) believes in "being able to express oneself in a number of different 'languages' – including imagery, music, dance" (p. 57). She sees imagination as one of the ways of knowing. When describing what learners might experience while reading a novel, she says: "Visualizations, nuances, layers of meaning – all to be brought alive by readers willing to enter that world, with its wonders, its questions, its injustices, its connections…" (Greene, 1995, p. 10). It is within this framework of constructivism in learning, that I began my search for the place imagery holds in the constructivist orientation to reading. Looking through the lens of the constructivist framework, meaning is constructed as new learning connects with background knowledge of the reader and is discussed in a social group.

Teachers who subscribe to the constructivist theory of learning believe that meaning is constructed by the reader, and that the reader interacts with others to construct diverse meaning. Richardson (2003) takes the constructivist learning theory to a different

level: the constructivist pedagogy. Characteristics of the constructivist pedagogy include attention to the individual, group dialogue and shared understandings, direct instruction, provision of inquiry opportunities, and development of student awareness of their own understandings. The constructivist teacher gives students more ownership, causes the student to reflect, and offers opportunities for the student to develop new knowledge through scaffolded instruction with help from a more informed other (peer or adult).

Teachers who hold a reading philosophy that contains a more "conservative" perspective do not believe in the joint value of the text and the reader to construct meaning. They prefer to give students knowledge and then assess how accurately the students remember that knowledge. A conservative reading philosophy does not value the social interaction between students as a valid element of learning because knowledge is fixed, not constructed. Conservative teachers do not spend much time modeling, thinking aloud, or explicitly modeling reading. Too often, conservative teachers ask students to do a reading activity without explaining how to do it. Then the student is assessed to see how well the activity was performed. I will refer to this perspective as a conservative philosophy for the remainder of the dissertation.

Several theorists (Higbee, 1979; Paivio & Sadoski, 2001) who have reviewed the research on imagery in reading report early studies linking imagery with language or reading. In reviewing the early research, Sadoski & Paivio (2001) concluded that one reason imagery did not take hold in the United States was because the behaviorist philosophy overtook American psychology for much of the first fifty years of the twentieth century, causing psychologists to focus on scientifically observable behavior, not inner mental processes. As a result, even though the use of imagery can be traced

across more than 2,000 years, the actual use of modern experimental research did not begin in earnest until the mid 1960s, at which time it once again became acceptable to study cognitive processes. Beginning in the late 1970s, there was a virtual explosion of experimental research studies about imagery and theoretical perspectives (Paivio, 1971; Pressley, 1977; Pressley & Levin, 1977; Rumelhart, 1977).

In his research, Paivio (1971) developed the (1971) Dual Coding Theory. The Dual Coding Theory combines verbal and nonverbal (imaginal) cognition into a "unified framework," thus including the attributes of mental imagery (nonverbal/imaginal) with those of language (verbal). Further, Pressley's work (1977, 1987, 1988, 1999) opened the door to include imagery as an element of comprehension instruction.

I was drawn into this imagery study, originally, because I wanted to know what it was that motivated children all over the world to stay up late reading Harry Potter books. Even struggling readers found their way into these books, forever being changed by their new love of reading and confidence to succeed. My discussions with students pointed out again and again that they were "seeing things" as they read, and that they were entering into the experience. They were flying through the air with Harry on his broomstick, or watching a movie in their heads as they read. I agree with Wilhelm (1997) that readers all over the country are reading and loving it, even those who previously hated to read, because they discovered that the purpose of reading was not just to learn things but to see action in their minds.

As I read studies pertaining to imagery and literacy together, I found that imagery is related to learning and comprehension. Therefore, I was curious as to why it was not used more frequently by teachers. When searching for studies about teachers' beliefs,

opinions, and use of imagery, however, I found only three such studies, of which only one even remotely hinted at imagery as a concept.

The Problem

I wondered, however, about the beliefs and uses of imagery instruction among the general population of teachers across the United States after entering into the twenty-first century. With so much empirical research pointing to the importance of imagery in comprehension instruction, it seemed that a study of the extent to which imagery is understood and practiced would be of value.

Purpose of the Study

The purpose of this descriptive study was to determine what elementary and middle school teachers across the United States believe about imagery instruction in comprehension. I wanted to discover the extent to which they use imagery as an element of their reading comprehension instruction. Further, it was important to ascertain the factors that influenced the extent of their imagery use in the classroom. The following questions guided this study:

Research Questions

1. What do elementary and middle school teachers across the United States report about their beliefs concerning imagery instruction in comprehension?

2. To what extent do elementary and middle school teachers report using imagery as an element of their reading comprehension instruction?

3. What factors are reported by teachers to have an influence on their imagery use in the classroom?

Assumptions of the Study

1. Readers construct meaning as they read. (Rumelhart, 1980).

2. Imagery is an effective element of reading comprehension instruction. (Gambrell and Bales, 1986; Pressley, 1976).

3. Imagery *is* actually operating during the cognitive activity of reading. [This is an assumption because imagery instruction is a controversial topic among educators because it is difficult to show evidence that it is actually happening. (Sadoski, 1983).]

Definition of Terms

1. Mental Imagery is the generation of internal representations of external scenes (Sadoski & Paivio, 2001). They use nonverbal mental codes that include the sense modalities of visual, auditory, haptic (touch), gustatory, and olfactory (Sadoski & Paivoi, 2001, p. 45).

Long, Winograd, and Bridge (1989) looked at the role of imagery in the actual reading process. Visual imagery had been the focus of many studies, but they also acknowledged the other six sensory modalities of mental imagery: auditory, gustatory (taste), olfactory (smell), tactile, kinesthetic, and organic imagery (internal sensations such as hunger, thirst, fatigue, fear, etc.)

2. Reading comprehension is a process in which students construct meaning as they Interact with the text and the context of the reading situation (Anderson, 1977; Rumelhart, 1980; Wixson & Peters, 1984).

3. Transactional strategies instruction relates to the explicit teaching of coordinated strategies which help students in reading comprehension (Pressley, El-Dinary, Gaskins, Schuder, Bergman, Almasi, & Brown, 1992).

4. Scaffolded learning is a process of helping the learner get from what is currently known to a point of additional knowledge. Vygotsky (1978) believes that the teacher's support helps the learner function at a level slightly above what the learner could do without the teacher's guidance.

5. Background knowledge refers to a learner's previous experiences that have been stored in the memory as a knowledge base. Other terms for background knowledge include schema and prior knowledge.

6. Constructivism as a theoretical orientation refers to the constructivist view of how knowledge is formed. In this orientation readers use the text to construct knowledge from experiences and interactions with their environment.

7. Zone of Proximal Development is the condition in which a child's new learning can be developed by working with a more capable peer or teacher. Children could not make this learning happen on their own. (Vygotsky, 1978).

8. Constructivist reading philosophy is a philosophy in which teachers believe that meaning is constructed as the reader connects with the text, and that the reader interacts with others to construct diverse meaning. The constructivist teacher gives

students more ownership, causes the student to reflect, and offers opportunities for the student to develop new knowledge through scaffolded instruction with help from a more informed peer or adult. Learning is focused on the process.

9. Conservative reading philosophy is a philosophy in which teachers believe that knowledge is passively accepted as already established and fixed by others. The conservative teacher prefers to give the students knowledge and then assess how accurately they remember that knowledge. Learning is focused on the product.

10. Logogens are the basic "building blocks" of verbal representation in Paivio's Dual Coding Theory (1971).

11. Imagens are the basic "building blocks" of nonverbal (imagery) representation in Paivio's Dual Coding Theory (1971).

12. Conceptual peg hypothesis refers to unfamiliar concepts that may be connected to or hung on familiar "mental pegs" of prior knowledge (background knowledge). (Sadoski & Paivio, 2001).

Limitations of the Study

The study of imagery limits itself in that we are not able to see the image occurring inside the brain, even though we feel certain that it is happening. Yet, I look at this consideration as I do to the study of electricity. I do not understand it completely; I just know that the light goes on. Similarly, while we may not understand imagery completely, we can see the reactions of readers lost in a book. Where have they gone? We assume it is into the secondary world of the story. Another limitation has to do with the inability to verify the truthfulness of the participants. Since I am so far removed from

the schools participating in the survey, and since the survey responses will be anonymous as well as self-reported, I have no way to document the veracity of their statements.

Significance of the Study

While there is a solid base of information about imagery dating back to the 1970s and coming forward through the 1990s, there is little new information in the journals after 2000. Perhaps this is due to the fact that the articles have matured into full-fledged books now being published. Whatever the case, I personally do not see much use of imagery in the classrooms of my peers, past the perfunctory basic use of picture books or talking about the imagination. In conversations, the subject of imagery as a comprehension strategy draws blank looks from my colleagues. I, myself, had no awareness until imagery appeared as a primary theme in a pilot study of reasons for the success of the Harry Potter books. This pilot study led to the formulation of several driving questions for me. What is imagery in comprehension? Does it help? How do I use it in my classroom?

As a result of these driving questions, I began looking for information about what teachers know concerning imagery. In my search for articles, I found three studies about teachers' acceptance, perception of, and use of comprehension strategy instruction, only one of which includes imagery. The years of these findings date from 1990 to 1996. Now that we are into the twenty-first century, I believe it is time to rediscover the perceptions, acceptance of, and practices with regard to imagery use in the classroom *today.* My intent is to begin to fill this gap of knowledge, and further, to help teachers

want to open the door to that secondary world of text, and allow their students to dash inside!

Organization of the Study

This study is organized into five chapters. Chapter I introduces the study and the line of logic that was its impetus. The literature review follows in Chapter II, which deals with a synthesis of the knowledge to date concerning imagery and imagery instruction in reading comprehension. Chapter III outlines the research design and methodology, describing the sample, the instrumentation, data collection and analysis. Chapter IV reports an analysis of the data, along with a discussion of the findings. Discovered in Chapter V will be the summary, conclusions, and implications or recommendations of the study. Finally, the bibliography and appendixes conclude the study.

CHAPTER II

LITERATURE REVIEW

Introduction

As the Roman teacher Quintilian (30-96 BCE) paced from room to room practicing his oration, he walked into the room in which he had placed an anchor representing naval matters. He did so in order to picture the anchor as he rehearsed the point he wished to make about the naval matter. The great Roman teacher used the image of that object as a hook on which to hang his other related thoughts (Sadoski & Paivio, 2001).

The use of imagery has been a part of humankind since the beginning of time, yet only now, after 2,000 years of philosophy concerning imagery, have researchers begun to study in earnest this most amazing ability of the human brain. Theorists are contemplating the role of imagery in a multitude of domains regarding human living. More specifically, in education, researchers are pondering the role of imagery in learning and reading comprehension.

The constructivist orientation believes that learners construct meaning from experiences and interactions with others. The imagery research in this literature review is based on a process oriented approach to learning that is similar to constructivism. Paivio's ground breaking studies beginning in the 1960s, put forward the Dual Coding

Theory as a way of unifying theories of cognition. Constructing meaning was at the core of this theory. The research perspective of this dissertation is based on the Dual Coding Theory. Marks (1997) states that by the mid-1990s, the Dual Coding Theory had become recognized as "one of the most influential theories of cognition this century" (p. 433). Pressley (1977) did a review of imagery studies and found the Dual Coding Theory to play a prominent role in explaining comprehension in reading.

In this chapter I analyze and synthesize the studies of imagery and paint a picture of the role imagery plays in our learning as we comprehend text. I wanted to survey teachers to find out what they know and believe about imagery. I wanted to find out how often imagery was being taught explicitly so students would be able to think about what they see as they read. I hoped to get to the issue of factors that help or hinder the use of imagery in the classroom. This literature review was a basis for this study.

Purpose of the Study

The purpose of this descriptive study was to determine what elementary and middle school teachers across the United States believe about imagery instruction in comprehension. I wanted to discover the extent to which they use imagery as an element of their reading comprehension instruction. Further, it was important to ascertain the factors that influence the extent of their imagery use in the classroom. The following questions guided this study.

Research Questions

1. What do elementary and middle school teachers across the United States

report about their beliefs concerning imagery instruction in comprehension?

2. To what extent do elementary and middle school teachers report using imagery as an element of their reading comprehension instruction?

3. What factors are reported by teachers to have an influence on their imagery use in the classroom?

Seeing little use of imagery in the classroom, I decided to review research literature about imagery and reading comprehension. I have divided the review into three sections. First I discuss teachers' perceptions and practices using imagery, which directly pertains to question three. In the other two sections I demonstrate the important role imagery plays in reading comprehension and instruction.

Teachers' Perception and Practice Using Imagery

Research journals have little to report on the topic of what teachers believe about imagery instruction, the extent to which imagery is used in reading comprehension, and what factors influence the extent of literacy instruction. In my search to prepare for this literature review, I found only three studies that looked at teachers' thoughts about reading instruction in which imagery might be a factor.

Using teacher self-report, Rich and Pressley (1990) asked 33 teachers with years of experience ranging from less than five to over twenty years, to rate the acceptability of seven basic reading comprehension strategies. One group of 17 teachers studied definitions of basic comprehension strategies including: story grammar (story parts), prior knowledge, question answering, question generating, summarization, and imagery. Also included in the study was the use of reciprocal instruction (Palincsar & Brown,

1984) which involved students questioning each other and predicting, self-questioning, summarization, and seeking clarification. This basic strategies group was asked to fill out a 21 item questionnaire about each of these eight strategies.

The other group of 16 teachers rated six sets of printed materials, three of which were basal reader series and three additional basal-type materials. These teachers were asked to study a summary of how strategies were incorporated into teaching for each of the series. Subjects answered a 21 item questionnaire about each set of printed materials. A rating scale of 1-6 was used with one meaning strongly agree. Teachers in both groups were then asked to write a written response explaining their rating choice for each question.

For the first group, results showed that the most favored strategies were prior knowledge activation, representational imagery, and question generation. All of the basic comprehension strategies were considered viable instructional procedures. In the second group, the reading series were acceptable, but were questioned for practicality and concerns about potential negative effects, such as the materials appearing to be contrived. This study showed that teachers could accept the reading strategies instruction concepts.

In another study that looked at strategy acceptance, Ferro-Almeida, (1993) studied the use of transactional strategies instruction (TSI) as a teaching approach. The TSI approach includes several comprehension strategies: imagery, monitoring, prior knowledge, summaries, and prediction. Ferro-Almeida researched teachers' acceptance of TSI as an unfamiliar teaching approach. She pointed out that even though there is a growing body of evidence that TSI is effective (Elliott, 1988; Pressley, Woloshyn,

Lysynchuk, Markin, Wood, & Willoughby, 1990), teachers may be unaccepting of this unfamiliar approach.

Ferro-Almeida's study asked 30 elementary teachers to read a summary of the TSI approach, its rationale, and the benefits of transactional strategies instruction and then watch a video about TSI. Following this introduction teachers were asked to respond to an 18-item questionnaire in which they rated each item and commented about the issues studied. Teachers met one-on-one to discuss their ratings which were audio-taped for future transcription.

Results showed that teachers exhibited positive attitudes in general about the unfamiliar approach, including imagery strategy use. Further, they were impressed with higher-level thinking skills used, interaction with the teacher and other students, the non-threatening and risk-taking environment, and the enjoyment they saw among the students in the video. They had concerns about the use of TSI in large groups as opposed to small groups and about stopping and talking so much during the story. They saw benefits for all levels of reading ability. Teachers were willing to try an unfamiliar approach, even imagery instruction, as they learned about TSI.

Primary reading teachers should possess a thorough understanding of literacy instruction, or so it was assumed. The final study about teacher beliefs was done by Pressley, Rankin, and Yokoi (1996) as a survey of instructional practices of primary teachers who "effectively" promote literacy. A total of 45 kindergarten through second grade teachers who had been nominated by their reading specialists as effective teachers, were asked to respond to two questionnaires about their teaching practices. A further assumption was that primary teachers would be able to express their knowledge and

rationales of their teaching practices as they responded to focused questions. Eighty-three teachers representing various regions of the United States responded to both the first and second questionnaires. Their experience ranged from 3-35 years of teaching.

The first questionnaire requested teachers to make three lists of 10 essential practices for good literary instruction, one list for good, one for average, and one for weaker readers. After categorizing the responses to the first questionnaire, a second one was created using all of the grouped categories reported earlier. The items were measured by a seven point frequency scale ranging from never to several times daily. Results varied as expected due to the range of kindergarten through second grade needs. The teachers reported belief in the following commitments: equal quality of instruction for students of varying abilities; literate classroom environments; modeling and teaching of both lower-order skills and higher order processes (comprehension processes); diverse types of reading; teaching writing processes; engaging literacy instruction (instruction motivating literate activities); and, monitoring student progress (Pressley, Rankin, & Yokoi, 1996, p. 363).

Notable to these results was the lack of any reference by respondents to imagery or visualization. The importance of this study with regard to my research is simply that it occurred. It is important to survey a wide population in order to poll current perceptions, opinions, and practice. However, there is sparse research on whether teachers use or do not use imagery instruction in classrooms. This led me to review studies about imagery to see if it was a valid instruction base. Key to this review is an understanding of the Dual Coding Theory.

The Dual Coding Theory

Paivio's (1971) Dual Coding Theory (DCT) is both empirical and pragmatic. It is based on empirical studies and scientific understanding of cognitive processes and is pragmatic because of "individual and common concrete experiences" (Sadoski & Paivio, 2001, p. 7). DCT combines verbal and nonverbal (imaginal) cognition into a "unified framework," thus including the attributes of mental imagery (nonverbal/imaginal) with those of language (verbal). Connections between the verbal and nonverbal units are important. A basic assumption is that two distinct "coding systems of mental representation" make up the process of cognition in reading and writing (Sadoski & Paivio, 2001, p. 43). One system deals with the basic unit of language (logogens) and one system deals with the basic unit of nonverbal activities (imagens). The inner connections made between these two systems become a cognitive process that takes place during reading and writing.

The conceptual peg hypothesis within DCT suggests that "mental images play a central role in organization and retrieval from memory by serving as mental 'pegs' to which at least some of the other parts of the episode are 'hooked'" (Sadoski & Paivio, 2001, p. 106). Sadoski and Paivio (2001) believe that mental imagery is a major force in the connections learners make with their background knowledge.

DCT fits into the constructivist learning theory in that building meaning is a central theme. As the research perspective for this literature review, DCT suggests that meaning comes from the activation of mental representations, without which there can be no meaning. The potential for meaning in cognition waits to be activated by this process

of mental representation. Sadoski & Paivio (2001) believe that "Imagery provides an inner context that contributes to meaning" (p. 70).

Imagery and Comprehension

Researchers have long wondered how readers create understanding. What goes on in the minds of readers who do comprehend, and what is not happening in the minds of struggling readers who do not comprehend, understand and learn? Researchers have gathered impressive empirical links between reading and mental imagery (Pressley, 1977; Sadoski, 1983). Interest in the role of visual imagery in comprehension of prose has brought attention to the effect imaging has on the reader's successful comprehension.

Sadoski's (1983) study looked at unmanipulated imagery self-reports of 48 fifth graders of mixed reading levels, to investigate relationships between naturally occurring reported images, several reading comprehension measures, and a verbal mental ability test. Subjects were divided equally into three groups to counterbalance the reading comprehension tasks used. After individually reading orally a complete story from a basal reader, comprehension was assessed using four informal tests: audio-taped miscues were analyzed for high or low comprehension; they were also asked to retell the story, take a reading cloze test (a story is typed, leaving out words that students must insert to show understanding) from the story, and answer multiple-choice questions about the story. Following the retelling, each subject was asked to report images they remembered from the story.

Findings indicate that there is a relationship between reported spontaneous imagery at a story's climax and deeper levels of processing. Sadoski theorized that while

some readers may visualize, others may go further and use imagery as mental pegs to hold story themes at a deeper level than fleeting mental pictures that come and go without catching the meaning of the theme.

In an effort to replicate and extend his 1983 findings, Sadoski (1985) revisited the study using the rationales of testing the generalizability of the first results and extending the study to an unillustrated story. Further, in this study, some retellings were performed before imagery reporting and others after imagery reporting in order to look at the relationships between imagery and verbal information. In this study, there were 13 third graders and 13 fourth graders of various reading ability levels. Once again students read orally a complete story from a basal reader. It is noteworthy that the climactic event in this story was shorter and had fewer imagery-evoking passages than the story in the original study. Since younger children possess a shorter attention span, the multiple-choice test was eliminated. The other measures were the same. In order to investigate the possibility that some imagery reports may have been the result of reprocessing the story, students were randomly assigned to one of two groups. One group reported imagery before retelling the story, and the other reported imagery after the retelling.

