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Teachers' Use of Sensory Activities in Primary Literacy Lessons:

A Study of Teachers Trained in Accelerated Literacy Learning

by

Margaret E. Stockdale

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

This is dedicated to the memory of my mother, Leora Stockdale, who taught me
to dream big dreams,

To my sister, Patricia Sproull, who would not
let me give up,

And to my God, who gave me the ability to do the task and the strength to persevere.

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ABSTRACT

This study investigated Accelerated Literacy Learning (ALL) trained teachers' implementation of sensory activities into their classroom instructional practice. There were 38 participants in Phase One that completed questionnaires using a 5-point response scale to indicate their frequency of use for each of 30 sensory activities. All but one participant reported a high use of sensory activities in their literacy lessons, although the grade level did influence the variety and frequency of their reported use. Most primary level teachers reported a high use on many of the activities.

Seven teachers of the participants from Phase One participated in interviews for Phase Two, and four of the seven participated in Phase Three which included classroom observations. The major themes that were found in the written comments on the questionnaires and in the interviews were: teacher change, teacher empowerment, strategy talk, and student empowerment. Overall, the teachers reported that their ALL training made a difference in how they conducted their literacy lessons.

Teachers' classroom use of sensory activities was compared to the teachers' reported use in the questionnaires. Although some items were over reported and a few under reported, a similar pattern of sensory activity use was found both in the reports and in classroom observations. The book level growth of struggling readers within the classrooms was compared

with sensory activity use. The comparison between reading growth and sensory activity use, proved to be inconclusive, as other factors such as the variety of activities and the amount of time and text were factors that would need to be taken into consideration.

Preface

Who can estimate the potential of one child, and how that potential can best be tapped? The life of Helen Keller is a good illustration of an answer to this question. Although born in 1880 with the ability to see and hear, Helen Keller would lose the use of both sensory modalities before the age of two and before she had begun to say more than a few words. From that time, until she was seven years old, she was for the most part without language except for a few hand signs that she used with her family to express her wants. Helen was allowed to touch and freely roam throughout her home environment highly developing her ability to recognize things tactilely (Lawlor, 2001). This would be a great asset later when Anne Sullivan came to be her teacher.

Helen gained knowledge through touching, tasting and smelling the things around her. Her teacher, Anne Sullivan, used these strengths to successfully teach her to talk and read. Sullivan taught Helen finger spelling and then used it to talk to her. She would spell full sentences into Helen's hand and then use gestures, real objects, and actions to illustrate the meaning of what was being said. Sullivan "used no schedule, no school room, and no planned lessons" (Dash, 2001, p. 30). Instead, she followed the needs of her student, teaching Helen things that related to her personal world. Reading was learned by using pieces of cardboard with raised print which Helen and her teacher would use to label things or actions.

Later when Helen's knowledge of language had expanded, Anne Sullivan would teach her the subjects that students were usually taught in school. Eventually, Helen Keller would continue her studies and graduate from Radcliff University. As an adult, she wrote several books and became a spokesperson for the American Federation of the Blind.

Who would have predicted Helen Keller's potential contribution to society before Anne Sullivan became her teacher? Probably even her parents were surprised at her accomplishments. But the key, was a teacher who was willing to use whatever worked to help her become what she could be. A wise writer in the book of Proverbs said, "Train up a child in the way that he should go (and in keeping with his individual gift or bent), and when he is old he will not depart from it" (Lockman Foundation, 1965,p. 732).

Perhaps the secret to successful teaching is viewing each student as a unique individual learner and providing each with a rich environment, which will allow each one to flourish regardless of apparent weaknesses. Success in spite of individual challenges is supported by the International Reading Association's (2000) first three principles in the position statement from *Making a Difference Means Making It Different: Honoring Children's Rights to Excellent Reading Instruction*.

1. Children have a right to appropriate early reading instruction based on their individual needs.
2. Children have a right to reading instruction that builds both the skill and the desire to read increasingly complex materials.
3. Children have a right to well-prepared teachers who keep their skills up to date through effective professional development. (pp. 3-5)

Chapter I

Introduction to the Study

The Problem and Its Context

Literacy educators today face a major challenge. Given the imperative “No child left behind” in the Federal Reading First Initiative (Sopko, 2002), educators are expected to have every child reading on level by third grade. Although this goal has existed through other initiatives for a number of years, in 1996 40% of fourth and eighth graders were still reading below what is considered a basic reading level. By the year 2004, the gap for fourth graders had narrowed to about 30%, but the eighth graders only improved to 39% (National Center for Educational Statistics, 1996, 2006). As we still face the challenge of finding ways to prevent reading difficulties for a significant segment of our population, we need to investigate teaching techniques that will help teachers effectively instruct all children in their classes.

In the early part of the 20th century, students who had difficulty in school were viewed as having less intelligence (Fernald, 1943,1988). Intelligence at the time was defined and tested in basic academic terms. Since that time, researchers such as Guilford (1971) and Gardner (1983) have proposed that there are many other abilities that exist which are different from those traditionally tested and defined as intelligence. As a result of this work it became evident that perhaps instead of asking how intelligent a student is, the question should be, “What kinds of intelligence does a student have?” In relation to these multiple intelligences or abilities there has been extensive research in the area of

learning styles (Barbe, Swassing, & Milone, 1979; Carbo, Dunn & Dunn, 1986; Gardner, 1983; Gregorc, 1982; Myers & Briggs, 1976; Witkin, Moore, Goodenough, & Cox, 1977). A number of the learning styles were related to sensory modality strength. Dunn, Denig and Lovelace (2001) described learning styles and multiple intelligences as two sides of the same coin, similar but with differences. When comparing the areas listed in multiple intelligences with the sensory modalities of visual, auditory, tactile and kinesthetic there are also areas of congruence.

History of Interventions

Historically, since the early twentieth century, Montessorri (Kramer, 1976), Fernald (1943,1988) and Gillingham (Gillingham & Stillman, 1956) have used multi-sensory learning as a method of teaching, especially when working with children who were having learning difficulties. Fernald and Gillingham pioneered teaching reading using visual-auditory-kinesthetic-tactile (VAKT) instructional procedures where students trace, hear, write and see letters, words and sentences. These VAKT procedures were used in special programs for students who were considered to have learning disabilities and were reported to be very effective with that population. Bannatyne and Wichiarajote (1967, 1969) studied the relationships between motor functioning and writing and spelling abilities and then related them to hemispheric dominance.

In the 1970's and 1980's there were studies (Barbe & Swassing, 1979; Carbo, 1980; Wheeler, 1983; Wingo, 1980) that researched the relationship between modality preferences and reading achievement. Barbe and Swassing (1979) and Carbo (1980) strongly recommended that students be taught to read using their modality strengths. However, Stahl (1999) writes in his critique that in five research reviews of studies that

attempted to match children's reading styles to their learning styles none could substantiate that doing so improved the children's learning. Since brain research (Caine & Caine, 1994) substantiates that the brain is processing on many paths, modalities and levels at the same time, and Jensen (1996) reports that learning is best when it provides many options and inputs, then perhaps the multi-sensory approach provides the developing brain with more options and can lead to the learning gains found by Fernald (1943, 1988) and Gillingham (Gillingham & Stillman, 1956). Multisensory literacy learning studies (Dev, Doyle, & Valente, 2002; Churchill, Durdell, & Kenney, 1998; Flood, Lapp, & Fisher, 2005; Joshi, Dahlgren, & Boulware-Gooden, 2002; O'Dea, 1998) have been on the rise in the last few years. The results were especially positive for students considered at-risk.

A major point raised by a number of authors on the feasibility of teaching to learning styles was that students should learn to have more than one way to take in information so that they can benefit from whatever instruction is given in the classroom (Armstrong, 1988,1994; George, 1993; Geoghegan, 1996; Stone, 1992; Vail, 1988). It was also suggested that teachers teach so that students, regardless of learning styles, can learn the material. There was a recognition that teachers of younger children would need to do most of the adapting, while older students could use personal knowledge of their learning styles to help themselves learn.

Richard Allington (1992) wrote, "We have good evidence from a variety of sources that virtually all children can learn to read and write with their peers" (p. 246). Allington discusses a number of programs that have been found effective for helping low-achieving children. He points out that often educators and the public are looking for

a quick fix, when an effective solution usually requires real change and takes a long time. It usually requires more than just a new curriculum or hiring another specialist staff member. Many studies back up Allington's opinion and are especially focused on preventing reading problems by giving early support to struggling readers (Hiebert & Taylor, 1994; Homan, King, & Hogarty, 2001; King & Homan, 2003; Pinnell, Lyons, Deford, Bryk, & Selzer, 1994; Short, Frye, King, & Homan, 1999; Snow, Burns & Griffin, 1998; Torgesen, 1998; Wasik & Salvin, 1993). The teacher is seen as the key to success in these programs.

Reading Recovery and Accelerated Literacy Learning

The research of Marie Clay (1982) was based upon observation of first grade children learning to read. She studied their literacy behaviors to discover what they did to become successful readers and contrasted this with the literacy behaviors of children struggling to learn to read. She stressed teaching at the point of need. She views the child as the one who constructs the neurological network necessary to effectively orchestrate the complex task of reading and writing (Clay, 2002). Low-achieving children have trouble constructing the necessary network of skills, but she found that such children could be helped by a teacher, who was observant and sensitive to what the child knew and what he or she needed to learn. As a result of this research, Clay developed Reading Recovery, a successful reading intervention for struggling readers.

In recent years, Accelerated Literacy Learning (Brashears, Homan, & King, 2002; Homan, King, & Hogarty, 2001; King & Homan, 2003; Short, Frye, King, & Homan, 1999; Short, Frye, Homan, & King, 1995) was developed based on Clay's theoretical foundation. This program has generally targeted the students scoring in the

bottom 20% in reading achievement on reading assessments. The program provides intensive literacy experiences to help these children accelerate and “catch up” with the average readers in their class. Overall the program has been very effective with approximately 80% of these struggling readers becoming average or above average readers. Teachers trained in this program receive intensive training over an entire school year. The teachers are trained to use a 30-minute literacy lesson format that includes: teaching reading strategies during the reading of continuous text, running records, writing a student initiated sentence, and working with words and phonetic knowledge, which are related to the reading and writing experiences in each lesson.

The consensus of the modality, learning style and multiple intelligence studies (American Association of School Administrators, 1991; Carbo, Dunn, & Dunn, 1986; Armstrong, 1988, 1994; Jensen, 1996) is that each child or student is unique in his or her particular strengths, weaknesses, and preferences. However, the question remains, how can we best meet the needs of at-risk students or any of the students in our multi-ethnic classrooms filled with unique children. Clay (2001) describes this eloquently:

Constructive children use the scaffolds which teachers provide to lift their progress. It is not the parent, or the teacher, or the politician, or the administrator or the publisher who builds the neurological power pack; that can only be done by the child. For low-achieving children this ‘construction’ is not going well and something extra must be provided by teachers who are expert at fostering constructiveness. (p.2)

This has been confirmed by educators (Caine & Caine, 1994; Jensen, 1996,1998; Lyons, 2003; Sousa, 2001) who have studied brain research and related it to maximizing learning

in the classroom with all students. Caine and Caine (1994, 1997) have researched the area of teachers learning to implement brain-based learning.

Reading Recovery and Accelerated Literacy Learning both use many of the practices that are seen as essential in brain-based learning. Caine and others (Caine & Caine, 1994; Jensen, 1997, 1998; Lyons, 2003; Sousa, 2001) stress the need for learning to be meaningful, in a low stress/high challenge environment, providing connections with what is already known, and using as many of the senses as possible to provide a strong synaptic network to enhance memory.

The teacher trained in observation of the child can best help the child develop the skills and strategies necessary to successfully read and write. While both Reading Recovery and Accelerated Literacy Learning have extensive year-long teacher training programs which prepare teachers to observe and scaffold their students, there are some differences. Reading Recovery is a fidelity model program, which means that each program must be patterned exactly as the prototype program has been set up.

Accelerated Literacy Learning (ALL) is an innovation core model, which means that although the theoretical base is the same, there can be differences in the way the program is implemented in different settings. One of these innovations has been the classroom push-in model (King & Homan, 2003) where the teacher uses the program within her/his own classroom rather than as a pull out program. Both Reading Recovery (Woolsey, 1991) and Accelerated Literacy Learning (Brashears, Homan, & King, 2002) have been found effective in shifting the teachers' belief systems to teach children to read by building on the child's strengths. Additional research (Huck & Pinnell, 1991; Roehrig, Pressley, & Sloup, 2001) found that teachers' who had received training in Reading

Recovery used these techniques and strategies in their classrooms. Although there have not been comparable studies of the Accelerated Literacy Learning program, it is reasonable to assume that the training would have some influence upon the classroom literacy lessons of teachers who had received ALL intervention training.

Rationale for the Study

While the trends in research seem to have left most of the sensory modality research behind, there is a thread of auditory, visual, and kinesthetic modalities found in the multiple intelligences, the brain-based learning, in much of the learning style literature and now in the recent multi-sensory research. Although much of the previous research did not find a great deal of correlation between reading achievement and modality strength (Tarver & Dawson, 1978; Waugh, 1973), there were some researchers who found providing at least part of the instruction relating to modality strengths and preferences did enhance achievement (Donovan & Austin, 1978; Fillmer & Griffith, 1971; George, 1993; Geoghegan, 1996; Stone, 1992).

Multi-sensory based instruction was used successfully by Montessori, (Kramer, 1976), Fernald, (1943, 1988) and Gillingham (Gillingham & Stillman, 1956). They all used activities involving the sensory modalities to promote learning, including incorporating many tactile and kinesthetic activities. It has been proposed (Barbe & Swassing, 1979; Carbo, Dunn, & Dunn, 1986) that modality strengths change with age and specifically with time in school, but that students learn best if they can at least activate their strongest modality during the initial learning of a concept.

In examining the Accelerated Literacy Learning lesson during her years as an ALL trainer, the researcher found that it contains the possibility of many different

activities that are actually related to the modalities of visual, auditory and tactile/kinesthetic. These sensory activities are not regimented in a sequential way, but rather are used by the teacher to scaffold the reading development of the student as needed. When teachers in a training class filled out a questionnaire concerning their use of these sensory-related activities before their training and at the end of their training, the teachers indicated that there was a definite change in the variety and frequency of sensory related activities they would use in their literacy lessons as a result of receiving ALL training (Class Survey, Spring, 2003).

Purpose of the Study

In light of the knowledge that students do have differences in the way they learn and that we still have a segment of our student population that struggles to learn to read, the main purpose of this study was to investigate the kinds of sensory activities teachers choose to implement in their literacy lessons and to explore the possibility that their choices may impact the reading progress of struggling readers in their classrooms.

Researchers (Bond & Dykstra, 1967, 1997; Clay, 2001) point to the importance of the teachers' role in scaffolding the learning of their students. A teacher who is trained in observation and sensitive to the needs of the student is more likely to provide the kinds of learning activities that will promote the student's learning.

In Phase One, this study examined 38 teachers' self-reports of how early intervention training affected their use of sensory activities in their literacy lessons as indicated by their responses to a questionnaire. Seven of these teachers were interviewed in Phase Two to explore the topic at greater depth. Finally, in Phase Three the researcher also examined how teachers' reports of sensory activity use related to their classroom

practice through case studies of four of the teachers from the original survey group. And the reading growth data from these case studies were examined in relation to the use of sensory activities in the classroom.

Research Questions

1. What are the variety and frequency of sensory activities used within primary grade literacy lessons by teachers who participated in literacy intervention training?
2. What is the relationship between teacher-reported use of sensory activities and their observed classroom practice?
3. What is the relationship between observed teacher use of sensory activities and the assessed reading growth of struggling readers in her/his classroom?

In order to investigate these questions the study was designed in three phases. Phase One was implemented by sending questionnaires to everyone employed in a central Florida school district who had received the year long ALL training and had an available current address. The questionnaire was made up of a 5-point response scale for sensory activity use and questions regarding the teacher's use of such activities for their struggling readers.

Phase Two of the study examined sensory activity use in greater depth through interviews with ALL trained teachers who had filled out the original questionnaire. Although the researcher had planned to interview teachers reporting high and low sensory use, because of extenuating circumstances she interviewed all of the primary classroom teachers who were willing to be interviewed, using a semi-structured audio-taped

interview. Of the seven interviewed, four first grade teachers were available for observations in their classrooms.

In Phase Three, the researcher made five classroom observations of literacy lessons in each of those first grade classrooms. The researcher used a tally sheet for sensory activities as well as field notes to gather data during the observations. The researcher then interviewed those four teachers a second time allowing the teacher to member check the transcript of the first interview and to answer questions that may have come to light during the observations. Data from other sources such pre, mid, and post reading testing were collected from existing data sources of reading assessment already required by the district, and were used to determine the student reading growth.

Data from both the questionnaires and the case studies were compared and contrasted to understand in what ways sensory activities were used in these teachers' literacy lessons and what ways the teachers felt the training had influenced their use of sensory activities in their literacy lessons.

Definitions of Terms

ALL – Acronym for Accelerated Literacy Learning a literacy intervention program based upon Marie Clay's theoretical framework (Brashears, Homan, & King, 2002).

Multi-sensory literacy lesson- For the purpose of this study, it is defined as a lesson in which the teacher chooses literacy activities in which the student uses visual, auditory and tactile/kinesthetic senses (Fernald,1943,1988; Gillingham & Stillman, 1956).

Sensory activity- For the purpose of this study, it is defined as an ALL literacy activity that uses visual, auditory, or tactile/kinesthetic senses.

Struggling reader- As used in Reading Recovery and Accelerated Literacy Learning a struggling reader is a student who is in the bottom 20% of the class in reading performance (Brashears, Homan, & King, 2002; Clay,1993).

Significance of the Study

With the reading initiatives that legislate the efforts to have every child on grade level by third grade, our U.S. school personnel and in particular primary level teachers are under much pressure to insure that children are reading successfully. Over the years many curriculums and methods have been tried, but we still have a large number of children struggling to learn to read (National Center for Educational Statistics, 2006). It is important to find ways that teachers can effectively facilitate the learning of students that struggle to read. Often this struggle is exacerbated by the fact that they learn differently.

Current studies using multi-sensory learning (Dev, Doyle, Valente, 2002; Churchill, Durdell, & Kenney, 1998; Flood, Lapp, & Fisher, 2005; Joshi, Dahlgren, Boulware-Gooden, 2002; O’Dea, 1998) as well as historical researchers such as Montessori (Kramer, 1976) and Fernald (1943,1988) have been found successful in promoting literacy learning for struggling students.

The Accelerated Literacy Learning (ALL) program has had years of success in accelerating a great number of struggling readers to average or above reading progress (Homan, King, & Hogarty, 2001; Short, Frye, Homan, & King, 1995; Short, Frye, Homan, & King, 1997). The purpose of this study was to investigate the reported use of

sensory and multi-sensory activities by teachers who have been trained in ALL. This study also examined the relationship between reported use and classroom practice of sensory activities. Finally, this study explored the possibility of a relationship between the teacher's use of sensory activities in the literacy lesson and the reading growth of the struggling readers in her/his classroom.

Limitations of the Study

The researcher in this study had been a trainer for the Accelerated Literacy Learning program for two years previously to this study, so there would be some natural biases. She already had expectations of what she would see when she observed in the teachers' classrooms because she had prior experience with observing teachers implementing ALL in their classrooms. She tried to take this into consideration by designing a tally sheet to use during the observations. This helped her to remain focused on the investigation of the use of sensory activities in literacy lessons by classroom teachers who were ALL trained. Also, she kept a research journal to help her process and evaluate her biases in comparison with what she was observing.

During the time of the study in 2004, Florida was hit with four hurricanes. This caused school closures and a great deal of stress in the lives of teachers and students. This disruption affected the sample size, as many teachers felt too stressed to take part in the study. This was especially true since the study was limited to the ALL trained teachers from one west coast county school district that experienced school closures all four times. The following timeline illustrates how these events affected this study.

Timeline of study.

- July 17, 2004- Researcher received IRB Consent Forms.
- July 20-28, 2004- All 109 letters with questionnaires were sent out.
- August 2, 2004- Nineteen completed questionnaires returned so far.
- August 13, 2004- Hurricane Charlie hit, days lost in first full week of school.
- August 14, 2004- Twenty-six questionnaires returned so far, one incomplete.
- September 5, 2004- Hurricane Frances hit causing flooding and power outages.
- September 6, 2004- Thirty-two questionnaires were returned so far, one was incomplete, and five were returned undeliverable.
- September 10, 2004- Planned to send a second mailing, but delayed because yet another hurricane approaches.
- September 13, 2004- Hurricane Ivan hit with more school closures.
- September 20, 2004- Sent out second mailing to 32 primary level teachers who did not respond in the first mailing.
- September 26, 2004- Hurricane Jeanne hit with power outages and flooding.
- October 14, 2004- Only seven more questionnaires have been returned and none in the last week. Must move with the 39 responses.
- October 20, 2004- Letters sent to 14 primary teachers who indicated they would be willing to be interviewed.
- November 1, 2004 Only four responses out of the 14 letters sent out, interview times scheduled.
- November 4, 2004 First two teachers were interviewed and agreed to classroom visits.

- November 9, 2004 Interviews conducted with two more teachers. One interview was with a teacher not teaching literacy this year, but the other teacher consented to classroom visits. Fifth interview was scheduled with a phone contact.
- November 11, 2004 Made a classroom observation of first focus teacher.
- November 16, 2004 Fifth interview conducted and a fourth teacher has agreed to classroom observations.
- November 2004-January 2005-
Five classroom observations were made of each of the four focus teachers.
- Late January through February 2005-
Second interviews conducted with four focus teachers and reading data was gathered. Also, interviewed two other primary teachers who contacted the researcher concerning interviews after the classroom observations had begun.
- May, 2005 Final member check with four focus teachers and collection of end of the year reading data.

The fact that schools were closed four different times in about six weeks of time caused a great deal of stress on everyone. The school day was lengthened for the entire year, as well as some days originally scheduled to be student holidays were changed to school days. The majority of the questionnaire responses came before the second hurricane. By the time the fourth hurricane had hit most of those who had marked a willingness to be interviewed did not even respond to the interview contact letter. Not

only did this affect the sample size, but it in the end limited the interviews and case studies in Phase Two and Three to a convenience sample (Patton, 2002).

Another limitation that occurred as a result of the disruptions from the hurricanes was the extended time between the completion of the questionnaires and the actual classroom observations. This prevented the researcher from observing the classroom use of the strategies as they would have appeared early in the school year.

Chapter II

Literature Review

Introduction

This chapter reviews the literature and research on the unending task of supporting students in literacy learning and some of the efforts to meet the needs of struggling students. It first describes the perspectives and initiatives to teach reading to all children. Next, it looks at multiple ways of knowing and learning as a means of meeting the needs of these students. The chapter ends with a review of Reading Recovery and Accelerated Literacy Learning as early reading interventions and their relationship to multi-sensory and brain-based education.

Perspectives and Initiatives for Reading Education

Historically there has been a push to find one ‘best’ way to teach reading. The “great debate” in reading (Chall, 1967) has been raging over the decades sometimes leaning toward “meaning-emphasis” and sometimes toward “code-emphasis”. Despite the great debate, as much as forty years ago, Russell and Fea (1963) stated in the *Handbook of Research on Teaching* that thinking in the field of reading had moved away from “one method or set of books to a realization that different children learn in different ways” and “that the processes of learning to read and reading are more complex than we once thought” (p.867).

Some of the findings of the First-Grade Studies (Bond & Dykstra, 1967,1997) supported this belief. The First-Grade Studies included studies from fifteen locations

across the United States with 368 participating first grade classes, involving 8445 student participants. These studies examined reading progress of students from six different reading method groups. In general the findings seemed to indicate that no one type of reading instruction was best for all children. In their conclusions, Bond and Dykstra listed the following:

1. Reading programs are not equally effective in all situations. Evidently, factors other than method, within a particular learning situation, influence pupil success in reading;
 2. Reading achievement is related to other characteristics in addition to those investigated in this study. Pupils in certain school systems became better readers than pupils in other school systems even when pupil characteristics were controlled statistically. Furthermore, these differences do not seem to be directly related to the class, school, teacher, and community characteristics appraised in this study;
 3. Future research might well center on teacher and learning situation characteristics rather than methods and materials. The tremendous range among classrooms within any method points out the importance of elements in the learning situation over and above methods employed.
- (pp. 122-123)

The First-Grade Studies opened the door to the consideration of socio-cultural and other factors affecting reading achievement. Dykstra (1968) noted the implications of the study for classrooms, “ It is likely that improvement in reading instruction can be brought about more efficiently by improved selection and training of teachers, by improved in-

service training programs, and by informed school learning climates than by institutional changes in instructional programs” (p. 11)

Literacy has become a focal point in both state and national policy because the job market has evolved to the point that most jobs require adequate skills in literacy. On January 8, 2002, President George W. Bush signed the No Child Left Behind Act of 2001 (P.L. 107-110), which included the Reading First program. With new reading initiatives at the state level, such as Just Read, Florida! we find a renewed push for legislators to mandate a particular method or curriculum as the solution for preventing reading problems. Research such as The Houston Study by Foorman, Fletcher, Francis, Schatschneider and Mehta (1998) and the National Reading Panel (2000), have been used to substantiate a strong phonics base with direct instruction for reading education. There have been many rebuttals to such a move by leading reading researchers (Allington, 2002; Cunningham, 2001; Pressley, 2002). In fact, Pressley (2002) stated that what he considered to be cutting edge research of the scientific study of reading was entirely missing from the National Reading Panel report. The problem with broad solutions based upon such research data is that the exceptions to the proposed solution get washed out in the data especially when all of the qualitative research was automatically deleted. Once again, we are left with a solution that is not sensitive to the needs of the individual student. As Frank Smith (1999) wrote, “Experimental research wants to treat everyone as being the same; educational practice should always regard everyone as individuals” (p. 154).

Unlike those proponents of certain methods or curriculums, this study looked at ways teachers teach at-risk students using their ability to observe student’s strengths and

weaknesses and how they used that information to provide appropriate multi-sensory activities in their literacy instruction for those students.

Multiple Ways of Knowing and Learning

Early work with multi-sensory learning. Historically visual, auditory and tactile/kinesthetic methods have been used for centuries. Children were taught to look at letters and words and say them out loud as they saw them employing the visual and auditory modalities. Tactile/kinesthetic methods utilize touch and movement to enhance learning. In her history of teaching methods Fernald (1943, 1988) reported that Greek and Roman education applied a tactile/kinesthetic method utilizing wax or ivory tablets for students to trace as they learned the letters of the alphabet.

In the late 1800's, Montessori (Montessori, 1964) employed a tracing method using direct finger contact on letters and words to teach Italian children who were considered mentally handicapped. Montessori's methods and materials were not totally original to her. She based her educational methods upon the previous work of French physicians Itard and Seguin. The work of Itard and Seguin during the early 1800's was the result of their desire to educate deaf and mentally handicapped children. Seguin developed a variety of tactile materials that would be the foundational idea of Montessori's sensory-based method (Wentworth, 1999).

Fernald (1943, 1988) began a reading clinic at the University of California in 1921 and developed her multi-sensory approach to teaching persons with reading/learning disorders to read. She used the VAKT (visual, auditory, kinesthetic, tactile) technique with those students who were the most severely disabled readers. The student traced the word while saying the word parts aloud. The word was traced with the

finger until the students could write the word without looking at a copy of it. Most struggling readers were able to begin with the VAK (visual, auditory, kinesthetic). The VAK required the student to look at the word and say it by part while looking at it. Then the student would write the word without looking, orally or silently saying the word parts while writing. These words came from stories dictated by the students themselves. Their first reading and writing came from their own stories. As the students built up a bank of words that could be read and written, they would then be given appropriate books for reading. This is similar to the language experience method, Ashton-Warner (1965) implemented when teaching reading and writing to Maori children in New Zealand through a 'key vocabulary' of words that were personally important to them.

In her book, *Remedial Techniques in Basic School Subjects*, Fernald (1943, 1988) largely dismissed lack of normal development of certain brain functions, failure to establish unilateral cerebral dominance, lack of corresponding eye and hand dominance, and handedness as adequate explanations for failure to read in individuals with adequate intelligence. Instead, she felt that the inability to read was most likely caused by individual differences in integrated brain function. She substantiated this with data from the Clinic Schools records showing that the majority of students in the school had displayed right-eyed and right-handed dominance and yet still were unable to read. After working for nearly thirty years with such cases, she concluded that normal brain functioning was interfered with and that inability to learn is most often found when fixed, limited and uniform methods of instruction were used. Although other researchers, such as Bannatyne and Wichiarajote (1967, 1969) would study hemispheric dominance and its effects on learning, later brain studies (Caine & Caine, 1994; Jensen, 1997, 1998;

Lyons, 2003; Sousa, 2001) would confirm that the entire brain is involved and this would substantiate Fernald's concept of differences in integrated brain function.

In the same year that she began her clinic, 1921, Fernald (1943, 1988) was involved in two first grade reading experiments which were carried out in two different schools in the Los Angeles area. One of these classes was made up largely of children who were ESL or because of some difficulty were unable to enter the regular first grade class. At the end of the year, all of the 18 children were able to read well enough to go on to the next class and several were promoted to higher levels. The other school class had 23 beginning students in a class of 44 students. In these experiments it was reported that children were allowed to learn to read and write in as easy and natural manner as they had learned to talk. No one method was used with each child learning in his or her own way. Fernald reported the following:

One of the most interesting things about the work has been the way in which individual differences were evident in the methods of learning used by different children. Some traced just long enough to get the letter form and then learned any new word by merely looking at it and then writing it apparently from the visual image. Other children seemed very dependent upon some sort of auditory image and said the word over and over to themselves while they looked at it, repeating the word as they wrote it. A few children traced through the entire year, although the number of tracings in all cases had been reduced to a single running of the fingers over the word so that it took no longer for the child to learn the word in this way than by the auditory and visual methods. One point that cannot be

emphasized too strongly is that each child was allowed to use the method by which he learned most easily. (Fernald, 1988, p. 214)

Although Fernald discussed the use of her techniques in classrooms in her book, over the years her techniques have largely been used by used by tutors and special education teachers. Some researchers (Ekwall & Shanker, 1983) felt her techniques were not suitable for large groups of children and should be used only for children who fail to learn by more commonly used methods. Since in her Clinic School setting Fernald (1943,1988) had one teaching assistant for every two students, she had a very low teacher-pupil ratio. This allowed the students to be taught in such an individualized way.

Orton (<http://www.interdys.org> , downloaded 10/14/03) a neuropsychiatrist, was influenced by the kinesthetic-tactile method developed by Fernald. He theorized that kinesthetic-tactile reinforcement of visual and auditory associations could correct the tendency of reversing letters and transposing the sequence of letters while reading and writing. During the 1930's he developed a reading and spelling approach. Gillingham worked with Orton and would later expand on his theories to produce the Orton-Gillingham ® method. Gillingham and Stillman (1970) based the teaching manual, *Remedial Training for Children with Specific Disability in Reading, Spelling and Penmanship* on Dr. Orton's theories and Gillingham's work with students. This method has continued to be practiced and is still strongly supported by the International Dyslexia Association. They are presently the strongest proponents of multi-sensory teaching, which they define as using visual, auditory, and kinesthetic-tactile teaching simultaneously to enhance memory and learning.

A major difference in the Fernald approach and the Orton-Gillingham ® is that Fernald used the student's language and interests as the starting point by using student dictated stories to begin teaching reading, writing and word work. Students learn to write the words using the VAKT multi-sensory method. It might be described as beginning with meaning and whole words and then analyzing the words to hear the sounds. In contrast the Orton-Gillingham ® approach (<http://www.interdys.org> , downloaded 10/14/03) is a structured, sequential and multi-sensory technique of teaching the structure of written English which begins with teaching the phonemes, then morphemes, and spelling rules in order to build words. It is therefore a synthetic phonics approach. Both approaches recommend that the pace of learning be set by the needs of the student; and for the most part these approaches were designed for the severely disabled reader they described as word blind or dyslexic.

Psychologists, intelligence, and learning. During this time period from the 1920's through the 1940's, when Fernald and Orton were working on new ways to help struggling readers, students who had difficulty in school were viewed as having less intelligence because intelligence at this time was largely defined and tested in academic terms.

However, during World War II, the results of testing of air force pilots led some researchers to believe that other abilities existed, which were different from those traditionally tested and defined as intelligence. One of those researchers, Guilford (1971) used factor analysis to discover various differentiated intellectual abilities when attempting to test pilots' abilities of judgment, foresight and planning, memory, comprehension, visualization, orientation, and coordination of information. After the war

Guilford and his associates began an investigation to evaluate abilities, called the Aptitude Research Project, which continued for twenty years from 1949-1969. A main focus was that of investigating creative-thinking abilities which Guilford felt had been neglected by psychological research. Factor analysis supported the categories of fluency, flexibility, elaboration and redefinition. Over the years the research was expanded to other abilities, which led Guilford to his proposed structure-of-intellect model which theoretically defined 120 unique abilities all of which were related to four content areas of figural, symbolic, semantic and behavioral.

Gardner (1983) would use his studies of brain-damaged adults and gifted children as the platform for his investigations into intelligences. In fact, he defined intelligence (Campbell, Campbell, & Dickinson, 1999) as an ability to solve a problem, generate new problems to solve, or to fashion a product which would be valued in one or more cultural settings. Gardner feels cultural relevance is important although it makes his work more controversial. Gardner studied differentiated types of intelligence by what he called a subjective factor analysis. What he did was study what had been done in testing intelligences and from that body of research he came up with and proposed his Theory of Multiple Intelligences. His theory covers eight differentiated areas of: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalist intelligences.

Seven of Gardner's intelligences correlate with Guilford's four content areas. The figural content area relates to spatial and to some extent bodily-kinesthetic; the symbolic area relates to logical-mathematical and musical; the semantic area relates to linguistic; and the behavioral relates to interpersonal and intrapersonal. Only the naturalist

intelligence, which consists of observing patterns of nature, identifying and classifying objects, and understanding natural and human-made systems, does not fit under one of the content areas although it does relate to areas Guilford defined as products which included classification, relationships and knowledge of systems. As a result of this work on multiple abilities or intelligences, it has become evident that perhaps instead of asking how intelligent a student is, we should ask what kinds of intelligence the student exhibits. Both Gardner (1983) and Guilford (1971) saw these abilities or intelligences as developmental which means they can change over time.

Learning styles and modality studies. During the 1970's and 1980's, there was a plethora of research and studies in the area of learning styles. There have been a number of different theories that can be categorized as: 1. Cognitive styles that deal with the preferred ways that a learner perceives, organizes and retains knowledge. 2. Affective styles that have to do with attention, emotion and valuing and is related to motivation. 3. Physiological styles that are biologically-based modes of response (AASA, 1991; Guild & Garger, 1985). There have been so many different theories and each one seems to require teachers to initiate different things in the classroom. In the area of reading, Carbo (1986) has published the most about matching reading programs to the child's modality strength. Stahl (1999) writes in his critique that in five research reviews of studies that attempted to match children's reading styles to their learning styles none could substantiate that doing so improved the children's learning. Dunn and associates (1995) published a meta-analytic validation of the Dunn and Dunn Model of Learning Style Preferences. The meta-analysis was done on 36 studies which were rated as valid and which had been conducted by researchers other than Dunn. The results showed

educational interventions that were compatible with learning style preferences were beneficial. Explanation for the poor showing for learning styles in other meta-analyses was explained by reporting that the studies reviewed were of diverse models, that used diverse assessments, and contained flawed analysis.

Barbe and Swassing (1979) studied modality strengths and gave the definition of modality as “all the links of the chain between a sensation and the individual’s resultant behavior” and “defines modality strength operationally as the ability of an individual to perform an academically relevant task in each of the major modalities” (p.5) They recognized the role of both heredity and environment in the shaping of an individual’s modality strengths. The three modalities included in their Swassing-Barbe Modality Index were: auditory, visual and kinesthetic. Kinesthetic was defined as including large muscle movements, small muscle movements, and the sense of touch.

Modality based instruction was not a new idea, Maria Montessori and Grace Fernald both used activities involving the sensory modalities to help with learning. It has been proposed (Barbe & Swassing, 1979; Carbo, Dunn, & Dunn, 1986) that modality strengths change with age and specifically with time in school, but that students learn best if they can at least activate their strongest modality during the learning of a concept. However, the results of studies (Bonner, et al., 1981; Fillmer & Griffith, 1971; Geoghegan, 1996; George, 1993; Robinson, 1972; Stone, 1992; Tarver & Dawson, 1978; Waugh, 1973) are mixed. While most of the studies found that students have different modality strengths, they did not substantiate that reading should be taught using the predominant strength.

A number of authors (Armstrong, 1988, 1994; Stall, 1999; Stone, 1992; Vail, 1988; Wilson, 1998) have questioned the feasibility of teaching exclusively to individual learning styles or modality strengths. In general, they believed that students benefit most when instruction provides for the use of multiple modalities. That way all students can gain from whatever instruction is given in the classroom. It was also suggested that teachers may need support and training to provide such lessons. There was a recognition that teachers of younger children would need to do most of the adapting, while older students could use personal knowledge of learning style to help themselves learn.

Brain-based learning and multi-sensory studies. By the 1990's, most of the learning style and modality research has been replaced by what is currently termed as brain-based learning. Interestingly enough, learning styles, modalities and even learning abilities and multiple intelligences appear to be parts of a whole. Just as the proverbial story of the blind men and the elephant showed that many can have correct but incomplete conceptions of the whole; current brain research (Caine & Caine, 1994; Jensen, 1997,1998; Lyons, 2003; Sousa, 2001) is revealing a more complete picture of how the brain commits information to memory. This research seems to indicate that a portion of the learning styles, modalities and multiple intelligences theories may be correct, but incomplete. As Caine and Caine (1994) discuss in *Making connections: Teaching and the human brain*, the brain has an infinite capacity to make connections, but for students to be able to make those connections educators need to “orchestrate the experiences from which learners extract understanding” (p. 5). Lyons (2003) and others (Jensen, 1996,1998; Sousa, 2001) concur with this need for the brain to make sense of the world by making connections, finding patterns, or categories in which to place the new

information in a network with information that has already been learned. They agree that involving children in multiple sensory experiences increases the children's chances of developing more complex category systems. Since the different senses activate different parts of the brain this provides a broad neural network.

Caine and Caine (1994) and Jensen (1998) explain why such multi-sensory experiences are more effective in learning. The Caines (1994) discuss the two types of memory: Taxon memory, which must be rehearsed and is the memory used for memorization, and Locale memory, which produces a spatial or thematic map. They relate this spatial map that is produced by the Locale memory to 'schema.' Reading teachers have been taught that the child's 'schema' or background knowledge should be activated to improve reading comprehension and memory (Anderson, 1994). Brain research has confirmed the importance of linking knowledge to be learned to the students' past experience for it helps make the connections that brings understanding and it also activates the locale memory, which remembers things easily because of the neural network that is activated. Locale or spatial memory is enhanced by sensory acuity. The locale system records the 'story' of life experience. On the other hand, Taxon memory keeps track of the parts from which the whole is constructed (Caine & Caine, 1994).

Strong connections are necessary for the Locale or spatial memory to bring back the information that has been stored. When learning is meaningful it allows these strong connections to be formed. Renate and Geoffrey Caine (1994) relate this meaningful learning to the thrust of Vygotsky's theory of social learning (1978). New information becomes meaningful because it is being processed through relevant, complex and highly socially interactive experiences.

The Caines (1994) and Carol Lyons (2003) discuss the brain's plasticity in detail explaining that our brains are constantly changing and that the physical structure of the brain is changed by experience. They discuss studies that show how an enriched environment can change a person's brain and that these changes can come at any age although there are times of optimum learning when the changes come more quickly. The young child can make connections more easily. This reinforces the belief (Clay, 1982, 2001; Snow, Burn, & Griffin, 1998; Short, Frye, King, & Homan, 1999) that early intervention is the most effective way to affect change for students struggling with reading and writing.

In order to make sense of our experiences we must fit new information into categories or patterns that have already been learned (Caine & Caine, 1994; Jensen, 1998; Lyons, 2003). Jensen (1998) explains that because novices do not see patterns as easily as those who have had more practice, young students need to have learning that is hands-on, experiential, and relevant for the pattern to develop. Teachers scaffold the learning so that the students can see the connections. More mental connections allow students to make a stronger memory impression of the new information. In fact, Schacter (1992) found that multiple memory locations and systems are responsible for our best learning and recall.

Authors of brain-based learning strategies (Caine & Caine, 1994; Jensen, 1996, 1998; Lyons, 2003; Sousa, 2001) point out the importance for the teacher to have understanding of how the brain learns. Teachers need to be attuned to the needs of the students in order for the deepest and most meaningful learning to take place. In *Unleashing the Power of Perceptual Change: The Potential of Brain-based Teaching*,

Renate and Geoffrey Caine (1997) discuss the changes that must come for most teachers to be free enough to institute brain-based learning in their classrooms. In their research with schools that were attempting to implement brain-based learning, they found that teachers had to change their perceptual orientations before they could change their instructional approaches. These changes took time and some teachers found it difficult to change from a curriculum bound by standards to instruction that had the essence of the standards as goals, this type of instruction followed a more thematic approach which allowed choices for students and also was responsive to the students' needs and desires. In addition, this kind of instruction allowed students to experience meaningful learning that allowed intrinsic motivation rather than a system of rewards for students involvement.

There was a period of time in the early 1990's with little interest in sensory- based studies. However, interest in the multiple intelligences and brain-based learning studies has led to renewed interest in this area. The recognition of the need to use as many senses as possible has led to the term multi-sensory learning. Multi-sensory literacy learning studies (Dev, Doyle, & Valente, 2002; Churchill, Durdell, & Kenney, 1998; Flood, Lapp, & Fisher, 2005; Joshi, Dahlgren, Boulware-Gooden, 2002; O'Dea, 1998) have increased in number the last few years. The studies by Dev, Doyle and Valente (2002) and Joshi, Dahlgren, and Boulware-Gooden (2002) involved using reading and phonics instruction based on the Orton-Gillingham method®. There have been other studies in multi-sensory literacy learning over the years using the Orton-Gillingham method ® (Simpson, Swanson, & Kunkel, 1992; Sparks, et al., 1992; Vickery, Reynolds, & Cochran, 1987). A brief description of what the Orton-Gillingham method ® describes as multi-sensory

instruction is that as a student is learning a new letter or pattern, the student is instructed to say the corresponding sound as they carefully trace, copy, and write the letter or pattern (Gillingham & Stillman, 1956, 1970). This method uses direct explicit teaching of letter-sound relationships, syllable patterns, and meaning word parts. The students begin with the parts and then construct words, sentences and stories. It is a synthetic approach to phonics and literacy learning and therefore does not begin with meaning.

Two recent studies (Dev, Doyle, & Valente, 2002; Joshi, Dahlgren, & Boulware-Gooden, 2002) using the Orton-Gillingham method® both showed positive results in the literacy learning of the students, however, there was considerable difference in the rigor of the studies. Dev, Doyle and Valente (2002) used action research targeting the at-risk population of beginning first grade students in a small rural school. They targeted both literacy and math and used multi-sensory learning for both areas. The study began with 13 students and ended with 11. All targeted students received 25-30 minutes of individual instruction two to three times per week using the Orton-Gillingham method ® and daily small group phonics instruction in their classes for 25-55 minutes. The instruction was continued for two years through the end of second grade. The researchers reported that all students made substantial gains in reading and all but one made gains in spelling. However, since they had no control group or other type of comparison it would be reasonable to surmise that the result may have come from the individual attention and not the method. Also, the same test was used to pretest and posttest, but since the time span was so long there would not be much of a test retest effect. Dev, Doyle, and Valente (2002) did point out that the size of the sample would not allow them to make definitive claims on the efficacy of the Orton-Gillingham method ®. The second study by Joshi,

Dahlgren, and Boulware-Gooden (2002) was set up with a true experimental design with treatment and control groups. They attempted to strengthen both validity and reliability, by matching their populations and choosing testing instruments that had good test-retest reliability. They had two classrooms which were taught “Language Basics: Elementary” materials which are based on the Orton-Gillingham method ®, and two classrooms that were using the normal Houghton Mifflin Basal Series which became the control groups. Both control and treatment groups received 50 minutes of daily instruction. Teachers of both groups were of comparable experience and all classes were observed weekly to ensure that both reading programs were being implemented with fidelity. A multivariate analysis on the gain scores showed the treatment group as significantly higher than the control group in phonological awareness, decoding and comprehension. Although they began with over 40 subjects in each group, over the year, attrition led to only 24 in the treatment group and 30 in the control. Also, one area that may have made a significant difference which was not pointed out by the researchers, was that the teachers of the treatment group had to go through 42 hours of multi-sensory technique training. This would mean a considerable commitment on the part of those participating teachers. On the other hand, the control teachers had only to continue teaching as they usually do. This extra commitment may have changed the way the teachers interacted with their students creating a more positive result no matter what method of literacy instruction was applied.

The other two recent multi-sensory literacy studies (Churchill, Durdell, & Kenney, 1998; O’Dea, 1998) were actually action research projects by master’ degree students at St. Xavier University. Although these action research studies may not have reached the rigor of the Joshi, Dahlgren, and Boulware-Gooden (2002) study, they do show a great

deal of thought and were unique attempts to make a difference in the literacy learning of the studies' population.

Churchill, Durdell, and Kenny (1998) worked with three different age levels. One researcher/teacher had pre-kindergarten students, one special education kindergarten students, and one had first grade. These classes were located in low income urban schools and the students were considered at risk. The researchers designed a multi-sensory curriculum to develop prerequisite literacy skills. Visual activities included charts, graphic organizers, word lists and alphabet cards. Auditory skills were activated using bombardment words, rhyming and tape-recorded stories. Kinesthetic abilities were implemented using magnetic letters, action songs and chants, finger plays and hand signals for letter sounds. In addition to these activities, they used group story time to develop listening comprehension and gave opportunities for children to dictate or write their own stories. All children made progress as would be expected in this rich environment. Of particular interest, all of the pre-kindergarten students in the study made progress to the point of being considered developmentally ready for kindergarten. The kindergarten and first grade groups made progress, but some were still considered below the expected level. Perhaps since the study was only 20 weeks long, it was long enough to accelerate the progress of the very young children, but not enough for children that were older. This would correlate with what brain research has said about the plasticity of the brain being most malleable at a young age (Lyons, 2003).

The second study by O'Dea (1998) used a multi-sensory program to help learning disabled high school students with literacy skills. The action research project lasted 18 weeks and included literacy activities for 55 minutes daily. At the beginning of the

project the students were complaining about having to read a paragraph that was at the fifth or sixth grade reading level. It was difficult for them. The students were given the Auditory Discrimination in Depth Program. In this program the students had to learn to hear a sound, correlate the sound with a movement of the mouth, evaluate the type of sound, and then connect these sounds to letters. They used pictures, games and colored blocks to represent the sounds and how they are made into words. They would even act out the sounds and sequences of sounds. They began with easy patterns like CVC and moved on to syllables, which they put into chains. They would work in groups and help each other learn the concepts. At the same time they were involved in reading two novels over the eighteen weeks. The pre-posttest results showed that most students made gains in both comprehension and decoding, but perhaps the most significant result was the change in attitudes toward reading. The research journal had students' comments reflecting a new confidence and appreciation for reading. The students were totally involved in learning decoding strategies and this helped them see the connections to reading.

Flood, Lapp, and Fisher (2005) conducted two studies using what they called the Neurological Impress Method Plus (NIM Plus). The neurological impress method is conducted with the teacher and student reading the same book simultaneously. The teacher sits slightly behind the student so that the teacher is reading directly beside the student's ear. The student follows the text with a finger while reading. The study had reading tutors work with struggling readers from third to sixth grade for five weeks. They called their method NIM Plus because they added an element of comprehension to the method by having the tutor and student discuss the text both before and after reading. On

each of the three measures—oral reading fluency, silent reading fluency, and comprehension—the students performed statistically better after the training than before. The authors of the study felt that the NIM Plus was adaptable but would require further investigation. This method did implement visual, auditory and tactile/kinesthetic aspects.

Although there has been some revival in interest in multi-sensory learning, the research into this area has been sparse. The researcher feels that in light of what brain research is saying about the usefulness of multi-sensory experiences in learning, this area should be explored further. Also, in most of the multi-sensory research the studies are based upon a certain curriculum or program that is to be followed by the teacher. Only the study by Churchill, Durdel, and Kenny (1998) was based upon multi-sensory activities that could be changed and implemented as the teacher deemed necessary according to the responses or needs of the children. As was pointed out by Caine and Caine (1997) teachers need time and often a change in perceptual orientation in order to implement brain-based learning in their classrooms. The teacher has to feel free enough to pick and choose elements of the curriculum as needed to create meaningful challenging lessons that engage the students' minds.

In looking over the history of multi-sensory learning (See Table 1) we see a progression of educators over the last two centuries that have found value in incorporating visual, auditory and tactile/kinesthetic aspects into lessons. Two literacy programs that have incorporated teaching techniques and activities that implement visual, auditory, and tactile/kinesthetic aspects into the lessons are Reading Recovery and Accelerated Literacy Learning.

Table 1

A Historical Look at Multi-sensory Learning

Historical Period	Type of Studies	Researchers
Early 1800s	Tactile/kinesthetic methods to teach mentally handicapped children	Itard and Seguin
1890's-1940's	Multi-sensory education for severe reading problems	Montessori, Fernald Orton, Gillingham
1940's-1970's	Many faces of intelligence	Guilford, Gardner
1970's-1980's	Learning style and modality studies	Barbe, Swassing, Carbo, Dunn & Dunn
1970's-2007	Early literacy intervention	Clay, Lyons, Pinnell, Deford, Homan, King, Frye
1990's-2007	Brain based learning	Jensen, Sousa, Caine & Caine Lyons
1998-2007	Multi-sensory learning	Dev, Doyle, Valente, Joshi, Dahlgren, Boulware-Gooden, Churchill, Durdell, Kenney, O'Dea, Flood, Lapp, Fisher

Reading Recovery and Accelerated Literacy Learning

The two early intervention programs, Reading Recovery (RR) and Accelerated Literacy Learning (ALL), were founded upon constructivist thought. Clay (2001) describes Reading Recovery as based upon “a view of constructive children guided by observant, flexible, and tentative teachers, taking children along different paths to common outcomes and shaped by local cultural contexts (p. 6).” The teacher’s choices are led by the responses and needs of the child. Everything from the choice of books to use, to the way the activities are implemented in the lesson, are based upon the teacher’s observational knowledge of the child’s abilities and interests. It is the child who constructs meaning while discovering the patterns and connections necessary for literacy learning. The teacher is there to scaffold the child’s efforts so that the child can continue to learn in Vygotsky’s (1978) zone of proximal development. This allows the child to accelerate his or her literacy learning

Both Reading Recovery (Pinnell, 1991) and Accelerated Literacy Learning (Brashears, Homan, & King, 2002) define their teacher preparation program as an inquiry-based model for educating teachers of literacy. Teachers are in a year long training, attending class weekly and implementing what they learn as they go through the class. During this time, teachers are learning to scaffold the children they are working with, and at the same time are scaffolded by their Teacher-trainers at their own proximal zone of development. This interactive staff development model includes detailed observation, peer demonstration, analyzing while observing, practice and feedback, and scaffolding of learning. In Accelerated Literacy Learning, teachers share videotapes of their lessons with their colleagues in the class. They participate in giving feedback in a

collaborative way to the person sharing the lesson videotape. This allows the teachers to develop and expand their knowledge base and abilities to analyze and verbalize about literacy learning. Teachers gain confidence in their decision making which is crucial to promote the highest literacy learning in these at risk students.