Findings show that imagery reporting was replicated, and that with the unillustrated text, almost twice as many images were reported. It seems that students who stored a climax image in memory, did not lose story information while reporting their images. In contrast, students who appeared not to have a climax image, lost much story information while trying to recall an image. The stored image of the climax seemed to allow for retrieval. Both Sadoski (1983, 1985) studies support the belief that imagery can be a comprehension strategy used as a mental peg that stores images in the memory,

retrieves the images, and integrates the new images with the old. This mental storage peg also may also act as a "repository" where deeper meanings help bring the text information into a clearer picture. Importance and elaboration are both key processes of comprehension.

In a fascinating study tracing reader responses to text, Sadoski, Goetz, & Kangiser (1988) asked 39 undergraduate female students to read three short stories and report their images, emotions, and focus of textual importance. Each student read all three stories and responded to them in one of the three responses being measured. Each category of response included rated responses, according to greater or lesser response in that area. One subject would read all three stories and respond only about images seen, for example. The quantitative report form rated the variable, paragraph by paragraph.

Four weeks after the first reading, students were again asked to read the same three stories. This time the paragraphs evoking the most responses were pointed out. The students were asked to write about these paragraphs through the lenses of imagery, then emotion, and finally importance. These qualitative answers were coded, catalogued, and analyzed. There was much agreement (convergence) in both the quantitative and qualitative reports, as well as some interesting divergence with regard to individualized imagery reported. Findings showed that there was a distinct consistency among all readers with regard to importance of plot and degree of imagery and affect (emotion), indicating that text does constrain and guide reader responses to a certain degree. Interestingly, imagery seemed to be the mediator or conduit of both emotion and importance.

Adding to the depth of the imagery picture are developments regarding the *experience* of reading. The ideas of "getting lost" in a book as well as reporting emotion or affect have been given greater attention and significance with regard to the human perceptions accompanying mental imagery (Long, Winograd, and Bridge, 1989). Long and her colleagues wanted to look at the role of imagery in the actual reading process. Visual imagery had been the focus of many studies, but they also acknowledged the other six sensory modalities of mental imagery, including auditory, imagery, gustatory, olfactory, tactile, kinesthetic, and organic imagery. This study considered the importance of mental imagery as a part of reading comprehension and how imagery relates to prior knowledge, thought processes, and recall (Paivio, 1986). They defined reading comprehension as "an active process of constructing meaning through the interaction of the reader, the text, and the context of the reading situation" (Long et al., 1989, p. 355). Thus, they explored how the characteristics of both the reader and the text affect spontaneous mental imagery of the reader, both during and after reading, and later in recall.

Pretests benchmarked abilities of 26 fifth grade students in reading achievement (CTBS scores), prior knowledge (vocabulary assessment), and vividness (Betts Questionnaire on Mental Imagery). Four passages related to oceanography were taken from a basal reader: a poem, a narrative story, and two expository passages. The stories were read orally and were audio taped. Think-aloud stops were marked at which time the subjects must stop and think aloud. These points featured: direct and indirect emotional descriptors; direct and indirect sensory descriptors; figurative language such as personification, onomatopoeia, simile, and metaphor, as well as literal analogy and

climactic points. The first posttest was an imagery question after students read each selection: "Do you have any pictures or scenes in your mind that you remember from this passage?" A second question asked students to rate their interest level of the passage on a scale of 1 (low) to 5 (high). Ten multiple-choice questions were asked about the prose passages, and seven were about the poem.

Scoring fell into two categories: during and after reading. The think-alouds (teacher models thinking out-loud) were categorized as either direct or indirect sensory reference. Criteria were established to determine when imagery was not present. Results showed that spontaneous imagery occurred both during and after reading in all four passages read. Both reader and text characteristics affected the production of imagery. The vividness of their imagery was significantly associated with their imagery reports during and after reading in all passages read. Interest ratings were also an important factor in imagery. Reports of imagery during reading were different from imagery reported after reading. Three major findings included: imaginal processes are a naturally occurring part of the reading experience; the amount of imagery reported was affected by both reader and text characteristics; and imagery may play different roles during and after reading. More recently, teachers have become researchers in their own classrooms, in an effort to discover the various layers of reading comprehension, and perhaps peel off the layers for closer scrutiny.

In a qualitative study, Wilhelm (1997) pondered his driving questions. He wanted to find out how "highly engaged adolescent readers" make meaning. He studied data in the form of responses taken from 121 students, as well as studying more in-depth case studies of nine readers, asking them to self-report what was going on in their heads as the

read. He wanted his research methods to give him a window into students' reading processes, to fit in naturally with the flow of the classroom, and to be pedagogically useful both for the students and the teacher. He used various self-reporting methods to gather data, such as teacher journal (his observations), literary letters (student interaction), and think-aloud protocols. The think-alouds included free-response, cued-response (students are given a hint to help them remember), two-column written response, and visual response. With the two-column written response, he provided a story on the left side of the page, while leaving the right side blank for student comments.

The visual response became an option after students asked if they could draw pictures instead of using words in their two-column responses. (On one occasion, 72 of 121 students drew pictures, some with and some without written comments. Some drew themselves inside the story world and others just drew what they were seeing.) As a result of these case studies he discussed a theory developed from the reading experiences of his students, which evolved into a theory of engagement. He asked his students to become researchers into their own reading processes. Some readers could do this, while others could barely relate to the idea of reading as anything more than answering questions.

Wilhelm (1997) found three major dimensions using student responses reported by the proficient readers. First, the evocative dimension showed the importance of entering into the story world, being interested in it, relating to it, and seeing (imaging) it. Second, the connective dimension had the readers elaborating on the story world and connecting it to their own lives (prior knowledge). Finally, in the reflective dimension the readers considered the significance of events and behavior, recognized literary

conventions used by the author, recognized reading as a transaction, and evaluated the author and themselves as readers (Wilhelm, 1997). So, this was how good readers made meaning. But, what about the struggling readers? How could he help transform them into developing readers? In a particularly revealing interchange during pair share (two students discuss their experience), Wilhelm recorded this conversation after an effective reader had shared his images of the story with a struggling reader. The struggling reader responded:

> 'I can't believe you do all that stuff when you read! Holy crap, I'm not doing. . . like nothing . . . compared to you!' Ron responded that 'I can't believe you don't do something. If you don't, you're not reading, man. . . . It's gotta be like wrestling, or watching a movie or playing a video game. . . . You've got to . . . like *be* there' (Wilhelm, 1997, p. 49).

To summarize, reading comprehension is a process involving many layers or dimensions. Actively involved in the process are the reader (with all of his or her accompanying background or prior knowledge, imagery and experiences), the text (with all its content, stimulation, concreteness, vividness, or literary conventions), and the reader's situation (including stance, interests, and social interaction). New images naturally evoked during or after the reading connect with images mentally stored in background knowledge and help the reader picture the story and elaborate about it. In the reading process, readers enter into the story world, connect with that world, and reflect on the entire reading process.

Imagery and Comprehension Instruction

During the construction of mental imagery, prior knowledge is activated causing more vivid representations of stored knowledge. The use of mental imagery instruction in reading comprehension will be the focus of this investigation. Children who are taught to construct mental images, show improvement in: inferencing, making predictions, and remembering what they have read. These improvements enhance reading comprehension (Gambrell & Bales, 1986; Pressley, 1976; Sadoski, 1985). Efficient reading comprehension incorporates the ability to image as a strategy to understand and remember because information is organized and stored as mental images (Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989; Sadoski, 1983; Sadoski, Goetz, & Kangiser, 1988). We begin with studies showing how imagery instruction may help struggling readers as well as skilled readers.

Pressley (1976) wanted to find out if eight-year-olds could use mental imagery to improve how well they remembered prose they had read. Pressley cited Paivio's (1971) research which showed that generating images improved students' ability to remember material. The experimental conditions were given practice constructing mental images of prose passages beginning with sentences and progressing to paragraphs, and finally to a short story. Experimental subjects were exposed to examples of good images, while the control subjects read the prose but had no opportunity to practice constructing mental images. Experimental subjects read a short story in 17 segments, constructing a mental image for each segment after reading the segment.

Control subjects read the same story segments and were told simply to do what they could to remember the story. All 86 students answered 24 test questions about the

story. Experimental subjects answered significantly more questions correctly than control subjects did. A unique variable in this study was a blank page after each segment read, so the subject could look at it and try to visualize the mental image *after* reading the segment, not *while* reading it. Experimental subjects answered a significantly greater number of questions about the story than the control subjects, indicating that a reader's memory of a concrete, easily imageable story can be enhanced by using mental imagery.

Readers who self-monitor are more invested in their reading than those who do not self-monitor. Gambrell and Bales (1986) investigated how the use of mental imagery would affect the comprehension-monitoring of poor readers in fourth and fifth grades. Gambrell and Bales (1986) build on Paivio's (1969, 1971) research presenting imagery as a strong force in memory and learning. They refer to the conceptual peg hypothesis as a key factor of mental imagery, in which images act as mental pegs that helps hook information for storing and retrieving.

Sixty-two students in each grade were randomly assigned to two conditions: imagery instructions or general instructions. Subjects read two passages, one with an explicit and the other with an implicit inconsistency. After silently reading each passage, a 10-item probing instrument elicited responses regarding their awareness of the embedded inconsistency. The imagery group was told to "make pictures in your mind" to help look for unclear parts of the story, while the general instruction group was not given the imagery instruction. After questioning, the subjects who identified the inconsistency were asked what they did to understand what they read. The scoring was determined by how many of the 10 questions were needed to get to the inconsistency. The imagery subjects identified both explicit and implicit inconsistencies significantly

more than the general subjects, indicating that it is useful to use mental imagery as a comprehension-monitoring strategy.

Pressley, McDaniell, Turnure, Wood & Ahmad, (1988) wondered how the elaboration interrogation method would work with children. Elaboration interrogation is a method that causes learners to generate answers to ”why” questions about to-be-learned concepts. Elaboration interrogation is believed to help activate any prior knowledge already stored about the topic. In this study 139 fourth grade through eighth graders were assigned to four experimental conditions: base sentence only, precise elaboration provided, imagery, elaborative interrogation.

One set of 21 stimulus cards describing a man and his activity, was used in the base and imagery conditions. The second set used in the precise elaboration condition, added an elaboration clarifying the sentence—providing the “why” answer. A third set of cards was used in the elaborative interrogation condition and had the question typed on the card. There were 18 recall questions. The elaborative interrogation condition was so strong that it resulted in as much learning as the imaginal condition. Older children functioned better, probably due to the more developed knowledge base.

A second and related experiment looked at the acquisition of more naturalistic school content (Pressley, Symons, McDaniel, Snyder, & Turnure, 1988). The 257 subjects ranged from fourth grade through eighth grade were assigned to one of six experimental conditions: no-exposure control, base, explanatory elaboration provided, imagery, imagery plus explanatory elaboration provided, and elaborative interrogation. One set of statements were base sentences describing an animal. The second set had base sentences with elaborations. The third set had base questions followed by “why”

questions. Recall responses were measured in correct responses about the animal in the story. Once again the "why" questions resulted in as much learning as did the image generating condition. Results were about equal for image or elaboration.

Both of these experiments pointed out the importance of using imagery or elaboration for going beneath the surface information Since children do not usually elaborate spontaneously, they need to be encouraged to use their prior knowledge to construct images and to answer these "why" questions (Pressley, et al., 1988). Further, imagery was a valued element of the studies, as a bench mark of success.

Another study looked at the value of imagery in connection with text illustrations. Gambrell and Jawitz (1993) referenced Wittrock's (1981) theory of generative learning as a theory that informed the relationship of mental imagery with text processing. They believed that the theory of generative learning supported reading comprehension as relationships were built among the parts of the text as well as between the text and the reader's background knowledge and experience. Gambrell and Jawitz (1993) point out the constructivist position of the importance of interaction between the reader and the text. They refer to Paivio's (1971) Dual Coding Theory as a key theory bearing on mental imagery in relation to text processing. Combining the use of text illustrations with induced mental imagery, Gambrell & Jawitz (1993) wanted to find out how this integration would affect reading comprehension and recall of 120 fourth graders.

Students were randomly assigned to one of the following treatment conditions: instructions to induce mental imagery (nonillustrated text version), instructions to attend to text illustrations (illustrated text version), instructions to induce mental imagery *and* attend to text illustrations (illustrated text version), and general memory instructions

(nonillustrated text version). Instructions ranged from "a good way to understand what you read is to make as many pictures as you can in your head about the things that you read," to looking at the text pictures to help make their own pictures, to try hard to remember.

Following their treatment instructions, students had to silently read a story, write the story for someone who has never heard it, and respond to 16 cued recall questions (8 text explicit and 8 text implicit). A template was used for scoring the writing, and cued recall questions. This study yielded two major findings: reading performance was heightened by mental images and text illustrations independently, and combined, these two strategies brought remarkable increases in comprehension and recall of stories. These findings supported the use of imagery-illustration interaction.

Along this same line, Truscott, Walker, Gambrell, and Codling (1995) studied the use of imagery among 97 poor fifth-grade readers when given oral prompts either to use imagery instruction or no instruction—general memory. Paivio's (1971) Dual Coding Theory provided a link between cognitive and affective responses which can include images and emotional responses. Immediate and delayed story recalls measured the effects of imagery on comprehension and affective response, as well as cued recall questions and an open-ended questionnaire. A scoring template measured the story recall, while 23 cued recall questions were measured against teacher-generated acceptable responses. The open-ended questionnaire probed strategy use of imagery and story involvement. Results showed that students use imagery spontaneously, even without direction. Affective responses measured enjoyment of and interest in the story. Indications are that poor readers do image, but traditional assessment does not measure

for imagery and its effects. The Gambrell & Bales (1986) and Truscott et al. (1995) studies together show that struggling readers can and do image, and that the imagery strategy is a reading comprehension tool that needs to be employed with struggling readers.

In the middle nineties, a group of studies recommended using transactional strategies instruction (TSI) which includes several comprehension strategies: imagery, monitoring, prior knowledge, summaries, and prediction in comprehension instruction. Brown, Pressley, Van Meter, & Schuder (1996) studied low-achieving second-graders for a year. There were five transactional strategies teachers and five highly regarded comparison teachers (more eclectic, blending whole-language with traditional teaching.) There were sixty students participating in this quasi-experimental study. Students were not randomly assigned to teachers, because the teachers could not be randomly chosen. Some of them could not have taught TSI without extensive training. The reading achievement of five groups of low-achieving students was studied. During TSI instruction, teachers directly explained, scaffolded, and modeled effective comprehension strategies such as: mini-lessons on self-monitoring, teacher and student modeling, think alouds, reflecting on resulting comprehension gains, and frequent discussions about prior knowledge, summaries, visualization, prediction, and personal interpretation.

At the outset of the study, teachers were tested using Deford's Theoretical Orientation to Reading Profile, as well as a 25-item researcher-constructed questionnaire recording their beliefs about teaching. These measures showed that from the outset the five TSI teachers operated from a different approach than did the five conventional teachers. Early in the year students participated in a strategies interview during which

their reported awareness of strategies being used in their classrooms was measured by five open-ended questions about their beliefs about reading. Retelling questions were asked to measure recall in early spring; a think-aloud was conducted in late spring to measure understanding as well as to supplement the strategies interview; at the end of the year students took reading comprehension and word study skills subtests of the Stanford Achievement Test. The end of year evidence clearly showed greater strategy awareness and strategy use, greater accomplishment in acquiring information, and superior achievement on the standardized test within the transactional (TSI) group than by the conventionally instructed students. This study was the clearest validation to date of instructional strategies in which students are aware of and practice strategies as they read.

Teachers must teach! Greene (1978) calls this "wide awake" teaching. She believes that both teachers and students should understand the rationales behind what they are doing during reading. In sum, while facilitation has its role, reading strategies need to be taught and modeled. Students benefit from explicit teaching of strategies as they construct meaning (Gambrell & Bales, 1986; Pressley, Borkowski, & Johnson, 1987; Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989; Long, Winograd, & Bridge, 1989; Sadoski, 1985; Pressley, El-Dinary, Gaskins, Schuder, Bergman, Almasi, & Brown, 1992; Pressley, 2002). They must be aware of which strategy is needed for which reading problem. Imagery instruction is no different. Imagery instruction helps connect with and activate prior knowledge; imagery supports inferencing, monitoring, predicting, understanding, and remembering (Pressley, 2002). Imagery instruction is useful both to effective and to struggling readers (Gambrell & Bales, 1986; Pressley, El-Dinary, Gaskins, Schuder, Bergman, Almasi, & Brown, 1992). Students benefit from

being shown how to enter into the story world (Wilhelm, 1997). They need someone to show them the key and to help them unlock the door and enter in (Wilhelm, 1997).

Chapter Summary

In conclusion, the literature review has revealed a lack of studies about teachers' beliefs and use of imagery in comprehension instruction. With regard to the knowledge and understanding among teachers of imagery as a teaching tool, we do not have that information available at this time. These studies have shown that teacher acceptability is important when a new approach or strategy appears on the horizon. Surveys, if done well, can show important information about teacher perceptions, opinions, and practice. It is time for another such survey, focused on the perception of imagery, its acceptance as a valid strategy, and factors influencing the use of imagery in comprehension instruction.

In this chapter I've shown that among the significant strategies used by effective readers, imagery has been reported to be a valuable strategy. Images appear to be captured, organized, stored, and retrieved when needed, in the form of background knowledge. Connections are made between new text and previously stored information. The reading comprehension process makes use of imagery as new images are evoked and elaborated when reading. I believe that comprehension instruction is coming into a new level of respect and importance. Will imagery be ushered in on the coattails of comprehension as one of its important strategies or will it be left in the coat pocket to remain a secret, untapped, hidden treasure? Chapter Three will discuss methodology.

CHAPTER III

METHODOLOGY

Chapter Overview

This chapter presents an explanation and a description of the research study. It includes the research design, a description of the population and sample, a description of the research instruments, data collection procedures, analysis of data, and research limitations. This study has received the approval of the Oklahoma State University Institutional Review Board, with a reference number of ED0618.

The purpose of this mixed methods study was to determine what elementary and middle school teachers across the United States believe about imagery instruction in comprehension. I wanted to discover the extent to which they use imagery as an element of their reading comprehension instruction. Further, it was important to ascertain the factors that influence the extent of their imagery use in the classroom. The following questions guided this study:

1. What do elementary and middle school teachers across the United States report about their beliefs concerning imagery instruction in comprehension?

2. To what extent do elementary and middle school teachers report using imagery as an element of their reading comprehension instruction?

3. What factors are reported by teachers to have an influence on their imagery use in the classroom?

As discussed in the review of literature, over thirty years of evidence-based research suggests that imagery has value as one element of a strong reading comprehension instruction program. As a researcher, I wondered why many educators appeared to be unaware of the benefits offered by imagery techniques. It was my hope, following their input, that educators participating in this study would consider their imagery use or lack thereof and discover a new curiosity about imagery. Further, I hoped to offer updated generalizable statistics that would represent typical imagery use in America's elementary and middle school reading classrooms.

Mixed Methods Research Design: Quantitative and Qualitative

In an effort to find convincing answers to my questions, a mixture of quantitative and qualitative methods was employed. In their explanation of *mixed methodology studies*, Locke, Silverman, & Spirduso (2004) write:

> We believe the mixed method label is justified…when, for example, the nature of the problem makes it necessary to use both qualitative and quantitative data in developing a more thorough answer, when each kind of data is subject to rigorous standards of quality that are appropriate within its paradigm of origin, and when interpretation links data types together in a genuine synthesis…. (p. 167).

Survey: Quantitative and Qualitative

In order to bring together both quantitative data showing a large sample and qualitative data reporting personal beliefs, an internet questionnaire survey method was selected. It contained several multiple choice items with a majority of Likert style items. According to Thomas (2003), surveys are useful for collecting information about the current status of a target variable within a particular "collectivity," meaning a group of specified things, in this case, elementary and middle school teachers. Through written responses to three questions, survey respondents could share thinking and personal experiences beyond the scope of the survey choices.

The quantitative target of my survey was to find the extent to which teachers around the United States used imagery in comprehension reading instruction. In order to look at the factors influencing the use of imagery, simple correlations were used to study relationships between different variables. This quantitative data were mixed with the methods selected from the qualitative methodology paradigm as the data were analyzed and synthesized.

Online Interviews: Qualitative

In a mixed research design that included a qualitative methodology, I wanted to gather information about imagery use and to find out through personal interviews how much teachers use imagery, as well as their explanation of this imagery use. My own personal bias was that imagery was not being effectively used by a majority of classroom teachers across the United States because they were not knowledgeable about its value and because they did not know many techniques for using imagery.