The literacy lesson in both programs follows the same format since they are both based upon the concepts found in Clay's guidebook (1993). Each lesson has seven distinct parts:

1. The child reads familiar books to develop fluency.
2. The child rereads the book introduced in the lesson before while the teacher observes and records the reading behaviors.
3. The child does some letter identification and learning to see patterns of letters in words.
4. The child writes a story with the teacher providing opportunities for the children to hear and record sounds in words. The teacher gives help on difficult words.
5. The child rearranges his or her cut-up sentence strip made from the story by the teacher.
6. The teacher introduces a new book selected to provide the child an interesting challenge but not too difficult.
7. The child reads the new book orchestrating his or her current problem-solving strategies.

Throughout the lesson the child is doing the work, while the teacher is there to scaffold when necessary and to help the child acquire the problem-solving strategies that will

allow the child to develop a self-extending system (Clay, 1993). The goal of both Reading Recovery and Accelerated Literacy Learning is that the child will become an independent learner (Clay, 1993; Short, Frye, Homan, & King, 1995).

Clay (2001) emphasized that there should not be a set sequence of skills to be taught, instead the teacher should provide open-ended opportunities for the child which allows the child to add to knowledge in his or her own way. The challenge for the teacher is to be able to understand what is happening as the connections in reading and writing are coming together for the student. It is this insight into how the child is learning that will influence the teacher's next decisions for the child's literacy instruction. To work effectively the teacher needs at all times to know what the child already has control of in reading and writing tasks. It is for this reason that a number of informal assessments of reading and writing skills and literacy understanding (described in Clay's *An Observation Survey of Early Literacy Achievement*) are administered before instruction ever begins (Clay, 2002).

Clay (2001), who has a background in developmental psychology as well as education, recognized the usefulness of multi-sensory literacy activities. She said that "when the eye and ear and hand are jointly involved in the management of a task they send three different messages to the brain, messages picked up by different senses. Together they lead to recognizing a particular object, say, a familiar toy or a 'known' word" (p.16). In fact, when the literacy lesson used by Reading Recovery and Accelerated Literacy Learning is evaluated by the principles of brain-based learning laid out in Renate and Geoffrey Caine's book *Making Connections: Teaching and the Human*

Brain (1994), it is easy to see how well the literacy lessons and training of Reading Recovery and Accelerated Literacy Learning teachers fit these principles.

1. The brain is a parallel processor.

The student's brain is involved in thoughts, imagination, and emotions at the same time the brain is processing information. The teacher must orchestrate the student's learning experiences to take this into consideration. Teachers in RR and ALL are trained to observe the child and use many different possible activities or approaches to engage the child in the learning situation.

2. Learning engages the entire physiology.

Emotional stress, poor nutrition, lack of rest and many other factors can affect learning. Teachers are trained to put the student at ease by engaging them in challenging but doable learning experiences. When the child feels successful the experience has intrinsic value to him or her. Teachers are cognizant of the child's physical need and may have them change position if the child needs movement.

3. The search for meaning is innate.

At all times, teachers are trained to help the child construct meaning, whether it is during the book introduction to activate schema and make sense of the story or during the reading when a miscue has occurred. One of the most used strategies is asking the child the question, Does that make sense?

4. The search for meaning occurs through "patterning."

Looking for patterns and categories is emphasized in the lesson especially during the word work. Students are taught to figure out a new word by using the pattern

of a known word. They are always taught going from the known to the new information providing strong linking with known patterns and categories.

5. Emotions are critical to patterning.

The teacher/student interactions in the RR and ALL lessons are based upon respect. The teacher talks to the student about his or her life experiences and the things that are important to him or her. These become the basis for the story they write and often the words that they will learn to read and write. This allows for personal emotional involvement of the student in the learning process.

6. The brain processes parts and wholes simultaneously.

This is very important in the structure of the RR and ALL lesson. The lesson always begins with reading the whole text or writing the whole sentence, but in the process the student is engaged in dealing with parts of words and stories in order to make meaning of the whole. Letters and sounds are taught in the context of meaningful words and the words are usually in the context of a meaningful sentence or story.

7. Learning involves both focused attention and peripheral perception.

This means that the brain responds to the entire sensory context that the teaching or communication is found in. The teacher sets the stage for the lesson whether it is the arrangement of the materials and teaching charts, or the feeling of acceptance and safety that the student senses from the teacher's voice and mannerisms. These teaching contexts are a part of the training of RR and ALL teachers.

8. Learning always involves conscious and unconscious processes.

In order to have active processing students need to review how and what they learn so that they can begin to take charge of their learning and construction of meaning. Students are taught strategies for literacy learning and are encouraged to talk about what they did when they self-correct a miscue. This allows them to develop reflection and meta-cognition of their own reading and writing. Although strategy use is usually very conscious when first learned, in time it usually becomes a nearly unconscious process.

9. We have at least two different types of memory: A spatial memory system and a set of systems for rote learning.

The natural, spatial memory is motivated by novelty and drives the search for meaning. As mentioned before, the RR or ALL lesson is meaning oriented and the student is always encouraged to make the experience meaningful. Also, new books are chosen to pique the interest of the student and to provide some new challenge in learning to read. The system for rote learning is used in as meaningful a context as possible. For instance, the rereading of familiar books gives practice in word recognition but in the context of reading for meaning. At times, a word that is not naturally decodable will be practiced in various ways such as rainbow writing, dry erase boards, writing it big and small, and in each corner to provide some novelty while practicing something in a rote manner to produce automaticity.

10. We understand and remember best when facts and skills are embedded in natural, spatial memory.

The process of embedding the facts and skills in the RR and ALL lesson begins with the interactive relational conversation between the teacher and student. The teacher tries to relate things from the books to real life experiences of the child and engages the child in the reading process in such a way that the child is interacting with the text. In the writing segment, the child is drawn into writing a personal story that has meaning and interest to him or her. The greatest success in embedding facts and skills depend on using all of the senses and immersing the learner in a multitude of complex and interactive experiences. This is exactly what the seven parts of the RR/ALL lesson endeavors to do. In the course of one lesson a child may read aloud, use his/her finger to direct attention to text, problem solve new words, manipulate magnetic letters, listen to the sounds in a word to figure out how to write it, write a sentence, and rearrange the words of a cut-up sentence while reading the words aloud. It should be a very multi-sensory interactive experience.

11. Learning is enhanced by challenge and inhibited by threat.

The brain downshifts when feeling threatened, but learns optimally when appropriately challenged. This level of challenge provides for Vygotsky's zone of proximal development (1978). Teachers are trained to provide books that student will find interesting and will provide some area of challenge to allow the student to extend his or her knowledge of the reading process. The book is to be within the student's instructional level, this means the student can read the book with support having at least 90% accuracy. This allows the child to feel challenged but not overwhelmed or threatened. The child is to feel successful in the reading

experience even though it is a new book. This means the teacher must be very knowledgeable about what words and strategies the child has under his or her control.

12. Each brain is unique.

Each student will have different sensory and emotional preferences. The RR/ALL teacher is trained to observe the student and provide activities and learning experiences that fit the needs and interests of the child.

(Principles found on pages 80-87 of *Making Connections*. Correlated information concerning RR/ALL teachers and lessons primarily from Clay, 1991, 1993, 2001.)

The relationship between what has been recognized as effective brain-based learning and the lessons and teacher training of RR and ALL is significant. No doubt the success of these two programs has been enhanced by this use of best practice in relationship to how the brain learns. Both programs have been found to be effective in accelerating at-risk students. Reading Recovery has reported that approximately 76-85% of the lowest 20% of students served by RR teachers accelerated to the average range of their class (Swartz & Klein, 1997). The ALL program has used both the one-on-one model of RR and a small group model to carry out reading interventions. Both models brought gains in literacy achievement comparable to the level of average students (King & Homan, 2003).

Professional Development

Research indicates that teacher change is best accomplished through long-term training in theory with modeling, practice, feedback, and coaching (Desmarois, 1992; Stephens, 1993). Teachers reported difficulty implementing information covered in one

or two day in-service training with no follow-up (Desmarois, 1992). In “Beating the Odds in Teaching All Children to Read”, Taylor, Pearson, Clark and Walpole (1999) found schools most effective in teaching reading to high-risk populations cited ongoing professional development as one of the reasons for their success.

The Reading Recovery and Accelerated Literacy Learning teacher development programs have been described as an inquiry-based model for educating teachers of literacy (Pinnell, 1991; Brashears, Homan, & King, 2002). Teachers are encouraged to question, hypothesize, test what they are learning. This is necessary because in both programs the teacher is not given a set curriculum with particular instructions, but rather a theoretical context and some specific procedures to be used as needed (Clay, 1993). The teacher is trained to observe the child and to analyze strengths and weaknesses. Teaching decisions are made by analysis of what the child needs to learn. This is in contrast to most curriculums and teaching methods teachers have used in the past. For this reason, individuals involved in these training programs generally experience a shift in theoretical orientation (Pinnell, 1991, Brashears, et al., 2002). The shift is from a focus on teaching materials and sequential learning toward a more holistic orientation which views literacy learning as an orchestration of a range of strategies and knowledge.

Both Reading Recovery and ALL (Lyons, Pinnell, &DeFord, 1993; Pinnell, 1991; Brashears, et al., 2002) involve teachers in a year of training which includes two semesters of graduate level courses. Each week a group of teachers meet with teacher leaders to discuss theory, procedures, and literacy lessons of participating teachers, which are observed during the class. In Reading Recovery, the observed lessons are live with teachers watching from a one-way mirror. In ALL the lessons are videotaped at the

school and brought into class. During the week, teachers work with students using the procedures they are learning; and are observed and mentored by the teacher leaders. In both programs a goal is to get the teachers thinking about their own teaching decisions. This long term training provides a supportive group in which a teacher in training can articulate and get feedback on teaching decisions. Pinnell (1991) stated that since the primary goal of literacy education is to make a difference for children and society, the only way to accomplish that goal is to increase the expertise of teachers. The interactive training programs of Reading Recovery and ALL scaffold the teachers' learning processes so that they may become adept in scaffolding the literacy processes of their students.

Brashears, Homan and King (2002) used a questionnaire to examine teachers' views of the Accelerated Literacy Learning training program. One portion of their survey gathered demographic information and allowed a comments section for gathering personal statements and feelings, and the second portion included a Likert response scale that outlined the components of the ALL training and asked the respondent to rate from least to most beneficial. The study had a high rate of return and the results showed that the teachers had found many things about the ALL program to be beneficial. Of special note was the seven percent who found the training beneficial to them when they returned to the classroom after being ALL intervention teachers. This study would influence the researcher's use of a questionnaire with a 5-point response scale to investigate teachers' reports of sensory activity usage.

Roehrig, Pressley and Sloop (2001) used classroom observations and a questionnaire to investigate the effects of Reading Recovery training on the instructional

practices of classroom teachers. When they found differences in the use of these practices by grade level, they also included three brief case studies. They concluded that Reading Recovery training had a greater influence on kindergarten and first grade teachers' instructional practice. They advised that further research was needed to investigate possible effects on student achievement. The three different areas of investigation: questionnaires, observations and case studies influenced the researcher's study of ALL trained teachers' use of sensory activities in their classroom literacy lessons.

Summary

While studies have examined student literacy growth in RR and ALL, there has been little investigation into the types of activities used by teachers within the lessons that help to facilitate this growth in literacy achievement. While investigating the present literature on brain-based learning and multiple intelligences, the researcher found the theme of sensory modalities, once so prevalent in the learning style literature, has reemerged but this time as multi-sensory learning. The research community has largely disregarded the area of sensory modalities, in light of the inconclusive results in the learning style and modality preference studies. In analyzing the current practices within the ALL Lesson, the researcher recognized that sensory activities are an inherent part of a multi-sensory lesson format; although these are identified as instructional procedures during training. Teachers are carefully trained in many different instructional procedures, which would be used in the lessons according to the needs of the students. As there has been no prior research in the area of the use of sensory activities in ALL trained teachers' literacy lessons, this researcher's present inquiry into the kinds and frequency of use of sensory activities will further extend the knowledge and understanding of this area.

Since teachers' choices determine which sensory activities are included in any particular lesson, the primary area of investigation of this study was to examine the teacher's use, or perception of use, of sensory activities in literacy lessons.

Chapter III

Method

Introduction

This chapter describes the conduct of the study and includes the purpose, research questions, design of the study, and description of the study by phases including the instruments, participants, and data analysis.

The study was conducted in three phases. The first phase used questionnaires to investigate the reported sensory activity of the ALL trained teachers in a central Florida school district. In the next phase, primary teachers were interviewed to bring greater depth and clarification about their reported use of sensory activities in their classroom literacy lessons. In the final phase, classroom observations were conducted in four first grade classrooms to investigate the actual use of sensory activities in the classroom literacy lessons.

Purpose of the Study

In light of the knowledge that students do have differences in the way they learn and the current pressure public education is under to leave no child behind, the main purpose of this study was to investigate the kinds of sensory activities teachers chose to implement in their literacy lessons when teaching struggling readers and to look for a possible relationship between such activities and reading progress.

Researchers (Bond & Dykstra, 1967, 1997; Clay, 2001) point to the importance of the teachers' role in scaffolding the learning of their students. A teacher who is trained in observation and sensitivity to the needs of the student is more likely to provide the kinds of learning activities that will promote the student's learning.

This study examined a group of teachers' self-reports of how Accelerated Literacy Learning (ALL) training affected their use of sensory activities in their literacy lessons as indicated by their responses to a questionnaire. A sub-group of these teachers was interviewed to bring depth and greater clarity to their questionnaire responses. The researcher also examined how teachers' reports of sensory activity use related to their classroom practice through case studies of four of the teachers from the original survey group. And finally the reading growth data from these case studies were examined in relation to the use of sensory activities in the classroom. These inquiries were primarily guided by the following:

Research Questions

1. What are the variety and frequency of sensory activities used within primary grade literacy lessons by teachers who participated in literacy intervention training?
2. What is the relationship between teacher-reported use of sensory activities and their observed classroom practice?
3. What is the relationship between observed teacher use of sensory activities and the assessed reading growth of struggling readers in her/his classroom?

Design

This study was bounded by time and availability of the participants. Therefore in order to collect as much data as possible within these boundaries, the researcher used blended methodology, employing a qualitative focus with some elements using sample descriptive statistics. This allowed the researcher to explore the use of sensory activities by teachers who have received ALL literacy intervention training within the designated

county school system and gain as much understanding as possible within the confines of the study.

Two studies influenced the researcher in the design of this study. The first, a study by Brashears, Homan, and King (2002) employed a questionnaire to explore teachers' views of Accelerated Literacy Learning. The second, by Roehrig, Pressley, and Sloup (2001), used a questionnaire and classroom observations to determine whether Reading Recovery teachers used Reading Recovery-type instructional practices and strategies during their teaching.

Qualitative research by tradition is naturalistic by gathering data in actual settings with the researcher as the key instrument (Bogdan & Biklan, 2003; Patton, 2002). As this study had a qualitative focus, the main thrust of data collection was situated within the participants' schools and classrooms and included their perspectives of what happened in their classrooms. These data were collected through questionnaires, interviews and classroom observations. As such this study was an inductive search attempting to offer a glimpse into those classrooms. An overview of the design of this study can be seen in Table 2.

Table 2

Research Questions and Data Sources

<u>Research Questions</u>	<u>Research Phase and Data Analysis</u>	<u>Data Sources</u>
What are the variety and frequency of sensory activities used within primary grade literacy lessons by teachers who participated in literacy intervention training?	Phase One, Two, and Three -Descriptive statistics of questionnaires and mean scores of tally sheets -Constant comparative analysis of Transcripts and other written data	-Questionnaires -Interview transcripts and field notes -Observation tally sheets and field notes -Researcher's Journal
What is the relationship between teacher-reported use of sensory activities and their observed classroom practice?	Phase One, Two and Three -Constant comparative analysis of written data -Graphing of questionnaire results in comparison to tally results	-Questionnaires -Interview transcripts and field notes -Observation tally sheets and field notes -Researcher's Journal
What is the relationship between observed teacher use of sensory activities and the assessed reading growth of struggling readers in her/his classroom?	Phase Three -Mean scores for tally sheet data and student book reading growth -Graph scores to indicate any possible relationship	-Observation tally sheets and field notes -Researcher's Journal -Students' scores from beginning and end of year

The Researcher

As has been stated, the researcher, herself, can be considered one of the instruments (Bogdan & Biklan, 2003; Gall, Borg, & Gall, 1996). As such she acknowledges her bias in that the very training and experiences, which would allow her to be a reliable instrument, would also lend to bias. The design of the study has used six

sources of data--questionnaires, interviews, multiple observations of the four classroom teachers, post interviews, member checks and the researcher's reflection journal--to minimize bias.

The researcher enrolled in 18 semester hours beyond the masters' level as a trainer for the Accelerated Literacy Learning program. She spent two years working with training classes in a county other than the one being used for this study. During that time she regularly observed teachers' literacy lessons in their classrooms and was trained to take extensive notes during these observations. She became very familiar with all of the theories, procedures and strategies that are a part of this literacy intervention training.

The researcher has a master's degree in reading education, and had taught first grade for over 10 years when she received the literacy intervention training during her doctoral studies. She is familiar with first grade literacy curriculum and practices. For four years, she worked in a school setting with small groups of struggling readers, helping them to increase their reading skills and become proficient in grade level texts.

During her studies of sensory modalities and learning styles she recognized that many of the procedures that were used in this literacy intervention used multiple sensory input in the course of the entire lesson. Although these procedures were not called sensory activities by trainers during the training classes, they are various activities that can be used in the course of a lesson, and do provide ways to utilize visual, auditory and tactile/kinesthetic modalities during a literacy lesson.

The researcher had strong ties to Accelerated Literacy Learning during her time of training and work as an ALL trainer, however she was no longer employed as a part of the ALL program during this study. She endeavored to use her expertise in ALL to be an

effective observer. However, the researcher had a biased expectation that she would see ALL-type lessons in the classrooms like those she had seen during her time as a trainer. She also expected lessons that were tailored to the needs of the students. She was aware of her bias concerning what she expected to see in the lessons and tried to use methods, such as the sensory activity tally sheet, to help limit that bias during the observations. Also, she endeavored to guard against bias by taking fieldnotes and including reflections on her own subjectivity in the rewrite of those notes (Bogdan & Biklan, 2003). Although she had no prior contact with the participants who were a part of this study, the reflection journal helped her change her viewpoint to one of understanding what these teachers faced each day and how many of their decisions were affected by outside pressures that were beyond their control.

Phase One

The research objective of Phase One was to gain an overview of the use of sensory activities of a sample of teachers in a central Florida school district who were ALL trained. This was designed to give a broad answer to research question one concerning the variety and frequency of sensory activities used in literacy lessons by ALL trained teachers.

Participants. In Phase One, the potential participant population (n=109) included all employees from a central Florida school district who received the year long ALL training from 1991 through 2003 and were still found in the district directory of current employees. A packet was sent to each of these potential participants during the last two weeks of July, 2004. The packet included the following: A letter of introduction from the researcher (Appendix C), a letter from the ALL district representative (who was the

researcher's district contact person), two copies of the IRB informed consent form (approved 7-15-2004, Appendix A), the study questionnaire (Appendix D), and a stamped self-addressed return envelope. By the beginning of September, only 32 out of 109 possible participants had returned questionnaires and informed consent forms and five others had been returned undeliverable.

Originally the researcher had planned to send second questionnaire packets within two weeks to those that had not responded to the initial mailing, but circumstances prevented this. On September 20th, the packets were resent to the 32 primary teachers who had not responded, since these teachers were possible participants for phases two and three of the study. Of these, only seven would send back a completed questionnaires and informed consent forms.

Time constraints ended Phase One with the data from 39 participants who returned their questionnaires. This gave a 37% return for those questionnaires that had been successfully delivered. One participant did not fill out the 5-point response scale survey because she was working in a different capacity, so there were only 38 participants for the first page 5-point scale responses. The result was an N of 38 for Phase One.

Instrument for data collection. Questionnaires are most often used when there are many participants located in various locations, for it allows data to be gathered from many participants and still be feasible in time and cost (Gall, Gall, & Borg, 1996). After examining the study of Brashears, Homan, and King (2002) that employed a Likert response scale survey with a comments section and with selected follow-up interviews, the researcher decided to use part of this format in her study.

It was necessary for the researcher to formulate an appropriate instrument that would include the types of sensory activities that were usually a part of the trained procedures of ALL. As stated before, although these procedures were not called sensory activities during the ALL training, they are various activities that can be used in the course of a lesson, and they do provide ways to use visual, auditory and tactile/kinesthetic modalities during the literacy lesson. In order to ascertain the activities that would most likely be found in a lesson, the researcher viewed video-taped lessons of four experienced ALL trainers who were considered expert ALL teachers by the leadership of the ALL program. A list of the sensory activities found in each taped lesson was checked during a second viewing of each lesson. Then a master list of activities was compiled from those found in the majority of the video-taped lessons. This provided a framework of possible sensory activities that may be found in an ALL literacy lesson.

In the second stage of the formulation of the questionnaire instrument, the sensory activities were made into a sensory activity tally sheet. Teachers in a Spring, 2003 ALL training class tallied sensory activities as they observed video-taped lessons in class. This group of first and second grade teachers was from three schools in a Florida county adjacent to the one used in the study. They received weekly training all year from three ALL trainers including the researcher. The use of the tally sheets was near the end of their training. The activities on the sheet were found to be familiar to the teachers in this class and were found in the video-taped lessons of teachers from the class. After using the tally sheet in class, a questionnaire was made from the sensory activities found on the tally sheet. The questionnaire was piloted with the same group of teachers in the Spring 2003 class. They filled out the questionnaire twice: the first time they reported the way

they used the sensory activities before their ALL training, and then they reported their use of the same activities at the end of their training. The majority of these teachers had used many of the visual activities even before their training. However, all of the teachers reported using more varied sensory activities (including auditory and tactile-kinesthetic) and using even the visual activities with more frequency than before their training (Pilot questionnaire data, 2003).

In order to gather evidence related to the reliability of the sensory activities included on the questionnaire with expected ALL instructional lesson procedures, copies of the questionnaire and tally sheet were given to ALL trainers at a regional meeting. The trainers were asked to examine the activities on the questionnaire and confirm whether or not the activities should be included, or if there were other activities that should be added. Four expert trainers, with many years of experience training teachers in ALL procedures, evaluated the pilot questionnaire and tally sheet and gave input for changes. Various comments included: This is the same as echo reading and add echo reading to the last line with choral reading. This includes visual with the auditory. Add body movements for segmenting and chunking (Communication from Trainers on sample Modality Checklist). Two items were found to be redundant and were combined and one item (Body movements for segmenting and chunking) was added at the recommendation of two trainers. As a result of this input the original list of sensory activities was changed from 33 to 30 and sensory activities were grouped with the predominant modality, but not identified as such on the questionnaire.

The first page of the questionnaire (See Appendix D) included a 5-point response scale of the 30 sensory activities and asked the respondent to indicate how often they

used the activities from once per month or less (1) to daily (5). The second page asked questions that allowed participants to expand on their use of sensory activities, and also asked if they would be willing to participate in an interview.

Data Analysis. The analysis of the questionnaire data was conducted by looking at each page separately. The data found on page one were 5-point scale responses to the average use of each sensory activity listed. The responses on page two were written and therefore would be analyzed qualitatively.

The 5-point scale responses for each of the 38 participants were entered into a spreadsheet category for each sensory activity included on questionnaire page one. The researcher analyzed this data in two ways. Descriptive statistics were calculated for each sensory activity including mean, median, mode and standard deviation. Then the activities were grouped as visual, auditory and tactile/kinesthetic by the researcher according to the predominant modality. It is recognized that many of the activities actually use more than one modality and therefore were multi-sensory. However, to gain a general sense as to which modalities were being used the most, the activities were grouped and mean scores were calculated for each predominant modality. A Cronbach's Alpha was calculated for each area to check reliability. Finally, a percentage was calculated for the number of respondents in each category on the 5-point scale. This allowed the researcher to examine the activities most commonly used and the have a perception of how the sensory modalities were used.

The responses to the question and comment section on the second page were typed into a data sheet grouped by question. All responses to each question were analyzed for their inherent patterns across participants by: First, reading over the answers

to each question several times; second, looking for repetitions in wording and categories; finally, color coding those patterns found within the answers. Since all of the participants had received the same intensive training in ALL they used similar language to describe their literacy practice. For example, the words—strategies, cueing systems, look right, sound right, and does it make sense—were found throughout the written responses because these are words that are used continuously during the training.

Phase Two

The research objective of Phase Two was to obtain more in-depth data concerning the participants' use of the sensory activities that were a part of their ALL training in order to answer research question one concerning variety and frequency of those activities. The original design was to divide questionnaire respondents into quartiles by reported high or low sensory activity use and comments made on the second page, and choose a purposeful sample of six to ten participants who fell into different groups of sensory activity use.

However, when the responses on the returned questionnaires were analyzed, such differences were not found. In fact, all had relatively high reported use of the sensory activities. The researcher could not be certain that low use teachers did not exist since the sample included 37% of those trained; but it was evident that teachers who responded were those who valued the instructional procedures learned in ALL. Fourteen of the primary level teachers who completed questionnaires indicated that they were willing to be interviewed. Of the 14, all had reported high sensory activity use. Letters, with self-addressed and stamped envelopes, were sent to those 14 to confirm their consent to be interviewed and to acquire contact numbers and times. By the second week of

November, five teachers had responded and consented to be interviewed. Of these five, only four teachers were currently teaching literacy lessons; the fifth was teaching math and science, but had taught literacy lessons the previous year. Later, in December when Phase Three was already under way, the researcher received notification from two other teachers that they were willing to be interviewed. As a result, the researcher interviewed all seven of the teachers who found time in their schedules to be interviewed, but two were interviewed after Phase Three had begun. These seven were from the original sample of 38 in Phase One who completed questionnaires. Questionnaires and interviews are often used in educational research to collect information that is not directly observable (Gall, Borg, & Gall, 1996). In this study the questionnaire was used to gain an overview of teachers' reported sensory use, since time constraint prevented the researcher from interviewing or observing each respondent. Bogdan and Biklen (2003) see interviews as a way to gather data in the participants' own words and thereby give the researcher insights into the participants' view of the subject being studied. The researcher desired to enter into the teachers' worlds by allowing them to talk about their own classroom implementation of the sensory activities learned in their ALL training. In qualitative studies a semi-structured interview is usually focused around particular topics and uses an interview guide to provide a reference to the researcher of questions and areas that should be explored (Bogdan & Biklen, 2003; Patton, 2002; Seidman, 1998). As this study was investigating the topic of ALL trained activities, the researcher designed an interview guide allowing the participants to expand on their responses to the questionnaire.

Participants. The five primary level teachers, who responded in October and early November, were interviewed in November and the other two after the first of the year. Before each interview, the participants were given a second IRB approved informed consent form (approved 7-15-2004) detailing the interview and classroom observation phases of the study. Interviews were conducted after participants had been given time to consider their participation in this phase of the study.

Data Collection. Each semi-structured interview was audio-taped and field notes were taken. All of the interviews were conducted at the participants' schools, and most of them were conducted in the participants' classrooms. The interviews lasted between 40 and 60 minutes. The audio-tapes were transcribed by the researcher and the field notes were written up along with reflections and commentary of issues or themes that emerged during the interview and reflective process (Miles & Huberman, 1994). At this point a separate file was established for each participant, collecting data to provide the researcher with glimpses into the participant's world, which would later be compared and contrasted to data gathered from the other participants' perspective worlds.

Instrument for Data Collection. The researcher designed an interview guide to probe for greater detail and clarification of comments made on the second page of the questionnaire. She piloted this interview guide with three teachers who had been a part of the Spring, 2003 ALL Class she had co-taught. It was found that there were too many questions and some did not fit the classroom teachers' experience in implementing ALL procedures (sensory activities) in their classroom. The guide (See Appendix G) was streamlined to include seven basic questions and allow teachers to explain their personal implementation of what they had learned. Three questions from the original guide, asking

for information on specific times of sensory activity use, were found to be difficult for interviewees' response. Another seemed to illicit only one-word responses and so was eliminated. Finally, one question was added as a result of the added comments by the pilot interview teachers about sensory activities that were now being implemented in their whole group literacy lessons as well as in their guided reading groups.

Data Analysis. Miles and Huberman (1994) recommend that data collection and data analysis be interwoven from the beginning of the study. At this point in Phase Two the data collected from the interviews were analyzed using the themes and categories that emerged from the questionnaire data, as well as looking for new categories and themes. The audio-tapes of the five November interviews were transcribed and the fieldnotes were typed with extra comments and observations added. The transcripts and rewritten notes were read the first time through to get a general feel for the participants' responses and points of view. Then the transcripts and notes were read again with the themes found in the questionnaire responses in mind. The third time reading through the data was a search for new themes and categories.

The data gathered from the interviews allowed a more in-depth look at teacher reported use of the sensory activities and the teacher's attitudes toward such activities in their literacy lessons.

Phase Three

The objective of the third phase was to observe literacy lessons in order to address the second research question concerning the relationship between teachers' reported use of sensory activities and their classroom practice. In order to do this, the third phase of investigation in this study was comparative case studies of teachers' use of sensory

activities during their literacy lesson time. Four participants were included in the case studies because multiple case sampling adds confidence to the findings (Miles & Huberman, 1994). These case studies were observational case studies as described by Bogdan & Biklen (2003) for the focus was an aspect of the literacy lesson, and the major data-gathering technique was observation, interviews and a review of documents. Although the original study design had been to choose a purposeful sample, showing teachers with variance in sensory activity use, the case study sample became a convenience sample (Patton, 2002) as explained in the participant section.

Bassey (1999), in *Case Study Research in Educational Settings*, proposed that a case study can be a prime research strategy for developing educational theory. He describes the theory seeking or theory testing case studies as contributing to theory through ‘fuzzy’ generalizations. Since this study used observation of multiple participants, the researcher hoped to discover a ‘fuzzy’ generalization about sensory activity use of ALL trained teachers in literacy lessons since this area was relatively unexplored in research literature.

Participants. In November, when the researcher chose the participants for the case studies, only five teachers had returned the consent to be interviewed letter. Of these five who were interviewed, one had become a half-day teacher and was not teaching the language arts block time. This left four teachers available for the Phase Three case studies. All four consented to be observed and to take part in this phase of the study. So, what was designed to be a purposeful sample for Phase Three became a convenience sample (Patton, 2002) of four first grade teachers in four different schools in the county.

Data Instruments. The Sensory Activity Tally Sheet was designed and piloted at the same time as the Sensory Activity Questionnaire. Members of the ALL class used it while observing lesson videos. Most of the activities on the tally sheet were found to be appropriate for the lessons being observed. After the pilot study, the tally sheet was changed to reflect the changes made in the questionnaire. This Tally Sheet was used during each of the five observations of each teacher case study participant. It would allow the researcher to quickly note any of the sensory activities that were found during the observed literacy lessons.

The researcher was trained to do observation of ALL literacy lessons in a two-semester ALL trainers' course. This course included nine graduate semester hours of class and practicum each semester. After training, she spent two years working as an ALL trainer co-teaching the weekly class; and observing the teachers' literacy lessons in their classrooms to provide support during their year long ALL training. The trainer would take extensive notes of the lesson and then provide feedback to the teacher. Using this experience in observation and the Sensory Activity Tally Sheet, the researcher would go into the participants' classrooms to observe their literacy learning time and guided reading groups. She assured the teachers that this was not an evaluation of their teaching, but simply an observation of how they implement their ALL training into their classroom literacy program. The researcher sat discreetly to one side of the guided reading group area where she could observe the teacher during the lesson as well as the activities of the students who were not in the guided reading group. During the observation time the teacher went about her classroom procedures. In most cases, after the first observation the students usually ignored the researcher. Any talking or interaction with the researcher by

the teachers or students happened after the formal observation of the literacy lesson time. It was the objective of the researcher to record the happenings as accurately as possible during the observation times. It was hoped that the tally sheet would help to curb the natural bias of the researcher to help her reconstruct an accurate picture of the participants' literacy lessons.

The second measurement of Phase Three was actually performed by the participant teachers themselves. These literacy assessments were running records as described by Marie Clay (2002) in *An Observation Survey of Early Literacy Achievement*. Each teacher in this school district has been trained to give literacy assessments three times per year using leveled county-adopted testing books. This means that teachers in all schools would be using the same test books when giving the running record for reading accuracy and retell for comprehension at each level. For kindergarten and first grade reading these levels followed the Rigby PM Benchmark and Developmental Reading Assessment number levels, but at second grade and above the levels are usually reported in Fountas and Pinnell (1996) guided reading letter levels. The county conversion chart was used to translate all letter levels of the reading scores above second grade level into numbers. These reading data were gathered by classroom group with only the gender and grade of the student given with the beginning (August), middle (December) and end of the year (May) reading progress scores. This protected the individual identities of the students and allowed the researcher to collect a complete class set without an IRB form being required which might have led to incomplete class data.

Data Collection. The observational case studies (Bassey, 1999; Bogdan & Biklen, 2003; Patton, 2002) consisted of the original semi-structured interview (during Phase Two), five observations of classroom literacy lessons, and a second interview for each of the four teachers. Class reading data were gathered from the teachers at the end of the first semester and at the end of the school year. The second interview occurred after the observations were completed and included a member check of the first interview. Participants were given a copy of the transcript of the first interview and were allowed to give further input or clarification. The purpose of the second interview was to allow the researcher to confirm the accuracy of the analysis of the original interview and to clarify any questions that arose during observations. This was necessary since the guided reading lessons seen in the classroom were different from the ALL lessons observed by the researcher during her experience as a trainer. Also, each teacher implemented the ALL components differently in the literacy instruction lessons. Since the second interview varied with each participant an actual interview guide was not used. A third meeting was held close to the end of the school year and served as a member check of the transcriptions of both interviews and data collected from the observations. Participants were allowed to go over copies of this data and keep a copy if desired. Three of the participants simply looked over the data and then handed it back. One participant had asked for copies of her data and this was supplied for her. It was also at this time that the end of the year reading progress scores were added to the beginning and mid-year scores. The reading data were gathered to address research question three concerning the relationship between teacher's sensory activity use and the reading progress of the struggling readers in her class.

Each observation was conducted during the teacher's small group literacy lesson time. During each observation, the researcher took field notes and tallied the sensory activities (on a sensory tally sheet see Appendix E) implemented by the teacher during literacy lesson and language arts time. Since participant teachers indicated that Friday was usually a test day and not a good day for observations, the researcher scheduled observations so that each teacher was observed on a Monday, Tuesday, Wednesday and Thursday. It was necessary to fit observations into the teachers' schedules, so the observations took place over a span of weeks. A fifth observation was made of each teacher in a different observation week from the previous observations. This allowed the researcher to view different stages in the literacy programs, as some components in their literacy programs were begun on Monday and continued throughout the week.

After completing the observations and the second interview, the researcher revisited all of the data of each case study to further code and analyze the data. A comparison of the participant's reported use of sensory activities was made with the actual data gathered in classroom observations using the tally sheets and field notes. The use of each activity was investigated by examining the reported use given on the 5-point scale of the questionnaire and comparing it with the actual tallied used during observations. Then the activities were grouped by predominant modality and a mean was calculated for reported use and for tallied use of visual, auditory, and tactile/kinesthetic activities. The two mean scores were compared to see how well the teacher reported her actual use of the activities. This addressed research question two concerning the relationship between reported use and actual use of the sensory activities.

Reading data gathered in Phase Three addressed research question three which examined the possible relationship between the teacher's use of sensory activities and the reading growth of struggling readers.

A cross comparison of the case studies looked at recurring and contrasting themes and examined differences in sensory use in the observed lessons.

Data Analysis. The multi-sources in this study allowed triangulation of data sources to strengthen the design of the study (Bogdan & Biklan, 2003; Patton, 2002). The data analysis followed the steps in the constant comparative method of developing theory given by Glaser (1978):

1. Begin collecting data.

Initial data included pilot study of questionnaire and tally sheet.

Phase One-collection of questionnaire data using revised questionnaire.

2. Look for key issues, recurrent events, or activities in the data that become categories of focus.

Analysis of questionnaire data showing reported use of sensory activities.

Looking for recurring categories and themes.

3. Collect data that provide many incidents of the categories of focus with an eye to seeing the diversity of the dimensions of the categories.

Phase Two- Data from interview transcripts provide depth and confirmation to themes identified in questionnaire data. The search for diversity of dimensions was less successful, since most participants gave similar answers on the questionnaire and in interviews.

4. Write about the categories you are exploring, attempting to describe and account for all incidents you have in your data while continually searching for new incidents.

Phase Three- After analyzing the data from questionnaires and interview transcripts the categories were written up. The multiple classroom observations were an attempt to find new information, as well as confirm what the teacher participants had reported on their questionnaires and in their interviews.

5. Work with the data and emerging model to discover social processes and relationships.

After all data were gathered, the researcher examined the data to see what model of sensory use could be observed from the reports and observations of teachers trained in ALL procedures.

6. Engage in sampling, coding, and writing as the analysis focuses on the core categories.

This was done in cycles or phases during the study. This study began with a sample of 38 participants during Phase One using questionnaires, and ended with a small sample of four first grade teachers for the observational case studies.

This study had a structured focus to begin with in the sensory use questionnaire. This provided some categories for focus from the onset of the study because the categories and questions on the questionnaire were based upon the ALL program, which was a common experience for the participants. These categories revised

and expanded as the study progressed. The researcher used the constant comparative method as an ongoing process throughout the study. For instance, Question 4 on the questionnaire asked, Has your use of sensory activities changed since your ALL training? Please explain. The majority of the questionnaire respondents not only said that their use of such activities had changed but many of them referred to the ALL reading strategies which include many of the sensory activities. Another recurring theme was that ALL training taught them what to say and questioning techniques. These themes were also found in the interview transcripts, for instance this paragraph from the initial interview with Ms. Elsworth (pseudonym) (Transcript of 11/16/04):

When they come I have them learn the *strategies*, like *look at the pictures* and *get your mouth ready*. I say to the kid that doesn't know the word. "What could you do to figure out the word, remember what I taught you the other day---you can look at the pictures and get your mouth ready?" And then they tell me what they can do. I say, "Oh why don't you try that."

After noting these themes concerning 'strategy talk,' the researcher looked for examples of that talk during the observations in the classrooms.

Strategy talk in Reading Recovery and Accelerated Literacy Learning incorporates a number of questions and cueing phrases for the teacher to use to aid a student who has encountered difficulty during the reading process, for example—Does it look right? or What would make sense?

Qualitative Reliability

In qualitative research reliability can be thought of in terms of dependability and consistency (Merriam, 1995). The nature of a qualitative study makes it difficult to

replicate the results from one study to another. Therefore it is important to endeavor to make the results of the study consistent with the data collected for that study. To strengthen the internal reliability of this study the researcher employed the following strategies.

1. Triangulation of data from the questionnaires, interviews, and classroom observations (Bogdan & Biklen, 2003; Patton, 2002).

By gathering data using multiple methods and data sources the researcher provides a clearer picture of the subject under investigation in this case the sensory use of ALL trained teachers.

2. Member checks by taking the data transcripts back to study participants (Seidman, 1998).

By allowing the participants to give input through a member check, the researcher tries to minimize any misconceptions the researcher may have concerning the participant's point of view.

3. Researcher Journal during the study to help minimize researcher bias (Bogdan & Biklen, 2003).

The Researcher Journal was used to provide an ongoing tool of reflection as to how the study was progressing. It allowed the researcher to examine bias and personal expectation in light of the data being gathered in the study. More than once she found that she was seeing a very different implementation of ALL in the study than in her previous experience. The journal helped her examine her personal expectations in light of what was actually happening in the classrooms;

and then to balance this with a clearer view of the teachers' perspectives. It was a learning process for the researcher and brought about personal change.

4. Collection of data for classroom observations from multiple sites and on different days of the week (Bogdan & Biklen, 2003).

Multiple sites were chosen in order to analyze across case studies to compare and contrast the usage of sensory activities by primary teachers. The observations were done on different days to get a picture of the daily use of sensory activities throughout the week.

Summary

This study investigated the use of sensory activities by primary teachers during their literacy lessons. The study incorporated blended methodology with a qualitative focus and some elements using descriptive statistics. The data were gathered in three phases. The first phase used a questionnaire with a 5-point response scale which was sent to all teachers who received a year of training in Acceleration Literacy Learning still listed as employed in a central Florida school district with 38 participants sending back a completed questionnaire. The second phase employed a sample of seven primary teachers from the first phase participants who agreed to be interviewed concerning their sensory activity use in their classroom. Finally, in the third phase four first grade teachers who had been interviewed were observed five times during their literacy lesson time to record their actual use of the sensory activity procedures from their ALL training. The six sources of data were analyzed over the course of the study using the constant comparative method by Glaser (1978).

Chapter IV

Results

Introduction

In this chapter the results of the study are presented and discussed. The data were collected by using a study design that employed blended methodology, applying a qualitative focus with some elements using sample descriptive statistics. This allowed the researcher to explore the use of sensory activities by teachers who have received literacy intervention training within the designated county school system and gain as much understanding as possible within the confines of the study.

This study examined a group of teachers' self-reports of how early intervention training influenced their use of sensory activities in their literacy lessons as indicated by their responses to a questionnaire. A sub-group of these teachers was interviewed to bring depth and greater clarity to their questionnaire responses. The researcher also examined how teachers' reports of sensory activity use related to their classroom practice through case studies of four of the teachers from the original survey group. And finally the reading growth data from these case studies were examined in relation to the use of sensory activities in the classroom. These inquiries were primarily guided by the following: Research Questions

1. What are the variety and frequency of sensory activities used within primary grade literacy lessons by teachers who participated in literacy intervention training?

2. What is the relationship between teacher-reported use of sensory activities and their observed classroom practice?
3. What is the relationship between observed teacher use of sensory activities and the assessed reading growth of struggling readers in her/his classroom?

The presentation of the results will be organized by research question. In reporting the results for question one which encompassed data from more than one phase of the study, data results will also be organized by phase. Finally, case study vignettes will be given in narrative form to offer a glimpse into the lives and classrooms of the case study participants.

Phase One

Questionnaire responses. In Phase One of the study a questionnaire was sent out to the current list of teachers in a central Florida school district who had participated in a year-long training in Accelerated Literacy Learning (ALL). A total of 109 questionnaires were sent out in the first mailing. Five were returned as undeliverable, bringing the possible number down to 104. A second mailing brought the total number of returned questionnaires to 39, with one declining to fill out the 5-point scale response page. This gave an N of 38 for Phase One

The participants in this phase included teachers who ranged from kindergarten to middle school, as well as those who worked exclusively with ALL doing reading intervention and training. There were 37 females and one male teacher in the sample. Twenty-six participants were K-2 teachers, seven were 3-5, one was a middle school teacher and four were ALL reading teachers. The ALL reading teachers are reading

intervention specialists who spend their time working with struggling readers from various classrooms.

The data gathered during this phase were used to answer the first research question: What are the variety and frequency of sensory activities used within primary grade literacy lessons by teachers who participated in literacy intervention training?

The front of the questionnaire included a list of sensory activities that participants responded to by marking a five point 5-point response scale (Appendix D). The scale indicated frequency of use the activity. The range of the scale included: 1 = once per month or less; 2 = 2-3 times per month; 3 = weekly; 4 = 2-3 times per week; and 5 = daily. Using a descriptive statistics program (see Table 3) a mean score and standard deviation were calculated for each activity to show the overall frequency of reported use for that activity. Finally, an overall mean score and standard deviation were calculated for the sensory modalities of visual, auditory, and tactile/kinesthetic, which would indicate how the modalities were reported as being used by the participants. The results can be found in Table 3.

Table 3

Descriptive Statistics for Sensory Activities Questionnaire Items

<u>Visual Activity</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>n</u>
Directs students to pictures	4.68	0.66	38
Say, Does it look right?	4.42	0.76	38
Read familiar Books	4.53	0.89	38
Refer to charts/posters	4.50	0.92	38
Find the hard part	3.37	1.32	38
Find the chunk	4.29	1.01	38
Reread to check visually	4.51	0.61	37
Locate word in text	4.21	0.94	38
<u>Teach or cue directionality</u>	<u>3.14</u>	<u>1.65</u>	<u>37</u>
Nine Visual Activities	4.18	0.55	
Cronbach's Alpha for Visual Modality	.80	(n of items = 9)	
<u>Auditory Activity</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>n</u>
Say, Does it sound right?	4.47	0.65	38
Cue, get mouth ready for sound	4.03	1.30	37
Stretching the sounds in words	4.13	1.14	38
Elkonin Boxes for sounds	3.05	1.29	38
Hearing/finding rhyme	3.74	1.11	38
Reread writing aloud	4.11	0.94	37
Saying letters while writing words	3.45	1.31	38

Table 3 (Continued)

<u>Auditory Activity</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>n</u>
Talk about the story	4.76	0.55	37
Verbally introduce vocabulary	4.38	0.83	37
<u>Echo or choral read</u>	<u>3.68</u>	<u>0.92</u>	<u>37</u>
Ten Auditory Activities	3.98	0.51	
Cronbach's Alpha for Auditory Modality .82 (n of items = 10)			
<u>Tactile/Kinesthetic Activity</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>n</u>
Body movements for segmenting	2.84	1.56	37
Finger pointing to words	4.58	0.98	38
Frame word or chunk with fingers	4.14	1.11	37
Magnetic letters or tiles	2.95	1.27	38
Writing sentences	3.89	1.16	38
Moving chips in Elkonin boxes	2.74	1.31	38
Writing words for fluency	3.59	1.28	37
Reconstructing cut-up sentence	3.21	1.31	38
Other activities for cut-up sentence	2.84	1.17	37
Rubber band for stretching words	2.19	1.47	37
<u>Using a card to frame words</u>	<u>2.61</u>	<u>1.41</u>	<u>38</u>
Eleven Tactile/Kinesthetic Activities	3.24	0.73	
Cronbach's Alpha for Tactile/Kinesthetic Modality .85 (n of items = 11)			

1. The visual activities had the highest mean score with 4.18 ($SD = 0.55$). All but two activities had reported use of at least 2-3 times weekly (5-point scale score of 4 or 5). The other two were in the weekly use range. One of these activities, teach or cue directionality, was strongly influenced by the grade level the teacher was working with at the time. The standard deviation of 1.65 illustrates the wide variance of reported use. Daily use was reported by 12 teachers, most of them from kindergarten and first grade, while nine teachers reported once per month or less. The other low use visual activity, ask the student to find the hard part, is implemented when the teacher has a student find the place of difficulty in the text. This activity with a mean score of 3.37 ($SD = 1.32$) was reported as used least by kindergarten teachers. The three highest use visual activities were: Directs the students to pictures, mean, 4.68($SD = 0.66$); Reread to check visually, mean,4.51 ($SD = 0.61$); and Say, Does it look right? mean, 4.42 ($SD,0.76$). The Cronbach's Alpha for the Visual Modality (N of items =9) was .80 indicating satisfactory reliability.
2. Auditory activities had a mean of 3.98 ($SD = 0.51$). Six of the ten auditory activities had an average use of 4 or more, indicating that these were reported as used at least two to three times per week in their literacy lessons. Only one of these activities had lower than a 3, Elkonin boxes for sounds. Elkonin boxes were used most frequently by kindergarten and first grade teachers and rarely, if at all by those over third grade. This is

not surprising since Elkonin boxes are used to segment the sounds in a word and help students learn to hear those sounds and sequence them. The three highest use auditory activities were: Talk about the story, mean, 4.76 ($SD = 0.55$); Say, Does it sound right? mean, 4.47 ($SD = 0.65$); and Verbally introduce vocabulary, mean 4.38 ($SD = 0.83$). These activities were used by teachers at all grade levels. The Cronbach's Alpha for the Auditory Modality (N of items = 10) was .82 which indicates satisfactory reliability.

3. Tactile/Kinesthetic activities had the lowest reported use mean with 3.24 ($SD = 0.73$), but were still used with frequency in the participants' literacy lessons. The two activities with highest reported use and mean scores were, student finger point to words, mean score 4.58 ($SD = 0.98$), and, frame the word or chunk with fingers or hands, mean score 4.14 ($SD = 1.11$). The lowest scores on these activities were intermediate grade teachers, most primary teachers reported high use. Writing sentences during the literacy lessons mean score was also high with 3.89 ($SD = 1.16$) indicating that a majority of the teachers including writing weekly to 2-3 times per week. Some of these teachers reported on the second page of the questionnaire they would like to have their students do more writing but were limited in time. Although four of the activities had an average that indicated use of 2-3 times per month, two of them, moving chips in Elkonin boxes, and, using other activities for the cut-up sentence, were strongly tied to the level of students the teachers were teaching. The last

two activities, rubber band for stretching the words, and, using a card to frame words, appeared to be related to teacher preference since most either reported consistent use of the activity or indicated 1 for once per month or less. The Cronbach's Alpha for the Tactile/kinesthetic Modality (N of items = 11) was .85 which indicates satisfactory reliability.

Overall, the teachers reported using many different activities in all three sensory modalities. As would be expected most primary teachers reported higher use than those teaching intermediate or middle school students. Table 4 gives an overview of sensory activity usage. High usage is defined as 4 or 5 on the 5-point scale, which would indicate at least 2-3 times per week up to daily. Low usage is 1-3 on the 5-point scale indicating usage as little as once per month or less and up to once per week. The teachers are categorized as grades K-2, 3-8, and other for those not teaching in the classroom.