The qualitative portion employed basic descriptive research, which according to Locke, et al. (2004), is a generic method during which the researcher attempts to describe and understand something. My theoretical framework was built around the constructivist viewpoint, which espouses that individuals actively construct meaning as they connect with their background knowledge within a social context. My research perspective is based on Paivio's (1971) Dual Coding Theory in which language and images are unified to build background knowledge, conceptual pegs on which new knowledge can be hung. These connections must be in the awareness of both teacher and student. Teacher guidance through scaffolded instruction, helps students function at a level slightly higher than the learner could do without a teacher's guidance (Vygotsky, 1978).

In order to gather data about their beliefs and practices, I interviewed four teachers from communities representing various income levels in Oklahoma. Thus, as I researched the collectivity of teachers from across the United States in various school and local community settings, I would try to interpret their social reality through the written response questions on the survey, as well as through the representative interviews from various locales within Oklahoma.

In support of mixed methodology, Crotty (1998) affirms, "We should accept that, whatever research we engage in, it is possible for either qualitative methods or quantitative methods, or both, to serve our purposes…without this being in any way problematic" (p. 15). Thomas (2003) points out that that the rationale for identifying with a mixed methodology perspective is a pragmatic one in that this blending of

analyses brings valid results in a world of multiple social realities. Neither a purely quantitative nor a purely qualitative study could singularly meet my research needs.

Sample / Participants

Quantitative Survey Sample

This study involved teachers from elementary and middle schools representing seven states throughout the United States. This was a sample of convenience in that subjects were contacted because they taught reading in grades three through eight. Descriptive data were studied from 67 surveys. Partial identifying information was excluded in some responses, disqualifying the correlations from those surveys. Therefore, N was dropped to a range of 48-58, depending on which question was being studied. Typical behavior measuring central tendency was studied for certain questions in all 67 surveys.

There were forty-three females and five males who answered all of the identifying information questions. Of this core group, there were 4 respondents from Connecticut, 6 from Minnesota, 1 from Missouri (survey forwarded to her), 3 from New Jersey, 5 from New Mexico, 22 from Oklahoma, and 7 from Tennessee. Of the 48 core responses, ten respondents ranked their schools well above national average, 16 ranked their schools above national average, 15 believed their schools were about at national average, 3 thought their schools were below national average, and 4 stated that their schools were at risk. Of the 26 elementary teachers and 22 middle school teachers who submitted surveys, teaching experience included 8 teachers who had taught from 1-5 years, 20 with 6-15 years of experience, and 20 teachers having taught for 16 or more years. Only 2

respondents had taught reading briefly, 4 sporadically, and 42 had taught reading continuously over their careers. Teachers placed their school locations in the following categories: three inner city, 1 midtown, 28 suburban, 7 city, 7 small town, and 2 rural. Of the 48 schools represented, 45 were public and 3 were private.

Among 67 teachers identifying their level of education, 18 teachers reported that they had earned a BA or BS degree, while 45 had earned or were working on a Master's Degree, and 4 had earned or were working on a Doctorate. Of 52 teachers reporting courses completed, ten teachers had completed at least 3 courses about reading or literacy, nineteen had completed between 4 and 6 such courses, twelve had completed up to 10 such courses, and eleven subjects had completed more than 11 reading or literacy courses.

Qualitative Interview Participants

Through online interviews I communicated with four teachers from the state of Oklahoma. I had planned to travel to these school sites to conduct the interviews, but due to time and cost constraints, I went online asking administrators of rural, city, suburban, and inner city schools to forward my message to a willing reading teacher. I did not reach my goal of eight participants, since only four participants responded to my administrator request. However, these four interviewees answered the questions in great detail, writing about their experiences and beliefs about imagery. We corresponded back and forth when I needed more clarification or when they thought of other information to share.

I communicated with a 2nd grade teacher (explained later), a third-fifth grade enrichment teacher, a 4th grade teacher, and a 7th grade teacher, all females. All participants had taught reading continuously during their careers which ranged from 8 years to 21 years of experience. Academic standing of the schools included one above national average, two at about midpoint in national average, and one below national average. These public schools were reported to be located in a small town, two in the suburbs and one in the inner city. Two teachers had earned a BA or BS, and two had earned or were working on a Master's Degree. The number of courses taken by the interviewees ranged from 4 to more than 11 reading courses.

The interviewees and I e-mailed back and forth over a period of time from late October, 2005, through February, 2006. In qualitative research, narrative with thick description sets the scene and lays out the findings. The thick description in my interviews was illuminated by my conversations with the interviewees, and by the images they portrayed as their thoughts painted mental pictures for me. I did not believe I would be relinquishing the validity or rigor of my study by interviewing these four respondents online without the benefit of seeing their classrooms or their physical beings in person.

First Interviewee: Ve. While I originally set out to study 3rd- 8th grade teachers because lower grade students are still developing imagery capabilities, I welcomed the responses coming from the 2nd grade teacher who answered my request to her principal for help in finding a person willing to be interviewed. This participant teaches in a small town school that ranks about midpoint in national test scores. She has taught for over sixteen years in public school, and has earned a Master's Degree, having completed more

than eleven literacy courses. Ve, as I will call her, was the only one of four interviewees who believed she could not image. This viewpoint was useful to my study.

Second Interviewee: Cy. As a third through fifth grade enrichment teacher, another interviewee represents an inner city public school that earned below average test scores. Cy has eight years of teaching experience and has earned a Bachelor's Degree. She has completed between 7-10 literacy related courses. Her class consists of 2 gifted students, 2 learning disabled students, 8 English language learners, and 4 troubled students. Her unique classroom offers great insight into how she uses imagery to help her students learn.

Third Interviewee: Va. The third interviewee, Va, teaches fourth grade in a city located about thirty miles from a major metropolitan area in Oklahoma. Her public school ranks at about midpoint in national test scores. She has earned a Bachelor's Degree, having completed at least four literacy courses. Her teaching career spans eleven years. Early on Va stated that she knew very little about imagery, but her responses were packed with emotion, including a self-declared *soap box* on which she stands to build a foundation for evoking imagery among her students.

Fourth Interviewee: Da. The final interviewee, who I will call Da, teaches seventh grade in a highly ranked suburban district on the edge of a major metropolitan city in Oklahoma. Having earned a Master's Degree, she has taught ten years and has completed over six literacy courses. She was very vocal about her beliefs regarding imagery. Her mother is a college professor of English, and Da believes this love of

literature was inherent in her upbringing. She believes that reading and imagining can be more fulfilling than a movie.

The Interviewer. In understanding the interview process, it is useful for the interviewer to offer basic information that could affect the study. As the interviewer, I am a fourth grade teacher and researcher. My interests lie in the field of literacy: reading, writing, listening, communicating, and thinking. I am a constructivist, believing that students draw from their own background knowledge as they read, bringing their own ideas into a "conversation" with the author's ideas, thus constructing meaning as they read. My biases include a constructivist reading philosophy (see Descriptor Tables III-V, Chapter Four) and a belief that imagery is generally not understood, therefore is underused in American schools.

Research Instruments

Questionnaire Survey

In designing the survey, I wanted to gather data within four specific areas of focus: personal data to use for correlations, data about imagery beliefs and use, data that would separate a constructivist reading philosophy from a conservative reading philosophy, and data written in the participants' own words, expressing their thoughts personally. The questionnaire survey consisted of 51 quantitative statements which required a multiple choice or Likert response, as well as three brief qualitative comment questions requiring written responses, for a total of 54 responses. Of the total questions, thirteen statements referenced personal data that informed the correlation design.

Nineteen statements documented beliefs about imagery and how frequently the participant implements particular reading strategies and techniques--always, often, sometimes, or rarely. Nineteen statements helped frame the participant's reading philosophy, by asking for a leveled response of strongly agree, agree, disagree or strongly disagree. I used questions about philosophy intermittently with imagery strategy questions in order to avoid establishing a pattern in either imagery or philosophy responses. There were also three open-ended questions rounding out the 54 questions.

Respondents selected choices from two specific questions reporting whether or not they use imagery and why. Because of their importance to this study, both questions and choices are included here. One question asked: "If you do not use imagery strategies, why don't you use them?" Choices included: (a) I haven't thought about it; (b) I don't know how; (c) I don't have time; (d) I don't think it is important. The second question/statement requested a response to the following: "If you do use imagery strategies, choose the applicable remark(s) for your situation. I would use imagery more if… Choices included: (a) I had more time; (b) I knew more strategies; (c) I thought it was a valid concept; (d) I could see evidence that it works. These statements informed key questions in the study concerning the beliefs about imagery instruction, the breadth of imagery use in reading comprehension instruction, and factors contributing to its use or lack of use.

Three qualitative open-ended survey questions resulted in detailed responses permeated with opinion, emotion, and individualized reasoning. The first question asked the participant to list the major instructional strategies contributing to a strong reading comprehension program. It was worth noting which participants included imagery as a

key strategy of reading comprehension, in correlation with their levels of education or reading philosophies.

A second open-ended question asked the participants to write about the factors that have contributed to the degree imagery strategies are used in their classrooms. Once again, useful data were gathered from their personal writing. The final qualitative question asked the participants to think back to their first written response and to explain why they did or did not include imagery as one of the strategies. These responses added valuable core data to the analysis. (See Appendix A for survey.) The online survey included the consent form required by the Institutional Review Board. Subjects who agreed with the consent form clicked on AGREE and were sent to the survey. Subjects who did not agree clicked on DISAGREE and were sent to an exit page. (See Appendix B for Consent form.)

Online Interviews

I prepared template interview sessions of four questions at a time and sent 2 or 3 questions at a time over eight sessions, for a total of 20 questions. I asked participants to discuss their knowledge of imagery and how they got that knowledge. I asked about their beliefs concerning the difference imagery activities could make in a reader's successful comprehension. Other questions discussed their beliefs about background knowledge and entering into the "story world." The interviewees were asked to write about the imagery strategies they use, where they learned these strategies, and if they had modeled them. Other topics of discussion were: movies in the mind, elaboration, being "lost in a

book," and engaged reading. (See Appendix C for the complete "package" and list of interview questions.)

Validity and Reliability

The survey was appropriate for this study because it provided quantitative data across six states representing various economic levels, various rural and suburban school locations, as well as eastern and western geographic locations within the United States. Teachers represented different levels of education, years of experience, and grades taught. In an effort to strengthen the internal validity of the study, the survey gave respondents three opportunities to write their own thoughts and experiences, adding qualitative data to further support the quantitative data. Questions and responses were created to focus respondents' thoughts on their beliefs about imagery, the extent of their use of imagery strategies, and factors influencing their imagery use.

A factor that was difficult to represent was the teacher's reading philosophy. Throughout the survey, nineteen philosophy questions were mixed intermittently with imagery questions so participants would need to think carefully about their choices. For the most part, questions were set up so as to draw strong agreement or agreement from teachers accepting a constructivist philosophy and to draw disagreement or strong disagreement from teachers maintaining a more conservative reading philosophy. (Three questions were stated in such a way that their data needed to be studied in reverse from the other fourteen questions.) Descriptors of the reading philosophy concepts were listed in a table, along with the number of teachers selecting each choice.

The interviews were designed to further validate data gathered from the surveys by asking similar questions in different ways to see if interviewees would answer in similar ways with similar information that could support data gathered from the surveys. The synthesis of data from surveys with data from interviewees brought a sense of corroboration.

Pilot Study

Prior to IRB approval, I conducted a pilot study during Summer 2005 semester.

My dissertation adviser allowed me to administer the survey during her class. Fourteen subjects participated and gave feed-back on the survey. An unclear question was noted, and I realized that the open-ended questions needed to be refined in order to draw more involved thinking in the responses. Most respondents gave favorable comments about the value of the survey. After the survey was administered on hard copy, I realized that an electronically administered survey could be more efficient for my needs. In studying the responses, I could see which questions brought useful data and which did not. Also, I found a disconnect between some of my survey questions and the purpose of my study. As a result, I revised several survey questions in such a way that they would inform my original set of major research questions.

Data Collection Procedures

Questionnaire Survey

Teachers were originally selected by Marketing General, Inc., an organization affiliated with the International Reading Association. Target teaching levels ranged from

third-eighth grades since research has shown that the ability to image is still in the early stages of development below 3rd grade (Pressley, Borkowski, & Johnson, 1987). I contracted with Marketing General, Inc., to select IRA members who taught reading in third through eighth grade classrooms, locating 40 IRA elementary teachers and 40 IRA middle school teachers from each of six states, for a total of 480 subjects. An e-mail "blast" was launched by Marketing General, Inc., in early October, 2005, sending out my e-mail message (Appendix D) which included an invitation to participate in the survey, as well as a link to the survey.

The survey website link (www.keysurvey.com) was embedded within the email message. After completing the internet survey, which could probably be done in about fifteen minutes with little effort, the participants submitted the survey. The closing remarks on the survey indicated to the participants that the survey would be returned anonymously to the survey website. In no way could the researcher trace the survey to their e-mail address. Further, the participants were informed that as they pressed the submit button, they were giving permission for their anonymous data to be used in this research study. The Key Survey website banked the returned survey data until late November, when the survey was terminated and the data was forwarded to the researcher for analysis.

Six states were selected by economic standing in the United States according to www.infoplease.com. It was hoped that socioeconomic standing could be correlated with imagery use. While my intent was not to suggest cause for a state's low economic status or test scores, I did want to look at correlations between what teachers know about imagery and possible funding for teacher training in the state. The three states chosen for

high economic standing were Connecticut, Minnesota, and New Jersey, because they were also shown to have high test score averages. The three states chosen for lower economic standing were New Mexico, Oklahoma, and Tennessee, because they were also shown to have lower test score averages. (Originally six high and six low states were to be studied. However, the 2005 hurricane season took its toll on two states of low economic standing that I had planned to study, so I lowered my numbers to three high and three low states.)

In response to the 480 emails "blasted" from the IRA affiliate, only eight subjects had responded to the survey after three weeks. In order to continue the study, I went online and visited the state department of education for each of the six states designated in my study. There I selected, out of convenience, schools with websites listing teachers and subjects taught. In this way cluster sampling helped me locate third through eighth grade teachers of reading. In one instance snowball sampling went into effect as one teacher forwarded my survey to another teacher in Missouri, thus the seventh state I mentioned above. (Missouri fell into a middle category, both in economic and average test scores.)

In total, 1,021 emails across the six target states, were sent out by the researcher, with a response of 59 surveys. With the 8 IRA respondents and the 59 convenience respondents, a total of 67 surveys were submitted for the study. Approximately 1/3 of the surveys were submitted with at least one unanswered question. However, since responses to the questions were being used to offer descriptive data, the general information could be included.

It was hoped that the surveys would provide an overview of information about imagery use from various parts of the United States in order to look for possible pockets of wide use or non use. I had hoped to garner at least 100 submitted surveys, but fell short of my goal.

Online Interviews

Four online interviews were conducted with Oklahoma teachers since I had more contacts in my home state than in any other. I wanted to find schools that would represent rural, town, suburban, and city schools. I located such populations online at 2002 Oklahoma Towns and Cities: http://www.state.ok.us/osfdocs/cities.html

I found the websites for selected schools online at the official Oklahoma Department of Education website. There I located the names of administrators, to whom I e-mailed a message briefly explaining my dissertation and my need to interview a reading teacher online. Twenty-five such messages were sent, with six responses. Of those six responses, only four teachers agreed to do the online interview. I had hoped to select eight participants that would represent both affluent and low-income communities in Oklahoma. These online interviews allowed for back-and-forth comments between interviewee and interviewer. These four interviewees answered the questions in great detail, writing about their experiences and beliefs about imagery. We corresponded back and forth when I needed more clarification or when they thought of other things to say.

The electronic interview data were used to interpret and elaborate on the descriptive data gleaned from the surveys. By collecting the data, I was able to suggest what might be going on in this group of participants concerning imagery, as well as why

and how it was happening. Using the qualitative data from both the surveys and the interviews, I looked for explanations that would support the quantitative data also being analyzed.

Data Analysis

Questionnaire Survey

Quantitative Survey Data.. The questionnaire quantitative data were analyzed using data from the survey website excel report. First, data were gathered from eleven questions establishing identifying variables, showing many singular pieces of descriptive information, such as the percent of all respondents using imagery instruction or the percent of teachers presenting imagery in explicit lessons, etc. Simple correlations were then computed using the Pearson Correlation Coefficient. The identifying variables such as gender, academic standing of school, grade level, location, and type of school, showed no significant correlations with imagery beliefs, imagery use, or factors influencing imagery use. Nor, did the economic or geographic variables make a difference in the study. Therefore, they did not become factors of this study. Other variables, level of education, number of literacy courses completed, beliefs about imagery, exposure to imagery knowledge, and reading philosophy, were then correlated with each other using a 2-tailed Pearson Correlation, significant from the 0.01 level to the 0.05 level. ($p >/= .05$).

Beliefs about imagery were analyzed by studying the five questions listing possible imagery beliefs. Percentages were figured using N = 67 in order to see what percentage of teachers strongly agreed, agreed, disagreed, or strongly disagreed. These survey belief statements showed what percentage of teachers had been thinking about

imagery as being important to reading comprehension as well as the importance of imagery in connecting with background knowledge.

Frequency of imagery use was shown in a table calculating the percentage of teachers using twelve specific imagery strategies. Percentages were shown for teachers using each imagery strategy either always, often, sometimes, or never.

Surveys were numbered and analyzed in various categories, always using the survey number as an identifier. Factors influencing imagery use were marked beside each identifying number representing a survey. One factor, the reported extent of imagery background knowledge, was analyzed directly from a survey question. Respondents were asked to report their level of imagery background knowledge: abundant exposure, moderate exposure, mild exposure, and no exposure. This information was analyzed according to level of education and reading philosophy. In some instances, the number of teachers reporting is analyzed. In other instances the percentage of teachers reporting is analyzed.

Another factor influencing imagery use was the source of the respondents' background knowledge. Choices were: workshops, courses, books/articles, peer sharing, personal experience, and no knowledge. The number of teachers gaining their imagery knowledge from each choice was shown in a figure. Pearson correlations were made between courses completed and strategy use. Other correlations were made between strategy use, exposure to imagery knowledge, imagery beliefs, and reading philosophy.

Reading philosophy descriptors were given a value of 1 to 4, with (1) representing strongly agree or use always, (2) representing agree or use often, (3) representing disagree or use sometimes, and (4) representing strongly disagree or never use. The

reading philosophy was figured by designating the (1)s and (2)s to represent a constructivist reading philosophy and the (3)s and (4)s to represent a conservative philosophy. For example, a teacher holding a constructivist reading philosophy would not ask many text-based questions, but would rather ask for a reader's response to what was read. A teacher with a conservative reading philosophy would ask many questions taken directly from the text rather than being concerned with the reader's thoughts about the text. The reading philosophy designation was carried over into the correlations mentioned above.

Qualitative Survey Data

Within the survey, there were three qualitative questions, allowing the respondents to use their own voices. At the point that the surveys were released to me by the survey website, in late November, I read and reread the responses to the three qualitative questions. Responses to each of the three questions were consolidated in one place, so I was able to print out a sheet with all the responses to question #1, another sheet with responses to question #31, and another sheet with responses to question #54. Further, the qualitative responses were numbered by survey, so I could look at the quantitative responses by each person and compare their qualitative responses to get a full picture of each respondent's thinking.

On each of the three qualitative questions, I made notes in the margins as various topics appeared. After reading and rereading numerous times for new topics or thoughts that might arise, I listed the categories on a sheet. I then began making tally marks under

each topic to show the frequency with which each topic was mentioned. After focusing on discrete categories, I then collapsed them into themes. Mertens (1998) writes:

> The analysis process begins with reading all the data at once and then dividing the data into smaller, more meaningful units…The data segments are organized into a system that is predominately derived from the data; that is, the data analysis process is inductive. Some guiding research questions can be formulated at the beginning of the process; however, additional categories or themes are allowed to emerge from the data (p. 350).

I studied the qualitative responses through open coding first, taking apart each response to look for discrete categories that could be closely examined and compared for similarities and differences. Then axial coding was used to make connections between categories or themes. Mertens (1998) writes: "If your interest is in theme analysis or concept development, your analysis is complete at the end of this step" (p. 352). She continued to discuss selective coding which would lead to building theory, or grounded theory. My qualitative data analysis was complete with the concept development and did not continue on to the grounded theory level. The relationships of concepts within the qualitative data informed my study.