Table 4

High and Low Sensory Activity Usage by Grade Level

Sensory Activity	K-2 (n = 26)		3-8 (n = 8)		Other (n = 4)	
	High	Low	High	Low	High	Low
Direct student to picture	26 (100%)	0	6 (75%)	2	4 (100%)	0
Say, Does it look right	23 (88%)	3	5 (63%)	3	4 (100%)	0
Read familiar books	26 (100%)	0	5 (63%)	3	4(100%)	0
Refer to charts, posters	25 (96%)	1	5 (63%)	3	4 (100%)	0
Find the hard part	15 (58%)	11	3 (38%)	5	4 (100%)	0
Find the chunk	20 (77%)	6	6 (75%)	2	3 (75%)	1
Reread to check visually	25 (96%)	1	6 (75%)	1*	4 (100%)	0

Table 4 (Continued)

Sensory Activity	K-2 (n = 26)		3-8 (n = 8)		Other (n =4)	
	High	Low	High	Low	High	Low
Locate word in text	21 (81%)	5	5 (63%)	3	4 (100%)	0
Teach or cue directionality	15 (58%)	11	1 (13%)	6*	1 (25%)	3
Say, Does it sound right	25 (96%)	1	7 (88%)	1	4 (100%)	0
Get mouth ready for sound	24 (92%)	2	4 (50%)	4	3 (75%)	*
Stretch sounds in words	22 (85%)	4	2 (25%)	6	3 (75%)	1
Elkonin Boxes for sounds	14 (54%)	12	1 (13%)	7	1 (25%)	3
Hearing/finding rhyme	16 (62%)	10	3 (38%)	5	3 (75%)	1
Reread writing aloud	19 (73%)	6*	5 (63%)	3	3 (75%)	1
Say letters while writing	17 (65%)	9	4 (50%)	4	2 (50%)	2
Talk about the story	23 (88%)	2*	8 (100%)	0	4 (100%)	0
Verbally introduce vocab.	21 (81%)	4*	7 (88%)	1	3 (75%)	1
Echo or choral read	18 (69%)	7*	3 (38%)	5	1 (25%)	3
Movements for segmenting	14 (54%)	12	1 (13%)	7	1(25%)	2*
Finger point to words	26 (100%)	0	6 (75%)	2	2 (50%)	2
Frame word with hands	21(81%)	4*	5 ((63%)	3	2 (50%)	2
Magnetic letters or tiles	11 (42%)	14	1 ((13%)	7	3 (75%)	1
Writing sentences	17 (65%)	9	5 (63%)	3	4 (100%)	0
Moving chips in boxes	10 (38%)	16	1 (13%)	7	2 (50%)	2
Writing words for fluency	18 (69%)	8	3 (38%)	4*	3 (75%)	1

Table 4 (Continued)

Sensory Activity	K-2 (n = 26)		3-8 (n = 8)		Other (n =4)	
	High	Low	High	Low	High	Low
Reconstructing sentence	15 (57%)	11	0 (0%)	8	3 (75%)	1
Activities cut-up sentence	12 (46%)	14	0 (0%)	8	2 (50%)	1*
Rubber band for stretching	7 (27%)	19	1 (13%)	7	1 (25%)	2*
Words						
<u>Card to frame words</u>	<u>7 (27%)</u>	<u>19</u>	<u>3 (38%)</u>	<u>5</u>	<u>1 (25%)</u>	<u>3</u>

*Indicates one participant in this group did not respond.

Written responses. On the second page of the questionnaire, teachers indicated what grade levels they were teaching and other reading training that they had received. Four of the teachers had been trained in Reading First and most of them had received training in other district workshops.

In order to gather more specific data about their use of sensory activities the participants were asked to respond to three questions. All but five participants gave some response to these questions.

First query: Describe your use of sensory activities in your literacy lessons before ALL training. Answers could be categorized into two main groups:

1. Twenty-two participants (58%) responded saying they had little use of sensory activities, similar to those from the ALL program, in their literacy lessons before ALL training.

Examples of responses given by those in the little use category:

- “I taught reading in groups and helped students sound out difficult words. This was the only resource I gave them. Now many times making the sounds is the last resource I use with students.”
- “I was a first year teacher with very little training. My guided reading lessons contained little or no sensory activities.”
- “I did far less small group/guided reading. I limited myself to whole group lessons with following literacy activities to reinforce.”
- “I followed the basal reader prior to 1992, very few sensory activities were used.” (examples from page two of questionnaires)

2. Twelve participants (32%) reported using various sensory activities before training. Of the 12 teachers who reported using various activities some had previous experience with deaf education, Montessori, and working with high-risk students. A couple of the younger teachers made these comments:

- “I used a whole language approach to teaching. I included poems, songs, chants, big books, etc. and encouraged student interaction through literacy centers. I used trade books to encourage independent reading.”
- “I have always used sensory activities in my lessons because that is how I was taught at USF and with K-1 students, it helps them internalize.”
(examples from page 2 of questionnaires)

It would seem that some of the teacher education programs are now training the pre-service teachers to use such activities in their literacy lessons.

Second Query: Has your use of sensory activities changed since your ALL training? Please explain.

The responses to the second query elicited longer responses and greater variation. Twenty-three participants (61%) responded they were now using more activities as a result of their training. Four of these teachers stated that their training made their use of sensory activities more consistent and purposeful. Eleven other participants did not discuss their change in use of sensory activities, but instead discussed the importance of learning to use strategies and cueing systems with their students as a result of their ALL training. Four main themes could be found in these responses:

1. Teacher Change

A common comment from those reporting change was “ I now involve more of the senses (page 2 comment, questionnaire).” The results were similar to the teachers’ reports in the pilot study, where teachers reported using more senses and a greater variety of activities in their literacy lessons after their ALL training. However, many comments also reflected a reflective change in decision-making as characterized by the following comment--“ I am much more aware of what I am doing and the purpose of it. It has changed the way I do all of my instruction (page 2 comment, questionnaire).”

2. Teacher Empowerment

When asked to describe how their ALL training impacted their teaching of struggling readers, one teacher commented,“ I have a better understanding of the rationale for using these activities. Now I see how essential these activities are with the at risk population (page 2 comment, questionnaire).” Not only did teachers report having a better understanding of what they could do to help their struggling readers, but they felt empowered to be able to expect their students to be successful. As one teacher explained, “ I have learned a tremendous amount of beneficial techniques to use with my students

for a great success rate (page 2 comment, questionnaire).” The teachers had positive outlook on their work with students struggling to learn to read.

3. Student Empowerment

The teachers not only reported feeling empowered themselves, but that the program helped them to empower their students to become independent learners. One teacher explained this helped her students become reflective because, “I am able to give students some ideas to think about when they are having problems (page 2 comment, questionnaire).” Another shared, “It has enabled my struggling readers to have fix up strategies that are easy and usable (page 2 comment, questionnaire).”

4. Strategy Talk

The use of ALL trained strategies and cueing systems showed up in many different comments throughout page two. Strategy talk training included questions and comments that a teacher could use to help students become more reflective in the reading and writing process. Many of the teachers felt this was the most important thing that they had learned in their ALL training. For instance, one teacher’s comment was “I use the strategies and lesson format in all my teaching of reading and writing.” While another stated, “I incorporate strategies and activities into other content areas (page 2 comment, questionnaire).”

Third Query: If you are a classroom teacher, describe the impact of your ALL training upon your literacy lessons with the struggling readers in your classroom.

- Eight (21%) of the respondents indicated that ALL training has had an impact on how they teach reading to all of their students, not just those who are struggling.

- Ten other participants (26%) stated that ALL training equipped them as teachers to teach struggling students through a knowledge of strategies, questioning and cueing systems.
- Sixteen respondents (42%) discussed how their ALL training impacted the students by equipping them to be independent learners. Many of these commented on their struggling students learning strategies, feeling confident and successful, and being motivated to stay on task.
- One teacher's comment largely summed up the feelings of these participants: "It has made a world of difference for my struggling readers to have a success story and increased progress in all of my readers." (page 2 of respondent's questionnaire)

Near the end of the second page the participants were asked to indicate if they were willing to have a one-hour interview with the researcher. A total of 19 indicated that they would be willing to participate in an interview, but only 14 of these were primary level teachers.

Final Response: Participants were encouraged to write any other comments that they would like to share. Sixteen of the 38 participants offered further comments. All but one were comments commending the program, that participant indicated, "I don't feel I am teaching a large population of students who will benefit by ALL methods (She taught grades 3-5)." However, six participants responded that they felt the training would be valuable for all teachers to receive.

Since ALL training was originally designed for use with early childhood it is not surprising that participants with older students find less relevance, and many of those teaching early grades found the program especially helpful.

Phase Two

The purpose of Phase Two of the study was to gain more in-depth understanding of reported teacher use of sensory activities. This phase continued to address the first research question concerning the frequency and variety of sensory activity use by ALL trained teachers.

The focus of the study was on the use of sensory activities in primary level literacy lessons, however the researcher found that only 26 of the 38 participants in Phase One fit the category of a primary classroom teacher. This was a surprise to the researcher for her prior experience with the program had been with only primary level teachers. Since the objective of the questionnaire was to get an overview of sensory use by ALL trained teachers, the researcher decided to look at all of the participants in Phase One. However, since the research questions specified primary literacy lessons, the researcher felt it best to limit Phase Two and Three to primary classroom teachers. Fourteen primary classroom teachers had indicated a willingness on their questionnaire to participate in an interview. In October, letters were sent to those 14 participants; a stamped addressed envelope was enclosed and they were asked to send contact information. By the end of October only four participants had replied providing the researcher with the information necessary to set up interviews. Those four were contacted and interviews were set up. All four teachers were first grade teachers, but one no longer taught the language arts block in her classroom. These four were interviewed during the first two weeks of

November. During that time, a fifth first grade teacher agreed to be interviewed and she was interviewed the following week.

Although the original plan had been to interview 6-8 teachers, some of whom had indicated high use and others low use of sensory activities, this was not possible since all respondents agreeing to be interviewed indicated a high use of sensory activities. With the low rate of return the researcher decided to interview all primary classroom teachers who agreed to be interviewed. In late November and in December, two more teachers sent back the contact information. Since Phase Three in the classrooms had already begun, the researcher followed up those teachers with interviews during the final interview process of Phase Three.

Interviews. All seven interviews were approximately one hour long. Six of the seven teachers taught first grade and one teacher taught kindergarten. They represented six different schools in the central Florida school district. The researcher used the teachers' personal questionnaire data and a semi-structured interview guide (Appendix E) to guide the interview. Although a primary focus was to expand on their use of sensory activities in their literacy lessons, the teachers were also encouraged to explain their implementation of their ALL lesson training in their own classroom. Two of the first grade teachers worked for a while as reading intervention teachers who pulled out children from other classrooms, but were now back in the classroom full-time. The other five teachers were classroom teachers before their training and have only implemented the ALL literacy program as a classroom teacher; with the exception of their experience working one-on-one with a child after school during their training.

Three of the teachers, Marsha Newton, Brenda Graham, and Debbie Gresham (pseudonyms), took their training after only one or two years of teaching experience. Brenda Graham related her frustration in trying to run a whole language classroom, feeling that she did not know how to help her students become successful readers. After her ALL training she felt equipped to handle students who struggled to learn to read. Marsha Newton had a similar experience but was using a basal reading program; now she used the ALL strategies and activities with her entire class. The training gave her a repertoire of techniques that can be used as needed in her literacy lessons. Debbie Gresham was in her fourth year of teaching and her third year of using ALL program knowledge in her classroom. She said she really could not remember what she did that first year except follow the curriculum. She tries to fit as much of the ALL lesson components into her guided reading groups as time allows.

Three teachers, Cynthia Carson, Lisette Elsworth, and Teresa Jennings, have 20 to 30 years of experience. They considered themselves effective experienced teachers even before receiving the ALL training, but all commented on how some of their fundamental ideas about teaching reading changed as a result of the training.

Two of the teachers, Carla Denton and Lisette Elsworth, had a lot of prior experience with sensory activities before their training. Carla Denton had Montessori training and had made use of her Montessori experience in her classroom. Lisette Elsworth had worked with preschool children for years before teaching first grade and planned activities for her students that engaged the senses as much as possible. The other five had little prior experience in using sensory activities in their classroom and they

reported a definite increase in both variety and frequency of use of such activities as a result of their training.

The predominant themes in the interviews reflected the themes found in the page two responses on the questionnaires in Phase One. These themes were teacher change, teacher empowerment, strategy talk, and student empowerment. Although these themes were not always directly related to the study inquiry into sensory activity use, they were an essential part of these teachers' personal perspectives.

Teacher change. A common theme of the interviewees was change. They all talked about how their thinking and teaching evolved over the year they received the training. Cynthia Carson affirmed that although she had taught school for nearly 20 years before her training, she had never learned anything about teaching reading that was as effective and life-changing as her ALL training. She said,

Back in the 80's they did not teach anything about reading like this program. I never even knew those strategies until I took the ALL training and it was so, like why hadn't someone come up with something like this a hundred years ago. It is so simple (Transcript, 11/9/04).

Carla Denton had been teaching for a several years but she still felt inadequate when working with the students who needed extra help to learn to read. She had even been working in an after school program for at-risk readers. She felt that her ALL training helped her both in the classroom and with the after school readers. She said now she knows how to assess their needs and what to do to help them. In fact, she related that the training has changed her classroom language, for now she uses strategy talk in guided

reading group and in whole group instruction. She talked about the time commitment of the year-long training and how at times the training seemed very repetitive.

It was like, if we have to do—sounds like, looks like—you know like your are thinking, I am an adult I got the idea. But to have it just as a part of you, that you are not planning it or thinking of it. And you have to keep doing it over and over. And you have to practice it. If was not fun to have to stay 45 minutes after school to have to tutor. It was not fun to have someone watch me. But if I had not practiced those skills, I don't think they would have become a part of me (Transcript, 11/4/04).

Four out of the seven teachers interviewed commented on how the year-long training with observations allowed them to effectively implement what they were learning. At first they were uneasy when their trainers came for observations, but soon they realized that the observation was for their benefit so that they might fine-tune their ability to use their knowledge and make skillful teaching decisions during their lessons.

It was Lisette Elsworth who expressed the concept of change most eloquently.

My training has really humbled me, and I told them that when I first went into ALL I thought I was a good teacher. And I really did. Then I began to see how much lack there was in my style and delivery in working with my kids in these small groups to achieve. I said you know I have a lot of work to do. So, now I am not a master yet, but I am gradually growing toward becoming a master of the ALL training, based on the training I have received and taken back to my classroom (Transcript 11/16/04)).

Teacher empowerment. Corresponding with the theme of teacher change, was that of teacher empowerment. Every one of the teachers interviewed expressed that ALL training gave them the theoretical base and tools to be effective reading teachers.

Marsha Newton's comment about this feeling of adequacy was, "It was some of the hardest training I ever took, but when you get finished with it, you feel like you are a real reading teacher. (Transcript, 2/11/05)"

Carla Denton was so enthusiastic about the program that she said, "So, I would recommend it to anybody. If you really want to improve your reading skills. If you really want to know how to help a child who is struggling with reading. Take this class. You will know (Transcript, 11/4/04)."

Brenda Graham related her very frustrating first year of teaching. She described her university reading course, "I had just had a how to teach reading and it seemed, that whole language was the thing. And it seemed like if you just put books in front of them, and you surrounded them with literature, and you surrounded them with a print rich environment—it was just going to by osmosis get in. I felt like I did such a bad job my first year, that two years later after I took the ALL training, I asked to have those same kids again. I felt I could do a better job. (Transcript, 11/9/04)"

Each of the teachers expressed that the training empowered them to be a teacher prepared to meet the needs of the students in their classrooms, especially those students that are most at-risk in literacy learning.

Strategy talk. Another dominant theme found in the interview transcripts was strategy talk. The term 'strategy talk' is a short way of talking about prompts to support the use of strategies (Clay, 1993; Fountas & Pinnell, 1996). Clay (1993) advocated the

training of teachers to use prompts and questions at the point of need to scaffold the student's development of strategic reading. Fountas and Pinnell (1996) further developed these prompts into a chart in their book, *Guided Reading* (Sample handout from ALL, Appendix I). Approximately one third of the sensory activities the teachers were responding to on the questionnaire related directly to strategy talk. Every teacher interviewed related how empowered they felt as reading teachers when they began to understand and use the questioning techniques and strategies that were a part of their training. Over and over when they related implementing ALL into their classroom the words strategies, questioning, and cross-checking would come up. Several mentioned that strategy talk became a part of the teacher talk in their classrooms. It was this change in their teacher language that seemed to be of highest significance to them as reading teachers.

Carla Denton explained it this way.

The biggest change has been in using the strategies. And I use them in the reading group. And I use them in the whole group. It's just that the language of our classroom is changed a little bit. We have strategy talk, What can you use to figure this out? And I think I do more questioning, open-ended questioning. How did you know this word? How did you figure this out? What strategy did you use? (Transcript, 11/4/04)

In her interview, Lisette Elsworth illustrated the way she uses strategy talk with her students when she is conducting her literacy lessons.

When they come in I have them learn the strategies, like 'look at the pictures' and 'get your mouth ready.' I say to the kid that doesn't know the word, 'What could

you do to figure out the word, remember what I taught you the other day—you can look at pictures and get your mouth ready.’ And then they tell me what they can do, and I say, ‘Oh, why don’t you try that?’ (Transcript, 11/16/04)

When describing how her literacy lessons have changed, Debbie Gresham explained,

I know the questions to ask them now, you know to help them figure it out. I know how to help them think about their own thinking. And that was not something that I understood before. And that is a big thing, making sure that they are cross-checking all the time, and all that kind of thing. That’s definitely something I do differently now (Transcript, 11/4/04).

This aspect of scaffolding the meta-cognition of their students through strategy talk was the most predominant theme in the written answers on the questionnaires and in the interviews. It seemed to be the catalyst for teacher change for it brought about a different way of thinking, talking and interacting with students during the literacy lesson.

In another dimension, Brenda Graham shared how this has changed her interaction with parents. She said parents are more open and cooperative when you can say, “I know exactly where your child is and I know exactly what is working and what is not. Here is where the need is and here is where we need to work (Transcript, 11/9/04).” Other interviewees also related how this had helped them to effectively communicate with their students’ parents.

Student empowerment. Interrelated with the theme of strategy talk was the theme of students becoming independent learners. Marie Clay (1993) wrote that the purpose for teaching children strategies was that it would produce in the students a self-extending

system allowing them to become independent in their learning. All of the teachers touched on this in some way as they described their implementation of ALL training into their classroom. Debbie Gresham described the change in her teacher talk to her students and how it helped them to think about what is happening as they read. Lisette Elsworth related, “So this becomes a part of my teaching style. And its automatic, and my kids also teach others--- Look at the pictures. Get your mouth ready to say the first sound. So they are also using the strategies with each other, which is what I want” (Transcript 11/16/04). Cynthia Carson put it this way, “I think if they can learn those strategies, they can figure out almost any word. If they will use the strategies that they are given, they can figure it out. That is, if they are willing to take the time (Transcript, 11/9/04).”

Summary of Research Question One

What are the variety and frequency of sensory activities used within primary grade literacy lessons by teachers who participated in literacy intervention training?

Summarizing the results to Research Question One, the teachers responding on the questionnaire reported using most of the sensory activities. The 5-point response scale mean for the predominantly visual activities was 4.18 ($SD = 0.55$) (See Table 3), which would indicate most of the activities were used two to three times per week. The predominantly auditory activities had a mean of 3.98 ($SD = 0.51$) which would indicate use at least once per week. The last area of tactile/kinesthetic mean was 3.23 ($SD = 0.73$), which also would indicate at least weekly use. In addition to this, interview data supported this high use of the sensory activities learned in their ALL training. The major

themes found in the interviews and written responses were teacher change, teacher empowerment, student empowerment, and strategy talk. The teachers not only discussed their use of sensory teaching techniques but how learning the ALL program brought real change for them and their students.

Phase Three

The purpose for Phase Three was to collect data that would address research questions two and three.

2. What is the relationship between teacher-reported use of sensory activities and their observed classroom practice?
3. What is the relationship between observed teacher use of sensory activities and the assessed reading growth of struggling readers in her/his classroom?

Phase Three of the study was multiple case studies of four of the teachers who were interviewed in Phase Two. Although the researcher originally planned to look for teachers with different sensory activity use for this phase, there were only four classroom teachers who taught language arts who were available for observations during this time. Therefore the sample for Phase Three became a convenience sample (Patton, 2002) by default. The teachers were from four different schools. All of them taught first grade primarily but two had students from other grades during their language arts instruction time.

In order to gather data for this phase the researcher made five observations of each of the four teachers during their language arts block time. The observations began in November and were completed in January. During each observation, the researcher tallied the sensory activities used by the teacher during the language arts instruction on a

Sensory Tally Sheet (Appendix E). The researcher also took field notes of the observed language arts time. During these observations the researcher was just an observer, not a participant, and usually sat close to the guided reading area but in full view of the entire classroom.

At the end of the observations in January the researcher had a second interview with each of the four teachers and gathered class reading assessment data. The reading assessment data gave the reading level of each child at the beginning of the year and at mid-year. These reading levels are derived from scores obtained using a county wide leveled book assessment set. This meant that all of the teachers were using the same assessment books to determine student reading level. At this time the researcher also had a member check with the teachers going over the transcripts of the first interviews and information gathered during the observations. In May, the researcher would meet with each of the four teachers and gather end of the year reading data. At that time the transcript of the second interview was made available to them. Only one teacher actually wanted copies of her personal data and these were given to her. All of the teachers were interested in discussing their data.

Case study vignettes. Carla Denton – Lincoln Elementary (pseudonym)

Lincoln Elementary was a large suburban school located on a four-lane highway. The school was surrounded by housing developments and commercial businesses. It was a Title 1 school with a substantial minority population. Of the four schools, it had the most mobile population and for that reason Ms. Denton only had 15 students with beginning, mid and end of the year reading scores, even though she usually had at least 17 students.

Carla Denton had spent time teaching in Montessori schools prior to teaching at Lincoln Elementary. Her first grade classroom was filled with many centers and she involved her students in many creative endeavors along with her regular curriculum studies. She had just finished her ALL training the year before and was implementing it not only in her classroom but also in an after school program for at-risk readers. As might be expected with her Montessori experience, Ms. Denton had the highest average of sensory activity use of the four teachers. She not only used them in her guided reading lessons but also during whole group language instruction and in her many centers.

Ms. Denton worked at implementing the components of the ALL lesson in her guided reading groups. She always began with familiar reads and introducing and reading new text. She tried to fit in writing a sentence whenever possible but this was usually only about one time per week. During her interview she reflected on her prior training and related that while her knowledge of Fountas and Pinnell guided reading gave her a structure for her reading groups, it was her ALL training that had provided her with the kinds of things you can do within that structure. In conjunction with the Houghton Mifflin Reading Series, she tried to develop and model the reading strategies and cueing systems during her whole group and small group work with her students.

She shared that although she had felt the training was long and time consuming, in the end she realized that these factors were necessary to allow the language of the strategies and other aspects of the ALL program to become second nature to her. This gave her the flexibility to make decisions while she was in the teaching process.

Ms. Denton's greatest concern was time. She had four reading groups and would like to meet with them daily but usually managed from 3-5 times per week. Some of her students were pulled to another program during her language arts block time and sometimes they would miss important things in her classroom. Also, children were allowed to go to the lunchroom and eat breakfast even though it was time for school to start. Some of her students were late nearly every morning and she could not begin her group instruction until about thirty minutes into her morning. The researcher did observe the children coming and going during her language arts block and could see that this does cut down the actual time she has to teach language arts effectively.

Debbie Gresham – Forest Park Elementary (pseudonym)

Forest Park Elementary was a beautiful fairly new suburban school that was located about a mile off of a main highway with a forest on three sides. It was a middle class school with large well-equipped classrooms and many volunteers. Ms. Gresham had only two bus riders among her students, the rest were car riders, in great contrast to the other three schools, which were all Title 1 schools. The students in her class had the highest average reading level at the beginning of the year.

Ms. Gresham's literacy instruction time ran like a finely tuned machine. She had literacy centers that students rotated to during the time she did her guided reading groups. These centers usually consisted of: a writing center, a making words center, computer literacy skills time, and reading Accelerated Reader® books at the students' desks. By the end of the literacy block time, all students would rotate through the various activities. She often had volunteers who would work with a group of students on something while she was conducting her guided reading groups. She had four reading groups in her

language arts class of 17 first grade students and two kindergarten students. She predominantly used the Houghton Mifflin readers, but would also pull in other books when possible. Ms. Gresham followed the ALL lesson format very closely except for the sentence writing. Writing at her school was mandated as a separate event and her writing time was after lunch. However, she did relate that she often used ALL activities like stretching the words and Elkonin boxes during her writing time.

Although she had grown children of her own, Ms. Gresham had only been teaching for four years. She had been trained in ALL the second year of her teaching and felt it was a major reason for her success at teaching children to read. She had developed an amazing withitness in that she was very aware of what every student was doing, even while she was teaching a group, and she held every student accountable for staying on task at the center or activity in which they were involved.

Lisette Elsworth – Washington Elementary (pseudonym)

Washington Elementary was an older Title 1 school in the inner city area of a small town. The student population was predominately minority. The school was clean and filled with upbeat posters to inspire the students to do their best. Students in the hallway were orderly and appeared to be very engaged with learning in the classroom. Lisette Elsworth's language arts class was made up of 11 first grade students, four second grade students, and one kindergarten student. The school strove to put the students into reading classes that would best meet their needs, which explained the mix of grade levels.

Lisette Elsworth was an experienced teacher with a Caribbean heritage. She had worked at the preschool level before teaching first grade and described herself as "a very enthusiastic teacher. I always do a lot of music, movement and art" (Interview Transcript

11/16/04). Ms. Elsworth also tried to apply Howard Gardner's intelligences to her teaching. She was very dedicated to her students, coming early each morning to have an extra half hour Accelerated Reading time for students to read their books. She and some parent volunteers would listen to students read and ask them questions about what they read.

Ms. Elsworth related that when she took the ALL training she began to identify with Marie Clay. She said, " I read the book more than once because there were some areas that I felt compelled to look at in depth. One of the chapters talked about reading as a quiet process. It goes on so quietly inside the head of the child. And that really strengthens me" (Interview Transcript). In her classroom, Ms. Elsworth used ALL techniques when she taught, whether she was working with the whole class or her guided reading group.