The first survey question asked respondents to list four reading strategies that support comprehension instruction. I wanted to see how many respondents mentioned imagery. The last question (#54) asked respondents to think back to the first question and discuss why they did or did not mention imagery as a strategy. Responses were catalogued generally into fifteen topics, which were then consolidated into the following categories: terminology (imagery, visualization, etc.), not enough time, I use imagery

more than I realized, imagery helps low readers, imagery is a key strategy in developing comprehension, and the importance of reader connections with background knowledge.

Question #31 asked respondents to list factors that contributed to the degree they used imagery. Within these written answers, respondents referred to positive factors for imagery use, such as seeing benefits to students. They also referred to negative factors such as: lack of time, can't get a grade, and lack of teacher knowledge. Within these responses, teachers also referred to particular imagery strategies they used, the importance of well-written text, professional books about imagery, and workshops they had visited. These responses were integrated with comments from interviewees to offer further support to the quantitative survey data.

Data collected from the survey were used to create a table about teachers' imagery beliefs, showing the percentage of respondents strongly agreeing, agreeing, disagreeing, or strongly disagreeing to each of five statements about imagery. Another table was created from the data, showing the frequency of use for twelve imagery strategies, by percentages of teachers using the strategy always, often, sometimes, or never. Several tables and charts were needed to present data about factors influencing imagery using percentages, numbers, and Pearson coefficient correlations.

Online Interviews

The analysis process used for the online interviews began by reading all the data. Then I divided the data into smaller, more meaningful units. I used an inductive process to analyze this data (Mertens, 1998). The interviews were a major source of data and were read and reread in their entirety numerous times. They were then analyzed in two

different ways. First, I analyzed the four interviews by question, typing the question followed by each of the four responses to that question. Thus, I could read the question and all of the responses to that question, getting an overview of the perspectives. This categorizing by question provided pages of data that I visited and revisited during the data analysis.

Second, the online interviews were printed and collated, compiling the entire interview responses for each interviewee. Thus, I studied each respondent's original complete interviews, looking for discrete categories which were written in the margins. Those categories were listed, tallied, and collapsed into themes. I then typed significant quotations made by each person, resulting in a list of quotable remarks—a separate list for each interviewee. Those lists were then categorized by theme, so that I could find a quote either by person or by theme.

Data gathered from interview responses were then synthesized with the data gathered from the surveys, validating the similar nature of comments and categories. Participants and respondents both could download a book list of Compelling Books about Reading Comprehension, as a token of appreciation from the researcher. (See Appendix E.)

Research Limitations

As in all research studies, there are limitations. One limitation to using surveys is the low response rate. Another limitation of surveys is that when dealing with self-reported responses, the researcher must depend on the respondent to tell the truth. There is no way to validate the respondents' truthfulness as to actual practices. Also, with such

a far reaching population, it is possible to misunderstand questions or response. The reading philosophy of teachers could be a controversial issue, considered to be subjective in nature. However, I believe that benchmarks of highly respected reading organizations could be shown to successfully correspond with the descriptors assigned to the constructivist reading philosophy. Respondents disagreeing, strongly disagreeing or using sometimes or never, would show their departure from these benchmarks of a constructivist reading philosophy leaning to a more conservative philosophy. Chapter IV will analyze the data.

CHAPTER IV

DATA ANALYSIS

Chapter Overview

As stated in Chapter 1, this study examined what elementary and middle school teachers across the United States reported about their beliefs concerning imagery instruction in comprehension. Further, the study looked at the extent to which these teachers reported using imagery as an element of their reading comprehension instruction. Finally, the study examined factors reported by teachers to have an influence on their imagery use in the classroom. This chapter is organized in terms of these three specific research questions:

1. What do elementary and middle school teachers across the United States report about their beliefs concerning imagery instruction in comprehension?

2. To what extent do elementary and middle school teachers report using imagery as an element of their reading comprehension instruction?

3. What factors are reported by teachers to have an influence on their imagery use in the classroom?

Looking through a constructivist lens, this mixed methods study gathered quantitative data from online surveys returned by sixty-seven elementary and middle school teachers representing seven states. Respondents were asked to choose Likert style

or multiple choice answers for 51 questions or statements. The survey was created to gather information regarding teachers' beliefs about imagery, the extent of their imagery use, and factors influencing their imagery use. Survey questions also attempted to frame the teachers' reading philosophies through their responses. Three further questions offered teachers open-ended opportunities to express personal beliefs in their own words, which would collect additional data in a qualitative form.

The study also included four personal e-mail interviews with elementary and middle school teachers. These online interviews conducted over eight sessions of two or three questions each, allowed the researcher to converse with participants. Data gathered during the personal interviews were synthesized with the survey data, quantitative and qualitative, often resulting in a triangulation of thought in which a finding was supported in three ways. A discussion of findings follows.

Findings

General Information

The basic demographics of the study included gender, state, grade taught, academic standing of school, length of career, school location, public or private school, and extent of college education. There were no significant correlations that could be used for data among any of these original identifying demographics. Economically disadvantaged states showed no more or no less interest in imagery than did the economically advantaged states. Teachers from large cities showed no more or no less knowledge of imagery than teachers from rural areas. Gender, grade taught, years of

experience, academic standing of school, school location, or extent of education, were not factors in imagery use.

What Teachers Reported About Their Imagery Beliefs

Responses and discussion about imagery beliefs fell into three areas of focus. Teachers reported about imagery beliefs in general, followed by more specific imagery beliefs relating to background knowledge, and finally, imagery and text. First, imagery beliefs in general will be analyzed.

Imagery Beliefs. The first question of the survey was an open-ended question with a text box asking respondents to "list four reading strategies that support comprehension instruction." The following categories appeared: imagery or imagery related concepts, making connections, background knowledge, prior knowledge, summarizing, inferencing, predicting, themes, fluency, vocabulary, guided reading, retelling, reader's theatre, re-reading, sequence, compare and contrast, peer discussions, journal reflections, appropriate text level, monitor comprehension, scaffolding, context clues, student choice, and literature circles. These categories were consolidated into those referring to imagery techniques, imagery knowledge, imagery use and connections to background knowledge. Data showed that 36 of 58 respondents mentioned imagery or imagery related concepts such as picturing, visualizing, graphic organizers, and connections to background knowledge, indicating that they believe imagery is an important function of reading instruction.

Five survey questions/statements were directly related to teacher beliefs about imagery, ranging from previous thoughts teachers have had regarding imagery, to

relationships imagery has with comprehension and background knowledge. Respondents were given four Likert style choices: strongly agree, agree, disagree, and strongly disagree. All teachers reported having had thoughts about imagery. Most teachers either strongly agreed or agreed that they had thought about imagery in some way. Only 3% reported not having thought about imagery to any degree. Thoughts and beliefs play a large role in how a teacher teaches. Table I displays data about teachers' reported beliefs concerning imagery.

Table I

Reported Teacher Beliefs About Imagery Instruction in Comprehension

Belief	Percentage Strongly Agree	Agree	Disagree	Strongly Disagree
I have wondered if struggling readers visualize what they read	46	52	3	0
It has occurred to me that expert readers create mental images as they read.	74	26	0	0
I have wondered if imagery has a relationship to how well the text is understood.	40	57	3	0
The formation of images in a reader's mind helps the reader comprehend more fully.	63	37	0	0
It has occurred to me that a person's background knowledge includes images.	51	49	1	0

N=67

Survey respondents who used imagery strategies were asked about their imagery beliefs in a question wondering under what circumstances they might use imagery

strategies more. One of the choices was: "If I thought it was a valid concept." Only 2 of 58 respondents marked that choice, indicating that most respondents do believe that imagery is a valid concept. Another choice was: "If I could see evidence that it works." Seven of 58 respondents reported that they wanted more evidence of the value of imagery, indicating that 51 of 58 teachers in this study have seen evidence that the imagery strategy works in reading comprehension instruction.

Interviewees also wrote about their beliefs. Categories that developed included: words painting pictures in minds, connections to background knowledge, enter into the story world, being lost in the story, source of imagery knowledge, advantages of teaching imagery, the importance of the text, specific imagery strategies, assessment of imagery, modeling of imagery, and use of professional books for imagery knowledge.

Ve (the participant who believes she cannot image) mentioned at least three times that a reader who *can* visualize has a great advantage over one who *cannot* visualize. She wrote a narrative about her first encounter with imagery:

> The first I heard about imagery was in a class at Pittsburg State University. Dr. McCoy had her class of twenty plus students sit in a large circle and suggested to them to picture an elephant. Then she suggested they picture it eating an orange. All students were to keep their eyes closed while doing this and raise their hands once they had an image. After a certain length of time, I peeked. All students had their hands up except me. So I raised my hand. All I could see was black even though I tried to see an elephant. Then Dr. McCoy began by asking the student next to her to tell about their picture. One by one they proceeded around the circle describing the elephants. Some had elephants in their natural habitat (Africa), others had cartoon elephants, some were in black and white. Others were in gray. A few could even smell the orange their elephant was eating. When it came my turn I had to confess that I had raised my hand only because I had looked and everyone else's hands were raised. I was not getting a picture. I found then that I was an exception. All students in this class had this ability. This was in 1983. I have a daughter-in-law who can see a list of items and the number they are on in the list. She can see how to spell a word by picturing it in her mind. In high school plays she could see her parts. I have a brother who can picture things in his mind but also can hear beautiful quartets, orchestras and all kinds of music. I cannot do that.

Ve believes that good readers do create mental images in their minds, but that there are good readers who do not image, but can also experience joy during reading. She also believes that "the one who can visualize has an advantage over the one who cannot in retention of material." Ve believes that reading comprehension cannot depend on imagery or a portion of the reading population would be left out. She does not believe that all students can be taught to visualize, believing that imaging may be an inheritable trait.

All four interviewees believe that good readers do create mental images as they read. Va believes that:

> If a student cannot create an image in their head, the synapses are not doing the firing that they should be. I equate it to when I'm tired and I'm reading something that holds little interest to me. I may have read a whole page of words, but I have no idea what I just read.

But she cautioned that, while imagery is important, there are other strategies needed to support reading instruction. Data showed through Likert style choices, written survey responses, and responses from interviewees, that most teachers believe that the formation of images in a reader's mind helps the reader comprehend more fully, but that it is only one of several important reading instruction strategies.

Imagery Beliefs and Background Knowledge. Survey respondents and interviewees alike, believe that imagery helps make connections with background knowledge. Listed below are some comments from survey respondents:

> I include imagery techniques in my classroom because I want my students to make personal connections to the literature. Visualizing images while reading helps my students to make that connection.

> I included visualization as one of my strategies because I think it is an important way to help students connect what they are reading to their lives and experiences. I also think it is important to help them 'see' in their minds the world, emotion, actions, etc., that the author is creating with the written word. I also connect this strategy to our writing curriculum.
>
> [Imagery is] valuable to helping students stay 'connected' to what they are reading. It really makes reading come alive!

In the interviews I discussed background knowledge to a greater extent. I asked the participants to describe how they believe background knowledge is stored in the memory. Ve wrote about flashes of background knowledge that come instantly. She does not believe she sees the stored knowledge in images, but that it is aroused by other senses. For example, she wrote:

> Smells can make me instantly have background knowledge. But they have to be real smells. I cannot smell something that is not really there. For instance if I smell real horse manure, I will have flashes of my childhood when I would ride horseback to a quilting club meeting with my mother, or in a wagon with a team of horses pulling it to a country store. The smell of sheep reminds me of sheep shearing time and my Uncle Doc. When I hear words, see real pictures, smell real smells, and taste real food, I have background knowledge continuously.

Va believes that different readers have different stimuli that activate background knowledge. "Your visual-artistic kids may have very strong visual memories, while your kinesthetic-body kids may be through a motion or tactile touch. Your auditory-music kids may have their memories stored by sound." She commented that students should have as much exposure to each of these realms as possible in order to reach each student.

Cy believes that:

> background knowledge is stored in sensory ways. Scent is a powerful input for the brain, and can bring back memory very quickly. (Grandmother's perfume, something you ate before getting the stomach flu, etc.) Taste is very similar. (Try drinking a High C and eating a graham cracker—you will be right back in kindergarten!)

Cy, who admits that she is fascinated by the "puzzle of the brain", continues to refer to learning strengths, adding: "Athletes remember with their bodies, musical people remember sounds and melodies, visually attuned people remember scenes, etc.

All four interviewees believe that good readers do create mental images as they read.

Da noticed that, "Memory is triggered by all the senses—a song, or a food odor, taste of Mom's homemade chicken soup can all trigger memories past. Our memories and experiences are the foundation of our knowledge." She suggests songs for her students to help them remember a definition or rule.

Va thinks of knowledge as being "stored in little metaphorical file folders in our brain. When the need arises, our brains go searching for these files and pulls from them whatever file that particular memory is stored in." Data showed that teachers believe background knowledge helps students create images within the story.

Imagery and Text, Text became a focus of the interview discussions. Cy wrote that, "The author's word choice creates a pathway into the story world. Books that have imagery that connects with the reader will be more interesting, since the experience will be more vivid to the mind's eye." Da wrote:

> The better one can picture scenes, hear sounds, tastes, smell, the more interesting the story is—the more drawn into that world the reader is. When reading to kids, I often marvel at how much more interested they become in a story after I have painted a picture of that world…They go in and hang with the characters.

Da continued this thought:

> Imagery is essential to a good book. If the story is not written in a style that allows the reader to imagine the world of the book, then it is not worth reading. Helping readers to see the story as they read it inevitably will increase their interest.

Imageability of the text was mentioned as an important factor un the use of imagery strategies. Cy commented that "The more elaborate (or cinemagraphic) the description, the more detailed the images evoked in the reader." By cinemagraphic, she explained that the text helps create vivid images as if the readers were watching a movie in their heads. Va compares reading with watching a movie or TV in the reader's head:

> I usually start my year up on my soapbox about reading how stories can play out in our mind like TV. As the year goes along I will have children share with me that they could "see" what the author was describing as they were reading or as I was reading aloud to them.

Both interviewees and survey respondents believe that the student's background knowledge interacts with the author's text. Survey respondents wrote:

> I clearly agree that the use of imagery is a documented (through my own experience) method of increasing my students' understanding of a novel. I teach *Tuck Everlasting* by Natalie Babbitt. I tell them to interact: with the author, question the author, draw the images in their journals, predict…

> Imagery strategies allow the reader to reflect, infer, construct, expand, correct, and question. When students are released from the simple fact level requirements of understanding, they are given permission to think beyond the author's words to embrace the author's purpose. Excellent literature is the stage for the young minds who will play all the parts.

Being lost in the story world led further to a discussion about engagement. The interviewees spoke about placing the "reader into the action." Students have told the interviewees that it felt like they were *there.* Cy believes that when readers are lost in a book they are "experiencing the world the author has created, with the addition of the power of personal imagination." She continued:

> If a reader is engaged with the text, he will be able to create a connection with the writing. This connection allows imagery to begin. The depth of the imagery depends on the richness of the text and the level of personal engagement with the topic.

Da stated that "The more you can imagine the world of the book and relate to it, the more engaged you will be as a reader." Va wrote about getting lost in a book:

> I let my students know that my hope for them is to become readers that are so immersed into the story that they become unaware of what is going on in their surroundings. I know from personal experience that this is the kind of reader I am. My mother yelling at me to come to dinner can also attest to this fact. We all need an escape from reality every once in a while, and I can't think of a better one than reading a book.

Va also said that when her students get lost in a book they feel like one of the characters and that they "go in and roam around in the setting." Enagaged reading, for these teachers, means being lost in the book.

Survey respondents were asked to strongly agree, agree, disagree, and strongly disagree with the following statement: "It is important for readers to understand that their background knowledge helps them connect with the text." Only 2 respondents of 67 disagreed with that statement, indicating that teachers in this study believe in the importance of connections between the text and background knowledge. There is a triangulation of data among the survey textual responses, the survey question about connections between the text and background knowledge, and the interviewees' discussions, showing that teachers believe in the importance of making connections between the text and the reader's background knowledge. The study also focused on the extent of imagery knowledge.

The Extent to Which Teachers Reported Using Imagery Strategies

Twelve survey questions asked respondents to estimate the frequency of their imagery strategy use from the following Likert style choices: always, often, sometimes, never. Table II lists particular imagery strategies and the reported frequency with which respondents practiced them.

Table II

Frequency of Reported Imagery Strategy Use

Strategy	Percentage Always	Often	Sometimes	Never
Prompt students to close eyes and make pictures in minds	13	43	35	10
Suggest that reading and understanding a book can be like watching a movie in the mind	34	47	18	1
Read picture books aloud to stimulate images in minds	22	41	28	12
Model or think aloud to show how you create mental images	28	54	16	1
When students are "lost in a book," I ask them where they've been.	13	35	41	10
Ask students how they see or sense a story	22	46	28	4
Use character maps	12	49	31	9
Discuss emotions felt during story	15	49	32	3
Encourage drama or dance to enhance comprehension	13	40	31	15
Explicitly teach visual strategies to improve comprehension	13	40	31	15
Ask students to visualize images before reading	18	39	34	9
Use question prompts to help students create rich image.	26	42	31	0

Note. N=67 in descriptive data representing survey questions because that is the total of usable returned surveys.

The imagery techniques listed were reportedly used either always, often, or sometimes by about 90% of respondents. Techniques used the least included: having students discuss where they've been when they are lost in a book, explicit teaching of visual techniques, as well as encouraging drama or dance to enhance comprehension.

Imagery Strategies Frequently Used

Graphic Organizers. In the survey, seven respondents referred to graphic organizers as important strategies in reading comprehension instruction. Associated with graphic organizers were story maps and Venn diagrams. A survey question asked respondents: "What factors have contributed to the degree to which you use or do not use imagery strategies in your classroom?" Within the context of this question, many respondents referred to imagery techniques they know and use. Graphic organizers and story mapping once again were discussed.

Teachers were also asked in the survey to respond to the following statement by choosing always, often, sometimes, or rarely: "I use character maps to help students develop their awareness of the character. Forty-one of 67 respondents reported using character maps either always or often, for a percentage rate of 61%. Using character maps sometimes were 20 respondents, while 6 respondents reported rarely using them. No interviewees mentioned graphic organizers in their responses. Findings showed that in this study, graphic organizers were familiar imagery tools used often by teachers.

Connections Made to Student Background Knowledge. Early in the survey, respondents wrote in a text box about reading comprehension instruction. Of 58 respondents, 18 referred in some way to background knowledge, making connections, or prior knowledge. The last survey statement was: "Think back to your first written response in this survey about good strategies for reading comprehension. Explain why you did or did not include imagery as one of the strategies." Several respondents mentioned that the reason they do use imagery is that it helps students make connections between the text and their background knowledge.

Data regarding teacher beliefs about imagery and background knowledge indicated that teachers use imagery techniques because they help students make personal connections to literature. Imagery helps students put themselves in the characters'places and think about how they would respond. Imagery helps "connect reading to their lives and experiences." Va wrote:

> If a reader lacks the background knowledge necessary for the story a lot of the story is lost. For instance, I am reading *A Long Way from Chicago* as a read aloud right now. This story takes place in the early 30s during the Great Depression. My kids had no knowledge of privies, talkies, what the Great Depression was, Hoovervilles, drifters, prohibition, living without TV, video games, cars, air-conditioning, and so forth.

Va said that at first students did not get the jokes, but after she and her students talked about the background of this time period, they understood. Findings showed from survey respondents' own words, their responses to survey questions, and from interviewees, that teachers believe student connections between the text and their background knowledge are important.

Visualization. Survey respondents, writing in their own words in response to the first survey question, referred to visualization, imagery, or an imagery technique at a rate of fifty percent. In addition to a form of the term visualization, they used words like making mental pictures, seeing images in their heads, picturing, "setting the stage," using imagery, using picture vocabulary, using figurative language, and using sensory images. *Table II* shows percentages of teachers who use specific visualization techniques in reading instruction. Over 50% of teachers reported always or often prompting students to close their eyes and make pictures in their minds. Eighty-one percent of teachers always or often suggest to their students that "reading and understanding a book can be like watching a movie" in their minds. Most elementary teachers and almost half of middle school teachers read picture books to stimulate images in their students' minds. Over 80% of teachers reported always or often modeling or thinking aloud to show students how they create mental images. Sixty-eight percent of teachers always or often asked students how they see or sense a story by. Fewer teachers explicitly teach visual strategies to improve comprehension (53%), as well as asking students to visualize images before reading (57%). Interviewees also commented about visualization.

Da wrote:

> In reading instruction imagery can be used in a variety of ways such as picturing the image, how the words paint a picture for the reader, identifying examples of imagery, demonstrating to readers how imagination can be better than the movies, clarification of events, scenes, characters, etc.

She continued: "Imagery paints a picture for the reader and can help clarify scenes, characters, events, etc. Picturing the characters, settings, costumes, weather, etc. can aid in a reader's successful comprehension." Va said, "A story

> is nothing more than a TV show in our heads. That is the huge draw to reading…"

Teachers showed through comments, survey responses, and interviews, that visualization is used often in the classroom. However, the percentage of respondents teaching explicit visualization techniques drops to around 50% from as high as 80% in simple visualization experiences.

Drawing Pictures. Survey respondents mentioned that they have students sketch or draw to help them understand what they have read. Some teachers also have their students make picture books to help them visualize the characters and what is happening in the story. Va wrote:

> Imagery is a very strong tool to use with your students. Many of our students are visual. I often have my students "read" art work. You would be amazed what meaning that can get from a picture! The same is true if they can "visualize" their own picture from what they are reading in their mind's eye.

Teachers sometimes ask students to draw pictures of what they are seeing in their minds.

Misconceptions about Imagery Strategies Use

In both the survey and the interviews, there were misconceptions about imagery as a strategy. The last survey question/statement referenced the first one: "Think back to your first written response in this survey about good strategies for reading comprehension instruction. Explain why you did or did not include imagery as one of the strategies." Numerous respondents wrote about their misconceptions.

Terminology: Imagery versus Visualization. Twenty-one percent of respondents reported that they knew about visualization but did not connect it with imagery as such.

Responding to a survey statement about how often they ask students how they see or "sense" a story, 22% of respondents reported "always" and 45% reported "often."

Interviewees discussed other senses besides vision. Cy wrote: "I have taken my students on 'mental road trips' where we have listened to music that evokes strong images. For example, 'The Ride of the Valkyries.'" Ve wrote about smells, and Va believes that different students use imagery different ways, depending on their learning style. If they are artistic, their images may be activated visually, while kinesthetic students may image through a motion or touch. Auditory students' imagery may be activated by sound. As previously mentioned, Va believes that students should be exposed to as many senses as possible in order to reach each student. She asks her students what they "see, smell, feel, and taste" as she reads. Through survey written comments and choices, as well as interviews, data showed that some teachers believe imagery is more than simply visualization but that imagery also includes other senses being activated in the brain.

Didn't Think of Imagery as a Strategy. Twenty-one teachers reported that they did not think of imagery as a separate strategy, that they simply lacked awareness about imagery, or that they used it without realizing it was a strategy. Comments from respondents include:

> It just didn't cross my mind as an actual strategy! Isn't that terrible, because I know it is one!

> Many sixth graders do not know or have not been taught that reading is a process that can be learned. Part of that process includes visualizing what is being read.

Both teachers and students alike may not think of imagery as a part of the reading process.

Factors Reported to Have an Influence on Imagery Use in the Classroom

One of three open-ended survey questions asked respondents: What factors have contributed to the degree to which you use or do not use imagery strategies in your classroom? A textbox gave open space for writing their thoughts. Sixty participants shared ideas. Ideas that emerged were varied and many. They ultimately fell into six categories which follow.

Personal Experience

A factor affecting imagery strategy instruction was personal experience. Several respondents wrote that they used imagery techniques, but did not realize they were imagery techniques until they participated in this survey. Some teachers wrote that they had taught themselves to use imagery..

Personal experience was elaborated upon by survey respondents:

> I am a storyteller and understand and value the importance of images when storytelling. It is vital for students to develop the use and practice of their cognitive imagination for comprehension. I love words, and support, through creative expression, the use and practice of using a variety of colorful and creative words to explore, explain, and express ideas.

> Personal experience has taught me that students need to see the information being read in their heads in order to connect old information with new information. This is particularly important when reading fiction, as the mental images help the story come alive. Also, mental pictures, when reading expository text, assist the reader in seeing connections between concepts and ideas.

> My experiences in speech and drama, imagery areas of performance, have influenced me as a reader. When the text becomes an interactive experience, children embrace the deeper meanings because they live the experience of the characters. Like a play, books create pictures with characters who behave according to circumstance. When students can relate reading to life, they have understanding.
>
> I am a very visual learner. No one ever explained the importance of imagery to learning. It was not until I was in college that I taught myself to use imagery to learn in a more concise and easier way. Teaching lower readers to use imagery has proven to help them remember what they have read, and to have a more complete understanding of what they read. I have seen many students turned on to reading through imagery.

Ve wrote about her childhood when she would listen to her mother read, or gather together with the family and listen to stories on the radio. Even though she did not feel that she saw images, she connected with the action and knew what was happening. Data showed from survey written responses and choices, as well as from interviewees, that personal experience greatly influences imagery use.

Impact of Imagery on Connections to Student Background Knowledge

In response to first survey question which asked respondents to list four reading instruction strategies, 18 0f 58 respondents, or 31%, made a reference to making connections, background knowledge, or prior knowledge, all factors in the imagery process. The interviewees were asked to respond to the same request. Ve, Va, and Cy mentioned imagery, while all four interviewees referenced making connections to background knowledge.

As previously mentioned, data showed that teachers in the study believe that imagery is an important factor in connecting text with background knowledge. They also believe that individuals may interpret text differently due to varying background

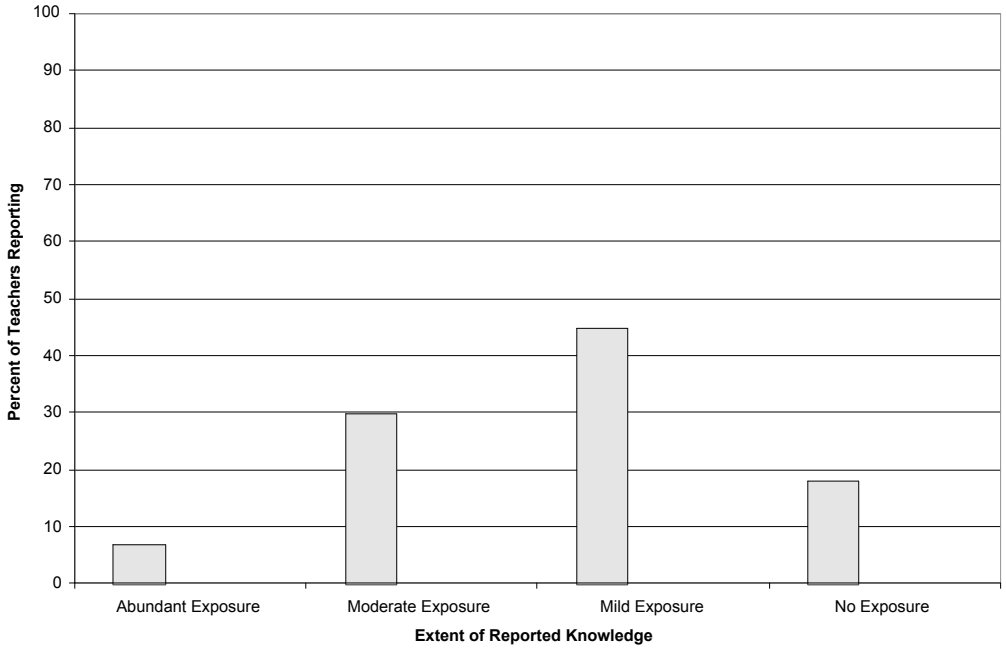
knowledge and experiences. Respondents believe that imagery helps students "stay connected to what they are reading." Va's remark about reading a book to her class that referenced the Great Depression, is telling. She wrote that at first they did not "get" the humor of the book because of their unfamiliarity with that era. However, after they discussed the meanings of "privies, talkies…Hoovervilles, drifters, prohibition, living without TV, video games, cars, air-conditioning, and so forth…" they understood the jokes. Data showed that a result of connections to student background knowledge is better comprehension by students.

Extent of Exposure to Imagery Knowledge

A survey question/statement directly asked participants to rate the extent of their knowledge of imagery strategy instruction. Choices offered were: abundant exposure, moderate exposure, mild exposure, and no knowledge. *Figure 1* shows that abundant exposure to imagery knowledge was reported by 7 % of the sample, while moderate exposure was reported by 30 %. Mild exposure was reported by 45 %, and no exposure was reported by 18 % of the population, based on a sample of N = 67.

Figure 1. Reported Extent of Background Knowledge in Imagery

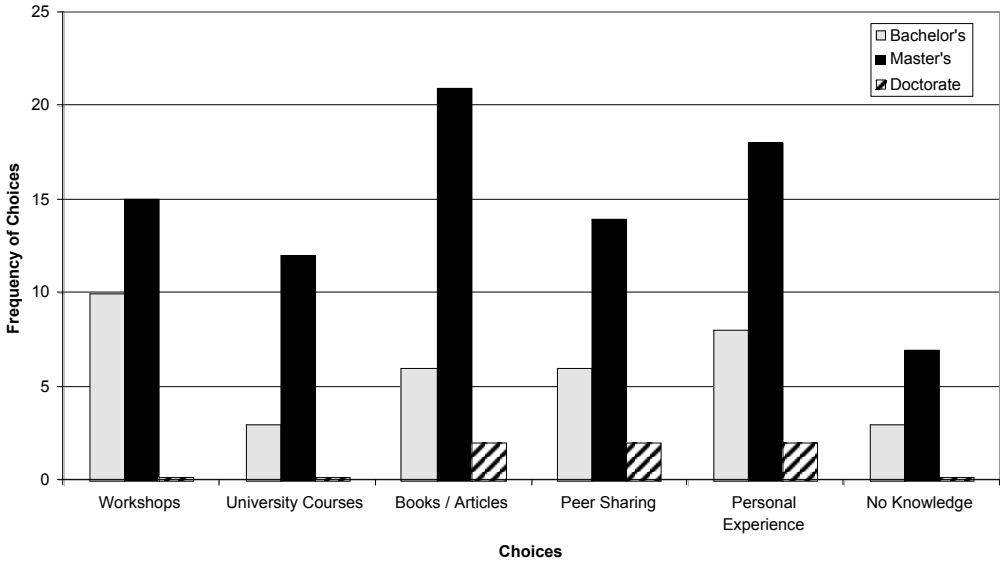
N = 67



When interviewees were asked what they knew about imagery in reading instruction, Ve and Va responded that they did not know much, while Cy and Da spoke of imagery's value in their teaching.

Further, the survey asked participants to complete a statement about the source of their knowledge of imagery by marking as many of these choices as necessary: workshops/staff development; university courses; books/articles; peer sharing; personal experience; and no knowledge. *Figure 2* breaks down level of earned degree within each reported source of imagery knowledge.

Figure 2. Reported Sources of Imagery Background Knowledge
Categorized by Extent of Education
N = 67



Note. Multiple Choices accepted. Bachelor's n = 18; Master's n = 45; Doctorate n = 4.

In this study, respondents holding bachelor's degrees gained imagery knowledge most often from workshops, books and articles, peers, and personal knowledge, with little knowledge having come from undergraduate literacy courses. Respondents holding master's degrees reported books and articles as their greatest source, followed by personal experience, workshops, and peer sharing. Imagery knowledge coming from courses was reportedly less than imagery knowledge gained from any other source for teachers with master's degrees. Workshops and course work were not sources for doctoral respondents. Data showed a negative correlation between teachers' reported level of exposure to imagery background knowledge and courses taken. The Pearson

Correlation showed a negative correlation $r(60) = -.289$, $p < .05$, correlation between the number of university courses completed and the reported abundant knowledge of imagery strategies.

Survey respondents referred to books or organizations that had inspired them about imagery. Harvey & Goudvia's (2000) book *Strategies that Work: Teaching Comprehension to Enhance Understanding* was referenced as a source of knowledge about imagery. A second book was Miller's (2002) book *Reading with Meaning: Teaching Comprehension in the Primary Grades.* One teacher mentioned being part of a *Reading Initiative* group, saying, "We study all these strategies and work with them in our curriculum." *Literacy First* was mentioned as the initial contact for one respondent validating the importance of imagery as a strategy. Interviewees wrote that they learned about imagery from natural instinct, through experiences in the classroom, but not much from workshops or courses completed. Va reported having attended several literacy workshops and did not recall hearing imagery mentioned.

When asked if they would purchase and read compelling books about imagery strategies, Ve replied, "Maybe." Va responded, "Are you kidding? I'm a book junkie! I am sure my husband cringes every time we step into a Barnes and Noble. Credit cards watch out! I am a Scholastic book order frequent shopper." Cy wrote: "Possibly. I think I am fairly successful now, so imagery strategies are not really on my A list for purchase." Da commented:

> If I had time. I would prefer a professional development seminar to summarize and give some top-notch strategies. If the book was straightforward, reasonable in length and practical for the middle school, then I probably would.

A Pearson correlation coefficient was calculated for the relationship between strategy use and literacy courses completed. A negative correlation of $r(61) = -.343$, $p < .01$, was found, indicating that the more classes completed, the less likely a respondent was to use imagery strategies. In this study, teachers most often reported gaining imagery knowledge from sources other than university courses. Books, workshops, personal experience, and peer sharing were all mentioned as sources of imagery knowledge.

Positive Influences on Imagery Use

Reasons given by survey respondents for using imagery strategies included: helps struggling readers, helps readers focus and make connections, helps change readers' attitudes from negative to positive ones, makes reading come alive, helps readers see or picture things in their minds, helps readers set the stage, and helps readers interact with the author. One participant responded, "Personal experience has taught me that imagery (mental pictures) is a key strategy in developing comprehension." Another teacher wrote, "Students 'see' what happens in a story. It is my role as an educator to guide them on their learning journey. I will use whatever tools I have to get them to relate to a topic." Da speaks of "kindling" student interest in a story: "We will read a bit of it, and then I will ask questions and start to paint the picture that is in that scene. Once the students start to see the story, they become much more involved." Factors reported to encourage imagery use include: help for struggling readers, richer background knowledge, engagement of readers, and interaction with the author/text.

Negative Influences on Imagery Use

Eighteen percent of teachers reported that time was the greatest deterrent of using imagery strategies. Another factor mentioned often was teacher's lack of knowledge. Teachers also reported not knowing how to assess imagery. Cy stated, "I think imagery is not a popular strategy because it can be difficult to quantify." Factors reported to challenge imagery use include: time, quantifying and assessing student imagery, and lack of knowledge.

Influence of Reading Philosophy on Imagery Use

During the survey preparation of the Likert style questions/statements, reading philosophy questions/statements were developed in order to avoid placing the focus solely on imagery. The philosophy questions were framed around essential concepts of a balanced reading program and best practices, according to the writings of Walker (2004) and Morrow, Gambrell, and Pressley (2003). *Tables III-V* catalog the essential reading philosophy concepts along with teacher responses. *Table III* shows reading philosophy concepts designated with a Likert scale of strongly agree, agree, disagree, strongly disagree. The constructivist reading philosophy is situated within the strongly agree and agree columns. The more conservative reading philosophy is found in the disagree and strongly disagree columns.

Table III

Responses to Reading Philosophy Descriptors Using Agree/Disagree Likert Scale
(N = 67)

Essential Concept	Strongly Agree	Agree	Disagree	Strongly Disagree
Student Choice	40	27	0	0
Retelling	37	29	0	1
Elaboration	30	36	1	0
Meaningful Context	41	26	0	0
Rereading	30	32	5	0
Student Interaction	37	28	2	0
Reading a conversation between reader and author	40	24	2	1
Student awareness of background knowledge	41	24	2	0

Note. Essential concepts identifying a constructivist philosophy are represented by strongly agree or agree. Essential concepts identifying a conservative philosophy are represented by disagree or strongly disagree.

Table IV briefly shows three questions that were stated in reverse from the other descriptor concepts. The constructivist reading philosophy is found under the disagree or strongly disagree columns, while the more conservative philosophy is found in the strongly agree and agree columns.

Table IV

Responses to Reading Philosophy Descriptors Using Agree/Disagree Likert Scale with Reverse Value

Questions Stated in Reverse Value	Strongly Agree	Agree	Disagree	Strongly Disagree
Decode words before understanding them	17	38	10	2
Ask many text-based questions	10	41	13	2
Reader's construction of meaning valued over text	13	36	17	1

N=67 Note: Essential concepts identify8ing a constructivist philosophy are represented by disagree or strongly disagree. Essential concepts identify8ing a conservative philosophy are represented by agree or strongly agree.

In Table V the Likert scale choices are always, often, sometimes, and never. The constructivist reading philosophy falls in the always and often columns, while the more conservative reading philosophy appears in the sometimes and never columns.

Table V

Responses to Reading Philosophy Descriptors Using Always/Never Likert Scale. (N = 67)

Essential Concept	Always	Often	Sometimes	Never
Summarization	23	35	9	0
Teach specific reading strategies	33	23	11	0
Teach vocabulary before reading	28	29	9	1
KWL across curriculum	10	30	19	8
Fluency techniques	16	32	12	7
Respond in writing to reading	28	21	18	0
Literature circles	10	30	15	12
Individualize (self-select) (Self-pace)	28	24	13	2

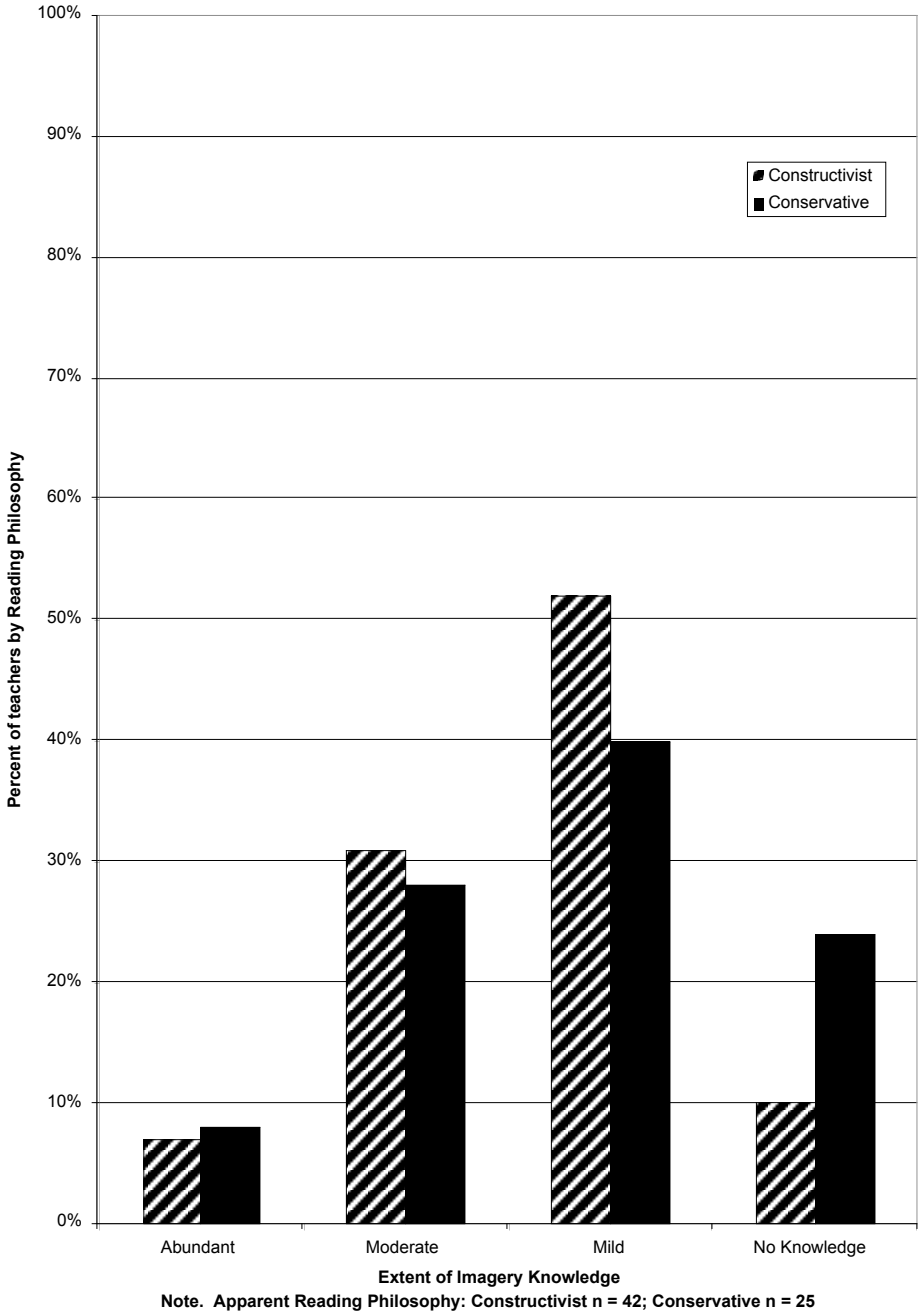
Note: Essential concepts identifying a constructivist philosophy are represented by always or often. Essential concepts identifying a conservative philosophy are represented by sometimes or never.