Of all of the teachers, she tried to follow the ALL lesson components the most closely. She began with the children reading familiar books and stories and did a running record with one member of the group during the familiar read time. She then worked on a word pattern that would be encountered in their story, and had the students write a sentence on a sentence strip using one of the words that they talked about. She cut up the children's sentences and had each child reconstruct their sentence. In one lesson she would have each student close their eyes while she removed a word. Then each student had to tell her which word she had taken. Before reading she did a picture walk through the story and they would predict what might happen. She would also introduce new vocabulary by having them locate the word in the text. Finally, she would have them mumble read the text listening in as the students read (Field Notes and tally sheets).

She had three reading groups in her class of 16 students for language arts and she usually was able to meet with each group about four times per week. During observations of her lessons she consistently had familiar reads, new text reading, and writing a related sentence. She used the Houghton Mifflin Series as well as other books. While she was doing guided reading groups, the other students rotated to related centers including: a computer program that reinforced the phonics and word work for the week, a writing task, a word work task like magnetic letters, and a manipulative task that usually used coloring, cutting, and pasting. All paper based center tasks are glued into a notebook for future use. Some days Ms. Elsworth had a paraprofessional who helped in her classroom, but not every day, the paraprofessional was present at three of the five visits. Her students knew the routines and she was extremely organized with everything prepared in advance. She began with circle time where she taught a concept or reviewed a concept with the whole group. She explained their center tasks and then sent each group to their assigned center and called her first guided reading group. All groups worked on task while she is doing guided reading. They were allowed to help each other quietly.

Cynthia Carson – Oak Hill Elementary (pseudonym)

Oak Hill Elementary was a rural Title 1 school with a large minority population. The school was located on a two-lane road across the street from a county park. It is a well kept school with faculty staying at this school for many years. It has a fairly stable student population, Cynthia Carson's sixteen first grade students were there for the entire year. She faced the greatest challenge of the four teachers because her four lowest readers had an average book level of only 1.25 at the beginning of the year.

Ms. Carson was the most experienced teacher with 32 years in the classroom. She had seven years working as a reading intervention teacher after she completed her ALL training. She had been back in the classroom for about four years. Her classroom structure was quite traditional with seatwork written on the whiteboard for the students to do while she conducted her reading groups or read with individual students. Students all had a bag of familiar read books at their desks to read when they finished their seatwork.

Unlike the other three schools that used Houghton Mifflin as their basic reading curriculum, Oak Hill Elementary had adopted a computer related reading program called *Breakthrough to Literacy*. The program introduced a big book to the whole class each week. Then students went daily to a related computer program which was set up to work at their individual levels by responding to correct answers with more difficult work and giving extra practice on items on which the students responded incorrectly. Students would rotate to the computers during the language arts time.

Ms. Carson also had some leveled books that she would use in her guided reading groups and with individuals. She would attempt to read individually with every child each week, and those books would then go into their familiar read bags. The four reading groups meet with her two to three times per week. She had broken up the ALL lesson into stages: The first day she introduced a book and they read it. The second day they reread the book and took a word to Elkonin boxes. On the third day they reread the book and wrote a sentence about it. Finally, on the fourth day, they reread the book and sentence, and then cut up the sentence, wrote it on an envelope and took it home. It took four guided reading group days for the reading group to finish the cycle, but she reported this usually was spread over two weeks.

The students read the same big book as a class every day for a week, and they had a small copy to take home to read. They also had a class writing assignment for their journal each day. Ms. Carson had her students very engaged in literacy tasks each day listing their assigned seatwork on the board each day. She was observed to take extra time with a couple of the very needy students by working individually with them when they encountered difficulty on the assigned tasks. She strove to use the curriculum that had been assigned for them to use, so she was observed to follow the daily routines with the big book and computer time and then worked her guided reading groups into what time is left.

Findings for Research Question Two

What is the relationship between teacher-reported use of sensory activities and their observed classroom practice?

In order to compare the relationship between teacher-reported use of sensory activities and their observed classroom practice, the researcher calculated mean of the 5-point response scale response scores and the tallied daily use of those activities in the five observed language arts instruction times. Although the 5-point scale mean and the mean daily use are two different kinds of scores, by grouping the activities by modality it was possible to make some comparisons. (See Table 5)

Table 5

Comparison of Questionnaire Responses and Observed Sensory Activity Use

Teacher	Sensory Activity	Mean Daily Use	Mean 5-point Scale
Denton	Visual	4.6 (<i>SD</i> = 2.50)	4.22 (<i>SD</i> =1.30)
	Auditory	5.4 (<i>SD</i> = 2.30)	4.50 (<i>SD</i> =0.71)
	Tactile/Kines.	3.8 (<i>SD</i> = 2.28)	3.64 (<i>SD</i> =1.21)
Gresham	Visual	5.25 (<i>SD</i> = 0.96)	3.89 (<i>SD</i> = 1.76)
	Auditory	4.5 (<i>SD</i> = 1.29)	4.0 (<i>SD</i> = 1.05)
	Tactile/Kines.	2.0 (<i>SD</i> = 0.82)	3.18 (<i>SD</i> = 0.83)
Elsworth	Visual	4.0 (<i>SD</i> =1.58)	4.89 (<i>SD</i> = 0.33)
	Auditory	4.8 (<i>SD</i> =1.30)	4.70 (<i>SD</i> = 0.48)
	Tactile/Kines	3.2 (<i>SD</i> =1.30)	3.91 (<i>SD</i> = 0.83)
Carson	Visual	4.8 (<i>SD</i> =1.09)	4.44 (<i>SD</i> = 0.88)
	Auditory	5.2 (<i>SD</i> = 1.64)	4.40 (<i>SD</i> = 0.70)
	Tactile/Kines.	2.2 (<i>SD</i> = 1.09)	3.36 (<i>SD</i> = 1.12)

All of the four teachers in this phase of the study had reported that Tactile/Kinesthetic activities would be their lowest used activities and that did prove true in the observed lessons. Denton with her Montessori background was the only one who reported each modality in the order of preference that she used them. She reported Auditory activities as her highest and it was the observed highest in her daily use of sensory activities. Gresham, on the other hand, had reported visual activities would be used slightly less than auditory, but in reality visual was used more often. Elsworth had

reported a higher use of visual, but in four out of five observations her use of auditory activities was highest. In fact, three of the four teachers had auditory as the highest used activity modality. Carson had reported approximately equal use of visual and auditory, but in observed use auditory was higher. However, in looking at the overall profiles of the teachers there were similarities in how they reported the use of ALL sensory activities and the observed use of those activities. ALL trained sensory activities could be found in their whole class and group literacy instruction.

In looking at use of individual activities, Carla Denton predicted daily use for 13 of the 30 activities, ranging from directing the student to pictures to writing words for fluency. In observations of her lessons 11 of the 13 activities were used daily. Two of the 13, reread writing sentence aloud, and, saying the words for fluency, were not observed in any of the five observations. Only one of the activities given a 5-point score below 2 (2-3 times per month) was observed. Although she had said she would use body movements for segmenting once per month or less, it was observed in one of the lessons. Denton reported her sensory activity use in a manner similar to the observed use in her literacy lessons.

Interesting to note, Debbie Gresham also reported using 13 out of 30 activities on a daily basis, and again 11 of the 13 were observed used during each literacy instructional time. She reported daily use of , body movements for chunking, and, referring to charts, but neither activity was observed. However, of the six activities she reported as low use (2-3 times per month or less) none of those were observed. She used, locating the word in text, at every observation which was much higher than her reported use of weekly. But

overall, she also used the activities in a pattern close to what she reported on the questionnaire.

Cynthia Carson, also, reported using 13 of the activities on a daily basis, but only 9 of the 13 were observed as used each time her literacy lessons were observed. She had reported daily use of, stretching the sounds to hear them, and, framing the work or chunk with hands, but these were not observed in her lessons. The other activities were observed as reported, except, body movements for chunking, and, writing words for fluency. Those activities were reported as used at least weekly, but they were not observed. Overall, Carson used the same pattern of activities in each of her lessons and all tactile/kinesthetic was primarily finger pointing to the words unless that lesson happened to be the day they were writing or reconstructing a sentence.

In contrast, Lisette Elsworth reported using 18 of the 30 activities on a daily basis. In five observations, 15 of the 18 were observed at some time during her literacy lessons each day of observation. Making and breaking with magnetic letters was observed during 3 out of 5 observations, but not daily. On the other hand, find the hard part, and, say the letters while writing words for fluency, were not observed even though she had reported them as used daily. Although, she reported using all activities at least weekly there were six activities that were not observed. Two of those not observed had to do with Elkonin boxes.

In looking at the pattern so far in the four teachers, they had all had at least two activities reported as used frequently but which were not observed. Since some of these activities are used more with first grade students at the beginning of the school year, it

would be expected that the time of year would affect the frequency and even kind of activities that might be included in the literacy lesson.

Table 6

Teachers' Observed Frequencies by Modality

Teacher	Visual	Auditory	Tactile/Kinesthetic
Denton	4.6 (<i>SD</i> = 2.50)	5.4 (<i>SD</i> = 2.30)	3.8 (<i>SD</i> = 2.28)
Gresham	5.25 (<i>SD</i> = 0.95)	4.5 (<i>SD</i> = 1.29)	2.0 (<i>SD</i> = 0.82)
Elsworth	4.0 (<i>SD</i> = 1.58)	4.8 (<i>SD</i> = 1.30)	3.2 (<i>SD</i> = 1.30)
Carson	4.8 (<i>SD</i> = 1.09)	5.2 (<i>SD</i> = 1.64)	2.2 (<i>SD</i> = 1.09)

Table 6 summarizes the teachers' observed frequency of sensory activity use by modality. Looking across the table the mean frequencies are similar. The range for visual means was from 4.0 to 5.25, which would indicate the teachers on average used four to five visual activities during a classroom observation. The range for auditory means was even closer, 4.5 to 5.4. Again, the teachers usually implemented four or five auditory activities. The most variation was found in tactile/kinesthetic ranging from 2.0 to 3.8. Two of the teachers, Carson and Gresham usually implemented two tactile/kinesthetic activities, such as finger pointing nearly every lesson, while Denton and Elsworth had at least three tactile/kinesthetic activities.

Findings for research question three. What is the relationship between observed teacher use of sensory activities and the assessed reading growth of struggling readers in her/his classroom?

Question three addressed whether there was a relationship between the way these participant teachers implemented sensory activities in their literacy instruction and the

reading growth of struggling readers in their classrooms. The county expectations were that students be at book level four by the end of kindergarten, and at level 18 by the end of first grade. This would mean an expected average growth of 14 book levels in first grade.

In order to investigate this, the researcher gathered classroom reading assessment results. In January, the results for the beginning of the year and mid year testing were collected from the teachers. Using those results, a group of four lowest readers was identified for each teacher. Then in May, the final reading assessment results were collected from the teachers. The results for each teacher were tabulated with averages for the whole class and the group of struggling readers (see Appendix H). Finally the results for the whole class reading growth and the lowest readers growth were graphed (Figures 1 and 2).

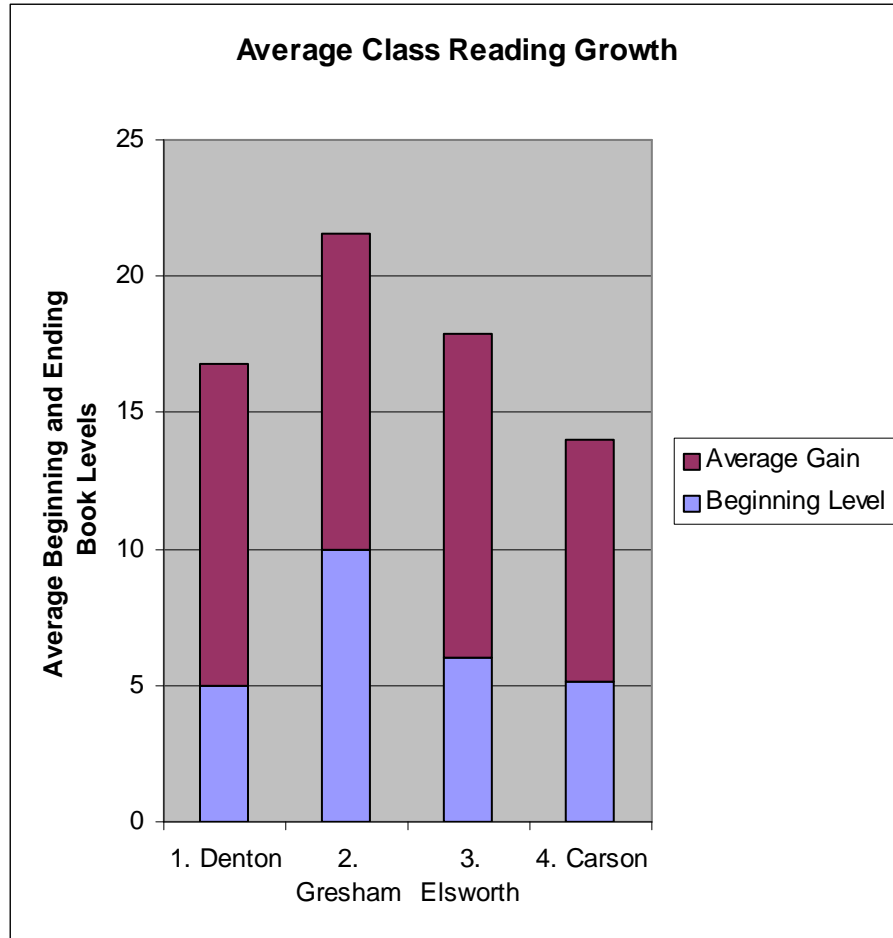


Figure 1. Average Book Level Growth by Class

As can be seen in the graph indicating average growth for their whole class, all teachers showed considerable growth in the overall reading book level of their students. As might be expected the two classes with the lowest average beginning level had the lowest average at the end of the year, and the class with the highest beginning level ended with the highest average reading level. However, although Ms. Elsworth's beginning level was only slightly higher than Denton's and Carson's, her class showed very good growth with 81% of the students reading at level 18 or above. Level 18 was the target book level for students to be on by the end of first grade.

When looking at the graph (Figure 2) of the average reading growth of the group of four lowest students in each of the four classes we find a greater difference in the results. The average reading level of Ms. Gresham’s and Ms. Elsworth’s lowest students was approaching an end of the first grade year level (18). Ms. Denton’s group was lower but still showing a lot of progress. Ms. Carson’s students began at the lowest book level of the four and continued to struggle even at the end of the year.

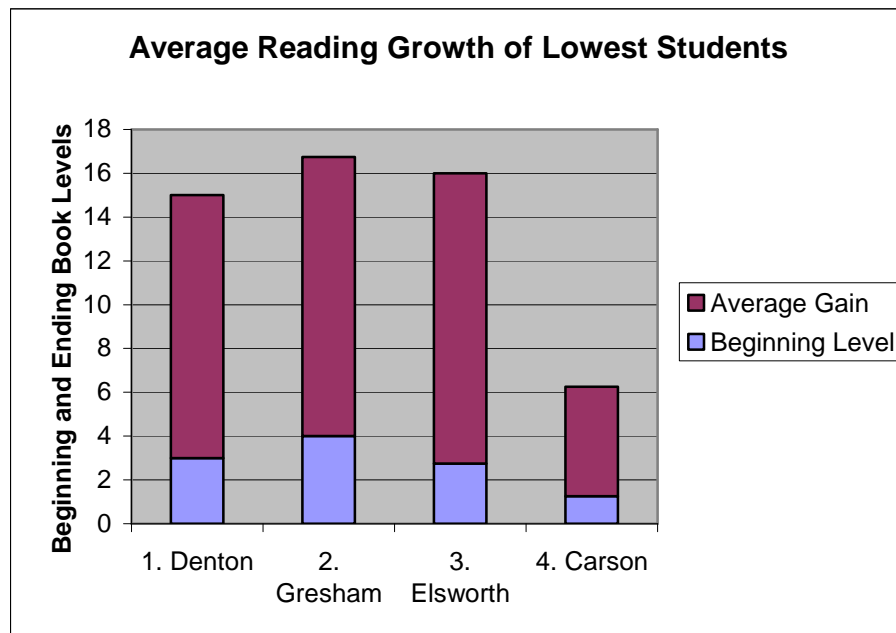


Figure 2. Average Book Level Growth of Lowest Students by Class

Research question three had asked if there was a relationship between the teacher’s use of sensory activities in the classroom and the reading growth of the struggling readers in that classroom. In order to look at this, the researcher took the data on the participant teachers’ sensory use and the data for the group of the struggling readers in their classroom and placed the data into a table and graph (Table 7, Figure 3).

Table 7

Comparison of Average Daily Sensory Activity Use and Reading Book Level Growth of Struggling Readers

Class	Visual	Auditory	Tactile	Sensory Kinesthetic	Total	Book Level Growth
Denton	4.6	5.4	3.8		13.8	12
Gresham	5.25	4.5	2.0		11.75	12.75
Elsworth	4.0	4.8	3.2		12.6	13.25
Carson	4.8	5.2	2.2		12.2	5.0

As can be seen in Table 7, Denton, Gresham, and Elsworth’s groups were close to the expected book level growth of 14 levels in first grade. Even though their groups of lowest students had not quite reached level 18, they were close enough to be expected to have success in second grade level reading. Carson’s group average would indicate that they are still at-risk.

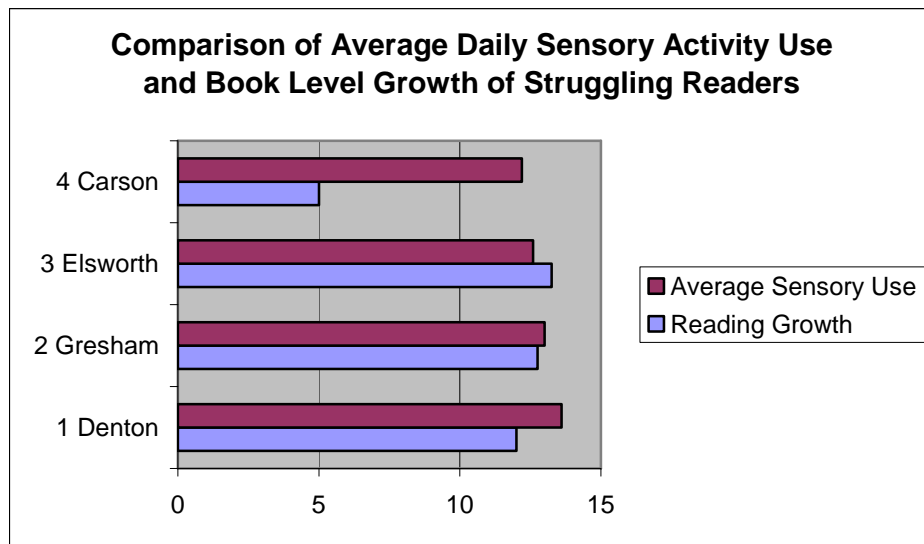


Figure 3. Comparison of Average Daily Sensory Activity Use and Book Level Growth

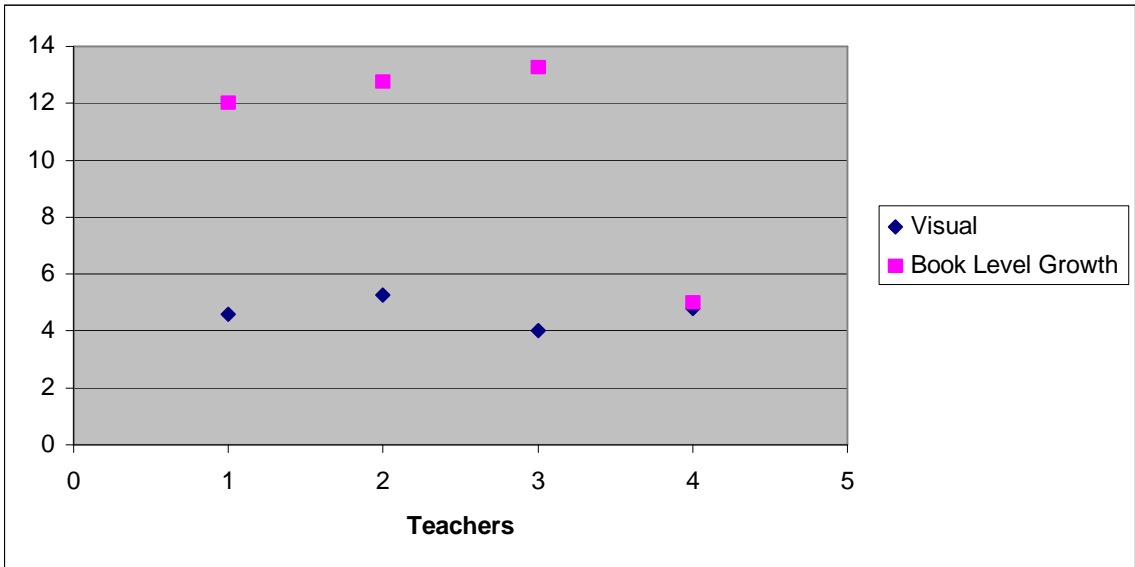


Figure 4. Comparison of Teachers' Visual Activity Use and Book Level Growth

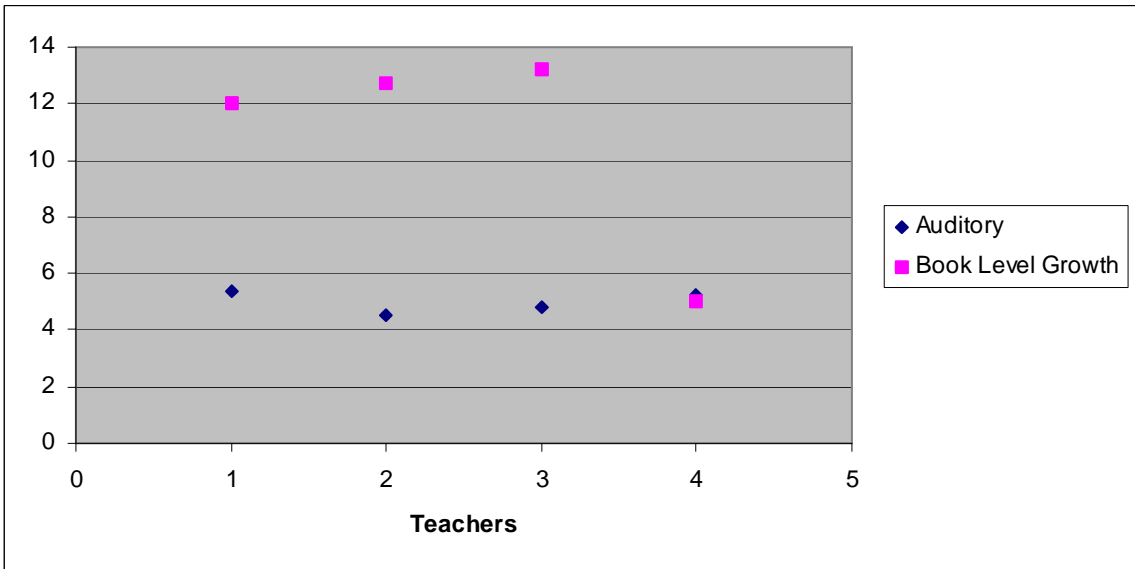


Figure 5. Comparison of Teachers Auditory Activity Use and Book Level Growth

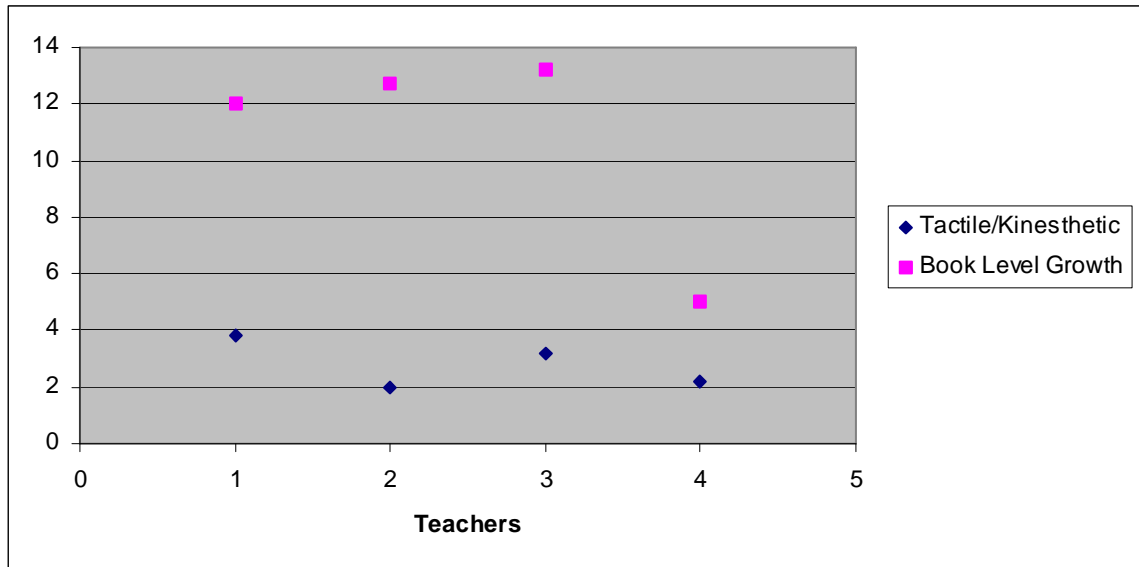


Figure 6. Comparison of Tactile/Kinesthetic Activity Use and Book Level Growth

Looking at the comparison of modality use and book level growth we see a similar pattern of use among the four teachers in their use of the sensory activities, but the fourth teacher, Carson, shows much less book level growth in her lowest readers than the other three teachers.