Essential concepts often associated with benchmarks of a constructivist reading program are shown in *Tables III-V*. These "benchmark" concepts represent a philosophy associated with meaning that is constructed by the reader as text and background knowledge come together. A constructivist philosophy teaches reading in context, rather than in isolated segments. Students are given more ownership and are asked to respond to the text with their own thoughts. In the more conservative philosophy, teachers usually ask more text-based questions and offer less student choice of books read.

Sixty-three percent of teachers responded to 14 of 17 reading philosophy survey questions/statements with choices representing a constructivist reading philosophy. Twenty-five teachers or 37 % responded with a range of 6-13 choices (of 17) representing a conservative reading philosophy. Data showing the extent of reported

imagery knowledge as categorized by the apparent reading philosophy (either constructivist or conservative), are displayed in Figure 3.

Figure3. Extent of Reported Imagery Knowledge Catalogued by Apparent Reading Philosophy
N = 67



Note. Apparent Reading Philosophy: Constructivist n = 42; Conservative n = 25

Figure 3 shows that abundant imagery knowledge is reported about equally among constructivist and more conservative reading philosophies. Of 42 respondents falling into the constructivist category, 7% reported an abundance of imagery knowledge. Of 25 respondents falling into the conservative category, 8% reported an abundance of imagery knowledge. Similarly, a moderate extent of imagery knowledge was reported by 31% of respondents with a constructivist philosophy and 28% of teachers with a conservative philosophy. However, the percentage of teachers holding a constructivist philosophy and reporting mild knowledge about imagery was 52%; among teachers with a conservative philosophy, 40% reported mild imagery knowledge. Finally, only 10% of teachers with a constructivist philosophy reported no imagery knowledge, while 24% of teachers with a conservative philosophy reported no knowledge.

In this study, almost one-fourth of teachers holding a conservative reading philosophy reported no imagery knowledge, while one-tenth of teachers following a constructivist reading philosophy reported no imagery knowledge. A higher percentage of teachers with a constructivist philosophy reported mild imagery knowledge than teachers with a conservative philosophy. Teachers reported abundant and moderate imagery knowledge about equally across both reading philosophies.

Pearson correlations show that imagery strategy use and exposure, beliefs about imagery strategies, and reading philosophy stance all highly correlate to one another, as shown in Figure 4.

Figure 4

Correlation of Imagery Strategy Use, Imagery Exposure, Imagery Beliefs, and Apparent Reading Philosophy.

		Strategy Use	Exposure	Beliefs	Reading Philosophy
Strategy Use	Pearson Correlation	1	525**	.398**	.713**
	Sig. (2-tailed)		.000	.002	.000
	N	64	59	59	57
Exposure	Pearson Correlation	525**	1	.395**	.456**
	Sig. (2-tailed)	.000		.002	.000
	N	59	63	58	55
Beliefs	Pearson Correlation	.398**	.395**	1	.502**
	Sig. (2-tailed)	.002	.002		.000
	N	59	58	63	55
Reading Philosophy	Pearson Correlation	.713**	.456**	.502**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	57	55	55	60

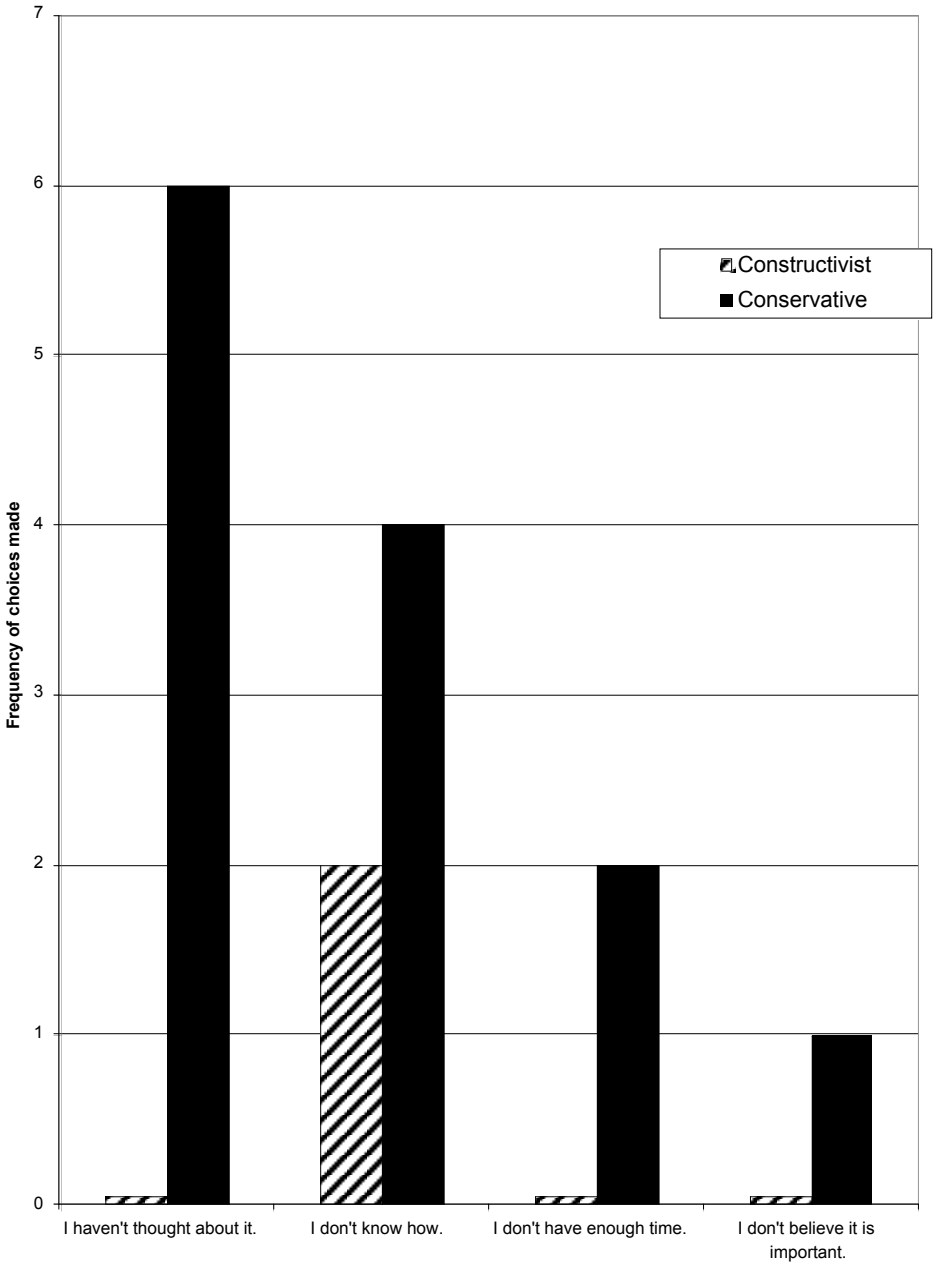
It is apparent that core reading philosophy, exposure to imagery knowledge, and beliefs about imagery, all affect imagery use. Pearson correlation coefficients were calculated for the linear relationships between these variables: imagery strategy use, exposure to imagery knowledge, beliefs about imagery, and reading philosophy. A positive correlation was found between imagery strategy use and exposure to imagery knowledge $r(57) = .525$ with a significance level of $p < .01$, indicating a significant relationship between imagery use and imagery exposure.

There was a positive correlation $r(57) = .398$, $p < .01$, between imagery strategy use and imagery beliefs, indicating a significant relationship between imagery use and imagery beliefs. Data also showed a strong positive correlation $r(55) = .713$, $p < .01$, suggesting a significant relationship between imagery use and reading philosophy. In another positive correlation $r(56) = .395$, $p < .01$, there was an indication of a significant relationship between exposure to imagery knowledge and imagery beliefs.

In further correlations shown in *Figure 4,* positive correlations showed that significant relationships exist between imagery exposure and reading philosophy, $r(53) = .456$, $p < .01$, as well as between beliefs and reading philosophy $r(53) = .502$, $p < .01$..

The very essence of my study is revealed in the following two questions. As one of the final questions/ statements, the survey asked: "If you do not use imagery strategies, why don't you use them?" Choices were: I haven't thought about it; I don't know how; I don't have enough time; and I don't believe it is important. Respondents could mark as many choices as they desired. *Figure 5* examines reported reasons for not using imagery strategies through the lens of apparent reading philosophies.

Figure 5. Reported Reasons for Not Using Imagery Strategies
Analyzed Through Apparent Reading Philosophy
n = 13

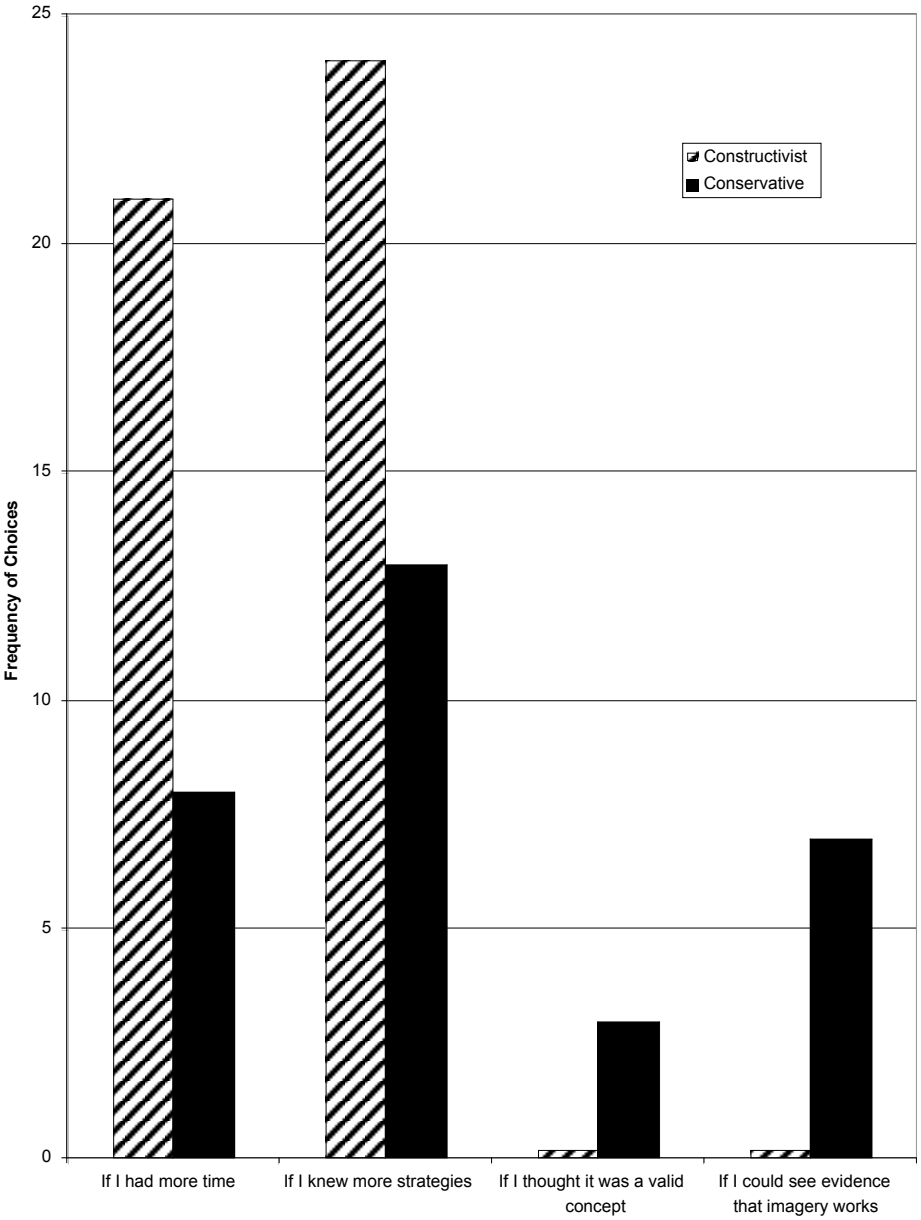


Note. Omitted by many respondents who USE imagery strategies. Multiple choices allowed.

Respondents subscribing to an apparent conservative reading philosophy appear to have thought less about using imagery strategies than teachers holding an apparent constructivist reading philosophy. Teachers who apparently hold a conservative reading philosophy appear to have less knowledge, are less willing to take the time, and/or have a lower estimate of the value of imagery strategies than constructivist teachers.

In a similar but reverse statement, another final survey questions/statement made this request: "If you do use imagery strategies, choose the applicable remark(s) for your situation. I would use imagery more…" Choices included: if I had more time, if I knew more strategies, if I thought it was a valid concept, and if I could see evidence that imagery works. *Figure 6* examines reported reasons teachers might use imagery techniques more often, broken down by apparent reading philosophy.

Figure 6. Reported Reasons Teachers Might Use Imagery Techniques More Often Examined Through Apparent Reading Philosophy
N = 58



Note. Omitted by some respondents who DO NOT use imagery strategies. Multiple choices allowed.

It appears that time continues to be a factor for participants of both philosophies. Many teachers believe that they already have too many concepts to teach and that imagery is just one more time-consuming strategy to deal with. Some believe they do not have time to study about imagery, they do not have time to search out information about it, and there is not enough classroom time during the day for another teaching strategy—especially when it is difficult to assess for a grade. There is a high degree of interest in learning more imagery related reading strategies in participants among both reading philosophies, if they knew where to gather that information. Some teachers of the conservative philosophy doubt the validity of imagery as an important teaching tool and would like to see evidence of its value. Once again, reading philosophy appears to affect teachers' thinking about imagery.

Summary of Findings

Analysis of data indicates that location, experience, education, or gender have little effect on imagery use. Most teachers in this study reportedly have thought about imagery and believe that the formation of images in a reader's mind helps the reader comprehend more fully, but that it is only one of several important reading instruction strategies. Data showed that teachers believe background knowledge helps students create images within the story. Teachers believe in the importance of making connections between the text and the reader's background knowledge. Findings showed that in this study, graphic organizers were familiar imagery tools used often by teachers.

Simple visualization is used often in the classroom, but explicit visualization techniques are taught much less frequently. Data showed that some teachers believe

imagery is more than simply visualization but that imagery also includes other senses being activated in the brain. Both teachers and students alike may not think of imagery as a part of the reading process. Data showed that personal experience greatly influences imagery use. Data showed that an impact of connections to student background knowledge is better comprehension by students.

As the result of a negative correlation between imagery strategy use and literacy courses completed, indications are that the more classes completed, the less likely a respondent was to use imagery strategies. In this study, teachers most often reported gaining imagery knowledge from sources other than university courses. Books, workshops, personal experience, and peer sharing were all mentioned as sources of imagery knowledge. Imagery knowledge coming from courses was reportedly less than imagery knowledge gained from any other source for teachers with master's degrees. Factors reported to encourage imagery use include: help for struggling readers, richer background knowledge, engagement of readers, and interaction with the author/text. Factors reported to challenge imagery use include: time, quantifying and assessing student imagery, and lack of knowledge.

According to data, reading philosophy appears to have an effect on the extent of imagery knowledge a teacher possesses. In this study, almost one-fourth of teachers holding a conservative reading philosophy reported no imagery knowledge, while one-tenth of teachers following a constructivist reading philosophy reported no imagery knowledge. A higher percentage of teachers with a constructivist philosophy reported mild imagery knowledge than teachers with a conservative philosophy. Teachers reported abundant and moderate imagery knowledge about equally across both reading

philosophies. Respondents subscribing to an apparent conservative reading philosophy appear to have thought less about using imagery strategies than teachers holding an apparent constructivist reading philosophy.

Teachers who hold a conservative reading philosophy appear to have less knowledge, are less willing to take the time, and/or have a lower estimate of the value of imagery strategies than teachers following a constructivist reading philosophy. It appears that the amount of time involved in using imagery techniques continues to be a factor for participants of both philosophies. There is a high degree of interest in learning more imagery related reading techniques in participants among both reading philosophies. Some teachers of the conservative philosophy doubt the validity of imagery as an important teaching tool and would like to see evidence of its value. Once again, reading philosophy appears to affect teachers' thinking about imagery. Chapter Five will discuss implications of these findings.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The former struggling reader astounded me with his words. "When I'm lost in a book, it's just like I'm watching a movie. I don't even know I'm turning the page." These words propelled me into my study of imagery. As previously mentioned, I was drawn into this study originally, because I wanted to know what motivated children all over the world to stay up late reading Harry Potter books. Even struggling readers, as evidenced in my opening statement, found their way into these books, forever changed by their new love of reading and confidence to succeed. My discussions with students pointed out again and again that they were "seeing things" as they read, and that they were entering into the experience. They were flying through the air with Harry on his broomstick, or watching a movie in their heads as they read.

Imagery is one component of reading comprehension instruction. The problem is, however, that imagery appears to be a frontier in education, an untapped territory yet to be experienced by most educators. A few brave explorers have broken new ground and have returned with a rave review of the land! Ironically, however, after more than thirty years of empirical research in cognitive science and literacy which supports imagery use in reading instruction, imagery seems to be a concept whose time has not yet come. In

this chapter I will present a summary of the study, conclusions, and resulting recommendations.

Summary of the Study

The concept of imagery in constructing meaning has been controversial. The theoretical orientation of constructivism proposes that meaning is constructed from experiences and interactions with one's environment. In constructivist theory, the teacher changes from being a pipeline of knowledge for students, to being a guide or coach for students to help them make sense of their learning.

Teachers who subscribe to the constructivist theory of learning believe that meaning is constructed by the reader, and that the reader interacts with others to construct diverse meanings. Teachers who hold a reading philosophy that contains a more conservative perspective prefer to give students knowledge and then assess how accurately the students remember that knowledge.

Beginning in the late 1970s, there was a virtual explosion of experimental research studies about imagery (Paivio, 1971; Pressley, 1977; Pressley & Levin, 1977; Rumelhart, 1977). Paivio's (1971) Dual Coding Theory proposed that mental imagery was integrated with verbal thinking to form meaning. Further, Pressley's work (1977, 1987, 1988, 1999) opened the door to include imagery as an element of comprehension instruction.

As I read studies pertaining to imagery and reading, I found that imagery is related to comprehension, and comprehension instructional strategies. Therefore, I was curious as to why it was not used more frequently by teachers. When searching for

studies about teachers' beliefs, opinions, and use of imagery, however, I found only three such studies, of which only one even remotely hinted at imagery as a concept.

Center, Freeman, Robertson, and Outhred (1999) suggested that "teaching children to construct mental images as they read enhances their ability to generate inferences, make predictions, and remember what has been said" (p. 242). Today's educators are focusing with new determination on better ways to help students comprehend what they read. The focus of this descriptive study was to determine what elementary and middle school teachers across the United States believe about imagery instruction in comprehension. I wanted to discover the extent to which they use imagery as an element of their reading comprehension instruction. Further, it was important to ascertain the factors that influence the extent of their imagery use in the classroom. The following questions guided this study:

1. What do elementary and middle school teachers across the United States report about their beliefs concerning imagery instruction in comprehension?

2. To what extent do elementary and middle school teachers report using imagery as an element of their reading comprehension instruction?

3. What factors are reported by teachers to have an influence on their imagery use in the classroom?

In this mixed methods study, I employed correlational quantitative methods and basic descriptive qualitative methods. Assumptions of the study were: first, that readers construct meaning as they read; second, that imagery is an effective element of reading comprehension instruction; and finally, that imagery *is* actually operating during the cognitive activity of reading. My personal bias was that imagery is not being effectively

used by a majority of classroom teachers across the United States because they are not knowledgeable about its value and because they do not know many techniques for using imagery.

Through an online survey, I gathered quantitative data through 54 questions, three of which provided a textbox for teachers to write their own thoughts in response to the questions. Survey questions were set up with Likert style choices as well as some multiple choice options. Sixty-seven surveys could be used in the study which looked through the lenses of teacher beliefs about imagery, extent of imagery use, and factors affecting imagery use. Correlations were made when possible among variables such as extent of imagery exposure, source of imagery knowledge, and reading philosophy.

In order to gather more qualitative data through conversation, I interviewed four teachers online in back and forth e-mails over a three month time period. Data for the study were analyzed through quantitative and qualitative procedures. Information from the surveys was synthesized with data from the interviews, followed by findings of the study. In this chapter I will draw conclusions from the data analyses of the investigation, make implications for educators, and share recommendations for further study.

Major Findings

To answer my questions, I looked at quantitative survey results, open-ended text box survey results, and the qualitative interviews with four teachers.

General Demographics

Perhaps a major finding about imagery is that economics, location of school, gender, years of experience, and extent of education played little or no role in teachers' beliefs, knowledge and use of imagery, and factors affecting imagery use. Teachers who knew about imagery and believed in it, often searched it out on their own or heard about it from others.

Teacher Beliefs

Imagery beliefs and background knowledge. In this study teachers believe that formation of images in a reader's mind strengthens comprehension and helps them connect with their background knowledge. This belief is supported by Paivio's (1971) theory which represents background knowledge in both images and verbal forms.

Imagery and text

In this study teachers believe there is a need to choose text that evokes images. Studies by Wittrock (1974), and Paivio (1971) support this belief. According to Wittrock (1974), learners need to be taught how to generate connections which are influenced by their own purposes, the actual text processing, and the imageability of the text. Paivio (1971) suggested that using concrete descriptions of important information is a key factor of good text.

Extent of Imagery Use

Explicit Imagery Techniques.. Basic visualization was used often in the classroom, but explicit visualization techniques were taught much less frequently. About

90% of respondents reported using explicit imagery techniques always, often, or sometimes. Yet, when asked under what circumstances they would use imagery techniques more often, about 65% of respondents marked the choice: *If I knew more imagery techniques*. In this study teachers reported that they would use imagery more often if they knew more imagery techniques.

Gambrell & Bales (1986) found that mental imagery was a useful tool in helping poor readers "evaluate their own comprehension" (p. 462). Wilhelm (2004) shared visual techniques that have helped struggling readers to "read, respond, analyze, organize, and represent their learning" (p, 14). Wilhelm explicitly models how to visualize the text and to stir up and evoke the sensations and images that arise when students read.

Visualization versus Imagery. The term visualization was used by 21% of teachers instead of imagery, thus excluding the other senses, which are believed to be highly involved in imagery by several teachers in the study. Sadoski and Paivio (2001) discussed Paivio's (1971) Dual Coding Theory which combines verbal and nonverbal cognition into a "unified framework," thus including the attributes of mental imagery (nonverbal) with those of language (verbal). They explained the inner mental experience of images that appear to be captured, organized, stored, and retrieved in the form of background knowledge, including the sense modalities of visual, auditory, haptic (touch), gustatory, and olfactory (Sadoski & Paivoi, 2001).

Long, Winograd, and Bridge (1989) looked at the role of imagery in the actual reading process. Visual imagery had been the focus of many studies, but they also acknowledged the other six sensory modalities of mental imagery: auditory, gustatory

(taste), olfactory (smell), tactile, kinesthetic, and organic imagery (internal sensations such as hunger, thirst, fatigue, fear, etc.)

Factors Influencing Imagery Use

In this study teachers referred to personal experiences that have shown them how imagery helps readers connect to a text. Teachers apparently learn more about imagery from professional journals and books, workshops, personal experience, and peer sharing, than they do from graduate courses. Positive factors influencing imagery use include help for struggling readers and more reader engagement with the text. Negative factors influencing imagery instruction include not enough time, difficulty in assessing imagery, and lack of teacher knowledge. In fact, a majority of teachers reported mild or no exposure to imagery knowledge. Reading philosophy seems to affect imagery use in that teachers with a constructivist philosophy appear to place more value on imagery than teachers with a more conservative philosophy. Most teachers would like to learn more about explicit imagery techniques in comprehension instruction.

Extent of Exposure to Imagery Knowledge. As mentioned, a majority of these teachers reported mild or no exposure to imagery knowledge. They also reported their desire to learn more about explicit imagery techniques in comprehension instruction. This study shows that many teachers have studied comprehension instruction and want to improve their knowledge. In a personal communication, Dr. Barbara Walker spoke of a current trend among educators who teach reading, to discover more explicit techniques to help students comprehend what they read (Personal communication, Summer, 2005).

Source of imagery knowledge. In this study teachers apparently learn more about imagery from professional journals and books, workshops, personal experience, and peer sharing, than they do from graduate courses. Gambrell et al. (1986) stated that mental imagery should receive attention in instructional methodology texts as a viable comprehension strategy. Professional books compiling teacher action-research appear to be a well-respected source of imagery knowledge by teachers.

Reading Philosophy. Imagery use appears to be affected by the reading philosophy espoused by teachers. Those with an apparent constructivist philosophy (including an awareness of such concepts as student ownership, readers' construction of meaning, background knowledge, responding to reading, etc.), seem to place more value on imagery than teachers with a more conservative philosophy.

Conclusions and Implications

General Demographics

In this study location, gender, education, and experience had little effect on imagery beliefs, knowledge, use, or factors affecting imagery use. The implication of this finding is that teachers everywhere can learn about imagery through any avenues open to them. An awakening to the value of imagery could literally rise up from the dust of rural schools or from the concrete playgrounds of inner city schools!

Gaining Explicit Knowledge of Imagery

Findings show that many teachers in this study lack knowledge of imagery but have a desire to gain explicit knowledge of how to use imagery in reading comprehension instruction. In thinking about this finding, three areas of approach have surfaced as a result of this study.

Teacher Sharing. In this study, shared understandings were an important way to learn about imagery. Teachers need to be encouraged (by peers or administrators) to talk about imagery with their peers in order to exchange their beliefs, experiences, and knowledge. Teachers could visit online reading chat rooms and add a new thread of discussion about imagery in reading. Success stories could be shared in person or at chat rooms. Cy shared an imagery assessment method—Character Portrait.(See Appendix F.) Her sharing with others could inform their assessment of imagery.

Professional Development. In this study, workshops were often mentioned as a valuable way to learn about imagery. Workshops could offer succinct information about imagery research, theory, and proven "best practices" techniques. Workshops could be requested by teachers, curriculum resource personnel, or administration. Some teachers would rather hear about imagery and see "how to" videos showing teachers in action, than to spend time reading a book or article. Handouts could preserve the essence of the information for future study along with a list of books and websites that address imagery techniques. (See Appendix G for list of websites.) A list of core imagery techniques could be another handout that teachers could take to their classrooms and use the next day. The list could give a rationale for the value of the technique as well as credit to the

author as the original source of the technique. See Appendix H for a brief list of imagery techniques.

Another way to instigate teacher conversations about imagery is to organize teacher study groups which would study and discuss professional books of interest. Wilhelm's (2004) theory and practice book *Reading IS Seeing: Learning to Visualize Scenes, Characters, Ideas, and Text Worlds to Improve Comprehension and Reflective Reading* would be a valuable "how-to" book for a study group.

Research, Theory, and Teacher Action-research. In this study, teachers responded that they might use imagery techniques more often if they could see proof that it works and that there is theory to back it up. Established research in the field of imagery instruction (Pressley, personal communication, April 9, 2005) needs to be made more accessible to practitioners who do not have time to do exhaustive literature reviews. Websites currently exist (Appendix G) about imagery instruction that offer: articles, book lists, explicit techniques, lesson plans, graphic organizers specific to the senses, chat rooms, success stories, ideas for using imagery across the curriculum, and literacy programs that include imagery as a reading comprehension benchmark strategy. Teachers need to be aware of the power of technology to help them gain imagery knowledge and use it with their students.

Time

Eighteen percent of teachers mentioned time as a reason they did not use imagery more in their reading instruction. As teachers learn how to weave imagery into their reading conversations with students, they will realize the natural ways to discuss what has

been read. They will realize that students become engaged or "hooked" on what they read as they image the action of the story. These natural discussions promote engagement and deepen comprehension, which make them well worth the extra time.

Imagery Assessment Tools

Teachers in this study were concerned about the difficulties associated with assessing imagery. They are inhibited by the need to be accountable for every classroom moment. This concern often pre-empts teachers from using more process oriented assessments, including imagery. However, with knowledge of a few imagery assessment tools, teachers may be more willing to spend time discussing and experimenting with imagery techniques. Several imagery assessment measures have been developed, such as the rubric seen in Appendix F, counting the number of images written about in a reading response (in a journal), and teaching students to verbalize visual concepts which can be assessed by observing improved language development. An imagery assessment chart downloaded from http://www.u46teachers.org/mosaic/tools/tools.htm (Appendix I), is divided into one section for each sense (see, hear, smell, feel, taste) and gives students the opportunity to list the imagery they used while reading. Another assessment idea came to me through a personal communication with Dr. Gretchen Schwarz (April 9, 2006). Dr. Schwarz suggested using a wordless graphic novel, perhaps in a form similar to a comic book. Students would study the images and then provide the story. This would show their ability to connect the images with ideas, predictions, etc. These assessment ideas are just a few of the creative ways teachers can detect if their students are using imagery or not.

Recommendations for Further Research

Further research about imagery should include a study of pre-service teacher education programs with an eye out for instruction in imagery strategies. It would be useful to study teachers' manuals associated with classroom reading instruction, to see if they include explicit imagery techniques. A survey of graduate literacy programs could reveal what type of attention is being given to imagery at higher education levels. A study of Staff Development in school systems across the country could also yield information about the opportunities teachers have to improve their knowledge about imagery. Finally, a survey of schools and universities around the world could reveal a global perspective about the value of imagery techniques in comprehension instruction.

Current evidence-based research needs to be done, including case studies, to provide more recent evidence of the value of imagery techniques for all students, and especially for struggling readers. Researchers and theorists could conduct these studies as well as teachers within their own classrooms.

Further, research also needs to be conducted on nonfiction text and how imagery techniques affect understanding of nonfiction text. For example, as students picture events of the Civil War, thinking of how the uniforms looked, descriptions of the weapons, and the emotions evoked as family members fought against other family members, they gain a mental picture that can help them connect to information about the war.

In sum, further studies need to be conducted on the use of imagery in nonfiction text, on the documentation of specific imagery techniques, and on the results of using explicit imagery techniques.

Concluding Remarks

This study searched for information about what teachers know concerning imagery. Findings relating to teachers' acceptance, perception of, and use of comprehension strategy instruction were published between 1990 and 1996. Currently, in the twenty-first century, no studies surfaced in my search, documenting the perceptions, acceptance of, and practices of imagery use in reading instruction. This study is intended to begin to fill this gap of knowledge.

I am convinced that imagery is a key factor being overlooked in reading instruction today. In a personal e-mail communication with Annemarie Palincsar (an instructional researcher and co-developer of the Reciprocal Teaching Approach), I asked her if it was true that she had previously not placed a high degree of value on imagery use in reading instruction, but that she had recently seen that imagery does have some value. She responded that while she had not previously included imagery as an important comprehension strategy, she does now recognize that imagery is often identified as a benchmark, a target strategy of comprehension. She wrote, "I talk with my own preservice teachers about imagery and caution that it appears to have been studied virtually exclusively with narrative text." (Personal communication, Jan. 22, 2006). Palincsar's comments were affirmation to my belief that imagery should be valued in comprehension instruction.

It is my hope that this work will inspire teachers to unlock the metaphorical files of background knowledge stored through senses and help students dash into the story world to freely roam!

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APPENDIXES

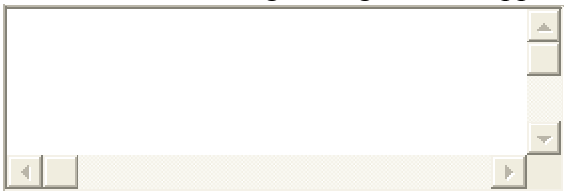
APPENDIX A

SURVEY ON COMPREHENSION IN READING INSTRUCTION

Survey on Comprehension in Reading Instruction

Prepared by
Sandy Majors
Ph.D. Candidate
Oklahoma State University

1. Please list 4 reading strategies that support comprehension instruction.

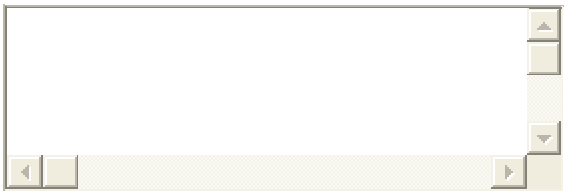


2. What is your gender?

Female

Male

3. In what state do you teach?



4. What grade(s) do you teach?

3rd

4th

5th

6th

7^{th}

8^{th}

5. Which answer best describes the academic standing of your school?

Well above national average

Above national average

About midpoint in national average

Below national average

At-risk

6. During my career I have taught reading:

briefly

sporadically

continuously

7. My career in education has spanned:

1-5 years

6-15 years

16 +

8. During my career I have taught: (Mark all that apply.)

expert readers

moderately successful readers

struggling readers

9. The location of my school could be described as:

inner city

midtown

Suburban

small town

Rural

10. My school is:

charter

public

private

homeschool

11. The extent of my college education is:

BA or BS

Master's (or working on Master's)

Doctorate (or working on Doctorate)

12. Please approximate the total number of reading or literacy courses attended during your undergraduate and graduate work to date. (Number of COURSES, not hours)

1-3

4-6

7-10

11 +

13. How would you rate the extent of your background knowledge of imagery strategy instruction?

abundant exposure

moderate exposure

mild exposure

no exposure

14. My knowledge of imagery is the result of:

workshops / Staff Development

university courses

books / articles

peer sharing

personal experience

no knowledge

15. Student choice is an important factor in motivating students to read.

strongly agree agree disagree strongly disagree

16. Retelling is an important instructional strategy for improving reading comprehension.

strongly agree agree disagree strongly disagree

17. I have wondered if struggling readers visualize what they read.

strongly agree agree disagree strongly disagree

18. Elaborating on a story is a valuable use of time.

strongly agree agree disagree strongly disagree

19. It has occurred to me that expert readers create mental images as they read.

strongly agree agree disagree strongly disagree

20. Reading involves decoding words before understanding them.

strongly agree agree disagree strongly disagree

21. It is important to conduct reading instruction within a meaningful context.

strongly agree agree disagree strongly disagree

22. I have wondered if imagery has a relationship to how well the text is understood.

strongly agree agree disagree strongly disagree

23. I ask many text-based questions.

strongly agree agree disagree strongly disagree

24. Rereading a story is a valid use of time.

strongly agree agree disagree strongly disagree

25. The formation of images in a reader's mind helps the reader comprehend more fully.

strongly agree agree disagree strongly disagree

26. Students need to interact with each other as an important function of their reading development.

strongly agree agree disagree strongly disagree

27. A reader's construction of meaning should be valued over the information in the text.

strongly agree agree disagree strongly disagree

28. It is important for readers to understand that their background knowledge helps them connect with the text.

strongly agree agree disagree strongly disagree

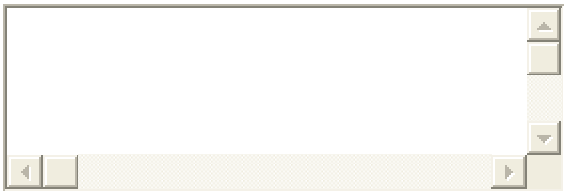
29. It has occurred to me that a person's background knowledge includes images.

strongly agree agree disagree strongly disagree

30. Reading is a conversation between the reader and the author.

strongly agree agree disagree strongly disagree

31. What factors have contributed to the degree to which you use or do not use imagery strategies in your classroom?



32. I prompt my students by asking them to close their eyes and make pictures in their minds about a story they have just finished reading.

always often sometimes rarely

33. I give my students opportunities to summarize.

always often sometimes rarely

34. I suggest to students that reading a book and understanding it can be like watching a movie in their minds.

always often sometimes rarely

35. I teach my students specific reading strategies such as how to monitor their understanding.

always often sometimes rarely

36. My students and I discuss vocabulary before reading a story.

always often sometimes rarely

37. I read picture books to my students to stimulate images in their minds about what the text says.

always often sometimes rarely

38. I use the KWL strategy across the curriculum.

always often sometimes rarely

39. How often do you model or think aloud to show how you create mental images to elaborate on the story?

always often sometimes rarely

40. I use fluency techniques in order to increase comprehension.

always often sometimes rarely

41. How often do you ask students to respond in writing to a story?

Always Often Sometimes Rarely

42. When my students are lost in a book, I ask them to discuss where they have been.

always often sometimes rarely

43. I ask students how they see or how they sense the story.

always often sometimes rarely

44. I use character maps to help students develop their awareness of the character.

always often sometimes rarely

45. How often do you discuss the emotions students feel as they read?

always often sometimes rarely

46. I use literature circles / groups to give students choice and ownership.

always often sometimes rarely

47. I encourage the use of drama or dance, etc., to help students' understanding of a story.

always often sometimes rarely

48. I explicitly teach visual strategies to improve my students' ability to create mental images of what they read.

always often sometimes rarely

49. I individualize reading instruction by giving students opportunities to self-select their book and self-pace their reading.

Always Often Sometimes Rarely

50. I ask students to visualize or create images before reading stories.

always often sometimes rarely

51. I use question prompts to help students create a rich image so they more deeply understand what they have read.

always often sometimes rarely

52. If you do not use imagery strategies, why don't you use them?

I haven't thought about it.

I don't know how.

I don't have time.

I don't think it is important.

53. If you do use imagery strategies, choose the applicable remark(s) for your situation. I would use imagery more if:

I had more time.

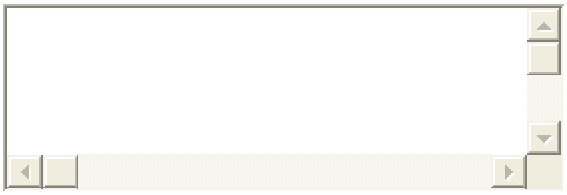
I knew more imagery techniques.

I thought it was a valid concept.

I could see evidence that it works.

54. Think back to your first written response in this survey about good strategies for reading comprehension instruction.

Explain why you did or did not include imagery as one of the strategies.



APPENDIX B

SURVEY INFORMED CONSENT DOCUMENT

Project Title: Reported Use of Imagery Strategy in Reading Comprehension Instruction.

Investigator: Sandra M. Majors

Purpose: The purpose of this study is to determine the extent to which elementary and middle school teachers include imagery as an element of their reading comprehension instruction.

The research problem is to determine if imagery is a respected and implemented strategy of reading comprehension in light of over 30 years of evidence-based research; if not, why not?

Procedure: Participants will be asked to complete a 54 question online survey that will ask them about their use of imagery in reading comprehension.

All of the questions except 3 will be multiple-choice, and the remaining three require brief paragraphs. The survey should take about 20 minutes to complete and submit electronically. The survey website keeps submissions anonymous to the researcher.

Surveys will be sent to IRA members through an "email blast" from the IRA office. The researcher will not have personal access to this list.

Risks of Participation: There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.

Benefits: The benefit to participants and others will be a possible curiosity for more knowledge about imagery techniques.

Further, an extensive Literature Review will update the field concerning imagery research and its implications.

Confidentiality: The confidentiality of participants is of utmost concern to the researcher. In an effort to protect confidentiality the following procedures have been put into place.

1. Surveys will remain anonymous to the researcher.
2. The data will be stored at the survey website until the Researcher is ready to do the analysis.

3. The data will then be stored in the office of the researcher
   Who will be the only one working with the data other than
   additional assessors who verify the researcher's work.
4. The OSU Institutional Review Board has the authority to inspect consent records and data files to assure compliance with approved procedures.

Compensation: Attached to the email message that accommodates the survey link, participants will find a list of teacher resources related to imagery in comprehension instruction, as a gesture of appreciation for their time.

Contacts: Please contact Sandra Majors at teachsm@prodigy.net or by phone at (918) 481-5805, with comments and questions about the research or the rights of the participant.

For information on subjects' rights, contact:

Dr. Sue Jacobs, IRB Chair
415 Whitehurst Hall,
Stillwater, Oklahoma 74078
(405) 744-1676

Participant Rights: Participation is voluntary and subjects may discontinue the research activity at any time without reprisal or penalty.

This page may be printed by the participant. Your agreement to these conditions will send you to the survey which may be completed now.

Your disagreement will send you to an exit page. Thank you.

APPENDIX C

ONLINE INTERVIEW CONSENT FORM

AND PERSONAL INTERVIEW

PACKAGE

(On-line Personal Interview)

Project Title: Classroom Use of Imagery Strategy in Reading Comprehension Instruction.

Investigator: Sandra M. Majors

Purpose: The purpose of this study is to determine the extent to which elementary and middle school teachers include imagery as an element of their reading comprehension instruction.