As can be seen in both Table 5 and Figure 3, all four teachers had a similar range of sensory total activity use in their observed literacy instruction time. Three of the teachers showed considerable growth in their lowest students reading levels, with Gresham and Elsworth showing a very close parallel. Carson used a similar frequency of sensory activities. And yet, the reading growth of her struggling readers does not seem to bear any relationship with her sensory activity use. Therefore finding a possible relationship between a teacher's sensory activity use and the reading growth of students may require a look at things other than frequency. In looking at Carson's use of sensory activities on a daily basis, it is evident that she used the same activities over and over with little variety and even used the same activities for all levels of reading groups.

Perhaps, variety as well as fluency is more effective. The student populations of the three Title 1 schools were at a similar reading level at the beginning of the year. Denton and Elsworth frequently used a variety of tactile/kinesthetic sensory activities in their literacy lessons, as well as visual and auditory activities. Carson, on the other hand, used fewer tactile/kinesthetic and with less variety.

Compare and contrast case studies. Although the average daily sensory total was around 12 or 13 for all four case study teachers, the way that each teacher implemented their ALL procedures were not the same. Ms. Gresham and Ms. Elsworth implemented most of the ALL lesson components (familiar reads, word work, writing sentences, discussing and reading new text) four and five times per week in their guided reading groups and their students are with them during the entire language arts block. Ms. Denton met with her groups three to five times per week, but often had times when children were missing during the language arts time because of coming to class late from breakfast or being pulled for another special help class. Ms. Carson had to divide her language arts time with computer based learning time and other confines of her curriculum. Her groups met two to three times per week and she spread out the ALL lesson components so that students read about one new book per week in their reading group.

Summary

This study investigated the teachers' use of sensory activities that had been a part of their Accelerated Literacy Learning training program. There were 38 participants in Phase One who sent back completed questionnaires. All but one participant reported a high use of sensory activities in their literacy lessons, although the grade level they were

working with did influence the variety and frequency of their reported use. Most primary level teachers reported a high use on many of the activities.

There were seven teachers who participated in interviews for Phase Two and four of those teachers participated in Phase Three, which included classroom observations. The major themes that were found in the written answers on the questionnaire and in the interviews were: teacher change, teacher empowerment, strategy talk, and student empowerment. Overall, they reported that their ALL training made a difference in how they conducted their literacy lessons.

Teachers' classroom use of sensory activities was compared to the teachers' reported use in the questionnaires. Although some items were over reported and a few under reported, a similar pattern of sensory activity use was found both in the reports and in classroom observations. The book level growth of struggling readers within the classrooms was compared with sensory activity use. Although there may be some relationship between this reading growth and the sensory activity use, other factors such as the variety of activities and the amount of time and text are factors that would need to be taken into consideration.

Chapter V

Discussion and Conclusions

This study of sensory activity use by teachers trained in Accelerated Literacy Learning (ALL) has added another facet to the body of knowledge concerning teachers' classroom implementation of strategies and techniques received in comprehensive professional development settings.

It has similarities to a study by Roehrig, Pressley, and Sloup (2001) which examined the transfer of Reading Recovery instructional practices and teaching strategies by primary classroom teachers trained in Reading Recovery. While observing classroom teachers during their literacy lessons, Roehrig, Pressley, and Sloup coded strategies and procedures. They found that even though the training the teachers received in Reading Recovery were for one-on-one intervention lessons, the teachers were implementing the Reading Recovery strategies and procedures in their own classroom literacy lessons. This study used extensive classroom observations of ten classrooms (three kindergarten, five first, and two second grade). A questionnaire was given to all of the teachers who had been observed asking them to report their integration of Reading Recovery type instruction into their classrooms and how their instruction changed as a result of their training. During the analysis of their findings, Roehrig, Pressley, and Sloup discovered that the grade level the teacher was teaching affected how these strategies and procedures were used and they decided to make up a case study of one kindergarten, one first grade, and one second grade classroom to illustrate those differences.

This study investigated the transfer of ALL sensory activities into the literacy instruction of classroom teachers who had received the year-long training. Although there were similarities to the Roehrig, Pressley and Sloup (2001) study such as the use of observations, questionnaires and case studies, there were also major differences.

For instance, this study was done in three phases. In the first phase, questionnaires were sent out to those teachers who had received training and were still listed as employed by the school district. Out of 104 possible participants, 38 returned their completed questionnaires. In Phase One, the study was more like the Accelerated Literacy Learning (ALL) study by Brashears, Homan, and King (2002) than the study by Roehrig, Pressley, and Sloup (2001). Brashears, Homan, and King sent out questionnaires to a large group of teachers trained in ALL asking them to rate components of ALL training on a Likert response scale from least beneficial to most beneficial. They also included interviews of some of the questionnaire respondents. Like, the Brashears, Homan, and King study, this study did not have a response from those who did not consider the training beneficial. In both studies, teachers who were using ALL procedures in their classrooms felt the training was beneficial for classroom instruction and recommended it for other classroom teachers. In the second phase, this study also had interviews of seven primary teachers who had completed the questionnaires. The purpose of the interviews was to provide more in-depth data concerning the participants' responses on the sensory activity questionnaire. Data from Phase One and Two were collected to answer research question one: What are the variety and frequency of sensory activities used within primary grade literacy lessons by teachers who participated in literacy intervention training? This study found that:

1. ALL trained teacher participants teaching in primary level classrooms report a high frequency and variety of sensory activity use in their literacy instruction.
2. All sensory modalities are reported as being used with frequency, with visual highest, then auditory, and lastly tactile/kinesthetic.
3. Grade level did influence the use of the sensory activities, with kindergarten through second grade reporting the highest usage and greatest frequency. But many of the sensory activities were reported by even teachers at the intermediate grade levels.
4. The Cronbach's Alpha for the 5-point response scale (N of items = 30) was .93 indicating satisfactory reliability for the questionnaire.

Although sensory activities were the dominant foci of this study, other findings were gleaned from the second page of the questionnaires and the interview transcripts. Four major themes appeared in the qualitative analysis of the texts. The first was the theme of teacher change. The majority of the participants made reference to some kind of change in their personal teaching philosophy and expertise as a result of having participated in the ALL training. The second theme was teacher empowerment. In both the written responses and the interviews, teachers talked about feeling like they now knew how to teach reading effectively and they knew how to communicate this knowledge to others. These results were similar to those found in comments in the Brashears, Homan, and King (2002) study. Although the Roehrig, Pressley, and Sloup (2001) study did not address teacher empowerment, they did address teacher change in terms of classroom instruction. Both teacher reported and observed instructional change were found for teachers trained in Reading Recovery.

The third theme was strategies. Most teachers reported in both questionnaire comments and interviews that learning to use strategies was central. It was strategies and strategy talk that was mentioned most often. This theme also had two sub-categories of questioning techniques and cueing systems that went along with the strategies. In fact, many of the teachers described it as a change in their teacher talk. They had learned a new language of literacy instruction during their year of training and they felt empowered by it.

Lastly, the teachers felt their training allowed them to empower their students to become independent learners who learn to read by reading. Since the ALL strategy talk is designed to help students become self-perpetuating learners this would be a goal of the program.

Phase Three included classroom observations of four first grade teachers who were interviewed in Phase Two. These observations addressed research question two: What is the relationship between teacher-reported use of sensory activities and their observed classroom practice?

During this phase, the researcher had expected to find ALL lessons such as she had observed during her two years as an ALL trainer. However, this was not the case. The lessons observed as a trainer were a part of a teacher development program, and those teachers were allowed by their administration to do a 30-minute ALL lesson with their struggling readers. The classroom literacy lessons observed during this study were shaped by district and school administration guidelines. The teachers implemented the ALL activities and procedures according to their own time constraints, administrative directives, and personalities. The implementation of ALL looked very different in each

classroom. The researcher used the Sensory Activity Tally sheet to track ALL sensory activities as they appeared in the literacy lesson time.

The time lapse between the participants filling out their questionnaires and the actual classroom observations would also change some of the teachers' sensory activity usage. Some of the sensory activities would be used highly at the beginning of first grade and less as the students progress. Many of these activities were rated as high frequency by the participants but did not show as high in the actual observations, but this could be because the questionnaires were filled out at the beginning of the year but the observations were near the end of the first semester.

The results were as follows:

1. In the four case studies, ALL trained teacher participants used the sensory activities in a similar manner in their observed literacy lessons as were reported on their questionnaires, except that in many cases they over rated their frequency of use.
2. The observed teachers also used classroom language that included the strategies and questioning techniques that were a part of their ALL training
3. Although all of the observed teachers had a similar frequency use of sensory activities in their literacy lessons, they did not all use as much variety within modalities.

Phase Three also addressed research question three: What is the relationship between observed teacher use of sensory activities and the assessed reading growth of struggling readers in her/his classroom? Although the Roehrig, Pressley, and Sloup (2001) study did not address this question, it was included in their discussion section as a

recommended area for further study. In this county, reading assessment data were gathered by the classroom teacher at the beginning, middle, and end of the school year. The classroom sets of this data were used by the researcher to examine a possible relationship between sensory use and the book level reading growth of the struggling readers. The three teachers implementing the greatest variety of sensory activities had the greatest book level gain in their groups of struggling students. But within the design and scope of this study comparison between sensory use and the book level growth of the struggling readers was inconclusive.

Other important factors were observed in the classroom observations that would have also influenced the growth or lack of growth in book levels. Just as the First-Grade Studies (Bond & Dyksta, 1967,1997) found that factors other than method may affect reading achievement, this study seems to indicate that factors other than the frequency and variety of sensory activities brought greater or less book level progress for the struggling readers in the four observed classes.

The teacher with the lowest progress was endeavoring to implement a computer-linked program, guided reading groups and an individualized reading program. In order for her to do this within her time constraints, she had partitioned out the lesson components over several lessons. The result was that her students only had a new reading passage every fourth lesson. On the other hand, the three teachers with the most progress endeavored to do as much of the ALL lesson components as possible each time they met with their groups. This meant that their students would read a new passage almost every time their group met for guided reading.

In fact, the differences in book level growth of the groups of struggling readers appear to have more relationship to the frequency of their guided reading groups than in the sensory activities that were observed in them. This coincides with the Reading Recovery (Clay, 1993) and ALL (Short, Frye, Homan, & King, 1995) lesson format concept which introduces new text each lesson, as well as rereading familiar text, as the best way to accelerate reading growth in struggling readers.

Although the researcher did not find what she expected to find in the classrooms and within the designs of this study, she came away with a more complete understanding of the complexities of implementing a program, originally designed to be used one-on-one in a pull out situation, into all of the constraints of today's classrooms. Nevertheless, she agrees with many of the teacher participants in this study that the training received in the ALL program has great value within the literacy lessons of primary classrooms.

A similar idea, has been espoused by Cox and Hopkins (2006) concerning using the theoretical principles from Reading Recovery to inform classroom practice. Although they are not a part of the Reading Recovery program, after studying the research and practice of Reading Recovery, they have come to the conclusion that "the theory and assumptions of Reading Recovery can be considered as core to good literacy instruction for all children (p. 255)."

The researcher has realized that the design of her study was not the best for answering her research questions. If she were redoing this study, she would begin with the group of teachers to be observed and would have them complete the questionnaire just before the observations would begin. This would eliminate the time lapse that might

skew the relationship between the reported use and the observed use of the sensory activities. Also, she would focus her observations on the teachers' guided reading groups for their struggling readers and would not collect data on the other things happening in the classroom. This study ended up with a lot of extraneous data that did not relate to the research questions. If trying to find a relationship between sensory activity use and reading growth, observations over a longer span of time would be advisable.

A longer and more in-depth look at sensory activity use might bring a more conclusive answer to the research questions asked by this study. Certainly further study into implementation of the theoretical basis and procedures of Accelerated Literacy Learning and Reading Recovery into the classroom would be valuable. This could be especially important in the professional development of literacy theory and practice for classroom teachers.

References

- Allington, R. L. (1992). Literacy for all children: How to get information on several proven programs for accelerating the progress of low-achieving children. *The Reading Teacher*, 46 (3), 246-248.
- Allington, R. L. (Ed.). (2002). *Big brother and the national reading curriculum: How ideology trumped evidence*. Portsmouth, NH: Heinemann.
- Anderson, R. C. (1994). Role of the reader's schema in comprehension, learning, and memory. In Ruddell, R. B., Ruddell, M. R. & Singer, H. (Eds.), *Theoretical models and processes of reading* (4th ed.) pp. 469-482. Newark, DE: International Reading Association.
- American Association of School Administrators, (1991). *Learning styles: Putting research and common sense into practice*. Arlington, VA: AASA Publications.
- Armstrong, T. (1988). Learning differences—not disabilities. *Principal*, 68 (1), 34-36.
- Armstrong, T. (1994). Multiple intelligences: Seven ways to approach curriculum. *Educational Leadership*, 52 (3), 26-28.
- Ashton-Warner, S. (1965). *Teacher*. New York: Simon & Schuster.
- Bannatyne, A. D., & Wichiarajote, P. (1969a). Relationships between written spelling, motor functionings and sequencing skills. *Journal of Learning Disability*, 2, (1), 4-16.
- Bannatyne, A. D., & Wichiarajote, P. (1969b). Hemispheric dominance, handedness, mirror imaging, and auditory sequencing. *Exceptional Children*, 36 (1), 27-36.

- Barbe, W., & Swassing, R. (1979). *Teaching students through their modality strengths*. Ohio: Zaner-Bloser.
- Bassey, M. (1999). *Case study research in educational settings*. Philadelphia: Open University Press.
- Block, C. , Oaker, M., & Hurt, N. (2002). The expertise of literacy teachers: A continuum from preschool to Grade 5. *Reading Research Quarterly*, 37 (2), 178-206.
- Bogdan, R. C., & Biklen, S. K. (2003). *Qualitative research for education: An introduction to theory and method*, (4th ed.). Boston, MA: Allyn & Bacon.
- Bond, G. & Dykstra, R. (1967), The cooperative research program in first-grade reading instruction. *Reading Research Quarterly* 2, 5-142.
- Bonner, M. et al. (1981). A study of modality strengths among the children enrolled in Butcher Children's School. Emporia State University, Kansas. (ERIC Document Reproduction Service No. ED211184)
- Brashears, R., Homan, S., & King, J. (2002). Teacher training in early literacy intervention: Teachers' views of Accelerated Literacy Learning. *The Florida Reading Quarterly*, 38 (3), 12-19.
- Caine, G. , & Caine, R. N. Eds. (1994) Making Connections: *Teaching and the Human Brain*. Menlo park, CA: Addison-Wesley.
- Caine, R. N., & Caine, G. (1997). *Unleashing the power of perceptual change: The potential of brain-based teaching*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Campbell, L., Campbell, B., & Dickinson, D. (1999). *Teaching and learning through multiple intelligences*. Boston: Allyn and Bacon.

- Carbo, M., Dunn, R. & Dunn, K. (1986). *Teaching students to read through their individual learning styles*. Englewood Cliffs, NJ: Prentice-Hall.
- Chall, J. S. (1967). *Learning to read: The great debate*. New York: McGraw-Hill.
- Churchill, K., Durdell, J. & Kenney, M. (1998). Hear it, feel it, see it: Improving early reading acquisition through a multisensory phonemic awareness approach. Illinois, U.S.. (ERIC Document Reproduction Service No. ED420049)
- Clay, M. (1982). *Observing young readers*. Exeter, NH: Heinemann Educational Books.
- Clay, M. (1993). *Reading Recovery: A guidebook for teachers in training*. Portsmouth, NH: Heinemann.
- Clay, M. (2001). *Change over time in children's literacy development*. Portsmouth, NH: Heinemann.
- Clay, M. (2002). *An observation survey of early literacy achievement*. Portsmouth, NH: Heinemann.
- Cox, B., & Hopkins, C. (2006). Building on theoretical principles gleaned from Reading Recovery to inform classroom practice. *Reading Research Quarterly*, 41 (2), 254-267.
- Cunningham, J. W. (2001). The National Reading Panel Report. *Reading Research Quarterly*, 36 (3), 326-335.
- Dash, D. (2001). *The world at her fingertips: The story of Helen Keller*. Scholastic Press: New York.
- Desmarais, J. (1992) Teachers' opinions of the characteristics of good inservice programs as suggested in current research. La Grange, IL: La Grange School District 105. (ERIC Document Reproduction Service No. ED354592)

- Dey, P. , Doyle, B. & Valente, B. (2002). Labels needn't stick: "At-Risk" first graders rescued with appropriate intervention. *Journal of Education for Students Placed at Risk*, 7 (3), 327-332.
- Donnovan, M. A., & Austin, M. C. (1979). *Does modality preference make a difference? The results of a three-year study—Empirical data.* (ERIC Document Reproduction Service No. ED157027.
- Dunn, R., Denig, S., & Lovelace, M. K. (2001). Two sides of the same coin or different strokes for different folks? *Teacher Librarian*, 28 (3), 9-15.
- Dunn, R., Grieggs, S. A., Olson, J., Beasley, M., & Gormon, B. S. (1995). A meta-analytic validation of the Dunn and Dunn Model of Learning-Style Preferences. *The Journal of Educational Research*, 88 (6), 353-362.
- Dystra, R. (1968). *Classroom implications of the First-Grade Reading Studies.* Paper presents at the annual meeting of the College Reading Association, Knoxville, TN. (ERIC Document Reproduction Service No. ED 022 626)
- Fernald, G. M. (1943, 1988). *Remedial Techniques in Basic School Subjects.* Austin, Texas: Pro-Ed.Inc.
- Fillmer, H. T., & Griffith, S. (1971). Learning modalities of disadvantaged children in reading. *The Florida Reading Quarterly*, 8 (1), 5-10.
- Flood, J., Lapp, D., & Fisher, D. (2005). Neurological impress method plus. *Reading Psychology: An International Quarterly*, 26 (2), 147-160.
- Florida governor initiatives. Just Read, Florida!. (n.d.) My Florida.com Governor's Office website. Retrieved on March 1, 2003, from <http://www.Justreadflorida.com/my florida/government/governorinitiativesreading/index.html>

- Foorman, B. R., Fletcher, J. M., Francis, D. J., Schatschneider, C. & Mehta, P. (1998).
The role of instruction in learning to read: Preventing reading failure in at-risk
children. *Journal of Educational Psychology*, 90 (1), 37-55.
- Fountas, I. C., & Pinnell, G. S. (1996). *Guided Reading: Good first teaching for all
children*. Portsmouth, NH: Heinemann.
- Fuller, C. (1988). *Home-life: The key to your child's success at school*. Tulsa, OK: Honor
Books.
- Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. New York:
Basic Books.
- Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction* (6th
ed.). White Plains, New York: Longman Publishers.
- Gall, J. P., Gall, M. D., & Borg, W. R. (1999) *Applying educational research: A practical
guide* (4th ed.). White Plains, New York: Longman Publishers.
- George, K. (1993). *All the words in the world*. Washington, U.S. (ERIC Document
Reproduction Service No. ED363477)
- Geoghegan, S. M. (1996). *Modality and learning style among basic skills students*. New
Jersey, U.S. (ERIC Document Reproduction Service No. ED393085)
- Gillingham, A. & Stillman, B. (1956, 1970). *Remedial training for children with specific
disability in reading, spelling, and penmanship*. Cambridge, MA: Cambridge,
Educators Publishing Service.
- Glaser, B. (1978). *Theoretical sensitivity: Advances in the methodology of grounded
theory*. Mill Valley, CA: Sociology Press.

- Glaser, B. & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- Gregorc, A. ((1982). *An adult's guide to style*. Maynard, MA: Gabriel Systems, Inc.
- Guild, P. B., & Garger, S. (1985). *Marching to different drummers*. ASCD Publications.
- Guilford, J. P., & Hoepfner, R. (1971). *The Analysis of Intelligence*. New York: McGraw-Hill Book Company.
- Hatch, A P. (2002). *Doing Qualitative Research in Education Settings*. Albany, NY: State University of New York Press.
- Hatch, T. (1997). Getting specific about multiple intelligences. *Educational Leadership*, 54 (6), 26-29.
- Hiebert, E. H. & Taylor, B. M. (Eds.). (1994). *Getting reading right from the start: Effective early literacy interventions*. Boston : Allyn & Bacon.
- Homan, S., King, J., & Hogarty, K. (2001). *A small group model for early intervention in literacy: Group size and program effects*. Report, Florida. (ERIC Document Reproduction Service No. ED461095)
- Huck, C. S. & Pinnell, G. S. (1991). Literacy in the classroom. Found in DeFord, D., Lyons, C.< & Pinnell, G. (Eds.) *Bridges to literacy: Learning from Reading Recovery*. Portsmouth, NH: Heinemann.
- International Reading Association. (2000). *Making a difference means making it different: Honoring children's rights to excellent reading instruction*. (Position statement booklet), Newark, DL: Author.
- Jensen, E. (1996). *Brain-based learning*. Del Mar, CA: Turning Point Publishing.

- Jensen, E. (1998). *Teaching with the brain in mind*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Joshi, R., Dahlgren, M. & Boulware-Gooden, R. (2002). Teaching reading in an inner city school through a multisensory teaching approach. *Annals of Dyslexia*, 52 , 229-242.
- King, J. R. & Homan, S. (2003). Early intervention in literacy: An in-class model for teachers. *Reading Research and Instruction*, 42 (3), 32-51.
- Lawlor, L. (2001). *Helen Keller: Rebellious spirit*. New York: Holiday House.
- Lyons, C. A. (2003). *Teaching struggling readers: How to use brain-based research to maximize learning*. Portsmouth, NH: Heinemann.
- Lyons, C. A., Pinnell, G. S., & DeFord, D. E. (1993). *Partners in learning: Teachers and children in Reading Recovery*. New York: Teachers College Press.
- Mariage, T. V., Englert, C. S., & Garmon, M. A. (2000). The teacher as “more knowledgeable other” in assisting literacy learning with special needs students. *Reading and Writing Quarterly*, 16, 299-336.
- Merriam, S. B., (1995). What can you tell from an N of 1?: Issues of validity and reliability in qualitative research. *PAACE Journal of Lifelong Learning*, 4, 51-60.
- Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis : An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Montessori, M. (1964). *The Montessori Method*. New York: Schocken Books, Inc.
- Myers, I. B., & Briggs, K. C. (1976). *Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press, Inc.

- National Center of Educational Statistics. (1996) *National assessment of educational progress 1994 reading report card for the nation and states*. Report No. 96045). Washington, D.C.: National Center of Educational Statistics.
- National Center of Educational Statistics. (2005) *The Nation's Report Card*. Retrieved April 10, 2006, from <http://nces.ed.gov/nationsreprotcard/ltr/results/2004/nat-reading-perf.asp>
- National Reading Panel, (2000). *Report of the National Reading Panel: Teaching children to read: An evidenced-based assessment of the scientific research literature on reading and its implications for reading instruction*. Rockville, MD: National Institute of Child Health and Human Development.
- O'Dea, D. (1998). Improving reading and decoding skills through the use of multisensory teaching strategies. Illinois. (ERIC Document Reproduction Service No. ED422685)
- Patton, M. Q. (2002). *Qualitative evaluation and research methods* (3rd ed.). Newbury Park, CA: Sage Publications.
- Pinnell, G. S. (1991). Teacher and children learning. In D. DeFord, C. Lyons, & G. Pinnell (Eds.), *Bridges to literacy: Learning from Reading Recovery* (pp.171-188). Portsmouth, NH: Heinemann.
- Pinnell, G. S., Lyons, C. A., Deford, D. E., Bryk, A. S., & Selzer, M. (1994). Comparing instructional models for the literacy education of high-risk first graders. *Reading Research Quarterly*, 29, 8-39.
- Pressley, M. (2002). Effective beginning reading instruction. *Journal of Literacy Research*, 34 (2), 165-188.

- Robinson, H. M. (1972). Visual and auditory modalities related to methods for beginning reading. *Reading Research Quarterly*, 8 (1), 7-39.
- Roehrig, A. D., Pressley, M., & Sloup, M. (2001). Reading strategy instruction in regular primary-level classrooms by teachers trained in Reading Recovery. *Reading and Writing Quarterly*, 17, 323-348.
- Russell, D. H., & Fea, H. (1963). Research on teaching reading. In Gage, N. I. (Ed.) *Handbook of research on teaching*. Chicago: Rand, McNally, 865-928.
- Schacter, D. L. (1992). Understanding implicit memory. *American Psychologist*, 47 (4), 559-569.
- Short, R. A., Frye, B. J., Homan, S. P., & King, J. R. (1995). Accelerated Literacy Learning: A successful early intervention program for at-risk first grade students. *The Florida Reading Quarterly*, March, 13-18.
- Short, R. A., Frye, B. J., Homan, S. P., & King, J. R. (1997). The results of the Accelerated Literacy Learning program for at-risk first grade readers. *Journal of Reading Education*, 22, 35-46.
- Short, R. A., Frye, B. J., King, J. R. & Homan, S. P. (1999). Connecting classrooms and early interventions. *Reading Research and Instruction*, 38 (4), 387-400.
- Simpson, S. B., Swanson, J. A., & Kunkel, K. (1992). The impact of an intensive multisensory reading program on a population of learning disabled delinquents. *Annals of Dyslexia*, 42, 54-66.
- Smith, F. (1999). Why systematic phonics and phonemic awareness instruction constitute an educational hazard. *Language Arts*, 77 (2), 150-155.

- Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, D.C.: National Research Council, National Academy Press.
- Sopko, K. M. (2002). Reading first programs: An overview. Quick Turn Around (QTA). Virginia:Project FORUM at NASDSE. (ERIC Document Reproduction Service No. ED467136)
- Sousa, D. A. (2001). *How the special needs brain learns*. Thousand Oaks, CA: Corwin Press, Inc.
- Sparks, R., Ganschow, L., Pohlman, J., Skinner, S., & Artzer, M. (1992). The effects of multisensory structured language instruction on native language and foreign language aptitude skills of at-risk high school foreign language learners. *Annals of Dyslexia*, 42, 25-53.
- Stahl, S. A. (1999). Different strokes for different folks? A critique of learning styles. *American Educator*, Fall, 1-5.
- Stephens, D., Gaffney, J., Weinzierl, J., Shelton, J., & Clark, C. (1993). *Toward understanding teacher change*. (Technical Report No. 585). Champaign, IL: Center for the Study of Reading. (ERIC Document Reproduction Service No. ED361667)
- Stone, P. (1992). How we turned around a problem school. *Principal*, 72 (2), 34-36.
- Tarver, S. G., & Dawson, M. M. (1978). Modality preference and the teaching of reading: A review. *Journal of Learning Disabilities*, 11, 17-29.

- Taylor, B. M., Pearson, P.D., Cark, K. F., & Walpole, S. (1999). *Beating the odds in teaching all children to read*. (Report No. CIERA-R-2-006). Ann Arbor, MI: Center for the Improvement of Early Reading Achievement. (ERIC Document Reproduction Service No. ED436723)
- Torgesen, J. (1998). Catch them before they fall. *American Educator*, 22, 32-39.
- Vail, P. L. (1988). Smart kids with school problems: Roots and wings. *Principal*, 68 (1), 37-39.
- Vickery, K. S., Reynolds, V. A., & Cochran, S. W. (1987). Multisensory teaching approach for reading, spelling, and handwriting, Orton-Gillingham based curriculum in a public school setting. *Annals of Dyslexia*, 37, 189-200.
- Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.) Cambridge, MA :Harvard University Press.
- Waugh, R. P. (1973). Relationship between modality preference and performance. *Exceptional Children*, 39 (6), 465-469.
- Wasik, B. A. & Slavin, R. E. (1993). Preventing early reading failure with one-to-one tutoring: A review of five programs. *Reading Research Quarterly*, 28, 178-200.
- Wentworth, R. L. (1999). *Montessori for the new millennium: Practical guidance on the teaching and education of children of all ages, based on a rediscovery of the true principles and vision of Maria Montessori*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Wilson, V. A. (1998). Learning how they learn: A review of literature on learning styles. Ohio, U.S. (ERIC Document Reproduction Service No. ED 427017)

Woolsey, D. P. (1991). Changing contexts for literacy learning: The impact of Reading Recovery on one first-grade teacher. In D. E. DeFord, C. A. Lyons, & G. S. Pinnell (Eds.), *Bridges to literacy: Learning from Reading Recovery* (pp.189-203). Portsmouth, NH:Heinemann.

Appendices

Appendix A: Informed Consent, Phase One

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Informed Consent

Social and Behavioral Sciences
University of South Florida

Information for People Who Take Part in Research Studies

The following information is being presented to help you decide whether or not you want to take part in a minimal risk research study. Please read this carefully. If you do not understand anything, ask the person in charge of the study.

Title of Study: Sensory Activity Implementation in Primary Literacy Lessons: A Study of Teachers Trained in Accelerated Literacy Learning

Principal Investigator: Margaret E. Stockdale

Study Location(s): School District

You are being asked to participate because you have received the year-long training in Accelerated Literacy Learning.

General Information about the Research Study

The purpose of this research study is to investigate teachers' classroom use of instructional procedures that are covered in the Accelerated Literacy Learning training. These procedures use various senses and the study asks the teacher to report which of these procedures are still being used in her/his literacy lessons and about how often they are used.

Plan of Study

You are being asked to participate in the first phase of the study which is a questionnaire covering these instructional procedures that are being called sensory activities. It should not take more than 15-30 minutes to fill out, according to the amount of detail you give on the second page. Then you simply put the questionnaire into the self-addressed envelope and drop it into the mail.

Payment for Participation

You will not be paid for participation in this study.

Benefits of Being a Part of this Research Study

Since teachers as professionals are always being encouraged to reflect upon their teaching philosophy and classroom practice, participating in this study will allow you to reflect and evaluate your classroom practice during literacy lessons from the point of view of the training that you received in Accelerated Literacy Learning.

Risks of Being a Part of this Research Study

There are no known risks in taking part in this study.

Appendix A: (Continued)

Confidentiality of Your Records

Your privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, and the USF Institutional Review Board and its staff, and any other individuals acting on behalf of USF, may inspect the records from this research project.

The results of this study may be published. However, the data obtained from you will be combined with data from others in the publication. The published results will not include your name or any other information that would personally identify you in any way.

All data from questionnaires and the signed informed consent forms will be kept in a locked file cabinet in the private home of the investigator.

Volunteering to Be Part of this Research Study

Your decision to participate in this research study is completely voluntary. You are free to participate in this research study or to withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive, if you stop taking part in the study. Your decision about participation will in no way affect your job status.

Questions and Contacts

- If you have any questions about this research study, contact Margaret E. Stockdale at (813) 963-6711.
- If you have questions about your rights as a person who is taking part in a research study, you may contact the Division of Research Compliance of the University of South Florida at (813) 974-5638.

Consent to Take Part in This Research Study

By signing this form I agree that:

- I have fully read or have had read and explained to me this informed consent form describing this research project.
- I have had the opportunity to question one of the persons in charge of this research and have received satisfactory answers.
- I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.
- I have been given a signed copy of this informed consent form, which is mine to keep.

Signature of Participant

Printed Name of Participant

Date

Appendix A: (Continued)

Investigator Statement:

I certify that participants have been provided with an informed consent form that has been approved by the University of South Florida's Institutional Review Board and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

Signature of Investigator

Printed Name of Investigator

Date

Appendix B: Informed Consent, Phase Two and Three

Space below reserved for IRB Stamp – Please leave blank

Informed Consent

Social and Behavioral Sciences
University of South Florida

Information for People Who Take Part in Research Studies

The following information is being presented to help you decide whether or not you want to take part in a minimal risk research study. Please read this carefully. If you do not understand anything, ask the person in charge of the study.

Title of Study: Sensory Activity Implementation in Primary Literacy Lessons: A Study of Teachers Trained in Accelerated Literacy Learning

Principal Investigator: Margaret E. Stockdale

Study Location(s): School District

You are being asked to participate because you have received the year-long training in Accelerated Literacy Learning (ALL) and you teach in a Primary Level classroom.

General Information about the Research Study

The purpose of this research study is to investigate teachers' classroom use of instructional procedures that are covered in the ALL training. These procedures use various senses and the study asks the teacher to report which of these procedures are still being used in her/his literacy lessons and about how often they are used.

Plan of Study

You are being asked to participate in the second phase of the study which would first of all be an approximately one hour interview asking you for more detail concerning your use of these instructional procedures that are being called sensory activities. The interview will be audio-taped and you will be allowed to read the transcripts of the audio-tape if you desire. The time and location of the interview will be set by the place and time which are convenient for you. Four of those interviewed will be asked to participate in the observations of literacy lessons in their classrooms. This would consist of five observations of literacy lessons during a five to six weeks period of time. Those teachers participating in observed lessons are asked to simply teach their lessons using their normal classroom literacy procedures. After the observations those four teachers would have another interview to further explain their teaching philosophy and classroom practice as it pertains to using these sensory teaching procedures learned in their ALL training. Those participating in only the interview would spend about one hour participating in the study. The four teachers which consent to having classroom observations would have approximately two hours for the pre and post interviews and then about five hours of observation of the literacy lesson instruction.

Appendix B: (Continued)

Payment for Participation

You will not be paid for participation in this study.

Benefits of Being a Part of this Research Study

Since teachers as professionals are always being encouraged to reflect upon their teaching philosophy and classroom practice, participating in this study will allow you to reflect and evaluate your classroom practice during literacy lessons from the point of view of the training that you received in Accelerated Literacy Learning.

Risks of Being a Part of this Research Study

There are no known risks in taking part in this study.

Confidentiality of Your Records

Your privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, employees of the Department of Health and Human Services, and the USF Institutional Review Board and its staff, and any other individuals acting on behalf of USF, may inspect the records from this research project.

The results of this study may be published. However, the data obtained from you will be combined with data from others in the publication. The published results will not include your name or any other information that would personally identify you in any way. Teachers' names would be given pseudonyms in all documents.

All data from interviews, classroom observations and other data collected including the signed informed consent forms will be kept in a locked file cabinet in the private home of the investigator.

Volunteering to Be Part of this Research Study

Your decision to participate in this research study is completely voluntary. You are free to participate in this research study or to withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive, if you stop taking part in the study. Your decision about participation will in no way affect your job status.

Questions and Contacts

- If you have any questions about this research study, contact Margaret E. Stockdale at (813) 963-6711.
- If you have questions about your rights as a person who is taking part in a research study, you may contact the Division of Research Compliance of the University of South Florida at (813) 974-5638.

Consent to Take Part in This Research Study

By signing this form I agree that:

- I have fully read or have had read and explained to me this informed consent form describing this research project.
- I have had the opportunity to question one of the persons in charge of this research and have received satisfactory answers.
- I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.

Appendix B: (Continued)

- I have been given a signed copy of this informed consent form, which is mine to keep.

Signature of Participant

Printed Name of Participant

Date

Investigator Statement

I have carefully explained to the subject the nature of the above research study. I hereby certify that to the best of my knowledge the subject signing this consent form understands the nature, demands, risks, and benefits involved in participating in this study.

Signature of Investigator
Or authorized research
investigator designated by
the Principal Investigator

Printed Name of Investigator

Date

Appendix C: Letter to Accompany Questionnaire

Dear (name of teacher),

This letter and questionnaire is being sent to each person in the County School District who received the Accelerated Literacy Learning (PRI) training.

The survey is a part of a dissertation study of teachers' use of sensory activities in their literacy lessons, with special interest in their lessons for struggling readers. During your training you would not have heard these activities defined as sensory activities. They were specifically activities or procedures that you were trained to use as a part of your 10-10-10 literacy lesson. If you look at the questionnaire, I am sure you will recognize the terminology used to describe them.

For over 20 years I was a classroom teacher. Then during my doctoral studies I had the opportunity to take classes and become an Accelerated Literacy Learning trainer. In working for two years, with teachers learning the ALL program, I was interested in finding out if teachers have found the instructional procedures to be useful in their classrooms, and if they continue to use them after their training year. For that reason, I designed my dissertation to look into teachers' use of these activities after being trained.

I am particularly interested in your personal use of these activities when you teach a teacher-directed literacy lesson. If you are a classroom teacher, this may be your guided reading group lesson.

If you are willing to participate, please sign the consent form and fill out the questionnaire.

Appendix C: (Continued)

It is valuable to find out which things teachers have found most useful from their training. Feel free to add any other such activities that you find effective in your literacy lessons.

Your input into this study will be appreciated. Please place the completed questionnaire and consent form in the enclosed stamped-addressed envelope and drop it into the mail as soon as possible.

Thank you again for your time and cooperation in this.

Sincerely,

Margaret Stockdale
PhD. Dissertation Researcher
University of South Florida

Appendix D: Sensory Activity Questionnaire

Sensory Activities in Literacy Lessons

Name _____

In what year did you receive ALL training? _____

Please indicate how often you use the following activities in your literacy lessons.

1- once per month or less **2** – 2-3 times per month. **3** – weekly **4** – 2-3 times per week
5 – daily

Activity	Circle One				
Direct student to pictures	1	2	3	4	5
Say, Does it look right?	1	2	3	4	5
Have student read familiar books	1	2	3	4	5
Refer to charts, posters (ABC, etc.)	1	2	3	4	5
Ask student to find the hard part	1	2	3	4	5
Ask student to find the chunk	1	2	3	4	5
Have the student reread to check visually	1	2	3	4	5
Have the student locate word in text	1	2	3	4	5
Teach or cue directionality (color strip, etc.)	1	2	3	4	5
Say, Does it sound right?	1	2	3	4	5
Cue the student to get mouth read for sound	1	2	3	4	5
Stretching the sounds in words to hear them	1	2	3	4	5
Elkonin Boxes for sounds	1	2	3	4	5
Hearing or finding rhyming words	1	2	3	4	5
Reread writing sentence aloud	1	2	3	4	5
Saying letters while writing for fluency	1	2	3	4	5
Talk about the story	1	2	3	4	5
Verbally introduce vocabulary	1	2	3	4	5
Echo or choral read	1	2	3	4	5
Body movements for segmenting/chunking etc	1	2	3	4	5
Have a student finger point to words	1	2	3	4	5
Frame the word or chunk with fingers or hands	1	2	3	4	5
Make and break with magnetic letters or tiles	1	2	3	4	5
Writing sentences during the literacy lesson	1	2	3	4	5
Moving chips in Elkonin boxes	1	2	3	4	5
Writing words for fluency	1	2	3	4	5
Reconstructing cut-up sentences	1	2	3	4	5
Using other activities for cut-up sentence	1	2	3	4	5
Rubber band for stretching the words	1	2	3	4	5
Using a card to frame words	1	2	3	4	5
.	1	2	3	4	5
	1	2	3	4	5

Please write in other activities that you may use and how often you use them.

Appendix D: (Continued)

Please answer as completely as possible.

1. What grade level of students are you currently working with?

1st 2nd 3rd 4th 5th 6th other

2. Have you had reading intervention training (classes or seminars) other than your ALL training?

Reading First FLARE District workshops other

3. Describe your use of sensory activities in your literacy lessons before your ALL training?

4. Has your use of sensory activities changed since your ALL training? Please explain.

5. If you are a classroom teacher, describe the impact of your ALL training upon your literacy lessons with your struggling readers in your classroom.

Would you be willing to take part in a one hour interview with the person conducting this research project? yes no

Other Comments you may wish to share:

Appendix E: Sensory Activity Tally Sheet

Sensory Activity CHECKLIST – A.L.L. Lessons

Observer _____ Teacher _____

Sensory Activity	<u>Tally</u>
Looks at pictures	
Does it look right?	
Reading books	
Refers to charts	
Find the hard part	
Find the chunk	
Student rereads sentence to check visually	
Locate word in text	
Directionality (cueing aids)	
Say, Does it sound right?	
Get mouth ready for sound	
Stretching the sounds in word to hear them	
Elkonin boxes for sounds	
Hearing/finding rhyming words	
Reread writing sentence aloud	
Saying letters while writing words for fluency	
Talk about the story	
Verbally introducing vocabulary	
Echo or choral read	
Body movements for segmenting or chunking etc.	
Finger pointing to the words	
Frame the word or chunk with fingers/hands	
Make and break using magnetic letters or tiles	
Writing the sentences	
Moving chips in Elkonin boxes	
Writing word for fluency	
Reconstructing cut-up sentence	
Using other activities for cut-up sentence	
Using a card to frame words	

Appendix F: Sensory Activities Glossary

For Sensory Activities found on Questionnaire and Tally Sheet

Visual Modality Emphasized

Direct student to pictures Teacher asks student to look at picture to aid meaning construction or to find a cue that will aid in word recognition.

Say, Does it look right? The teacher is directing the student to visually check the word and compare it with the word read aloud.

Have student read familiar books Familiar books are books that the student has already read successfully. Rereading them helps the student develop fluency and sight vocabulary.

Refer to charts, posters (ABC, etc.) Referring to charts and posters of the alphabet and reading strategies helps students to develop independence in their self-checking reading behaviors.

Ask the student to find the hard part After reading a page or story, the teacher directs the student to find the place where reading was difficult in order to help the child correct it, or to talk about the miscue word work.

Ask the student to find the chunk Teacher directs the student to locate a part of the word that is known to help the child work on identifying the whole word.

Have the student reread to check visually Teacher directs the student to reread to check the correctness of word work, or check when a student miscues a word normally known.

Have a student locate a word in text The teacher often directs the student to locate a new word in text during the picture walk to help prepare them for reading the text.

Appendix F: (Continued)

Teach or cue directionality (color strip, etc) Teacher cues student on where to begin reading and how to proceed. A color strip or sticker may be placed on page as a cue for students having difficulty with directionality.

Auditory Modality Emphasized

Say, Does it sound right? Teacher asks student to think about how the sentence sounds to cue them to use syntax to help them read the sentence correctly. Teacher can also say, Would we say it that way?

Cue the student to get the mouth ready for the sound Teacher asks student to get her/his mouth ready for the initial sound while thinking what would make sense here. Begins to help the student use cross-checking by using auditory in relation to meaning and visual.

Stretching the sounds in words to hear them Teacher prompts the student to say the word slowly articulating the sounds in the word. This helps the student to be able to hear the sounds in words so that the word can be written down.

Elkonin boxes for sounds The teacher makes boxes for each sound, then has the student push counters into the boxes as they articulate the word slowly. This activity helps students learn to hear the sounds within words.

Hearing or finding rhyming words During word work or after reconstructing the cut-up sentence, the student is asked to identify or make a rhyming word. This is often used when working with onset and rime word parts.

Reread writing sentence aloud Teacher directs students to reread to help them remember which word comes next in their sentence, or to check the reconstructed sentence.

Appendix F: (Continued)

Saying letters which writing for fluency Teacher directs the student to say the letters out loud so that the student's mind is engaged with the task and to provide a deeper memory pattern.

Talk about the story Teacher directs student to talk about the story while doing the picture walk to engage the child's schema and prediction. The teacher may also have the child talk about the story to assess comprehension.

Verbally introduce vocabulary During the picture walk and discussion of the story, the teacher uses new words in meaningful ways to introduce unknown vocabulary and aid comprehension of the text when it is read.

Echo or choral read Teacher uses this to help the student develop better fluency. In echo read the teacher reads and the student then reads the same text. In choral read the all students, or students and teachers read together.

Tactile/Kinesthetic Modality Emphasized

Body movements for segmenting/chunking, etc. The teacher may have the student move hands, groups of letters, or word parts cards to practice segmenting word parts and putting them back together.

Have a student finger point to words Teacher directs the student to point to each word to aid tracking and or to foster one-to-one correspondence.

Frame the word or chunk with fingers or hands Teacher directs the student to use fingers or hands to frame the word or chunk of the word to help develop word recognition strategies.

Appendix F: (Continued)

Make and break with magnetic letters or tiles Student is asked to make a word using letters or letter tiles and then break it into word parts such as onset and rime.

Writing sentences during the literacy lesson This activity provides the child with the opportunity to produce text. It is the primary time for working on phoneme/grapheme correspondence as the child learns to hear the sounds and write down the corresponding letters.

Moving chips in Elkonin boxes The child learns to slowly say the word and to push a chip for each sound heard. This is especially helpful for students that have difficulty hearing the sounds in words.

Writing words for fluency This activity is used for high fluency words and especially for irregular sight words. The students is asked to write the words and say the letters, often on a dry erase board or using different colors for variety.

Reconstructing cut-up sentence The teacher writes the child's sentence on a strip of paper and then cuts it up. The child must then put the sentence back together in correct order. This activity can also be used to work on spacing and line arrangement.

Using other activities for the cut-up sentence The words from the sentence can be used to identify rhyming words, find word parts and other possible activities to aid in word recognition and sentence construction.

Rubber band for stretching the words The rubber band is held and stretched by the child while slowly articulating the sounds in the word.

Using a card to frame the word Either a card with a hole cut out or two cards can be pushed into place to frame and isolate the word being worked on.

Appendix G: Interview Guide

- I see by your questionnaire response that you describe your Literacy teaching and lessons before your ALL training as..?
-Can you tell me more about this?
- What kinds of things did you do before your ALL training to help your struggling readers?
- Your response to the questionnaire was that you have (have not) changed since you had your training?
-Tell me about this.
- Are there activities that you learned about in your training that you do not use, but would like to begin implementing in you lessons?
- What aspects of the ALL lesson training would you say helped your students accelerate the most?
- How do you feel about your experiences as a teacher who received literacy intervention training?
- Are there activities that you use in whole group instruction as well as or in place of using it in your small group reading lesson?

Appendix H: Data Tables for Case Study Teachers

Ms Elsworth's Combination Class – Washington Elementary

Gender	Grade	Beginning	Mid-year	End	Gain
1. F	1	5	16	19	14
2. M	2	5	13	16	11
3. F	2	10	17	21	11
4. F	1	10	16	18	8
5. M	1	4	13	18	14
6. M	1	10	16	19	9
7. M	2	10	17	18	8
8. F	1	7	16	19	12
9. F	1	4	16	19	15
10. F	1	4	16	19	15
11. F *	1	4	10	12	8
12. F	2	10	17	19	9
13. F *	1	4	13	18	14
14. F	K	7	13	18	11
15. M *	1	0	5	16	16
16. F *	1	3	10	18	15
Total	Class	Average	Gain		11.875
Average	Gain	Four	Lowest *		13.25

Average beginning level of class- 6
 Average ending level of class- 17.9

Average Beginning Low –2.75
 Average Ending Low- 16

Appendix H: (Continued)

Ms Gresham's Class – Forest Park Elementary

Gender	Grade	Beginning	Mid-year	Ending	Gain
1. M	1	13	23	26	13
2. M	1	7	12	16	9
3. F	1	21	25	26	5
4. F *	1	4	8	16	12
5. M	1	8	13	21	13
6. M *	1	4	8	16	12
7. M	1	6	12	21	15
8. M	1	13	18	21	8
9. F	1	5	12	26	21
10. F *	1	4	6	19	15
11. F	1	15	23	26	11
12. M *	1	4	6	16	12
13. F.	1	13	21	23	10
14. F.	1	16	21	23	7
15. M	1	20	23	23	3
16. M	1	5	10	21	16
17. M	1	5	13	19	14
18. F	K	16	22	26	10
19. F	K	13	18	26	13
Total	Class	Average	Gain		11.526
Average	Gain	Four	Lowest *		12.75

Average Beginning Level- 10
 Average Ending Level- 21.1

Average Beginning Low - 4
 Average Ending Low- 16.75

Appendix H: (Continued)

Ms Denton's First Grade – Lincoln Elementary

Gender	Grade	Beginning	Mid-year	End	Gain
1. F	1	5	8	15	10
2. F	1	5	15	21	16
3. M	1	5	6	16	11
4. M	1	5	10	12	7
5. F	1	7	12	16	9
6. M *	1	3	8	15	12
7. M	1	5	8	14	9
8. M	1	6	17	21	15
9. M	1	5	15	21	16
10. F *	1	1	4	8	7
11. M *	1	4	10	18	14
12. M *	1	4	10	19	15
13. M	1	6	12	19	13
14. M	1	6	12	19	13
15. F	1	9	14	19	10
16. F	1	1	6	Left	
17. F	1	7	10	Left	
Total	Class	Average	Gain		11.8
Average	Gain	Four	Lowest *		12

Average Beginning Level- 5
 Average Ending Level- 16.9

Average Beginning Low- 3
 Average Ending Low- 15

Appendix H: (Continued)

Ms Carson's First Grade Class – Oak Hill Elementary

Gender	Beginning	Mid-Year	End	Gain
1. M *	2	5	7	5
2. F	7	8	18	11
3. F	16	18	19	3
4. M	2	11	18	16
5. M *	1	4	4	3
6. M	2	6	8	6
7. M *	1	6	8	7
8. M	6	13	16	10
9. M	3	5	11	8
10. F	13	18	19	6
11. F	8	16	18	10
12. F	6	16	18	12
13. M *	1	1	6	5
14. F	2	11	16	14
15. M	6	9	19	13
16. F	6	13	19	13
Total	Class	Average	Gain	8.875
Average	Gain	Four	Lowest	5

Average Beginning Level- 5.1
 Average Ending Level- 14

Average Beginning Low- 1.25
 Average Ending Low- 6.25

Appendix I: Strategy Talk Options

These Strategy Talk Options were taken from a handout sheet used in the Accelerated Literacy Learning Program. They were adapted from *Guided Reading*, Fountas & Pinnell, 1996.

Directions: Below is a list of possible prompts that are designed to provide varying levels of support for strategic reading. Begin by selecting a few and work on incorporating those appropriately. Remember, the prompts only work when used at the right time and in the right situation. Expect to feel awkward at first. As you become more comfortable, add other prompts into your repertoire.

To support self-monitoring or checking behavior....

Were you right?

What did you notice? (after hesitation/stop)

What's wrong?

What letter(s) would you expect to see at the beginning? End?

Would _____ fit there?

Would _____ make sense with the story?

Could it be _____?

It could be _____, but did you notice _____?

Check it. Does it look right and sound right to you?

Try that again.

That does make sense but could that word be?

Appendix I: (Continued)

To support self-correction...

Something wasn't quite right.

Try that again.

You found two ways to check that!

You're almost right. Can you fix it?

Checking the picture and the word really helped you!

You went back and made it make sense and look right!

To support the use of all cues...

Check the picture.

Does that make sense?

Does that look right?

Does that sound right?

You said _____. Can we say it that way?

You said _____. Does it make sense?

What's wrong with this? (repeat what the child said)

Try that again and think what would make sense.

Try that again and think what would sound right.

Do you know a word like that?

Start again and get your mouth ready for that word.

What could you try?

What would make sense and start like that?

Appendix I: (Continued)

What do you know that might help?

What can you do to help yourself?

To support phrased, fluent reading...

Can you read this quickly?

Put your words together so it sounds like talking.

Can you say it just the way (the character) would say it?

You sounded just like (the character) was really talking.

(You can also model fluent phrasing for the child to echo.)

About the Author

Margaret Stockdale received a Bachelor's Degree in Elementary Education from Oral Roberts University in 1972 and a Master's Degree in Reading Education in 1983 from the University of South Florida. She has been involved in education in various places and in cross-cultural settings over the years. She entered the Ph.D. program at the University of South Florida in 1999.

While in the Ph.D. program at the University of South Florida, Ms. Stockdale was a graduate assistant working with the Accelerated Literacy Learning program in training teachers in Title 1 schools to provide classroom based intervention for their at-risk students. She also taught pre-service teachers in literacy education.