The research problem is to determine if imagery is a respected and implemented strategy of reading comprehension in light of over 30 years of evidence-based research; if not, why not?

Procedure: Participants will be interviewed about their beliefs concerning imagery, the extent of their use of imagery in reading comprehension instruction, and the factors contributing to their use or nonuse of imagery. The interviews will be completed online in
eight back and forth sessions.

No names of participants or schools will be used in the data or final report.

Risks of Participation: There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.

Benefits: The benefit to participants and others will be a possible curiosity for more knowledge about imagery techniques.

Further, an extensive Literature Review will update the field concerning imagery research and its implications.

Confidentiality: The confidentiality of participants is of utmost concern to the researcher. In an effort to protect confidentiality the following procedures have been put into place.

1. The data will be stored in the office of the researcher Who will be the only one working with the data other than additional assessors who verify the researcher's work.
2. The OSU Institutional Review Board has the authority to

Inspect consent records and data files to assure compliance with approved procedures.

Compensation: Attached to the email message that accompanies the questions, participants will find a list of teacher resources related to imagery in comprehension instruction, as a gesture of appreciation for their time.

Contacts: Please contact Sandra Majors at teachsm@prodigy.net or by phone at (918) 481-5805, with comments and questions about the research or the rights of the participant.

For information on subjects' rights, contact:

Dr. Sue Jacobs, IRB Chair
415 Whitehurst Hall,
Stillwater, Oklahoma 74078
(405) 744-1676

Participant Rights: Participation is voluntary and subjects may discontinue the research activity at any time without reprisal or penalty.

Signatures: I have read and fully understand the consent form. I sign it freely and voluntarily. A copy of this form has been given to me.

_____ _____
Signature of Participant Date

The participant's signature indicates understanding of the document.

_____ _____
Signature of Researcher Date

ON-LINE PERSONAL INTERVIEW PACKAGE

(Includes original email messages and Question Sessions # 1-8)

First E-mail message

Hello!

Thank you for agreeing to let me interview you online. There will be eight sessions. As soon as you return one reply, I'll send you the next session. Feel free to answer at your convenience, and know that I am not rushing you by promptly sending you the next session. I do hope to finish by Thanksgiving, if at all possible.

Each session, I will attach two things.

1. The questions
2. The instructions of how to return your answers to me

I am going to ask you to open the Session Attachment and type your answers into the attachment. Then please copy and paste your answers into your reply to the original email message.

The Instruction Attachment has step by step instructions. I am not a computer whiz, so I had to work on this method. If you are computer savvy, I hope the instructions do not insult your intelligence. ☺

Here we go on Session #1. You have no idea how much I NEED and appreciate your input! The questions are brief and to the point. They shouldn't take too long to answer.

This first time, I will also attach a Consent Form requiring your signature. Please download it and sign. Then please fax it (hopefully your school has a fax machine) to:

Sandy Majors
Home Fax (918) 481-1270

I will pay any costs that accrue. It is very important that you let me know about cost!

See you next time.
Thanks.
Sandy

(On-line Personal Interview)

Instructions for Returning Marked Attachment

1. Open attachment
2. Type an x or fill in answer.
3. Edit
   Select all
   Edit
   Copy
4. Close attachment.
5. Say "Yes" to "Do you want to save changes?"
6. Back arrow to the original message.
7. Click on Reply
8. Edit
   Paste
9. Send

Thank you!

(On-line Personal Interview)

Dissertation Interview Session # 1

Would you please mark the appropriate answers on these basic questions?

1. What is your gender?
   Male_____ Female_____

2. Which answer best describes the academic standing of your school?
   Well above national average _____
   Above national average _____
   About midpoint in national average _____
   Below national average _____
   At-risk _____

3. What grade(s) do you teach?
   3rd___ 4th___ 5th___ 6th___ 7th___ 8th___

4. During my career I have taught reading:
   Briefly___ Sporadically___ Continuously___

5. During my career I have taught:
   Expert readers_____ moderately successful readers_____ struggling readers_____

6. My career in education has spanned:
   1-5 years___ 6-15 years___ 16+ years___

7. The location of my school could be described as:
   Inner city___ midtown___ suburban___ city___ small town___ rural___

8. My school is:
   Charter___ public___ private___ homeschool___

9. The extent of my college education is:
   BA or BS___ Master's (working on)___ Doctorate (working on)___

10. Please approximate the total number of reading or literacy courses attended during your undergraduate and graduate work to date. (number of COURSES, not hours)
    1-3___ 4-6___ 7-10___ 11+___

11. Please list 4 reading strategies that support comprehension instruction.

(On-line Personal Interview)

My email response for interview sessions 2-7 (with personal updated thoughts to be added)

Hi again.

Thank you for your responses so far! They will really help me with my research.

Let me know if you need more clarification or anything else. Thanks!
See you next time.
Sandy

(On-line Personal Interview)

Dissertation Interview Session #2

1. What do you know about imagery in reading instruction?

2. If you have some knowledge of imagery, how did you get your knowledge?

3. What is the extent to which you have thought about the difference imagery activities could make in a reader's successful comprehension? Explain.

(On-line Personal Interview)

Dissertation Interview Session #3

4. Do you believe that good readers create mental images as they read? Explain.

5. Do you think that reading comprehension depends on how well a student images what is read? Explain.

6. What comments do you have about the importance of background knowledge for a reader?

(On-line Personal Interview)

Dissertation Interview Session #4

7. How do you think background knowledge is stored in the memory? In words?
   In images, sounds, tastes, smells, etc.? Other?

8. Prior to this interview, have you thought about how background knowledge is stored in the memory?
   Explain.

9. How do you think imagery is related to entering into the "story world"?

(On-line Personal Interview)

Dissertation Interview Session #5

10. Do you know any imagery strategies to use in reading comprehension instruction? Explain.

11. If yes (Q. 10), where did you learn about these imagery strategies? (workshop, book, grad class, peers, etc.)

12. If no (Q. 11), why do you think you have not heard much about imagery strategies?

(On-line Personal Interview)

Dissertation Interview Session #6

13. Have you and your students ever discussed the idea that reading is like seeing movies in your mind? Explain.

14. Do you think imagery and elaboration are connected? Explain.

15. Have you discussed with your students what happens when they are lost in a book? Where *are* they? Where have they been?

(On-line Personal Interview)

Dissertation Interview Session #7

16. What does engaged reading have to do with imagery, if anything?

17. Have you modeled for your students how you see a story in your mind? Explain.

18. Do you think there is merit to the suggestion that imagery strategies could help struggling readers become successful?

(On-line Personal Interview)

Email Message for Session 8

Wow! This is our last session. Thank you for sticking with me over these sessions.

This time I will attach a list of compelling books about reading instruction as a token of my appreciation for your time and effort.

In the future, I hope to begin teaching workshops about Imagery in Reading. Please

feel free to email me about questions and issues relating to imagery.

I owe you a huge debt of gratitude for being willing to take time out of your busy schedule and for putting forth the effort to think deeply.

Thanks again.
Sandy Majors

(On-line Personal Interview)

Dissertation Interview Session #8

19. If you knew about some compelling books concerning imagery strategies, would you make the effort to buy and read any of the books? Explain.

20. Is there anything else you would like to say about imagery in reading? Explain.

APPENDIX D

E-MAIL MESSAGE LAUNCHING THE SURVEY

Subject: Doctoral Dissertation Survey on Reading Comprehension Instruction

Message:

As a doctoral student at Oklahoma State University, I am studying
Strategies in Reading Comprehension Instruction.

Please consider spending 15-20 fascinating minutes participating in this user-friendly survey. Your input would greatly inform my study.

As my thanks, I have attached a brief book list of outstanding books about Reading Comprehension which you may download after completing the survey.

The following link will take you to the survey: http://www.keysurvey.com/

Thank you!
Sandra Majors

APPENDIX E

COMPELLING BOOKS ABOUT COMPREHENSION AND IMAGERY IN READING

Allington, R. (2001). *What Really Matters for Struggling Readers: Designing Research-Based Programs.* New York: Longman.

Keene, E., & Zimmermann, S. (1997). *Mosaic of Thought: Teaching Comprehension in a Reader's Workshop.* Portsmouth, New Hampshire: Heinemann.

Pressley, M. (2002). *Reading Instruction that Works: The Case for Balanced Teaching.* New York: Guilford Press.

Tierney, R., & Readence, J. (2000). *Reading Strategies and Practices: A Compendium.* (5th Ed.) Boston: Allyn and Bacon.

Tompkins, G. (1997). *Literacy for the 21st Century: A Balanced Approach.* Upper Saddle River, New Jersey: Merrill Prentice Hall.

Walker, B. (2004). *Diagnostic Teaching of Reading: Techniques for Instruction and Assessment.* (5th Ed.) Upper Saddle River, New Jersey: PEARSON/Merrill Prentice Hall.

Wilhelm, Jeffrey. (1997) *"You Gotta BE the Book": Teaching Engaged and Reflective Reading with Adolescents.* New York: Teachers College Press.

Wilhelm, Jeffrey, et al. (2001). *Strategic Reading: Guiding Students to Lifelong Literacy 6-12.* Portsmouth, New Hampshire: Heinemann.

Wilhelm, Jeffrey. (2004). *Reading is Seeing: Learning to Visualize Scenes, Characters, Ideas, and Text Worlds to Improve Comprehension and Reflective Reading.* New York: Scholastic.

The researcher (Sandy Majors) may be contacted at:
teachsm@prodigy.net

APPENDIX F

IMAGERY ASSESSMENT

CHARACTER PORTRAIT

Character Portrait

CATEGORY	Exceeds Expectations	Meets Expectations	Below Expectations	Unacceptable
Imagery	The reader can "see the character" in his or her head.	The reader can vaguely imagine the character.	The description is straight from the book. There is nothing added.	The description is vague or innacurate.
Description	The description evokes strong emotions. The character has been imagined with attention to detail. The author has obviously connected with the character.	The description evokes some emotions. The character has been imagined with some attention to detail. The author has somewhat connected with the character.	The description evokes no emotion beyond the book description. There is no evident connection between the author and the character.	The description has nothing added from the author. There is no evidence that the author has connected with the character.
Expressive Language	The author uses powerful language to evoke an image of the character. Descriptive language conventions are appropriate and effective.	The author uses language to evoke an image of the character. Descriptive language conventions are appropriate.	The author uses weak language to evoke an image of the character. Descriptive language conventions missing or inappropriate.	Powerful language to evoke an image of the character is absent.
Artistic Expression	The character portrait is richly detailed. Artistic requirements are followed and extra effort is evident.	The character portrait is detailed. Artistic requirements are followed.	The character portrait is not detailed. Artistic requirements are not followed.	The character portrait is inaccurate or absent.
Presentation	Personal Best is evident in the presentation. Grammar and Spelling are accurate. The writing is neat and easy to read.	Personal Best is somewhat evident in the presentation. Grammar and Spelling are mostly accurate. The writing is neat and easy to read.	Personal Best is not evident in the presentation. Grammar and Spelling are not accurate. The writing is not neat and not easy to read.	The presentation is unorganized and unattractive.

Date Created: February 14, 2006
Date Last Modified: February 15, 2006

APPENDIX G

MOSAIC OF THOUGHT WEB SITES

http://www.readinglady.com/mosaic/tools/tools.htm#3

Mosaic of Thought Web Sites

Here is a list of recommended sites that I have gathered and use often. Enjoy!

http://www.lite.iwarp.com/tools1.html#strategies
This is the *Literacy, Information and Technology Education* site.
http://www.lesd.k12.az.us/RSF/multiage/mosaic.htm
This site gives great chapter summaries of MOT.
http://www.geocities.com/smilecdg/comprehe.html
This site has some nice mini posters that go with the text connections. It also has some lessons for "think alouds."
http://www.readinglady.com/comprehension/index.html
You have to check this site out! There are so many graphic organizers, definitions, lessons, and much more.
http://www.stvrain.k12.co.us/ecel/read_for_meaning.html#Making%20Connections
A good site for parents who are familiar with the strategies.
http://www.lesley.edu/academic_centers/hood/currents/v2n2/haushalter.html
Here is a lesson for Kindergarten teachers.
http://www.u46teachers.org/mosaic/tools/tools.htm
This site is the real gold mine. It has A LOT so don't be overwhelmed and think that you have to use it all. This is one of my favorites.

D. Stubbart, M. Ed.

APPENDIX H

EXAMPLES OF IMAGERY TECHNIQUES

Early stages of imagery instruction:

1. Ask students to create mental images of *observed* concrete objects.

   Remove the objects and ask students to describe them.

2. As students to create mental images of *imagined* concrete objects.

   Ask students to describe the imagined object.

3. Teachers model their imagery experiences in "Think alouds." Teachers tell what is happening in their minds after they read a selection. What they see, hear, taste, smell, etc.

4. As teachers read aloud daily to their students, they can mention that reading a good book is like watching a movie in your mind.

Later stages of imagery instruction:

5. Ask students to write Literary Letters to a classmate about action felt and sensory experiences noticed during reading.

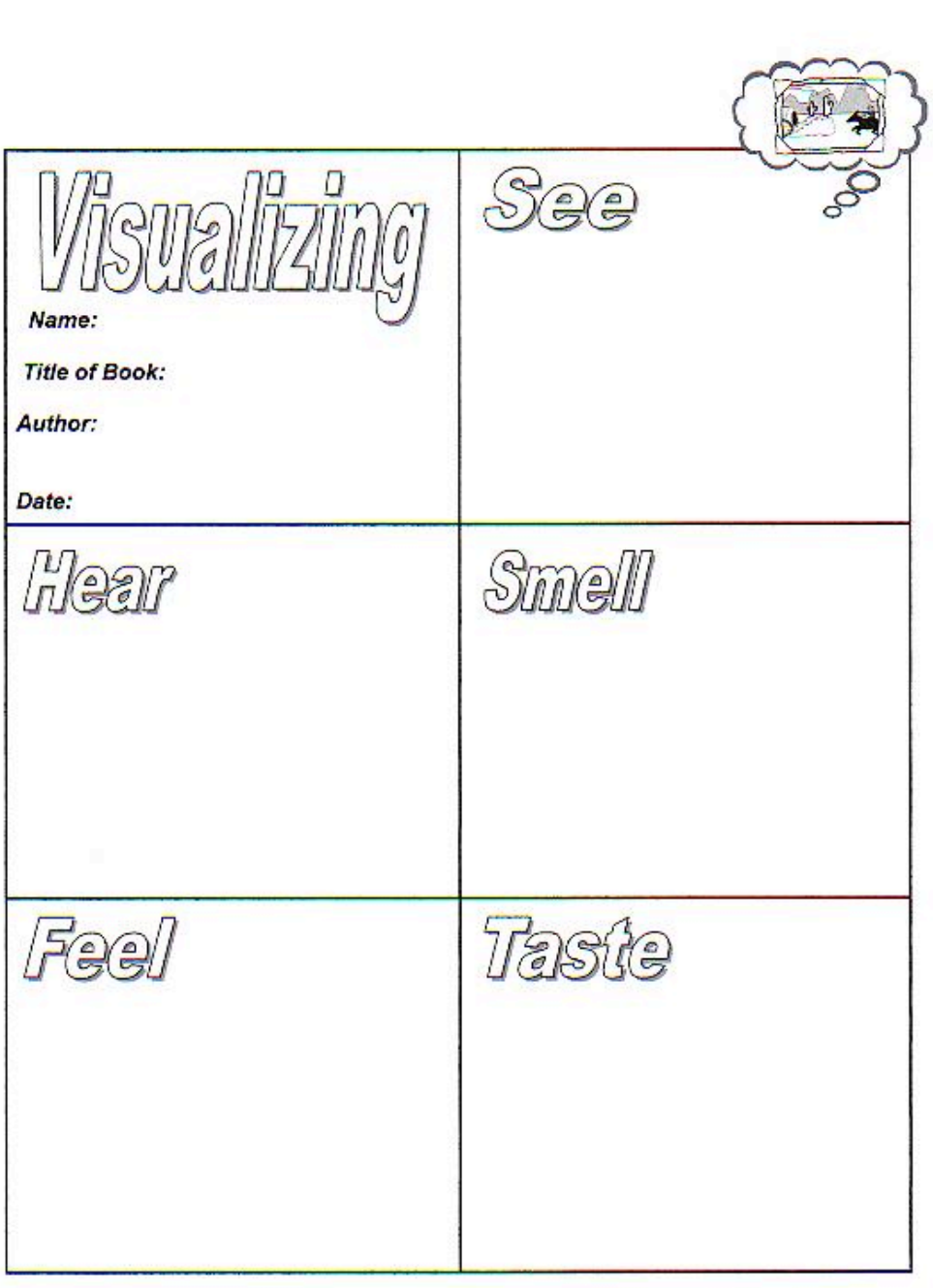
6. Use symbolic representation: The teacher reads a story to struggling readers. They create cut-outs or popsicle stick puppets to help them picture characters and background drawings of settings. Then they reinact the story the teacher has read to them.

Wilhelm, J. (2004). *Reading is seeing: Learning to visualize scenes, characters, ideas, and text worlds to improve comprehension and reflective reading.* New York: Teaching Resources.

APPENDIX I

IMAGERY ASSESSMENT CHART

Imagery Assessment Chart
http://www.u46teachers.org/mosaic/tools/tools.htm



APPENDIX J

IRB APPROVAL FORM

Oklahoma State University Institutional Review Board

Date:	Wednesday, September 14, 2005
IRB Application No	ED0618
Proposal Title:	Teachers' Reported Use of Imagery Instruction in Reading Comprehension
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 9/13/2006

Principal Investigator(s):

Sandra Majors
9416 South 70th East Ave
Tulsa, OK 74133

Barbara J. Walker
256 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

✓ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 415 Whitehurst (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Sue C. Jacobs, Chair
Institutional Review Board

VITA

Sandra M. Majors

Candidate for the Degree of

Doctor of Philosophy

Thesis: REPORTED USE OF IMAGERY STRATEGY IN READING COMPREHENSION INSTRUCTION

Major Field: Curriculum and Instruction

Biographical:

Personal Data: Born in Boise, Idaho, September 17, 1945, the daughter of Reverend Walter and Phyllis Buck.

Education: Graduated from Billings Senior High School, Billings, Montana, in May, 1963; received Bachelor of Science degree from Central State University, Edmond, Oklahoma in 1968; received Master of Science degree, Curriculum and Instruction from Oklahoma State University, Stillwater, Oklahoma in 2001; completed requirements for the Doctor of Philosophy degree at Oklahoma State University, Stillwater, Oklahoma in May, 2006.

Professional Experience: Elementary Teacher, Windsor Hills Elementary, Putnam City Public Schools, Oklahoma City, Oklahoma, 1968-1972. Elementary Teacher, Garfield Elementary, USDA #480, Liberal, Kansas, 1975; Elementary Teacher, McKinley Elementary, USDA #480, Liberal, Kansas, 1975-1976; Elementary Teacher, Lynnwood, Elementary, Broken Arrow Public Schools, Broken Arrow, Oklahoma, 1989-1990; Elementary Teacher, Arrow Springs Elementary School, Broken Arrow Public Schools, Broken Arrow, Oklahoma, 1990-1991; Elementary Teacher, Jenks East Elementary, Jenks Public Schools, Jenks, Oklahoma, 1991-Current (2006).

Name: Sandra M. Majors Date of Degree: May, 2006

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: REPORTED USE OF IMAGERY STRATEGY IN READING COMPREHENSION INSTRUCTION

Pages in Study: 153 Candidate for the Degree of Doctor of Philosophy

Major Field: Curriculum and Instruction

Scope and Method of Study: The purpose of this mixed methods study was to determine what elementary and middle school teachers across the United States believe about imagery instruction, the extent to which they use the imagery strategy, and what factors influence their imagery use. Sixty-seven respondents returned online surveys, and four persons were interviewed. Descriptive statistics, Pearson Coefficient Correlations, and narrative were used to analyze and report data.

Findings and Conclusions: Teachers in this study believe that formation of images in readers' minds strengthens comprehension and helps them connect with their background knowledge. Teachers in this study also believe in the importance of choosing text that evokes images. Teachers reported using basic visualization often, but explicit imagery techniques were reportedly taught much less frequently. Teachers reported using the term visualization rather than the term imagery. Reported reasons for not using imagery included lack of knowledge and lack of time. Imagery use was also influenced by reading philosophy. Teachers with a constructivist philosophy appear to value imagery more than teachers with a more conservative philosophy. Most teachers want to learn more about imagery techniques.

ADVISER'S APPROVAL ____Barbara Walker_____